MARSHALING SOCIAL SUPPORT

Formats, Processes, and Effects

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Social Support Interventions for Smoking Cessation

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It is popular lore among smoking cessation researchers and practitioners alike that increasing social support from a potential quitter's spouse, friends, and coworkers makes it easier to quit and stay off cigarettes (e.g., Colletti & Brownell, 1982). In spite of these beliefs, evidence for the effectiveness of interventions designed to facilitate social network support for quitting smoking is discouraging. This chapter is concerned with why social support interventions have not been successful in this context. We propose a series of models relating social support to smoking behavior and review relevant correlational evidence on the relationship between naturally occurring support and smoking. We then review existing intervention studies, address their conceptual and practical limitations, and propose directions for the development of successful interventions.

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Social Support: Definition and Relevance to Changing Smoking Behavior

There is little agreement among the scientific community on a precise definition of *social support* (Cohen & Syme, 1985; Shumaker & Brownell, 1984; Wilcox & Vernberg, 1985). Studies using the term are much broader in scope than most accepted definitions allow, including virtually any behavior intended to provide a benefit to another or any behavior that increases the probability of a benefit even without intent. At this point in the development of this literature, it may be more productive to be inclusive rather than exclusive. Hence, for the purpose of this chapter, we adopt the broad view that any behavior by others that is presumed by either the giver or receiver to facilitate a positive and desired behavioral change (in this instance aid in smoking cessation and maintenance of abstinence) is social support.

This approach is useful but allows for multiple conceptions of social support and multiple processes by which it may influence behavior. In addressing specific problems, it is important to identify specific conceptualizations of support and to specify how each of these conceptualizations acts to influence behavior. This chapter attempts this level of specification. We focus on social support provided by informal social networks as opposed to support provided by professionals. (See Colletti and Brownell, 1982, for a review of professional support interventions). We describe a number of processes by which others may influence smoking cessation and maintenance and argue that specific processes are tied to specific stages of behavioral change. We then discuss the evidence for the importance of these processes at particular stages of change and propose alternative strategies for intervening in these processes.

Processes by Which Social Networks Influence Smoking Cessation and Maintenance

We propose four macroprocesses by which social support may influence smoking behavior: (1) stress buffering or stress accentuation; (2) influencing motivation to initiate or maintain behavior change; (3) influencing the availability of smoking cues in the environment; and (4) applying of social influence to abstain or to smoke. Table 8.1 provides examples of how each of these processes may operate. Although not

TABLE 8.1
How Social Support Influences Smoking Cessation and Maintenance

Mechanisms
Stress-buffering or stress-accentuation
buffering or accentuating stress deriving from the quitting process
buffering or accentuating other stressors that may inhibit quitting or induce relapse
Influencing motivation to initiate or maintain behavior change
defining importance of not smoking
self-esteem mediated (others care about me)
displaying tolerance (or intolerance) for behavioral manifestations of quitting (e.g., irritability)
modeling quitting or attempts to quit
Smoking cues in the enviroment
others smoking in one's presence (modeling, direct conditioned biological effects, counterconditioning, conditioned withdrawal)
easy availability of cigarettes
Applying social pressures to abstain or to smoke
social norms regarding acceptability of smoking or not smoking
direct social influence aimed at aiding or hindering cessation and maintenance

inclusive, these mechanisms are representative of those addressed in the smoking cessation literature.

Stress buffering or stress accentuation. Cigarette smokers commonly view smoking as an effective means of regulating or coping with negative affect (e.g., Shiffman & Wills, 1985; Wills & Shiffman, 1985). As a result, stressful events are presumed to elicit smoking responses. In fact, recent studies implicate elevated stress in increased smoking rates (Cohen, Kamarck, & Mermelstein, 1983), the failure to quit smoking (Benfari, Eaker, Ockene, & McIntyre, 1982; Cohen, 1986; Glasgow, Klesges, Mizes, & Pechacek, 1985), and in triggering the return to smoking (relapse) for those who have quit (e.g., Benfari et al., 1982; Pomerleau, Adkins, & Pertschuk, 1978). Moreover, quitting smoking itself may increase stress levels (e.g., Shiffman, Read, & Jarvik, 1983). Hence to the degree that social support elicits effective alternative stress coping strategies or otherwise results in the potentially stressful events being appraised as benign, it may aid persons trying to quit and stay off cigarettes.

The perceived availability of persons to provide information to evaluate potentially stressful events, and to provide suggestions for

coping with these events has been found to buffer or protect persons from stress induced psychological distress (see reviews by Cohen & Wills, 1985; Kessler & McLeod, 1985). In theory, however, information provided by others, if inappropriate or incorrect, could also result in greater stress and distress (Cohen & McKay, 1984). Hence the provision of general (not quitting-specific) support in the face of stressful events could play a role in protecting people trying to quit smoking from the disruptive effect of stress on the quitting process. On the other hand, in cases in which support accentuates stress, it could make both quitting and staying off cigarettes more difficult.

Influencing motivation to initiate or maintain behavior change. Quitting smoking and maintaining abstinence require self-control. Wilson and Brownell (1980) have argued that "continued self-regulatory behavior requires social support; like any other behavior, it will extinguish in the absence of the appropriate reinforcement" (p. 76). Hence, social reinforcement for quitting smoking is a central determinant of motivation to quit. Motivations to quit are also mediated by feelings of belonging and self-esteem that are often influenced by social networks. Feeling part of an integrated network and feeling that others care about you is presumed to lead to increased self-esteem. It is important to quit only if you care about yourself or about other members of your network. Finally, motivation to quit is often based on beliefs about the importance of quitting smoking for one's health and well-being. These beliefs are in most cases formed and maintained by one's social network.

Smoking cues in the environment. The presence of other smokers in the environment can be detrimental to quitters in a number of ways. People provide smoking models, and cigarettes and their smell can elicit biological and psychological responses that increase the probability of relapse. For example, smoking cues may (through direct conditioning) elicit biological reactions associated with smoking and hence accentuate craving. Smoking cues can also trigger cognitions associated with smoking. (For details of these and other cue-related relapse processes see Shiffman et al., 1986). Moreover, the easy availability of cigarettes makes it more difficult to control smoking urges and suppress old habits.

Social influence pressures to abstain or to smoke. Direct and indirect social pressures to smoke are powerful influences on behavior. Implicit or explicit norms regarding smoking at work or in other environments where a smoker (or quitter) spends time may be the most important social determinant of smoking behavior. Media representations of smokers as sexy, successful, and attractive similarly operate to set

community and regional norms. Pressures to look older, to project a particular image, or just to be like others, all influence smoking behavior.

Different Mechanisms are Operative in Different Stages of Change

Deciding to quit smoking, quitting, and maintaining abstinence have often been lumped together as if they constitute a unitary process. However, we believe that there are distinct stages of change involved in quitting and staying off cigarettes (see discussion of stages of change by Prochaska & DiClemente, 1983). Moreover, each process linking social support to changes in smoking behavior (see Table 8.1) is more or less important depending on the stage of change. For the purpose of this chapter, we distinguish among the following stages of behavioral change: decision to change, active change or cessation, early, and late maintenance of abstinence. Decision to change (not studied in our own work) refers to the period when persons move from having no plans to quit to feeling that quitting is important and should be done. Cessation is the stage when the decision is put into action; there is an attempt to stop smoking or cut down in preparation to stop. Early maintenance refers roughly to the first three months after cessation. During this period, smokers must cope with deprivation and withdrawal and must develop and employ coping strategies that no longer include smoking. Most relapse occurs during this period. Late maintenance refers to the period four months and beyond, after withdrawal-related urges have ended and successful coping strategies have been developed. Persons reaching late maintenance have "quit" smoking in the sense of overcoming the habit and nicotine dependency.

