

tions (e.g., nicotine patch, bupropion) that are FDA approved for smoking cessation appear to be effective for smokers with or without depression history. The treatment could be augmented with CBT for smokers with recurrent major depressive disorder.

Future research is needed to determine the attributes that characterize the depression-vulnerable smokers who are at greatest risk for cessation failure. Potentially, more informative predictors that warrant investigation are major depressive disorder episode duration or recency. For example, remnant mood alterations from a recent episode (e.g., in the past 6 months) might place a smoker at increased risk for cessation failure compared with an episode that occurred 5 or more years ago. Although individuals with current major depressive disorder and/or who are taking an antidepressant medication are typically excluded from clinical trials of smoking cessation, providers are likely to see these types of patients in their practice. Thus, more research on best practices for this subgroup of smokers is warranted. Alternative behavioral treatments found to be effective in the treatment of depression, including exercise, warrant exploration in depressed smokers. Additional studies are also needed to understand the causal mechanisms underlying the smoking-depression relationship. Such research is important as each explanation has different and important implications for understanding nicotine dependence and depression, as well as the prevention of and treatment for each disorder.

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See also

Heart Disease
Medical Conditions and Depression

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Social Support

Social support refers to the aid provided by others to those facing stressful events. This can include material aid, for example, financial assistance or help with daily tasks; relevant information intended to help the individual cope with current difficulties; or the opportunity for emotional expression and venting (e.g., House & Kahn, 1985). Typically, communal relationships within an individual's social network are the sources for social support. Support is typically measured with one of several self-report instruments or through structured interviews. It has been assessed in terms of both the support a person has received over a defined period, and the perception that social resources would be available if needed.

Research conducted over the last 40 years has consistently shown that lower levels of perceived social support are associated with increased symptoms and/or rates of depression. In contrast, the literature examining received social support has yielded either null findings or found increased depression with increased received support (Bolger, Zuckerman, & Kessler, 2000; Cohen & Wills, 1985). That received social support is sometimes associated with increased depression may merely indicate that it is those who are most in need (under stress, experiencing

negative emotions) who actually mobilize their social networks.

The majority of studies examining perceived social support and depression are cross-sectional in design. Paykel and Cooper (1992) provide an in-depth review of 24 (of the now more than 30) cross-sectional studies. An association between lower levels of depression and reporting greater perceived social support has been found within both community and inpatient populations, across a wide range of ages, and for both men and women. This association is independent of whether support is assessed by self-report instruments or structured interviews. Inherent to the nature of cross-sectional designs, these investigations provide poor temporal resolution and do not provide information on the direction of causality. That is, while low levels of perceived support may result in more depression, it is just as likely that higher levels of depressive symptoms result in decreased ability to create and maintain a supportive social network, or a negative bias in interpreting and/or reporting whether support is available. Moreover, third (spurious) factors such as demographic differences or personality characteristics might actually be the causal factor influencing both depression and support.

By design, prospective studies addressing the role of support in depression eliminate the interpretation that an association is attributable to depression influencing social support. They accomplish this by assessing support first and predicting subsequent changes in depression. These studies also typically control for potentially confounding demographic and environmental factors such as age, sex, race or ethnicity, and socioeconomic status. The prospective literature suggests a similar positive influence of perceived support throughout the course of a depressive episode (reviewed by Paykel and Cooper, 1992; also see subsequent studies including Bruce & Hoff, 1994; Brummett, Barefoot, Siegler, & Steffens, 2000; Stice, Ragan, & Randall, 2004). At a subclinical level, lower perceived social support consistently predicts future elevated symptoms of depression within community samples. Clinically, lower

social support is identified as a risk factor for the incidence of major depressive disorder. One investigation provides additional insight by demonstrating that lower parental social support and not lower peer social support yields elevated rates of onset for depression within adolescents (Stice et al., 2004). Within depressed individuals, lower baseline levels of social support predict subsequent increases in symptom severity, prolonged persistence of depressive episodes, and decreased responsiveness to pharmacotherapy.

The literature examining social support and depression continues to expand, in part, through studies considering this relationship within the context of various physical ailments. For example, within patients with type 2 diabetes (Connell, Davis, Gallant, & Sharpe, 1994; Zhang, Chen, & Chen, 2008) and breast (Koopman, Hermanson, Diamond, Angell, & Spiegel, 1998) and head and neck cancer (de Leeuw et al., 2000), higher levels of perceived social support are associated with decreased symptoms of depression.

