

1	CHAPTER
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3 Social Support: A Review

4 Shelley E. Taylor

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Abstract

Social support, which is the perception or experience that one is cared for, esteemed, and part of a mutually supportive social network, has beneficial effects on mental and physical health. We review the psychobiological pathways whereby these effects may occur and detail the circumstances under which socially supportive efforts may misfire. Origins of social support include genetic factors and the early environment. We examine gender and cultural differences in how social support is experienced. Under some circumstances, providing social support confers the same benefits as receiving it. A myriad number of social support interventions, including those delivered via the internet, have been evaluated and have the potential to provide emotional and informational support to people who might otherwise lack social support.

Keywords: Social support, stress, emotional support, informational support, instrumental support, gender, culture, genes, early environment, interventions, support groups

17 Group living is perhaps the most significant adaptation
18 of primate species, including human beings. Whereas
19 other animals are armed with weapons, such as sharp
20 teeth or claws, and defensive resources, such as thick
21 skin and speed, primate species depend critically on
22 group living for survival (Caporeal, 1997; Dunbar,
23 1996). This tendency to come together is especially
24 great under threat. Even chimpanzees, known for
25 their solitary behavior, may abandon this style in
26 favor of group activity when an enhanced risk of
27 predation exists (Boesch, 1991). In times of intense
28 stress, humans are much the same. Following the
29 September 11 terrorist attacks, some of the most
30 common methods people reported using to cope
31 with this threatening event involved turning to
32 others, including family, friends, and even strangers
33 (Galea et al., 2002). There are, of course, tangible
34 benefits to social affiliation under threat. For example,
35 following a disaster, such as a fire, a flood, or a
36 bombing, the presence of many hands can locate
37 survivors and get them to safety. But the presence of
38 others has long been known to foster adjustment to

threatening events in other ways, specifically by
39 protecting against adverse changes in mental and
40 physical health that may otherwise occur in response
41 to stress. Social support is now so widely acknowl-
42 edged as a critical resource for managing stressful
43 occurrences that over 1,100 articles on the topic
44 appear in the research and clinical literatures each
45 year.
46

What Is Social Support?

47 Social support is defined as the perception or experi-
48 ence that one is loved and cared for by others,
49 esteemed and valued, and part of a social network of
50 mutual assistance and obligations (Wills, 1991).
51 Social support may come from a partner, relatives,
52 friends, coworkers, social and community ties, and
53 even a devoted pet (Allen, Blascovich, & Mendes,
54 2002). Taxonomies of social support have usually clas-
55 sified support into several specific forms. *Informational*
56 *support* occurs when one individual helps another to
57 understand a stressful event better and to ascertain
58 what resources and coping strategies may be needed
59

1 to deal with it. Through such information or advice,
2 a person under stress may determine exactly what
3 potential costs or strains the stressful event may impose
4 and decide how best to manage it. *Instrumental*
5 *support* involves the provision of tangible assistance
6 such as services, financial assistance, and other
7 specific aid or goods. Examples include driving an
8 injured friend to the emergency room or providing
9 food to a bereaved family. *Emotional support* involves
10 providing warmth and nurturance to another indi-
11 vidual and reassuring a person that he or she is a
12 valuable person for whom others care. But as the
13 definition makes clear, social support can also
14 involve simply the *perception* that such resources are
15 available, should they be needed. For example,
16 knowing that one is cared for and/or that one could
17 request support from others and receive it is com-
18 forting in its own right. Thus, social support may
19 involve specific transactions whereby one person
20 explicitly receives benefits from another, or it may
21 be experienced through the perception that such
22 help and support is potentially available.

23 Social support is typically measured either in
24 terms of the structure of socially supportive networks
25 or the functions that network members may provide
26 (e.g., Wills, 1998). Structural social support, often
27 referred to as social integration, involves the number
28 of social relationships in which an individual is
29 involved and the structure of interconnections
30 among those relationships. Social integration mea-
31 sures assess the number of relationships or social
32 roles a person has, the frequency of contact with
33 various network members, and the density and inter-
34 connectedness of relationships among the network
35 members. Functional support is typically assessed in
36 terms of the specific functions (informational, instru-
37 mental, and emotional) that a specific member may
38 serve for a target individual and is often assessed in
39 the context of coping with a particular stressor. Thus,
40 an individual might be asked how much of different
41 kinds of support each member of a supportive
42 network provided during a stressful event.

43 An early debate in the social support literature
44 centered on the circumstances under which social
45 support may be beneficial. One hypothesis, known
46 as the direct effects hypothesis, maintains that social
47 support is generally beneficial to mental and physical
48 health during nonstressful times as well as during
49 stressful times. The other hypothesis, known as the
50 buffering hypothesis, maintains that the health and
51 mental health benefits of social support are chiefly
52 evident during periods of high stress; when there is
53 little stress, social support may have few physical or

54 mental health benefits. According to this hypothesis, 54
55 social support acts as a reserve and resource that 55
56 blunts the effects of stress or enables an individual 56
57 to deal with stress more effectively, but otherwise is 57
58 less consequential for mental and physical health 58
59 (Cohen & Wills, 1985). After decades of research, 59
60 evidence for both types of effects have emerged. 60
61 Measures of social integration typically show direct 61
62 associations with mental and physical health, but 62
63 not buffering effects (Thoits, 1995). In contrast, the 63
64 perception that emotional support is available is 64
65 associated both with direct benefits to physical 65
66 and mental health and also with buffering effects 66
67 (e.g., Wethington & Kessler, 1986).

68 ***Benefits of Social Support and Reasons***
69 ***for the Benefits***

70 **MENTAL AND PHYSICAL HEALTH BENEFITS**

71 Research consistently demonstrates that social sup- 71
72 port reduces psychological distress such as depression 72
73 or anxiety during times of stress (e.g., Fleming, 73
74 Baum, Gisriel, & Gatchel, 1982; Lin, Ye, & Ensel, 74
75 1999; Sarason, Sarason, & Gurung, 1997). It has 75
76 been found to promote psychological adjustment to 76
77 chronically stressful conditions, such as coronary 77
78 artery disease (Holahan, Moos, Holahan, & Brennan, 78
79 1997), diabetes, HIV (Turner-Cobb et al., 2002), 79
80 cancer (Penninx et al., 1998; Stone, Mezzacappa, 80
81 Donatone, & Gonder, 1999), rheumatoid arthritis 81
82 (Goodenow, Reisine, & Grady, 1990), kidney dis- 82
83 ease (Dimond, 1979), childhood leukemia (Magni, 83
84 Silvestro, Tamiello, Zanesco, & Carl, 1988), and 84
85 stroke (Robertson & Suinn, 1968), among other 85
86 disorders. Social support also protects against cog- 86
87 nitive decline in older adults (Seeman, Lusignolo, 87
88 Albert, & Berkman, 2001), heart disease among the 88
89 recently widowed (Sorkin, Rook, & Lu, 2002), and 89
90 psychological distress in response to traumatic 90
91 events, such as 9/11 (Simeon, Greenberg, Nelson, 91
92 Schneider, & Hollander, 2005).