Table 8.2 summarizes our predictions regarding the mechanisms that operate at each stage of change. We believe that motivational and social influence processes are most important in the following early stages of change: decision to change, cessation, and early maintenance. These are the stages when the necessity for change must be recognized and initially acted on. Stress has been found to be an especially important factor during quitting attempts and during early maintenance (Shiffman et al., 1986). Presumably, these are stages when persons still rely on smoking as a primary coping response. Finally, the presence of smoking cues can interfere with both quitting and with the maintenance of abstinence after vigilance is reduced. Hence, smoking cues are important throughout the cessation and maintenance stages.

TABLE 8.2
Support Driven Mechanism Operating at Different Stages of Change in Smoking Behavior

Relevant Mediating Mechanisms	*Stages of Behavioral Change*			
	Decision to Change	*Cessation*	*Early Maintenance*	*Late Maintenance*
Social influence	X	X	X	
Motivation	X	X	X	
Stress-buffering		X	X	
Smoking cues		X	X	X

The Role of Natural Social Support in Smoking Cessation and Maintenance

In this section, we examine the potential roles of a variety of measures of "natural" social support in predicting smoking cessation and maintenance. We describe three measures of social support and outline the relationship of each both to change processes and stages of change. We then provide a short review of research relating these measures to smoking status and change in smoking behavior. Finally, we present data from two of our own longitudinal-prospective smoking cessation studies. Our purpose is to provide some initial support for two arguments: (1) different types of social support measures imply different processes that may influence behavioral change; and (2) different processes may operate in different stages of change.

Social Support Measures

Two measures of social support and one social network measure have been used to predict smoking cessation and maintenance. The social support measures are support for quitting smoking and stress-buffering support. The social network measure is the smoking status of social network members. Each measure represents a different mechanisms by which the social environment may influence behavioral change. These measures are discussed below. Table 8.3 summarizes our predictions regarding the stage of change at which each measure predicts behavior.

Support for quitting smoking refers to specific behaviors performed by others that reinforce the decision to quit and make the quitting process easier. This kind of support could influence behavior change by helping to sustain needed motivation and hence would be most influential in the early stages of change: deciding to quit, cessation, and early maintenance. Network support for quitting would tend to be

TABLE 8.3
Hypothesized Stages at Which Support Measures Should be Related to Behavioral Change

Social-Support Measure	*Decision to Change*	*Cessation*	*Early Maintenance*	*Late Maintenance*
Support for quitting smoking (motivation)	X	X	X	
Stress-buffering support (stress-buffering)		X	X	
Smoking status of social network members (social influence and smoking cues)	X	X	X	X

intense during and shortly after quitting but would be expected to decrease rapidly as time since quitting increases. In our own work, support for quitting smoking has been operationalized by a questionnaire inquiring about the support for quitting provided by a spouse or live-in partner (Partner Interaction Questionnaire [PIQ]; Mermelstein, Lichtenstein, & McIntyre, 1983). The PIQ consists of 61 behaviors related to smoking cessation, both positive (e.g., my partner complimented my not smoking) and negative (e.g., commented on my lack of willpower). Subjects first judge the frequency of occurrence of each behavior and then evaluate how helpful each behavior was in their effort to stop smoking. A summary measure of partner support called experienced helpfulness is derived by summing the cross products of the frequency and helpfulness scores. A short (20 positive and 20 negative behaviors) version of the PIQ scored on frequency alone is also being used in our most recent work.

Stress-buffering support refers to social resources that aid in evaluating and coping with stressful events. Stress-buffering support could facilitate quitting and maintenance by preventing and reducing stress and by helping to regulate negative affect. As noted earlier, stress reduction is presumed to be most important during cessation and early maintenance stages. Because of evidence that perceived availability of such support is critical in buffering stress, we measure perceptions of available support with the Interpersonal Support Evaluation List (ISEL) (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). The ISEL consists of 40 statements concerning the perceived availability of potential social resources. Four separate functions of support are assessed: appraisal support, measuring the perceived availability of

someone to talk to about one's problems; belonging support, assessing the perceived availability of people with whom one can do things; tangible support, tapping the perceived availability of material aid; and self-esteem support, measuring the perceived availability of praise from others or of positive social comparisons.

Smoking status of social network members refers to both the status (smoker or nonsmoker) of specific persons with whom one has a close relationship (e.g., spouse, best friend, work supervisor), and the proportion or number of smokers in one's network. The influence of smokers or nonsmokers on cessation and maintenance is presumably mediated by both social influence and by smoking cues. As a result, smoking status of network members is important for all stages of change. In our own work, status of network members is measured by questions regarding the proportion of friends, coworkers, and household members who smoke.

Evidence for the Influence of Natural Social Support on Smoking

Early work. In this section we provide an overview of published work relating the types of support and network characteristics discussed earlier to various smoking outcomes. For the most part, these studies either examine a specific stage in the quitting-maintenance process—such as quitting, short or long-term maintenance—or they blur the distinction between stages by using a support measure to predict a later stage without examining the possibility that effects at later stages may be attributable to influences occurring in earlier stages. Unfortunately, few of these studies compare the effectiveness of a specific support measure at different stages of change. As a group, however, they do communicate the importance of focusing on different conceptions of support at different stages of the quitting process.

Several studies have assessed the smoking status of social network members on cessation and maintenance. Recall the smoking status of network members is presumed to operate through social influence and smoking cues and therefore potentially influences all stages of change. Spouse smoking status has been found to be unimportant in quitting (Gunn, 1983) but predictive of long-term maintenance five years after treatment (West, Graham, Swanson, & Wilkinson, 1977). In the latter study, nonsmokers, at five years posttreatment, were more likely to have reported during treatment that their spouses never smoked or had quit smoking. Smoking status of acquaintances and friends has been shown to be similarly associated with smoking behavior. For example, surveys

of both high school (Eiser & van der Pligt, 1984) and college (Foss, 1973) students have found that smokers are more likely to have friends who smoke than are nonsmokers. Other work with adolescents has more directly implicated network smoking in quitting and cessation processes. For example, Chassin, Presson, and Sherman (1984) found that for older (ninth to eleventh grade) adolescents, future quitters had fewer friends who smoked before they quit than did continuing smokers. Younger (sixth to eighth grade) adolescents, however, were influenced more by their parents than by peers. In a national survey of adults, Eisinger (1971) found that previous smokers who reported that their best known acquaintances were smokers were more likely to be smoking two years later than those reporting nonsmoking acquaintances. In sum, starting at about high school age, whether ones friends smoke or not is an important determinant of later smoking status. Unfortunately, these data do not allow one to discriminate social influence on quitting and social influence on maintenance of abstinence.

Other studies have examined the support for quitting smoking provided by a spouse or partner. Support for quitting smoking is presumed to operate primarily on motivation and hence influences the decision to quit and actual cessation. In an early study, West et al. (1977) found that two-thirds of respondents who were not smoking five years after clinic treatment retrospectively reported having spouses who "made it easier to quit" whereas only slightly more than one-third of those smoking at the five-year follow-up reported receiving spouse support. The stage at which the influence occurred cannot be determined in this study. In a study reported by Ockene, Benfari, Nuttall, Hurwitz, & Ockene (1982), significant others of successful abstainers attended more cessation group sessions with the smoker (potential quitter) than did those of smokers who were unable to quit. Mermelstein et al. (1983) found that both successful quitters and those continuously abstinent for six months after treatment reported receiving significantly more support from their partners during treatment than either those who never quit or those who quit and relapsed before six months. More specifically, the Partner Interaction Questionnaire (PIQ) indicated that partners of successful abstainers were more reinforcing, participated more actively and cooperatively in the smoker's quitting efforts, and were less punishing than were those of unsuccessful abstainers.