Mechanistically, there are two potential pathways through which social support may influence depression: (a) a main effect mechanism and (b) an interactive (stress-buffering) mechanism (Cohen, 2004; Cohen & Wills, 1985). Stress-buffering suggests that social support protects persons from the potentially pathogenic influences of stressful events. For instance, social support enables individuals to acquire less-negative interpretations of potentially stressful events or to improve opinions of their abilities to overcome stressful events. In turn these changes allow for more beneficial emotional and physiological responses to events. In contrast, the main effect mechanism does not assume that one must be facing a stressful event to benefit from social support. The argument here is that social relations improve health-related behavior, increase positive psychological states, enhance emotional regulation, and promote beneficial functioning of the autonomic nervous system, hypothalamic-pituitary-adrenal axis, and immune system irrespective of whether someone is stressed (Cohen, 2004).

Although there is some evidence that perceived support operates as a stress-buffer in helping to prevent stress-elicited depression (Brown & Harris, 1978), in general, little attention has been paid to distinguishing between main effect and interactive mechanisms in this literature.

As a natural extension of the epidemiologic literature, researchers have evaluated interventions designed to increase perceived social support in hopes of decreasing depression. For instance, among chronically depressed individuals, a volunteer befriending intervention was associated with recovery from and improvement of depression (Harris, Brown, & Robinson, 1999). This randomized controlled trial utilized a waiting-list control design, and the intervention consisted of trained volunteers who met with and talked to the depressed individuals for a minimum of 1 hour per week over an 18-month period. Similarly, interpersonal psychotherapy (IPT) that is intended to enhance social skills and to minimize interpersonal deficits by fostering social support has become an accepted psychotherapeutic treatment for depressed individuals. De Mello, de Jesus Mari, Bacaltchuk, Verdelli, and Neugebauer. (2005) provide a review of the 13 randomized controlled trials that examined the effectiveness of IPT in the treatment of depression. Consistently, IPT has proven to be more efficacious than either placebo or cognitive behavioral therapy, a more widely utilized psychotherapeutic technique.

For patients with coronary artery disease, however, the utility of social support intervention is less established both in regard to the treatment of depression and the depression-associated risk for cardiac morbidity and mortality. For instance, in an early randomized trial that facilitated social support for cardiac patients through repeated telephone calls and visits to the patients' homes by nurses (with no training in mental health), the intervention failed to reduce depression and for women fostered increased cardiac mortality (Frasure-Smith et al., 1997). This heightened mortality rate following the intervention may have resulted from increased distress associated with either home visits and/or the inability of

patients to utilize denial as a coping method when faced with repeated reminders of their worsening coronary artery disease. Similarly, within a recent randomized control trial of cardiac patients with major depressive disorder, IPT lowered symptoms of depression but failed to yield significantly greater reductions than standard clinical management (Lesperance et al., 2007). One investigation, however, has utilized cognitive behavioral therapy as well as structured therapy sessions aimed at increasing perceived social support; it yielded decreased rates of depressive symptoms and increased reports of social support (Berkman et al., 2003). Unfortunately, the intervention did not change cardiac morbidity or mortality when compared to the control group. Overall, the mixed efficacy and potential harm of social support interventions in patients with coronary artery disease highlights the need for continued research that utilizes sound theoretical frameworks, interventionists with rigorous mental health training, and continuous assessments of the psychological well-being of the participants.

In sum, an extensive literature comprises both cross-sectional and prospective investigations and reveals that lower levels of perceived social support predict various aspects of depression from onset, through symptom severity, to remission and recurrence. This relation exists within community samples and inpatient populations, and in the context of various physical ailments. Mechanistically, social support may influence the various depression outcomes through both main-effect and stress-buffering pathways; the specific psychosocial, behavioral, and physiological pathways between social support and depression, however, remain poorly defined. The small but growing intervention literature demonstrates the potential ability to decrease depression through fostering social support. Future research should examine more closely the specific aspects of social support (i.e., instrumental, informative, and emotional) that are most predictive of depression and the precise mechanisms linking these two phenomena. This in-depth research would yield improved theoretical models that would further enhance

and tailor social support interventions to decrease all aspects of the course of depression.

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See also

Heart Disease
Medical Conditions and Depression Risk
Stress and Coping
Stressful Life Events

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Stress Assessment

The role of stress in depression is a key conceptual question in understanding the etiology and course of depressive disorders. In general, it is broadly recognized that life stress plays a role in mood disorders (e.g., Hammen, 2005; Kessler, 1997; Mazure, 1998), but this role is influenced by key mediators (e.g., cognitive style; Monroe, Slavich, Torres, & Gotlib, 2007) and moderators (e.g., genetic predisposition; Caspi et al., 2003). Understanding these relationships is complicated by the fact that measurement of life stress is a difficult task. Invariably, stress reporting is a retrospective activity, vulnerable to biases directly related to the topic at hand (e.g., mood-influenced recall) as well as idiosyncratic influences. The challenge of defining stress has also been noted, with some scholars emphasizing the stress response, as in