93 Social support also contributes to physical health 93
94 and survival (e.g., Rutledge et al., 2004). In a classic 94
95 study that documented this point, epidemiologists 95
96 Lisa Berkman and Leonard Syme (1979) followed 96
97 nearly 7,000 California residents over a 9-year 97
98 period to identify factors that contributed to their 98
99 longevity or early death. They found that people 99
100 who lacked social and community ties were more 100
101 likely to die of all causes during the follow-up period 101
102 than were those who cultivated or maintained 102
103 their social relationships. Having social contacts 103
104 predicted an average 2.8 years increased longevity 104
105 among women and 2.3 years among men, and these 105

1 differences persisted after controlling for socioeco-
 2 nomic status (SES), health status at the beginning
 3 of the study, and health habits (Berkman & Syme,
 4 1979). Of particular significance is the fact that the
 5 positive impact of social ties on health is as power-
 6 ful, and in some cases, more powerful a predictor
 7 of health and longevity than well-established risk
 8 factors for chronic disease and mortality, with effect
 9 sizes on par with smoking, blood pressure, lipids,
 10 obesity, and physical activity (House, Landis, &
 11 Umberson, 1988).

12 These benefits are realized in part by the fact that
 13 social support appears to help people to stave off ill-
 14 ness altogether. For example, Cohen and associates
 15 (1997) intentionally infected healthy community
 16 volunteers with a cold or flu virus by swabbing the
 17 inside of their nasal passages with virus-soaked
 18 cotton swabs. They found that people experiencing
 19 a high level of stress were more likely to develop
 20 infections than were people under less stress, and
 21 the colds and flus they developed were more
 22 serious as well. However, those with more social ties
 23 were less likely to become ill following exposure to
 24 the virus, and if they did, they were able to recover
 25 more quickly than were those with fewer social
 26 ties (Cohen, Doyle, Skoner, Rabin, & Gwaltney,
 27 1997).

28 On the whole, though, evidence for the impact of
 29 social support on the likelihood of becoming ill is
 30 not as consistently positive as evidence for its impact
 31 on course of illness or recovery (Seeman, 1996; Taylor
 32 & Seeman, 2000). It may be that social contacts both
 33 contribute to illness likelihood, as through contagion
 34 or the creation of stress (e.g., Hamrick, Cohen, &
 35 Rodriguez, 2002), but also promote health via social
 36 support, leading, on balance, to the only moderately
 37 positive net effect on illness likelihood.

38 Social support has been tied to a variety of spe-
 39 cific health benefits among individuals sustaining
 40 health risks. These include fewer complications
 41 during pregnancy and childbirth (Collins, Dunkel-
 42 Schetter, Lobel, & Scrimshaw, 1993), less suscepti-
 43 bility to herpes attacks among infected individuals
 44 (VanderPlate, Aral, & Magder, 1988), lower rates of
 45 myocardial infarction among individuals with diag-
 46 nosed disease, a reduced likelihood of mortality
 47 from myocardial infarction (Kulik & Mahler, 1993;
 48 Wiklund et al., 1988), faster recovery from coro-
 49 nary artery disease surgery (King, Reis, Porter, &
 50 Norsen, 1993; Kulik & Mahler, 1993), better dia-
 51 betes control (Marteau, Bloch, & Baum, 1987),
 52 better compliance and longer survival in patients
 53 with end-stage renal disease (Cohen et al., 2007),

and less pain among arthritis patients (Brown, 54
 Sheffield, Leary, & Robinson, 2003). 55

The impact of social support on mortality is also 56
 clearly established, as the seminal study by Berkman 57
 and Syme (1979) suggests. In prospective studies 58
 controlling for baseline health status, people with a 59
 higher quantity and quality of social relationships 60
 have consistently been shown to be at lower risk of 61
 early death (Herbst-Damm & Kulik, 2005; Seeman, 62
 1996), and in studies of both humans and animals, 63
 social isolation has been found to be a major risk 64
 factor for early mortality (House et al., 1988). 65

**PATHWAYS LINKING SOCIAL SUPPORT 66
 TO HEALTH 67**

68 Considerable effort has gone into exploring the
 69 pathways whereby social support is beneficial to
 70 health. Early research examined the possibility that
 71 social support may be associated with good health
 72 habits which, in turn, beneficially affect health. For
 73 example, family living has been tied to a broad array
 74 of good health habits, including a lower likelihood
 75 of drug or alcohol abuse and smoking, and an
 76 enhanced likelihood of a balanced diet and good
 77 sleep habits (e.g., Umberson, 1987). Social isolation
 78 has been tied to unhealthy responses to stress, such
 79 as smoking and alcohol abuse, which can adversely
 80 affect health (Broman, 1993). However, although
 81 social support may be helpful to people initially in
 82 developing or changing health habits, such as stop-
 83 ping smoking, it may have less consistent effects on
 84 maintenance (Carlson, Goodey, Bennett, Taenzer,
 85 & Koopmans, 2002). If the social support network
 86 itself is engaged in a behavior change program,
 87 social support may beneficially affect ongoing main-
 88 tenance. In one study (Fraser & Spink, 2002), for
 89 example, women for whom exercise had been pre-
 90 scribed for medical problems were less likely to drop
 91 out if they experienced social support in the group.
 92 Similarly, when families are engaged in behavior
 93 change programs (such as dietary change following
 94 diagnosis of cardiovascular disease), such involve-
 95 ment may promote better adherence to an otherwise
 96 taxing set of changes (Wilson & Ampey-Thornhill,
 97 2001). Social support may also increase commit-
 98 ment to medical regimens because it enhances feel-
 99 ings of self-efficacy (DiMatteo, 2004; Resnick,
 100 Orwig, Magaziner, & Wynne, 2002) or because it
 101 affects responsiveness to social influence efforts by
 102 others (Cohen & Lemay, 2007). But some social
 103 networks may also promote unhealthy behaviors,
 104 such as smoking, drug abuse, and drinking (Wills &
 105 Vaughan, 1989). On the whole, the impact of social

1 support on health appears to exist over and above
2 any influence it exerts on health habits.