A modified version of the PIQ that assessed whether coworkers behaved in a manner supportive of quitting smoking was used in two studies (Malott, Glasgow, O'Neil, & Klesges, 1984; Lichtenstein, Glasgow, & Abrams, 1986). In both studies, analyses of retrospective reports indicated that the frequency of negative (nonsupportive)

smoking-related interactions with coworkers (e.g., "expressed doubt about your ability to quit") was inversely related to quitting. Positive interactions were not associated with outcome. These findings led the authors to suggest that interventions should be targeted at decreasing negative smoking-related interchanges rather than increasing positive ones. In sum, support for quitting smoking from a partner or coworker has been consistently associated with quitting and with short to moderate periods of maintenance.

Stress-buffering (general emotional) support not specific to smoking has also been found to be related to smoking status and quitting. As outlined in Table 8.3, stress-buffering support is presumed to influence stress-induced smoking and relapse, and hence primarily influence cessation and early maintenance. For example, Chassin, Presson, & Sherman (1984) found that sixth- to eighth-grade smokers who would later quit smoking reported higher levels of general emotional support from their parents than did their peers who continued to smoke. Wills & Vaughan (1985) similarly found that general emotional support from parents was negatively related to smoking among eighth graders, although emotional support from peers was positively related to smoking. Actually, peer support was related to nonsmoking for those whose friends did not smoke but was related to smoking for those whose friends smoked. Finally, in a study of 125 newly abstinent married women, Coppotelli and Orleans (1985) found that a partner-spouse facilitation measure that included questions tapping both quitting-related and general emotional support, prospectively predicted six- to eight-week maintenance. The greater the support, the greater was the likelihood of abstinence. In sum, nonspecific emotional support helped people to quit and remain abstinent in the short-term. Unfortunately, only one of these studies provided specific information on the stage at which these effects occur. The one exception to the positive influence of emotional support in this literature is the influence of support from smoking peers on the smoking habits of eighth graders. Presumably this occurs because smoking peers view cigarette smoking as an appropriate and effective way of coping.

In sum, this literature is consistent with our arguments regarding the relationships between different support measures and smoking status at different stages of behavioral change. In general, support from spouse or partner for quitting smoking and general stress-buffering support were found to operate during early change stages—cessation and early maintenance—whereas smoking status of network members was found to operate during all stages of change. However, these studies were not designed to explore these issues and provide only suggestive evidence.

What follows are two studies of our own in which we attempt to predict prospectively smoking status at cessation, short-term maintenance of abstinence (3 months) and long-term maintenance (12 months) from measures of general stress-buffering support, specific support for quitting smoking, and smoking status of network members.

The Oregon Process Studies. We have conducted two prospective studies with persons participating in a smoking-cessation clinic (Mermelstein et al., 1986). The studies employed similar designs including multiple longitudinal measurements of support and smoking. The basic treatment program included nicotine fading, self-management training, and relapse prevention (Brown, Lichtenstein, McIntyre, & Harrington-Kostur, 1984). Additional interventions (discussed later) were evaluated in these studies but did not interact with the process data addressed in this section. In all, 64 subjects (10 treatment groups) participated in the first study, and 64 subjects (9 treatment groups) in the second. In order to be able to specify the exact stage at which a specific support measure influenced smoking behavior, smoking data were obtained at quit date, end-of-treatment, and one, two, three, six, and 12 months posttreatment. Self-reported smoking status was corroborated by informants and by carbon monoxide measures (at end of treatment and at six-month follow-up only). Social support measures including the PIQ, ISEL, and percentage of household members, coworkers, and friends who smoked were obtained prior to the beginning of treatment. Two of these measures, the PIQ and ISEL, were administered again at the end of treatment. For the purpose of this chapter we focus on quit date (cessation), three-month (short-term), and 12-month (long-term) maintenance only.

A summary of the findings of these two studies is presented in Table 8.4. *Quitting* was associated with having smaller proportions of friends who smoke and having spousal support for quitting smoking in study one, and with higher levels of stress-reducing support in study two. *Short-term maintenance* (three months) was similarly positively related to both spousal support for quitting smoking and to general stress-reducing support in the first study, but was unrelated to any support measure in the second. Finally, *long-term maintenance* (12 months) was associated with smaller proportions of household and coworker network members who smoked in the first study, and with smaller proportions of friends and coworkers who smoked in the second. In sum, although there were inconsistencies in the results of the two studies, there was evidence for the role of all three types of support processes in cessation and maintenance. In addition, the results suggest that these factors operate at different stages in the process of becoming and remaining an

TABLE 8.4
Social-Support Measures as Prospective Predictors of Smoking Cessation and Maintenance in Two Clinic Studies

	Smoking Status Measured at		
Study	*End of Treatment*	*3 Months Posttreatment*	*12 Months Posttreatment*
Study I (married or living with partner)	PIQ friends	PIQ ISEL (appraisal)	household members* coworkers**
Study II (partners and single smokers)	ISEL (appraisal and self-esteem)		friends* coworkers**

*Significant at $p < .05$; **significant at $p < .10$.

ex-smoker. Moreover, these data are consistent with the predictions presented in Table 8.3. High levels of partner support for quitting and the perceived availability of general support were assets early in the behavior change process; during initial cessation and short-term maintenance. They did not influence long-term, continuous abstinence. The presence of smokers in the subjects' social networks, on the other hand, influenced both cessation and long-term maintenance, although it had its major (negative) impact on abstinence late in the maintenance process.

Social Network Interventions and Smoking Behavior

As Gottlieb (1985a) has pointed out, social support interventions can be directed at creating a new support system, strengthening and existing one, or training individuals in the social skills that would help them strengthen their own support systems.

Creating a new support network. The approaches to creating new networks have been used in smoking-cessation work: group cessation programs and buddy systems. Meeting in groups that go through a treatment program together and share problems in quitting and maintaining abstinence are common to many clinic programs. In buddy systems another person trying to quit is chosen by or assigned to the client as a source of consultation either at regular intervals or when problems arise in maintaining a behavioral regimen. Self-help groups are similar examples of creating new networks but have been rarely used in the treatment of smoking behavior. New networks may provide stress-buffering support (especially with respect to the stress of quitting) but are most likely to reinforce motivation and provide positive social influence.

Training Persons in the Social Network to be Supportive. For the most part, people who make serious attempts to quit smoking receive at least some encouragement from family, friends, or coworkers. It is assumed that providing these potential supporters with minimal training is the best way to help persons quit and maintain abstinence. Training can be aimed at any of the support mechanisms but can be especially helpful in stress buffering (especially with respect to the stress of quitting), reinforcement of motivation, and the provision of positive social influence. Examples of training strategies include involving spouses/partners in treatment, and supplying advice to potentially supportive persons through written materials and media messages.

Training persons to influence their social networks. The emphasis of this approach is to teach people social skills (e.g., assertiveness) that will help them to form, maintain, mobilize, and selectively draw upon their social networks. Sensitizing people to the potential impact of social networks on behavioral change is another way of encouraging people to influence their own social networks. The impact of networks on quitting and maintenance may also be partly controlled by identifying persons and social situations to seek out or to avoid. Network influence may have its primary effect on stress buffering, provision of positive social influence, and smoking cues. Examples of training strategies include social skill training, advising quitters to tell others that they are quitting, and advising quitters about how to deal with smokers in their environment.

Social Support Intervention in Smoking Studies

To date, interventions directed at increasing social support for quitting smoking and maintaining smoking abstinence have been generally unsuccessful (see Lichtenstein, Glasgow, & Abrams, 1986). These interventions have all supplemented formal group smoking cessation programs. Moreover, they have all attempted to increase specific support germane to changing smoking behavior rather than optimizing general, stress-buffering support. Existing work includes

interventions designed to create new networks, to train persons to influence their own networks, and to train network members to be supportive.

The Oregon program. Our early work focused on increasing socially supportive behaviors from the spouse or live-in partner of the person trying to quit smoking. The correlational data discussed earlier, plus some of the promising early findings in the application of spouse support to the treatment of obesity (Brownell, Heckerman, Westlake, Hayes, & Monti, 1978), led us to design a partner support program for smokers (McIntyre-Kingsolver, Lichtenstein, & Mermelstein, 1986). Smokers (N = 64) with spouses who were willing to cooperate were randomly assigned to either a multicomponent cognitive-behavioral smoking program (six two-hour sessions plus intake) or to the same program *with spouses attending all sessions and receiving training and encouragement*. The basic program (Brown et al., 1984) included nicotine fading, self-management training, and relapse prevention. Follow-up data were obtained one, two, three, six, and 12 months posttreatment, and self-reported smoking status was corroborated by informants and carbon monoxide measures (at end of treatment and at six-month follow-up only). PIQ (partner support) data were obtained at the end of treatment to assess the impact of training.

During treatment sessions couples were given feedback about helpful and unhelpful spouse or partner behaviors related to smoking cessation and group members were encouraged to contribute examples from their own experience. Each couple was encouraged to identify the kinds of spouse/partner behaviors that would be most helpful for the smoker in his or her cessation efforts. Guided group discussions and homework exercises were used to encourage couple problem solving. Spouses were encouraged to reward their partners and to participate in the prescribed program activities.

There was a marginally significant difference in cessation rates favoring the spouse or partner support condition at the end of treatment (48.4% for controls versus 72.7% for spouse or partner support, $p < .10$). Although follow-up abstinence rates for the partner support group were consistently in the expected direction, the differences were neither statistically significant nor clinically meaningful (see Table 8.5). Post-treatment PIQ scores tended to be higher for the subjects receiving spouse support training, but the difference did not reach significance (spouse training M = 22.3, SD = 18.2; control M = 15.3, SD = 12.6; F = 3.05, df 1, $p < .10$). These results suggested that our training procedures did not have a strong impact on spouse helpfulness, at least as measured by the PIQ.

TABLE 8.5
Design and Outcome of Oregon Social-Support Interventions

Study	*Sample Characteristics*	*Design*	*Results: Cessation Rates* Post-RX	Follow-up
McIntyre-Kingsolver et al. (in press)	64 Ss with cooperative spouses. 57% female M age = 38; M cigarettes/day = 25.6	basic program (n = 31)	48.4%	32.3% (1 year)
		basic program + spouse support (n = 33)	72.7	36.3
Lichtenstein, et al. (1985)	64 Ss 50% female, M age = 39; M cigarettes/day = 25.8	basic program (n = 21)	57.1	23.8 (6 months)
		basic program + spouse support (n = 15)	66.7	33.3
		single Ss or Ss with unwilling/unable partners	53.6	35.7

We conceived of several reasons for the largely negative results of this study. The spouse training components of the program may not have been intensive or salient enough. Both members of several couples in this first study were trying to quit smoking and therefore served in a dual role as both helper and helped. Subanalyses indicated that these couples tended (but not significantly so) to be more likely to relapse than couples with only one member trying to quit smoking (4 of 14 versus 9 of 19 abstinent at one year). Finally, merely because a person has a spouse or partner may already suggest that he or she will receive support for a quitting attempt, we felt that the inclusion of a third group of subjects without spouses would be informative. Accordingly, a second study, of another 64 subjects was conducted to remedy these deficiencies (Lichtenstein, Mermelstein, Kamarck, & Baer, 1985). A manual for the helping spouse was developed and more program time was devoted to spouse training. Only three of the 33 couple-subjects recruited contained two smokers trying to quit. Finally, a group of subjects without spouses was also included. This third group served as a quasi control or comparison group since the members could not be randomly assigned to the two conditions available to cooperative spouses. The basic program and follow-up procedures were the same as in the first study.

The results were also quite similar (see Table 8.5). Again, subjects in

the spouse-training condition tended to have higher abstinence rates at all assessment points, but these differences were small and did not approach significance. Surprisingly, subjects without spouses tended to have the highest abstinence rates of all, but again, the differences were not significant. Posttreatment PIQ scores yielded a similar pattern of results; mean differences were clearly in favor of the spouse-training subjects, but again did not reach statistical significance.

Other intervention studies. An early study on the influence of establishing a support network for the quitter was reported by Janis (Janis & Hoffman, 1970; Janis, 1983). These investigators found that individuals who had daily phone contact with another quitter designated as a "buddy" had a lower mean smoking rate at the end of treatment and at six-week, one-year, and *10-year* follow-ups as compared to control groups. Although the findings for the final follow-up are impressive, they are based on self-reported data, and data on the proportion of abstinent subjects is not reported. Interestingly, although buddy conversations were observed to be mutually encouraging while they occurred, phone contacts tended to end by one month after treatment.

Two studies have evaluated the effectiveness of buddy systems in improving maintenance of abstinence (see Colletti & Brownell's, 1982, detailed review). Hamilton and Bornstein (1976) found that subjects in a buddy system consisting of groups of four individuals instructed to call one another regularly for a 20-week period improved at the three-month but not at the six-month follow-up of a multicomponent treatment program. However, the 20-week period overlapped with the three-month follow-up (and hence three months might be considered part of the treatment), and the authors failed to report any data on compliance. Karol and Richards (1978) found that a group that had a scheduled phone contact buddy system and was taught problem-solving procedures had better smoking reduction maintenance than did equivalent groups without a buddy system, although differences (in the same direction) for maintenance of abstinence were not significant.

Our own attempt to replicate the Janis and Hoffman buddy system at Oregon was not successful (Rodriguez & Lichtenstein, 1977). In that study and in subsequent work with buddy systems, we have experienced difficulty in getting subjects to comply with recommended buddy phone calls. Recent evaluations of use of buddy systems in work-site programs (see descriptions below) similarly have not shown any effects (Abrams et al., 1985; Malott et al., 1984). In sum, we must conclude that evidence for the success of a buddy system approach provides some support for smoking reduction but none for an influence on cessation and maintenance.

Recent evaluations of interventions designed to influence partner and coworker support for quitting have been conducted at North Dakota State University by Glasgow and his colleagues and at Brown University by Abrams and his colleagues (both summarized in Lichtenstein, Glasgow, & Abrams, 1986). At North Dakota State, they have studied both coworker and significant-other social support in the context of a work-site smoking control program. Their six-session, multicomponent cognitive-behavioral program involved weekly group meetings of four to eight employees focused on making nicotine reductions by changing to lower nicotine brands and by making reductions in the number of cigarettes smoked per day. An initial study (Malott et al., 1984) evaluated the effects of adding coworker support procedures to the basic program. These procedures involved subject selection of partners, use of a buddy system, a 17-page partner support manual, and individualization of support strategies. There were no differences between conditions at posttest or follow-up on either percentage of subjects abstinent or on CO reductions among nonabstinent subjects. There were also no between-group differences on a modified version of the Partner Interaction Questionnaire (PIQ) designed to assess whether others behaved in a manner supportive of quitting smoking.

A second study used significant others chosen by the subjects (usually spouses) and placed greater emphasis on decreasing well-intentioned but detrimental social interactions (e.g., nagging about smoking in the house). Subjects were randomly assigned to either the basic treatment group or to basic treatment plus social support. Significant-other support procedures involved two group meetings of partners, semiweekly mailings of sections of a revised partner support manual, and phone calls from therapists on alternating weeks to discuss progress. Partners were provided with a list of behaviors presumed to be helpful and the importance of the partner seeking feedback from subjects was emphasized. Results were similar to those of the first study. There were no differences between conditions at either posttest or follow-up on abstinence rates or on CO reduction among nonabstinent subjects. Again, there were no differences between conditions in PIQ scores.