3 Accordingly, researchers have focused heavily on
4 potential physiological, neuroendocrine, and immu-
5 nologic pathways by which social support may
6 achieve its health benefits. What are these pathways?
7 During times of stress, the body releases the cate-
8 cholamines epinephrine and norepinephrine with
9 concomitant sympathetic nervous system (SNA)
10 arousal and may also engage the hypothalamic-
11 pituitary-adrenocortical (HPA) axis, involving the
12 release of corticosteroids including cortisol. These
13 responses have short-term protective effects under
14 stressful circumstances, because they mobilize the
15 body to meet the demands of pressing situations.
16 However, with chronic or recurrent activation, they
17 can be associated with deleterious long-term effects,
18 with implications for health (e.g., Seeman &
19 McEwen, 1996; Uchino, Cacioppo, & Kiecolt-
20 Glaser, 1996). For example, excessive or repeated
21 discharge of epinephrine or norepinephrine can lead
22 to the suppression of cellular immune function,
23 produce hemodynamic changes such as increases in
24 blood pressure and heart rate, provoke abnormal
25 heart rhythms such as ventricular arrhythmias, and
26 produce neurochemical imbalances that may relate
27 to psychiatric disorders (McEwen & Stellar, 1993).
28 Intense, rapid, and/or long-lasting sympathetic
29 responses to repeated stress or challenge have been
30 implicated in the development of hypertension and
31 coronary artery disease.

32 Recently, evidence for these pathways has been
33 found at the neural level (Eisenberger, Taylor, Gable,
34 Hilmert, & Lieberman, 2007). In a study in which
35 participants kept daily social support diaries, partici-
36 pated in a functional magnetic resonance imaging
37 (fMRI) task assessing neurocognitive reactivity to a
38 social stressor, and participated in laboratory stress
39 tasks during which neuroendocrine responses were
40 assessed, those who interacted regularly with sup-
41 portive individuals across a 10-day period showed
42 diminished cortisol reactivity to a social stressor.
43 Moreover, greater social support and diminished cor-
44 tisol responses were associated with diminished activ-
45 ity in the dorsal anterior cingulate cortex (dACC)
46 and Brodmann area 8, brain regions whose activity
47 has previously been tied to social distress. Differences
48 in this neurocognitive reactivity mediated the rela-
49 tionship between social support and low cortisol
50 reactivity. Thus, this study helps to identify the path-
51 ways whereby social support affects neural regulation
52 of neuroendocrine processes in response to stress,
53 and this may contribute to health outcomes.

Social support may also protect against immune- 54
related disorders and promote healthy responses to 55
influenza vaccine (Pressman et al., 2005). Stress 56
may increase the risk for adverse health outcomes by 57
suppressing the immune system in ways that leave 58
a person vulnerable to opportunistic diseases and 59
infections. Corticosteroids have immunosuppressive 60
effects, and stress-related increases in cortisol have 61
been tied to decreased lymphocyte responsivity to 62
mitogenic stimulation and to decreased lymphocyte 63
cytotoxicity. Such immunosuppressive changes may 64
be associated with increased susceptibility to infec- 65
tious disorders and to destruction of neurons in the 66
hippocampus as well (McEwen & Sapolsky, 1995). 67

An immunosuppression model does not explain 68
how stress might influence diseases whose central 69
feature is excessive inflammation, however; such 70
diseases include allergic, autoimmune, rheumatolo- 71
gic, and cardiovascular disorders, among other 72
disorders that are known to be exacerbated by stress. 73
Miller, Cohen, and Ritchey (2002) hypothesized 74
that chronic stress may diminish the immune sys- 75
tem's sensitivity to glucocorticoid hormones that 76
normally terminate the inflammatory cascade that 77
occurs during stress. In support of their hypothesis, 78
they found a clear buffering effect of social support 79
on this process, such that among healthy individu- 80
als, glucocorticoid sensitivity bore no relation to 81
social support; however, among parents of children 82
with cancer (a population under extreme stress), 83
those who reported receiving a high level of tangible 84
support from others had higher glucocorticoid sensi- 85
tivity. Relatedly, social integration has been tied to 86
lower levels of C-reactive protein, a marker of 87
inflammation (Loucks, Berkman, Gruenewald, & 88
Seeman, 2006). 89

Extensive evidence suggests that all these systems— 90
the HPA axis, the immune system, and the SNA— 91
influence each other and thereby affect each other's 92
functioning. For example, links between HPA axis 93
activity and SNA activity suggest that chronic 94
activation of the HPA axis could potentiate overac- 95
tivation of sympathetic functioning (Chrousos & 96
Gold, 1992). Proinflammatory cytokines, which are 97
involved in the inflammatory processes just noted, 98
can activate the HPA axis and may contribute not 99
only to the deleterious effects that chronic activation 100
of this system may cause, but also, potentially to 101
depressive symptoms, which have previously been 102
tied to HPA axis activation (Maier & Watkins, 1998; 103
Capuron, Ravaud, & Dantzer, 2000). To the extent, 104
then, that social support can keep SNA or HPA axis 105
responses to stress low, it may have a beneficial 106

1 impact on other systems as well (Seeman &
2 McEwen, 1996; Uchino et al., 1996). In turn, these
3 benefits may affect health in a positive direction.

4 A variety of empirical studies has yielded evidence
5 consistent with these hypotheses. For example, a
6 considerable experimental literature demonstrates
7 that the presence of a supportive person when one is
8 going through a stressful task can reduce cardiovas-
9 cular and HPA axis responses to stress; these benefits
10 can be experienced whether the supportive person is
11 a partner, a friend, or a stranger (e.g., Christenfeld
12 et al., 1997; Gerin, Milner, Chawla, & Pickering,
13 1995; Gerin, Pieper, Levy, & Pickering, 1992;
14 Kamarck, Manuck, & Jennings, 1990; Kors, Linden,
15 & Gerin, 1997; Lepore, Allen, & Evans, 1993;
16 Sheffield & Carroll, 1994; see Lepore, 1998 for a
17 review).

18 Not all research shows beneficial effects of social
19 support in challenging circumstances, however.
20 Sometimes the presence of a friend or stranger
21 actually increases sympathetic reactivity among
22 those undergoing stress (e.g., Allen, Blascovich,
23 Tomaka, & Kelsey, 1991; Mullen, Bryant, &
24 Driskell, 1997). For example, Allen et al. (1991)
25 found that relative to a control condition in which
26 they remained alone, women who completed a
27 stressful task in the presence of a female friend had
28 higher physiological reactivity and poorer perfor-
29 mance (see also Kirschbaum, Klauer, Filipp, &
30 Hellhammer, 1995; Smith, Gallo, Goble, Ngu, &
31 Stark, 1998). Whereas the presence of a partner
32 seems to reduce stress-related physiological and
33 neuroendocrine reactivity among men, the presence
34 of a male partner more reliably enhances reactivity
35 among women (Kiecolt-Glaser & Newton, 2001).
36 The presence of a friend or partner may increase
37 evaluation apprehension over whether important
38 others' perceptions of the self may decline, and so this
39 apprehension may eliminate any effect of support
40 (Lepore, 1998).

41 Other biological processes may underlie the ben-
42 efits of social support as well. A growing literature
43 suggests a potential role for oxytocin in the neu-
44 roendocrine and physiological benefits of social
45 support. In response to stress, animals and humans
46 experience a cascade of hormonal responses that
47 begins, at least in some stressors, with the rapid
48 release of oxytocin. Consistent evidence suggests that
49 (1) oxytocin is associated with affiliative activities in
50 response to stress, (2) oxytocin is released in response
51 to stress, and (3) oxytocin is associated with reduced
52 SNS and HPA axis responses to stress (see Taylor,
53 Dickerson, & Klein, 2002).

Research from both animal (e.g., Grippo et al.,
2007) and human (e.g., Taylor, Gonzaga et al.,
2006) studies has found that, in response to the social
stressor of social isolation, oxytocin levels rise; one
possible explanation for this effect is that oxytocin
acts as a biological signal to the organism to seek
social company. Indeed, the relation of oxytocin to
affiliative activity is very strong. Exogenous admin-
istration of oxytocin reliably leads to increases in a
broad array of prosocial activities, including seeking
proximity, grooming, and mothering, and has been
tied to empathy and trust in humans. Both animal
(e.g., Witt, Carter, & Walton, 1990; McCarthy, 1995)
and human (e.g., Grewen, Girdler, Amico, & Light,
2005) studies have found that oxytocin is consis-
tently associated with signs of relaxation, including
an increase in social contact and in grooming in
animals (e.g., Carter, DeVries, & Getz, 1995), and
relaxation and calm in humans (e.g., Uvnas-Moberg,
1996), and lower blood pressure and heart rate
(Light, Grewen, & Amico, 2005). Oxytocin appears
to inhibit the secretion of adrenocorticotropin
(ACTH) hormone and cortisol in humans as well
(Chiodera & Legros, 1981; Legros, Chiodera, &
Demy-Ponsart, 1982).

The potential roles of oxytocin, both in the
down-regulation of SNS and HPA axis responses
to stress and in the tendency to turn to others, at
present, are hypotheses with a great deal of animal
evidence to support them, but less evidence from
human studies. Consequently, this issue represents a
direction for research, rather than an established
biological pathway by which social support may
exert protective effects on health. Moreover, there
may be roles for other hormones both in promoting
social support initially and in regulating its bio-
logical effects, which include vasopressin, norepi-
nephrine, serotonin, prolactin, and endogenous
opioid peptides (Nelson & Panksepp, 1998; Taylor
et al., 2002).

WHY IS SOCIAL SUPPORT BENEFICIAL?

Much early research on social support took for granted
that its impact on mental and physical health came
largely from the specific benefits furnished by social
support transactions. That is, when one person
helps another, that other is benefited tangibly or
emotionally in ways that can contribute to the well-
documented beneficial outcomes described. A vari-
ety of observations, however, have led researchers
to rethink whether all the benefits, or indeed, the
primary benefits of social support come from its
actual utilization.

1 The fact that structural measures of social support
 2 support are associated with mental and physical health
 3 benefits is implicit support for questioning this
 4 account. If merely knowing the number of social
 5 ties an individual has leads to insights about that
 6 individual's health, then it would appear that the
 7 activation of those ties may not be essential for
 8 benefits to be experienced. Research suggests that
 9 the mere perception of social support, whether or
 10 not it is actually utilized, can be stress-reducing with
 11 concomitant benefits for well-being. For example,
 12 Broadwell and Light (1999) brought married men
 13 and women into the laboratory and had them fill
 14 out a questionnaire about how much support they
 15 felt they had at home (or a questionnaire assessing
 16 matters unrelated to support). Each person was then
 17 put through several stressful tasks such as comput-
 18 ing difficult arithmetic problems in his or her head.
 19 The men who reported a lot of support from their
 20 families had lower blood pressure responses to the
 21 stressful tasks than did those who had less social
 22 support, suggesting that their families were providing
 23 support to them even though they were not physically
 24 present; the effect was not significant for women.
 25 In fact, beliefs about the availability of emotional
 26 support actually appear to exert stronger effects
 27 on mental health than the actual receipt of social
 28 support does (e.g., Wethington & Kessler, 1986;
 29 Dunkel-Schetter & Bennet, 1990; see Thoits, 1995
 30 for discussion).

31 This point suggests that the receipt of social support
 32 may have costs. Consistent with this idea,
 33 Bolger, Zuckerman, and Kessler (2000) documented
 34 that actually making use of one's social support network
 35 can be associated with enhanced rather than
 36 reduced stress. In their studies, couples completed
 37 daily diaries regarding the stressors they experi-
 38 enced, how distressed they were in response to them,
 39 and whether they had provided or received support
 40 from their partner. Supportive acts that were
 41 reported by the support recipient did not promote
 42 adjustment to stress, but rather, were associated
 43 with poorer adjustment, suggesting that when
 44 explicit support efforts are recognized, there can be
 45 emotional costs to the recipient. However, when
 46 supportive acts were reported by the support pro-
 47 vider, but were unrecognized by the recipient, stress-
 48 protective effects were found (Bolger & Amarel,
 49 2007). The results suggest that the most effective
 50 support is "invisible" to the recipient; that is, it
 51 occurs without his or her awareness. Thus, it may be
 52 that one set of benefits that social support confers is
 53 the availability of a supportive network that may act

in a supportive manner without one's realization, 54
 thereby reducing distress in response to threatening 55
 events. Indeed, merely thinking about one's support- 56
 ive ties can reduce stress (Smith, Ruiz, & Uchino, 57
 2004). 58