In the Brown University study, subjects in each of three work sites were randomly assigned to (a) cognitive behavioral management, (b) social support social skills training, or (c) health education and nonspecific support. Groups of between nine and 12 smokers met at the work site with male and female cotherapists for one and a half hours weekly for eight weeks. The first four weeks consisted primarily of standard nicotine fading program and from week three onward relapse

prevention training was introduced with weeks five to eight exclusively devoted to one of the three conditions. The first group focused on intrapersonal coping only. The second focused on social skills and social support network intervention (buddy systems at the work site and at home) to prevent relapse. Here, participants were asked to identify individuals whom they confided in, and to classify each person as potentially supportive, neutral, or unsupportive. Selection of at least one supportive individual who had already successfully quit smoking was recommended. Participants were instructed how to deal effectively with persons who might trigger smoking and how to request assertively that someone not smoke. Skill training was provided to aid participants in seeking out support when stressed, encouraging others to provide support, and handling praise and criticism. The third group was given information about the health consequences of smoking and especially about withdrawal effects. A series of nonspecific group discussions were designed to aid participants' attempts to quit smoking and to equate for contact time with the other two conditions. In all three work sites, results indicated no statistically significant differences among the three treatment conditions at end-of-treatment or follow-up. The authors point out that consumers resisted suggestions, such as the need to request assertively that other smokers not smoke in their presence.

Summary. Interventions designed to create new social networks (buddy systems in the Oregon, North Dakota, and Brown studies) train persons to influence their social networks (social skills training in Brown study), and train network members to be supportive (coworkers or spouses or partners in the Oregon, North Dakota and Brown studies) *were all unsuccessful* in influencing smoking cessation and maintenance of smoking abstinence. In all of these studies it is unclear whether the interventions even influenced levels of support.

Reconciling the Findings of Correlational and Intervention Studies

As reviewed above, social support interventions aimed at smoking cessation and maintenance have been disappointing. Why are smoking cessation and maintenance of abstinence related to support in the process but not in the intervention studies? We consider two categories of explanations: (a) there are inherent problems that make it difficult or impossible to influence social support systems or perceptions of support; and (b) specific limitations of these studies are responsible for the failure of their interventions.

Inherent Problems with Support Interventions

A number of the inherent problems in developing and implementing social support interventions are discussed elsewhere (see Coyne & DeLongis, 1986; Gottlieb, in press; Rook & Dooley, 1985; Suls, 1982). We focus on those issues that are especially relevant in support interventions designed to aid in smoking cessation and maintenance.

Evidence for the effectiveness of natural support is not strong. The magnitude of the effects of naturally occurring support on cessation and maintenance is rather small (e.g., correlations between naturally occurring support and percentage increase in smoking rate in our own work seldom exceed .50). Although small amounts of variance can translate into significantly higher risk ratios (Brown, 1981), it is possible that natural support networks play only a relatively small role in influencing behavioral change in this context.

Natural social support is different from artificial support. The term *natural support* refers to helping exchanges that arise spontaneously, whereas interventions involving artificial support are "grafted onto an individual's primary relationships" (Rook & Dooley, 1985, p. 10). The very naturalness of informal help is thought to contribute to its effectiveness (Gottlieb, 1981). It is said to differ from planned interventions involving support in terms of its accessibility, congruence with local norms, rootedness in long-standing peer relationships, variability, and relative freedom from financial and psychological costs (Gottlieb, 1983). In short, it may be difficult if not impossible to create an adequate approximation of the helping relationships represented by the natural support measures. The artificiality of support from professional (counselor) sources and from new networks (e.g., buddy systems or self-help groups) is obvious, but partner (spouse) support interventions may also be artificial if the client attributes their partners efforts to the program rather than to the partner's genuine concern for the client.

Provision of support affects the relationship between helper and helped. The provision of social support involves two parties and can affect the helper (e.g., Kessler, McLeod, & Wethington, 1985; Schulz, Tompkins, & Wood, 1987; Shumaker & Brownell, 1984) as well as the relationship between the helper and helped. Hence there are dangers of a support intervention having an unanticipated impact on other aspects of relationships that in turn may influence smoking behavior. For example, a more assertive person may ask others not to smoke, and as a consequence alienate network members who are not supportive of their quitting attempt. A buddy may help when a smoking urge arises

but may also be a source of irritation, providing smoking cues and encouraging urges. Finally, spouses who go out of their way to tolerate withdrawal symptoms and to reinforce positive behaviors may feel that their own needs and desires are being ignored in the process and manifest their dissatisfaction in other possibly hostile ways.

Support is trait-linked. It is possible that measures of social support used in the process studies assess stable individual differences rather than differences in the availability of social support from persons in the environment (Gottlieb 1985b; Rook & Dooley, 1985). To some degree a person's social skills determine the size and nature of their social networks and the ability to mobilize networks (Cohen & Syme, 1985; Heller, 1979). In fact, in another context, we (Cohen, Sherrod, & Clark, 1986) have shown that change in perceptions of social support among persons adapting to a new social environment is related to measures of stable social skills, such as self-disclosure, social anxiety, and social competence. In short, at least part of the variance in perceived support measures is probably explained by stable individual differences. If support is primarily trait-linked, our interventions are unlikely to influence it. However, to date, the amount of overlap found between various conceptions of social support and various personality characteristics has been relatively small, suggesting that support is primarily a reflection of the social environment (Cohen et al., 1986).

Support is a relatively stable environmental factor not readily susceptible to intervention. Related to the trait argument is the possibility that stable networks and effective support systems are developed over long periods of time and are difficult to create and relatively impervious to change. Hence, it may be extremely difficult for any short-term intervention to establish effective support or to change the influence of existing networks. For example, short training sessions may have little "real" impact on the supportive interactions of partners. The lack of evidence that intervention-influenced partner support as measured by the PIQ may reflect this problem.

Specific Problems with Existing Studies

Beside the inherent problems in developing and implementing social support interventions, there are a number of specific shortcomings of the intervention studies reviewed earlier that may account for their failure.

The interventions evaluated in these studies did not influence the support process. We often forget that the success of an intervention study depends on the correctness of two assumptions. The first

assumption is that a change in a targeted characteristic of persons or their environments will influence their behavior. In this case, increasing social support will facilitate quitting smoking or the maintenance of abstinence. The second assumption is that our intervention can significantly influence the targeted characteristic; in this case, supportive behaviors of the network member. If the second assumption is violated, the first cannot be evaluated. When available, the evidence from existing studies suggests that the interventions were *not* successful in alerting supportive behaviors. For example, the Oregon, North Dakota and Brown studies *all* failed to find an influence of their interventions on potential quitters' self-reports of support received for quitting smoking (the PIQ).

Important conceptualizations of support are not represented in these studies. These interventions focus primarily on support for quitting in the form of specific "helpful" behaviors. Our process data provide some support for quitting support in cessation, but suggest that other forms of support are of primary importance after initial quitting. In particular, these studies fail to address the availability (or perceived availability) of general emotional or informational stress-buffering support, the existence of smoking cues in the larger social environment, and the possibility of social influence in the larger social environment.

Support can help only so much. The possibility that the treatment program (before social support interventions are added on) provides as much support as is necessary or useful is centrally important in interpreting this literature. All of the intervention studies involved group treatments with support presumably provided by other group members as well as by the group leader. The formal connection made between group leader and quitter and the group itself and the quitter involves a major and salient support intervention. Hence, the lack of impact of an additional social support intervention in such settings may merely reflect the effectiveness (adequacy) of a salient support intervention that is part and parcel of the treatment program (see Lichtenstein, Glasgow & Abrams, 1986). The lack of success of support interventions in these studies may also be attributable to individual characteristics of persons who choose group treatment programs. In short, these people may not need any additional support. They may be more socially adept and have stronger existing support networks than persons not choosing to join such a program (see Taylor, Falke, Shoptaw, & Lichtman, 1986). Finally, persons who have partners who are willing to participate in partner support programs may (because they have a helpful partner) already have sufficient support for quitting.

Support interventions are helpful for some and not for others.

Differences in personality and environmental characteristics may also determine the effectiveness of support interventions (Shumaker & Brownell, 1984). For example recent work suggests that stress-buffering support may be more effective for individuals with an internal locus of control (Lefcourt, Martin, & Saleh, 1984). This presumably occurs because people able to control their outcomes are able to mobilize their social networks in times of need. Other individual and environmental differences may similarly influence the effectiveness of different types of social support. In short, it is likely that given any specific support intervention, some persons will benefit and others will not.

Directions for Future Research and Intervention

In this section, we propose several strategies for future social support interventions. Our suggestions derive from our earlier proposal that interventions must be designed to influence specific support processes during specific stages of change. Our recommendations are admittedly speculative. Because skill training has not proved to be very successful we emphasize approaches that capitalize on peoples' *existing skills* and resources. Because the time available for implementing smoking cessation interventions is often severely limited, we propose *concise* interventions. Because the complex multicomponent programs commonly used in the past often overload clients and are difficult to reproduce across settings, we propose intervention strategies that are both relatively *uncomplicated* and are *easy to reproduce.*

It is useful to consider three kinds of interventions: (1) Clinical interventions involving programs specifically aimed at smoking cessation, usually including a series of sessions with a counselor or leader either in small groups or on a one-to-one basis; (2) Minimal interventions including self-quitting (with or without designated materials), brief advice from a physician in the course of a visit, or a single session with a large group of other potential quitters; (3) "Community" interventions including work-site interventions, media campaigns, or community organization efforts.

Clinics. Most of the work discussed earlier derives from clinical interventions, usually with groups. The literature and our own research suggest that intensive spouse training or development of buddy systems is not productive, probably because there is already sufficient social support inherent in the context of group treatment, and because dyadic relationships are difficult to change. The focus should shift instead to

maximizing support for cessation and maintenance in the broader social environment. This approach is based on the correlational evidence reviewed earlier that indicates that the proportion of smokers in persons' social networks influences all of the stages of behavioral change. Hence, the primary thrust of the proposed interventions is to attenuate the influence of other smokers in the social environment.

Programs could emphasize the importance of avoiding others who smoke, avoiding situations in which people smoke, and conferring with others who have successfully quit. Provision of signs, buttons, and other materials could help persons manipulate their existing social smoking environments without needing to acquire new social skills. Hence, programs could suggest that clients place "no smoking" signs in their offices, their own rooms, and (when appropriate) common rooms in their houses or apartments. If many friends or coworkers smoke, they could place ashtrays outside of the door to their offices with a sign requesting cigarettes be put out before entering. We assume that limiting social contact with "smoking" smokers is important throughout the change process and hence, these suggestions may influence cessation as well as short- and long-term maintenance. Of special importance is emphasizing the creation of environmental barriers and behavioral routines that will have lasting effects on social exposure to cigarettes.

From a conceptual perspective, decreasing contact with network members who smoke is an important step in aiding quitting and maintaining abstinence. However, it may not be reasonable to expect people to alter significantly their patterns of interaction with friends, family, and coworkers to avoid exposure to smokers. Moreover, successfully limiting contact with network members could result in client isolation, alienation, or decreased availability of stress-buffering support. As a result, in cases in which there is a high proportion of network members who smoke or spouse or close friends smoke, it may be preferable to influence network members gently to accept the validity of the client's wish to quit and to encourage them to provide support by limiting their smoking in the client's presence.

Simple access to a supportive other may also be useful. For example, the provision of hot line access could be especially helpful in cessation and short-term maintenance (e.g., Dubren, 1977; Ossip-Klein, Shapiro, & Spiggins, 1984). Hot lines allow for the provision of support for quitting and stress-buffering support without the need to make a personal request for help or to feel that a debt has been incurred. Facilitation of spouse or partner support or creation of a buddy system may be useful, but the partner or buddy should be an *ex-smoker* or nonsmoker *not* a smoking spouse or partner or another client attempting to quit.

Minimal assistance. Self-quitting and other minimal interventions provide a more favorable context for social support manipulations because there are no counselors, group leaders, or groups already providing social support. Lacking the support provided by the group and therapist or group leader, minimally aided quitters may be more susceptible to support interventions than the clinic quitter. (It is also possible, however, that minimally aided quitters are more self-reliant and less influenced by their social environments.) However, the minimal contact also implies that support interventions must be brief (often just part of a manual or separate booklet) but powerful.

The act of coming to a cessation clinic implies at least a moderate degree of motivation or commitment to quitting. In contrast, with minimal interventions (e.g., physician advice or self-quitting), persuading the smoker to make a serious attempt to quit is a major task. Our analysis suggests that decisions to change are primarily mediated by increased motivation and positive social influence processes. Hence, we suggest appeals to social norms (e.g., many people are quitting; fewer people are smoking), persuasive messages about the impact of smoking on loved ones (e.g., reduce the chances of your child smoking), and providing information about the importance of quitting smoking for the quitter's loved ones (i.e., improve their health and well-being) via written materials or media.

Increased support may be particularly important for self-quitters. Our emphasis on maximizing support for quitting and maintenance in the broader social environment by capitalizing on peoples' existing skills and resources applies here as well as in the clinic. Suggestions for structuring a *no smoking environment* and avoiding "smoking contacts" are simple, do not require detailed explanation or training, and can be communicated in quitting and maintenance manuals, hot line discussions, and so on. As discussed earlier, interventions in smoking networks have the potential of influencing the entire course of change.

Messages could also be targeted to members of the social networks of minimally aided quitters, urging them to help a friend quit and possibly suggesting ways of doing so. Again, the emphasis is on providing simple, easily accomplished suggestions, that draw on existing abilities. Communications to potential supporters could include motivational information, e.g., the importance of quitting for health and well-being; information on what the experience is like for the quitter during different stages of change, e.g., the feelings and urges quitters may experience during withdrawal; and information about the kinds of behaviors that quitters find helpful. It may be helpful for the quitter to target one or two buddy-type supporters whom he or she can talk to during crises. As noted earlier, such confidants should be ex-smokers or persons who have never smoked.

Interventions for both quitters and supporters should be targeted at particular stages of change or provide information about changes in support needs over the course of change. For example, emphasis could be placed on direct support for quitting and aid in coping with stressful situations in the cessation and early maintenance stages, and on the need to be vigilant about network influences even after the initial change stages. When possible, this information could be supplied sequentially as persons move through the change process.

Both quitters and supporters need to be made aware of the possible influence of the quitting and supporting process *on their relationships.* Supporters need to know that their role will be difficult, time and effort consuming, and sometimes aggravating, especially during the early stages of the process. Quitters need to be aware of the influence their quitting is having on their relationships and to recognize the importance of rewarding supporters for their efforts. In short, rewards should be reciprocal; the quitters rewarded for their efforts, and the supporters for theirs.

As noted earlier, all suggestions must be short, simple, and easy to implement. They may be embedded in *short* and easy-to-read manuals or other written materials. Hot line messages may also complement self-help efforts. In a study of self-quitters currently in progress, several of our subjects have expressed interest in a hot line.