An important implication of results such as these 59
 is that, at least under some circumstances, people 60
 can carry their social support networks around in 61
 their heads to buffer them against stress without 62
 ever having to recruit their networks in active ways 63
 that may produce the costs just noted. Findings like 64
 these suggest that it is important to distinguish 65
 exactly when supportive efforts from others may be 66
 beneficial for mental and physical health and when 67
 they may not show these benefits (Bolger & Amarel, 68
 2007). 69

WHEN IS SOCIAL SUPPORT BENEFICIAL? 70

Whether social contacts are experienced as support- 71
 ive may depend on several factors. These include 72
 how large or dense one's social support networks 73
 are, whether the support provided is appropriate for 74
 meeting the stressor, and whether the right kind of 75
 support comes from the right person. 76

Considerable research has explored the character- 77
 istics of socially supportive networks. As noted, 78
 people who belong to more formal and informal 79
 organizations in their communities, such as church 80
 groups, the PTA, clubs, and the like, enjoy the 81
 health and mental health benefits of social support. 82
 This may be because such people are more socially 83
 skilled to begin with and thus seek out contacts 84
 from others, or it may be a direct consequence of 85
 participation in supportive networks. Social net- 86
 works may also be important for accessing specific 87
 types of assistance during times of stress (such as 88
 social services) (Lin & Westcott, 1991). However, 89
 the beneficial effects of social support are not cumu- 90
 lative in a linear fashion. It is clear that having a 91
 confidant (such as a spouse or a partner) may be the 92
 most effective social support (Collins & Feeney, 93
 2000; Cohen & Wills, 1985), especially for men 94
 (e.g., Broadwell & Light, 1999; Wickrama, Conger, 95
 & Lorenz, 1995). Accordingly, married people 96
 report higher perceived support than unmarried 97
 people do (Thoits, 1995). With respect to friends, 98
 research documents the benefits of at least one close 99
 friend, but having a dozen or more close friends may 100
 be little more beneficial for health and mental health 101
 than having a few close friends (Langner & Michael, 102
 1960). Indeed, one of the risks of social support 103
 networks is that overly intrusive social support may 104
 actually exacerbate stress (Shumaker & Hill, 1991). 105

1 People who belong to dense social networks of
 2 friends or family who are highly interactive may find
 3 themselves overwhelmed by the advice and interfer-
 4 ence that is available to them in times of stress.
 5 As comedian George Burns noted, “happiness is
 6 having a large, loving, caring, close-knit family in
 7 another city.”

8 Sometimes support providers give poor advice,
 9 fail at providing tangible assistance, or provide inap-
 10 propriate or too little emotional support, thereby
 11 reducing or eliminating the effectiveness of the
 12 effort (Bolger, Foster, Vinokur, & Ng, 1996; Burg
 13 & Seeman, 1994). Social support efforts, too, may
 14 be well-intentioned, but perceived as controlling or
 15 directive by the recipient. For example, when a
 16 spouse is pulled into the management of a chronic
 17 disease, such as coronary artery disease, the “support”
 18 of encouraging exercise and changing a partner’s diet
 19 may be perceived as interference by the patient
 20 (Franks et al., 2006). Although such well-intentioned
 21 support may achieve some benefits in modifying
 22 behaviors in a healthy direction, the potential to
 23 produce interpersonal conflict and psychological
 24 distress is clearly present as well (e.g., Fisher, La
 25 Greca, Greco, Arfken, & Schneiderman, 1997;
 26 Lewis & Rook, 1999; Wortman & Lehman, 1985).
 27 Socially supportive efforts may misfire for other rea-
 28 sons. When significant others’ responses to a per-
 29 son’s expression of symptoms or distress is contingent
 30 on that expression, such “support” may unwittingly
 31 reinforce symptom experiences and actually enhance
 32 emotional distress (Itkowitz, Kerns, & Otis, 2003).

33 Effective social support may depend on an
 34 appropriate balance between the needs of the recipi-
 35 ent and what that recipient gets from those in the
 36 social network (Cohen & McKay, 1984; Cohen &
 37 Wills, 1985). This “matching hypothesis” suggests
 38 that, to be supportive, the actions of the provider
 39 must meet the specific needs of the recipient (Thoits,
 40 1995). Thus, for example, if a person needs emo-
 41 tional support but receives advice instead, the mis-
 42 fired effort at support may actually increase
 43 psychological distress (Horowitz et al., 2001; Thoits,
 44 1986). Research generally supports this hypothesis.
 45 Different kinds of support, for example, may be
 46 valued from different members of a social support
 47 network. Emotional support may be most helpful
 48 from intimate others and actually resented when
 49 casual friends attempt to provide it, whereas infor-
 50 mation and advice may be especially valuable from
 51 experts but regarded as inappropriate from well-
 52 intentioned friends or family with questionable
 53 expertise (e.g., Benson, Gross, Messer, Kellum, &

Passmore, 1991; Dakof & Taylor, 1990). Consistent
 54 with this perspective, Helgeson and Cohen (1996)
 55 reviewed research on the impact of social support
 56 on adjustment to cancer. They found that emotional
 57 support was most desired by patients and appeared
 58 to have the greatest beneficial influence on adjust-
 59 ment. However, peer support group interventions
 60 whose goal was providing emotional support did not,
 61 for the most part, have benefits; rather, educational
 62 groups that provided information were perceived
 63 more positively. Although there are several possible
 64 interpretations of these findings, it may be that
 65 emotional needs were best met by those close to
 66 cancer patients, rather than by the relative strangers
 67 in the peer group, and that educational interven-
 68 tions in peer groups better met the cancer patients’
 69 specific informational needs. 70

71 Other threats to obtaining social support may
 72 come from the support recipient. People who are
 73 under extreme stress often express their distress to
 74 others and over time, can drive their social support
 75 networks away (Matt & Dean, 1993; McLeod,
 76 Kessler, & Landis, 1992). For example, depressed,
 77 disabled, or ill people can inadvertently repel their
 78 families and friends by persistently expressing their
 79 negative emotions (Alferi, Carver, Antoni, Weiss, &
 80 Duran, 2001; Coyne et al., 1987; Fyrand, Moum,
 81 Finset, & Glennas, 2002). In a longitudinal investi-
 82 gation of 405 elderly individuals, Gurung, Taylor,
 83 and Seeman (2003), found that men and women
 84 who were depressed or who had cognitive dysfunction
 85 reported more problems with social relationships
 86 at follow-up several years later (see also Honn &
 87 Bornstein, 2002; Alferi et al., 2001). They con-
 88 cluded that those most in need for social support
 89 were potentially less likely to receive it and to instead
 90 experience gaps in their social support.