Community interventions. Work-site and community interventions offer the opportunity to motivate smokers to quit by defining the importance or value of cessation, to reduce smoking cues in the environment and, perhaps most importantly, to shift norms regarding the acceptability of smoking (see Syme & Alcalay, 1982; Glasgow & Klesges, 1985). Altering broader smoking networks through large scale intervention is an important and possibly cost effective way to reduce smoking. Although it is beyond the scope of this chapter to discuss the many cultural, socioeconomic, legal, and psychological issues involved in planning organizational and community interventions, we will address select issues that are closely related to what has been raised so far. As in the previous discussions, our emphasis is on changing group norms and smoking-network contacts that are associated with all the stages of behavioral change.

Cultural and group smoking norms can be changed in a number of ways. Legal or administrative restriction of smoking behavior is a principal method of changing group norms. Restricting smoking in public limits the adverse influence of network smokers on the change

process. In the long run, policy restrictions often become accepted group norms. Public policy is changed by bringing political pressure on administrators and legislators to promulgate laws and policies restricting smoking in public places (i.e., in the presence of nonsmokers). Another approach to changing group norms is directly influencing people's attitudes and beliefs about the effects of smoking on health and well-being. Attitudes and beliefs can be influenced by promoting the health benefits of quitting or the health costs of smoking. This can be done through pamphlets, group newsletters, and informative lectures and classes (in organizational settings), and through mass-media presentations at a community level (e.g., Farquhar et al., 1984). Besides changing attitudes and beliefs about the effects of smoking, it is also possible to address some of the cultural associations with smoking, such as sexual attractiveness, maturity, relaxation, and emancipation. These associations are often established by mass-media advertising and are probably best changed through the same medium.

Summary and Conclusion

In general, studies evaluating social support interventions in clinical settings have not provided evidence for the effectiveness of support interventions. These studies examined the effectiveness of adding a social support component to multicomponent clinic-based programs that already included a great deal of support from counselors and other group members. For the most part, the support interventions in these programs were targeted at increasing specific quitting behaviors not at influencing stress-buffering, motivational, or normative social influence functions of social support.

Drawing from the correlational literature on support and smoking behavior, we argue that different types of social support operate at different stages in the behavioral change process because they represent different mechanisms through which social support influences smoking behavior. Because we propose that all forms of support operate during cessation and early maintenance, the major implication of the analysis is for late (after third month) maintenance. The emphasis in this period is on negative (encouraging smoking) social influence and cues that trigger smoking and its cognitive and physiological concomitants. Interventions designed to prevent these influences from triggering relapse are encouraged for this stage. We also suggest that support interventions will be most useful in the context of minimal intervention programs that do not include other components influencing support. Second, we advise that interventions should be designed with specific stage(s) and process(es) in mind. Third, we conclude that attempts to influence smoking contacts within social networks will be most effective because of the importance of network smoking across stages of behavioral change. Finally, we recommend relatively simple interventions that capitalize on persons' existing skills and resources rather than trying to alter skills and resources. Although we have outlined a number of interventions that meet the preceding criteria, they only begin to address the stubborn problems surrounding smoking cessation and maintenance. We hope that other researchers will be creative in designing interventions targeted at altering the different processes we've discussed.

Social support is not the "magic bullet" that will solve the smoking-cessation problem. It constitutes one of many influences on smoking behavior and probably accounts for a relatively small amount of the total variance at any point in the behavioral change process. However, we are still optimistic that support interventions can be developed into cost effective tools to aid those attempting to quit smoking.

REFERENCES

Abrams, D. B., Pinto, R. P., Monti, P. M., Jacobus, S., Brown, R., & Elder, J. P. (1985, March). *Health education vs. cognitive stress management vs. social support training for relapse prevention in worksite smoking cessation.* Paper presented at the annual convention of the Society for Behavioral Medicine, New Orleans, LA.

Benfari, R. C., Eaker, E. D., Ockene, J., & McIntyre, K. M. (1982). Hyperstress and outcomes in a long-term smoking intervention program. *Psychosomatic Medicine, 44,* 227-235.

Brown, G. W. (1981). Life events, psychiatric disorder and physical illness. *Journal of Psychosomatic Research, 25,* 461-473.

Brown, R., Lichtenstein, E., McIntyre, K., & Harrington-Kostur, J. (1984). Effects of nicotine fading and relapse prevention in smoking cessation. *Journal of Consulting and Clinical Psychology, 52,* 307-308.

Brownell, K., Heckerman, C., Westlake, R., Hayes, S., & Monti, P. (1978). The effect of couples training and partner cooperativeness in the behavioral treatment of obesity. *Behavior Research and Therapy, 16,* 323-333.

Chassin, L., Presson, C. C., & Sherman, S. J. (1984). Cognitive and social influence factors in adolescent smoking cessation. *Addictive Behaviors, 9,* 383-390.

Cohen, S. (1986). Contrasting the hassle scale and the perceived stress scale: Who's really measuring appraised stress? *American Psychologist, 41,* 716-718.

Cohen, S., & McKay, G. (1984). Social support, stress, and the buffering hypothesis: A theoretical analysis. In A. Baum, J. E. Singer, & S. E. Taylor (Eds.), *Handbook of psychology and health, Vol. IV.* Hillsdale, NJ: Lawrence Erlbaum.

Cohen, S., & Syme, S. L. (1985). Issues in the study and application of social support. In S. Cohen & S. L. Syme (Eds.), *social support and health* (pp. 3-22). New York: Academic Press.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98,* 310-357.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 13,* 99-125.

Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. (1985). Measuring the functional components of social support. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory, research, and application* (pp. 73-94). Hingham, MA: Kluwer Boston.

Cohen, S., Sherrod, D. R., & Clark, M. S. (1986). Social skills and the stress protective role of support processes. *Journal of Personality and Social Psychology, 50,* 963-973.

Colletti, G., & Brownell, K. D. (1982). The role of social influence in the etiology and treatment of disease: Application to obesity, smoking, and alcoholism. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.), *Progress in behavioral modification* (pp. 110-178). New York: Academic Press.

Coppotelli, H. C., & Orleans, C. T. (1985). Partner support and other determinants of smoking cessation maintenance among women. *Journal of Consulting and Clinical Psychology, 53,* 455-460.

Coyne, J. C., & DeLongis, A. (1986). Going beyond social support: The role of social relationships in adaptation. *Journal of Consulting and Clinical Psychology, 54,* 454-460.

Dubren, R. (1977). Self-reinforcement by recorded telephone messages to maintain nonsmoking behavior. *Journal of Consulting and Clinical Psychology, 45,* 358-360.

Eiser, J. R., & van der Pligt, J. (1984). Attitudinal and social factors in adolescent smoking: In search of peer group influence. *Journal of Applied Social Psychology, 14,* 348-363.

Eisinger, R. A. (1971). Psychosocial predictors of smoking recidivism. *Journal of Health and Social Behavior, 12,* 355-362.

Farquhar, J. W., Fortmann, S. P., Maccoby, N., Wood, P. D., Haskell, W. L., Taylor, C. B., Flora, J. A., Solomon, D. S., Rogers, T., Adler, E., Breitrose, P., & Weiner, L. (1984). The Stanford Five City Project: An overview. In J. D. Matarazzo, S. M. Weiss, J. A. Herd, N. E. Miller, & S. M. Weiss (Eds.), *Behavioral health.* New York: John Wiley.

Foss, R. (1973). Personality, social influence and cigarette smoking. *Journal of Health and Social Behavior, 14,* 279-286.

Glasgow, R. E., & Klesges, R. C. (1985). *Programming social support for smoking modification: An extension and replication.* Unpublished manuscript, Oregon Research Institute, Eugene.