91 The positive impact of social support on adjust-
 92 ment to stressful events may be attenuated in espe-
 93 cially high-stress environments. For example, Ceballo
 94 and McLoyd (2002) found that the usually positive
 95 impact of social support on parenting behavior was
 96 attenuated in high-stress neighborhoods. Gurung,
 97 Taylor, Kemeny, and Myers (2004) found that,
 98 although high levels of social support were associated
 99 with lower levels of depression in a sample of low-
 100 income HIV-seropositive women, social support
 101 resources were not sufficient to moderate the relation
 102 between chronic burden and high levels of depres-
 103 sion. Thus, like most resources, the effectiveness of
 104 social support in reducing distress due to stressful
 105 circumstances may have its limits at especially high
 106 levels of stress. Related to these observations is the

1 fact that the perception of social support as available
 2 is positively correlated with SES (Taylor & Seeman,
 3 2000; Thoits, 1984).

4 A *New Yorker* cartoon shows one woman enthu-
 5 siastically telling another woman that what she likes
 6 best about their friendship is that they never have to
 7 see each other or talk. Indeed, many relationships
 8 may be better for the having of them than for the
 9 using of them. Social relationships are fraught with
 10 the potential for discord as well as support, and so
 11 relationships are a potential double-edged sword.
 12 In a study of 120 widowed women, Rook (1984)
 13 found that negative social interactions were consis-
 14 tently and more strongly related (negatively) to
 15 well-being than were positive social interactions.
 16 Having one's privacy invaded by family and friends,
 17 having promises of help not come through, and
 18 being involved with people who provoked conflict
 19 or anger were among the events that worsened
 20 adjustment in this vulnerable sample. Similarly,
 21 Schuster, Kessler, and Aseltine (1990) found that
 22 negative interactions with a spouse or close friends
 23 augmented depression more than positive, supportive
 24 interactions reduced it. Research examining the
 25 neuroendocrine correlates of marital relationships
 26 likewise reveal that conflict can lead to elevated cor-
 27 tisol levels (Heffner et al., 2006), to delayed wound
 28 healing, and to a lower cytokine response at wound
 29 sites (Kiecolt-Glaser et al., 2005). Negative social
 30 interactions also contribute to negative self-rated
 31 health and to more adverse health conditions as well
 32 (Newsom, Mahan, Rook, & Krause, 2008). These
 33 findings not only underscore the double-edged nature
 34 of social relationships, but also imply that avoiding
 35 social relationships or situations that actually tax
 36 well-being may be helpful for managing stress.

37 ***Origins of Social Support***

38 **WHO GETS SOCIAL SUPPORT?**

39 The fact that social relationships can be either sup-
 40 portive or unhelpful, and the fact that support
 41 recipients substantially affect which outcome occurs
 42 raises an intriguing issue. Is social support largely
 43 “outside” in the social environment or “inside” the
 44 person, in the form of abilities to extract support from
 45 the environment or construe support as available?
 46 Although social support no doubt involves aspects
 47 of both, attention to the qualities of the support
 48 recipient has yielded some important findings.

49 Research has suggested that there may be heritable
 50 aspects of social support. Specifically, research using
 51 twin-study methodology has uncovered a moderately
 52 high degree of heritability, either in the ability to

53 construe social support as available or in the ability
 54 to experience one's network of friends and relatives
 55 as supportive (Kessler, Kendler, Heath, Neale, &
 56 Eaves, 1992). Similarly, heritability estimates sug-
 57 gest that genetic factors may account for about 50%
 58 of the variance in loneliness (Boomsma, Willemsen,
 59 Dolan, Hawkley, & Cacioppo, 2005). Although
 60 there are a number of potential interpretations of
 61 these findings, at the very least, they suggest that
 62 genes may play a role in some of the benefits of
 63 social support.

64 Some of these heritable factors may involve social
 65 competence. Some people are more effective than
 66 others in extracting the social support that they
 67 need, suggesting that social support involves a con-
 68 siderable degree of skill. People who have difficulty
 69 with social relationships, those who are chronically
 70 shy (Naliboff et al., 2004) or who anticipate rejec-
 71 tion from others (Cole, Kemeny, Fahey, Zack, &
 72 Naliboff, 2003), are at risk for isolating themselves
 73 socially, with concomitant risks for health. Being a
 74 socially competent individual appears to be espe-
 75 cially important for getting emotional support,
 76 but it may not predict as strongly the ability to get
 77 tangible assistance or information (Dunkel-Schetter,
 78 Folkman, & Lazarus, 1987).

79 Researchers are beginning to identify some of
 80 the specific genes that may be involved in the devel-
 81 opment (or not) of social skills. This work is in its
 82 infancy, and so some caution regarding these points
 83 is warranted. The μ -opioid receptor gene (*OPRM1*)
 84 appears to be implicated in the experience of social
 85 support. Specifically, people with the G allele of the
 86 polymorphism (A118G) appear to be more sensi-
 87 tive to potential rejection and also experience greater
 88 increases in salivary cortisol during laboratory stress
 89 tasks (Way, Taylor, & Eisenberger, 2009). Carriers
 90 of the G allele, relative to individuals with two
 91 copies of the A allele, also exhibit greater activity in
 92 the dACC during a social exclusion fMRI task. Thus,
 93 across multiple measures of social sensitivity, the
 94 G allele is associated with the potential for greater
 95 social distress. Recent research with monkeys shows
 96 similar findings (Barr et al., 2008; Miller et al., 2004).

97 Similarly, within the gene coding for monoamine
 98 oxidase (MAOA), the low expression variants of
 99 MAOA-uVNTR are tied to activation in the dACC
 100 in response to a social exclusion fMRI task; that
 101 activation is correlated with self-reported distress in
 102 response to social exclusion (Eisenberger, Way,
 103 Taylor, Welch, & Lieberman, 2007). Thus, it appears
 104 that the MAOA gene also influences distress experi-
 105 enced in response to social exclusion or rejection.