Glasgow, R. E., Klesges, R. C., Mizes, S. M., & Pechacek, T. F. (1985). Quitting smoking: Strategies used and variables associated with success in a stop-smoking contest. *Journal of Consulting and Clinical Psychology, 53,* 905-912.

Gottlieb, B. H. (1981). Preventive interventions involving social networks and social support. In B. H. Gottlieb (Ed.), *social networks and social support* (pp. 201-232). Beverly Hills, CA: Sage.

Gottlieb, B. H. (1983). *Social support strategies: Guidelines for mental health practice.* Beverly Hills, CA: Sage.

Gottlieb, B. H. (1985a). Social support and community mental health. In S. Cohen & S. L. Syme (Eds.). *Social support and health* (pp. 303-326). New York: Academic Press.

Gottlieb, B. H. (1985b). Social support and the study of personal relationships. *Journal of Sociâl and Personal Relationships, 2,* 351-375.

Gottlieb, B. H. (in press). Support interventions: A typology and agenda for research. In S. Duck, D. Haye, W. Ickes, B. Montgomery, & S. Hobfoll (Eds.), *Handbook of research in personal relationships.* Chichester, England: John Wiley.

Gunn, R. C. (1983). Does living with smokers make quitting more difficult? *Addictive Behaviors, 8,* 429-432.

Hamilton, S. B., & Bornstein, P. H. (1976). Broad-spectrum behavioral approach to smoking cessation: Effects of social support and paraprofessional training on the maintenance of treatment effects. *Journal of Consulting and Clinical Psychology, 47,* 598-600.

Heller, K. (1979). The effects of social support: Prevention and treatment implications. In A. P. Goldstein & F. H. Kanfer (Eds.), *Maximizing treatment gains: Transfer enhancement in psychotherapy* (pp. 335-382). New York: Academic Press.

Janis, I. L. (1983). The role of social support in adherence to stressful decisions. *American Psychologist, 38,* 143-160.

Janis, I. L., & Hoffman, D. (1970). Facilitating effects of daily contact between partners who make decisions to cut down on smoking. *Journal of Personality and Social Psychology, 17,* 25-35.

Karol, R. L., & Richards, C. S. (1978). *Making treatment effects last: An investigation of maintenance strategies for smoking reduction.* Paper presented at the annual meetings of the Association for the Advancement of Behavior Therapy, Chicago.

Kessler, R. C., & McLeod, J. D. (1985). Social support and mental health in community samples. In S. Cohen & S. L. Syme (Eds.), *social support and health* (pp. 219-240). New York: Academic Press.

Kessler, R. C., McLeod, J. D., & Wethington, E. (1985). The costs of caring: A perspective on the relationship between sex and psychological distress. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory research and applications* (pp. 491-506) Dordrecht, The Netherlands: Martinus Nijhoff.

Lefcourt, H. M., Martin, R. A., & Saleh, W. E. (1984). Locus of control and social support: Interactive moderators of stress. *Journal of Personality and Social Psychology, 47,* 378-389.

Lichtenstein, E., Glasgow, R. E., & Abrams, D. (1986). Social support in smoking cessation: In search of effective interventions. *Behavior Therapy, 17,* 607-619.

Lichtenstein, E., Mermelstein, R. J., Kamarck, T. W., & Baer, J. S. (1985). *Partner support and smoking cessation: Replication and extension.* Unpublished manuscript, Oregon Research Institute, Eugene.

Malott, J. M., Glasgow, R. E., O'Neil, H. K., & Klesges, R. C. (1984). Co-worker social support in a worksite smoking control program. *Journal of Applied Behavior Analysis, 17,* 485-495.

McIntyre-Kingsolver, K. O., Lichtenstein, E., & Mermelstein, R. J. (1986). Spouse training in a multicomponent smoking cessation program. *Behavior Therapy, 17,* 67-74.

Mermelstein, R. J., Cohen, S., Lichtenstein, E., Baer, J. , & Kamarck, T. (1986). Social support and smoking cessation and maintenance. *Journal of Consulting and Clinical Psychology, 54,* 447-453.

Mermelstein, R. J., Lichtenstein, E., & McIntyre, K. O. (1983). Partner support and relapse in smoking cessation programs. *Journal of Consulting and Clinical Psychology, 51,* 465-466.

Ockene, J. K., Benfari, R. C., Nuttall, R. L., Hurwitz, I., & Ockene, I. S. (1982). Relationship of psychosocial factors to smoking behavior change in an intervention program. *Preventive Medicine, 11,* 13-28.

Ossip-Klein, D. J., Shapiro, R. M., & Spiggins, J. (1984). Freedom line: Increasing utilization of a telephone support service for ex-smokers. *Addictive Behaviors, 9,* 227-230.

Pomerleau, O., Adkins, D., & Pertschuk, M. (1978). Predictors of outcome and recidivism in smoking cessation treatment. *Addictive Behaviors, 3,* 65-70.

Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking. Toward an integrative model of change. *Journal of Consulting and clinical Psychology, 51,* 390-395.

Rodriguez, M.R.P. & Lichtenstein, E. (1977). *Dyadic interaction for the control of smoking.* Unpublished manuscript, University of Oregon, Eugene.

Rook, K. S., & Dooley, D. (1985). Applying social support research: Theoretical problems and future directions. *Journal of Social Issues, 41,* 5-28.

Schulz, R., Tompkins, C. A., & Wood, D. (1987). The social psychology of caregiving: Physical and psychological costs of providing support to the disabled. *Journal of Applied Social Psychology, 17,* 401-428.

Shiffman, S., & Wills, T. A. (Eds.) (1985). *Coping and substance use.* New York: Academic Press.

Shiffman, S., Read, L., & Jarvik, M. E. (1983). *The effect of stressful events on relapse in ex-smokers.* Paper presented at the Annual Meeting of the American Psychological Association, Anaheim, CA.

Shiffman, S., Shumaker, S., Abrams, D., Cohen, S., Garvey, J., Grunberg , N., & Swan, G. (1986). Prediction of relapse. *Health Psychology, 5,* 13-27.

Shumaker, S. A., & Brownell, A. (1984). Toward a theory of social support: Closing conceptual gaps. *Journal of Social Issues, 40,* 11-36.

Suls, J. (1982). Social support, interpersonal relations and health. In G. Sanders & J. Suls (Eds.), *The social psychology of health and illness.* Hillsdale, NJ: Lawrence Erlbaum.

Syme, S. L., & Alcalay, R. (1982). Control of cigarette smoking from a social perspective. *Annual Review of Public Health, 3,* 179-199.

Taylor, S. E., Falke, R. L., Shoptaw, S. J., & Lichtman, R. R. (1986). Social support, support groups, and the cancer patient. *Journal of Consulting and Clinical Psychology, 54,* 608-615.

West, D. W., Graham, S., Swanson, M., & Wilkinson, G. (1977). Five-year follow-up of a smoking withdrawal clinic population. *American Journal of Public Health, 67,* 536-544.

Wilcox, B. L., & Vernberg, E. M. (1985). Conceptual and theoretical dilemmas facing social support. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory, research and applications* (pp. 3-20). Hingham, MA: Kluwer Boston.

Wills, T. A., & Shiffman, S. (1985). Coping and substance use: A conceptual framework. In S. Shiffman & T. A. Wills (Eds.). *Coping and substance use.* New York: Academic Press.

Wills, T. A., & Vaughan, R. (1985). *Relationship of peer and adult social support to smoking and alcohol use in middle adolescence.* Unpublished manuscript, Department of Health Psychology, Einstein Medical School, New York.

Wilson, G. T., & Brownell, K. D. (1980). Behavior therapy for obesity: An evaluation of treatment outcome. *Advances in Behaviour Research and Therapy, 3,* 49-86.