1 Other genes that contribute to social support (or
 2 its absence) are also likely to be uncovered. For
 3 example, genes that help to regulate the dopamine
 4 system may also be involved in the experiences of
 5 social support or social rejection (Way & Taylor,
 6 2011). In addition, carriers of the A allele of the
 7 oxytocin receptor gene are less likely to show
 8 sensitive parenting (Bakermans-Kranenburg &
 9 van IJzendoorn, 2008), thereby pointing in a pre-
 10 liminary way to a gene that may be implicated in
 11 maternal nurturance. A polymorphism within the
 12 vasopressin 1A receptor (AVPR1A) has been tied to
 13 empathy and altruistic behavior, and may thereby
 14 contribute to social support processes (Bachner-
 15 Melman et al., 2005; Knafo et al., 2008). (For a
 16 review of genetic factors in social distress/social
 17 support, see Way & Taylor, 2011).

18 **A DEVELOPMENTAL APPROACH TO**
 19 **SOCIAL SUPPORT**

20 The fact that social support may have heritable
 21 aspects and that it may depend, in part, on social
 22 skills, suggests that focusing on its early familial
 23 antecedents may also be enlightening regarding why
 24 this vital resource seems to come so easily to some
 25 people and more rarely to others. The thesis to be
 26 offered here is that (a) the beneficial effects of social
 27 support on physical and mental health begin with
 28 supportive familial contact; (b) these contacts, in
 29 turn, lay the groundwork for the development of
 30 social competencies and corresponding abilities to
 31 enlist and provide social support and/or construe
 32 social support as available; and (c) these skills are
 33 transferred intergenerationally, through both
 34 genomic and nongenomic pathways.

35 Evidence that socially supportive contacts in early
 36 life have beneficial effects on responses to stress,
 37 mental health, and health is manifold and may be
 38 readily seen in both human and animal studies.
 39 In some of the earliest work on this topic, Harlow
 40 and Harlow (1962) found that monkeys who were
 41 raised with an artificial terrycloth mother and who
 42 were isolated from other monkeys during the first
 43 6 months of life showed disruptions in their adult
 44 social contacts. They were less likely to engage in
 45 normal social behavior, such as grooming, their
 46 sexual responses were inappropriate, mothering
 47 among the females was deficient, and they often
 48 showed either highly fearful or abnormally aggres-
 49 sive behavior toward their peers. Not surprisingly,
 50 these social behaviors led to peer rejection. In sum, a
 51 broad array of social skills were compromised by the
 52 absence of early nurturant contact with the mother.

53 Building on work like this, Meaney and col-
 54 leagues (Francis, Diorio, Liu, & Meaney, 1999; Liu
 55 et al., 1997) explicitly linked early nurturant mater-
 56 nal contact to the development of stress responses in
 57 offspring and showed that these contacts affect emo-
 58 tional and neuroendocrine responses to stress across
 59 the lifespan. In their paradigm, infant rats are
 60 removed from the nest, handled by a human experi-
 61 menter and then returned to the nest. The response
 62 of the mother to this separation and reunification
 63 is intense licking and grooming and arched-back
 64 nursing, which provides the pup with nurturant
 65 and soothing immediate stimulation. On the short
 66 term, this contact reduces SNS and HPA axis
 67 responses to stress in the pups (and in the mother as
 68 well). Over the long term, this maternal behavior
 69 results in a better regulated HPA axis response to
 70 stress and novelty, and better regulation of somatic
 71 growth and neural development, especially hip-
 72 pocampal synaptic development in the pup. These
 73 rat pups also showed more open field exploration,
 74 which suggests lower levels of fear. This compelling
 75 animal model suggests that nurturant stimulation
 76 by the mother early in life modulates the responses
 77 of offspring to stress in ways that have permanent
 78 effects on the offspring's HPA axis responses to
 79 stress, on behavior suggestive of anxiety/fearfulness,
 80 and on cognitive function (see also Suomi, 1999).

81 Warm, nurturant, and supportive contact with a
 82 caregiver affects physiological and neuroendocrine
 83 stress responses in human infants and children, just
 84 as in these animal studies. Early research on orphans
 85 reported high levels of emotional disturbance, espe-
 86 cially depression, in infants who failed to receive
 87 nurturant stimulating contact from a caregiver
 88 (Spitz & Wolff, 1946). More recent findings from
 89 Eastern European abandoned infants confirm that,
 90 without the affectionate attentions of caregivers,
 91 infants may fail to thrive, and many die (Carlson &
 92 Earls, 1997).

93 Not surprisingly, attachment processes are impli-
 94 cated in these relations. Gunnar and her associates,
 95 studying 15-month-old children receiving well-
 96 baby examinations, found that securely attached
 97 infants were less likely to show elevated cortisol
 98 responses to normal stressors, such as inoculations,
 99 than were less securely attached infants (Gunnar,
 100 Brodersen, Krueger, & Rigatuso, 1996; see also
 101 Nachmias, Gunnar, Mangelsdorf, Parritz, & Buss,
 102 1996). The protective effects of secure attachment
 103 were especially evident for socially fearful or inhib-
 104 ited children (see also Levine & Wiener, 1988; Hart,
 105 Gunnar, & Cicchetti, 1996; see Collins & Feeney,

1 2000, for a discussion of attachment in adult sup-
 2 portive relationships).

3 Research also consistently suggests that families
 4 characterized by unsupportive relationships have
 5 damaging outcomes for the mental, physical, and
 6 social health of their offspring, not only on the short
 7 term, but across the lifespan. Overt family conflict,
 8 manifested in recurrent episodes of anger and
 9 aggression, deficient nurturing, and family relation-
 10 ships that are cold, unsupportive, and/or neglectful
 11 have been associated with a broad array of adverse
 12 mental and physical health outcomes long into
 13 adulthood (Repetti, Taylor, & Saxbe, 2007; Repetti,
 14 Taylor, & Seeman, 2002). The chronic stress of
 15 unsupportive families produces repeated or chronic
 16 SNS activation in children, which, in turn, may
 17 lead to wear and tear on the cardiovascular system.
 18 Over time, such alterations may lead to pathogenic
 19 changes in sympathetic or parasympathetic func-
 20 tioning or both. Such changes may contribute to
 21 disorders such as essential hypertension (e.g., Ewart,
 22 1991) and coronary heart disease (e.g., Woodall &
 23 Matthews, 1989).

24 As appears to be true in the animal studies previ-
 25 ously described, early nurturant and supportive
 26 contacts appear to be important for human off-
 27 spring's emotional responses to stress as well, espe-
 28 cially those involving anxiety or fear. Infants begin
 29 life with emergent abilities to monitor the environ-
 30 ment, especially for potential threats. The amygdala
 31 is activated any time there is something new or
 32 unexpected in the environment, especially if it
 33 involves suggestions of danger. Early in life, the
 34 amygdala sends off many messages of alarm. Any
 35 loud noise, for example, will alarm an infant, and a
 36 few months later, strangers typically provoke dis-
 37 tress. Through the comforting attentions of parents,
 38 infants begin to learn about and adjust to the social
 39 world. Over time, they learn that strangers are not
 40 necessarily threatening and that loud noises are not
 41 inevitably associated with danger, among other
 42 moderations of automatic responses to threat.
 43 As the prefrontal cortex develops, children learn
 44 additional ways to moderate the signals that they
 45 get from the amygdala, storing information about
 46 both the threatening and the comforting aspects of
 47 the social world.

48 The development of this system is critically
 49 affected by early nurturant contact. Infants form
 50 comforting bonds with others and, in turn, give rise
 51 to the emotion regulation skills and social skills that
 52 ultimately enable children to manage potentially
 53 threatening events autonomously, skills that become

vital to managing stress across the lifespan (Taylor, 54
 2002). That is, a broad array of evidence demon- 55
 strates that children from supportive families are 56
 more likely than those from unsupportive families 57
 to develop effective emotion regulation skills and 58
 social competencies (Repetti et al., 2002), as judged, 59
 for example, by teachers and peers. Similarly, adults 60
 whose interpersonal styles are marked by hostility 61
 and cynicism, a style that has been tied to an un- 62
 supportive or conflict-ridden early family environment, 63
 are less likely to report having social support (e.g., 64
 Smith, 1992) and/or support may be a less effective 65
 buffer against stress (e.g. Lepore, 1995). 66

67 Epigenetic factors appear to be involved in these
 68 pathways. That is, maternal nurturance can induce
 69 long-lasting changes in the function of genes, which
 70 is an additional mechanism by which experiences of
 71 early social support can induce long-term behavioral
 72 alterations in emotional and social functioning.

73 Meaney and colleagues have shown that rat pups
 74 exposed to highly nurturant mothering show less
 75 emotionality to novel circumstances and more nor-
 76 mative social behavior, including mothering in
 77 adulthood, compared to recipients of normal moth-
 78 ering (Francis et al., 1999; Weaver et al., 2004).
 79 Studies with monkeys have shown similar effects.
 80 For example, Suomi (1987) reports that highly reac-
 81 tive monkeys cross-fostered to nurturant mothers
 82 develop good socioemotional skills and achieve high
 83 status in the dominance hierarchy, whereas mon-
 84 keys with reactive temperaments who are peer-raised
 85 develop poor socioemotional skills and end up at
 86 the bottom of the dominance hierarchy.

87 Such long-term effects of maternal care appear to
 88 be a result of epigenetic structural alterations (meth-
 89 ylation) to the glucocorticoid receptor gene that
 90 occur in the first week after birth and affect its
 91 expression throughout the lifespan (Meaney & Szyf,
 92 2005). This process is affected by each of the neuro-
 93 chemical systems discussed in this chapter, and thus
 94 polymorphisms in these systems that affect signal-
 95 ing are likely to have downstream effects upon this
 96 process. Mothers showing high levels of nurturant
 97 behavior exhibit greater increases in oxytocin recep-
 98 tors during pregnancy, which is thought to trigger
 99 maternal responsivity (Meaney, 2001), and they
 100 have higher levels of dopamine release when caring
 101 for their pups (Champagne et al., 2004). This more
 102 nurturant mothering triggers greater increases in
 103 serotonin turnover in the pup, which initiates the
 104 cascade leading to the altered glucocorticoid recep-
 105 tor expression that affects adulthood reactivity to
 106 stress (Meaney & Szyf, 2005).

1 Related evidence has been uncovered with humans.
 2 For example, the harshness or nurturance of the
 3 early environment is implicated in the expression of
 4 the serotonin transporter gene (*5-HTTLPR*). People
 5 with two copies of the *5-HTTLPR* short allele
 6 (short/short) who have experienced childhood
 7 maltreatment are more likely to be diagnosed with
 8 major depressive disorder than are individuals with
 9 one or two copies of the long allele who have expe-
 10 rienced similar environments (Caspi et al., 2003;
 11 Kaufman et al., 2004). A study from our laboratory
 12 (Taylor et al., 2006) suggests that the short allele
 13 may not only function as a risk allele for depression
 14 in the face of an adverse environment, but as an allele
 15 reflecting general sensitivity to the environment,
 16 providing protection from symptoms of depression
 17 when the environment is nurturant. Using a non-
 18 clinical sample of 118 adult men and women, we
 19 assessed nurturance of the early family environment,
 20 depressive symptomatology, and *5-HTTLPR* geno-
 21 type. As expected, a stressful early family environ-
 22 ment by itself was significantly related to depressive
 23 symptomatology. However, a significant gene-by-
 24 environment interaction between *5-HTTLPR* and
 25 the nurturance of the early family environment
 26 qualified the risk for depression. Specifically, indi-
 27 viduals with two copies of the short allele had greater
 28 depressive symptomatology if they had experienced
 29 early familial adversity compared with participants
 30 with the short/long or long/long genotypes, but sig-
 31 nificantly less depressive symptomatology if they
 32 reported a supportive early environment. Notably,
 33 the adverse early family environments studied were
 34 ones in which the degree of social pain was fairly
 35 mild, consisting of some conflict, moderate house-
 36 hold chaos, and/or cold, unaffectionate, and distant
 37 behaviors, rather than explicit maltreatment in the
 38 form of physical or sexual abuse.

39 Of interest, this differential sensitivity to the
 40 environment does not appear to be limited to child-
 41 hood, but is present in adulthood as well. Thus,
 42 people with the short/short genotype who reported
 43 being in a currently highly stressful environment
 44 had higher levels of depressive symptomatology,
 45 relative to those with short/long or long/long vari-
 46 ants, whereas those who reported currently being in
 47 a low-stress environment had significantly lower
 48 levels of depressive symptomatology (Taylor, Way
 49 et al., 2006). Reports of the early and current envi-
 50 ronment were only modestly correlated with each
 51 other, and so these results are fairly independent of
 52 each other. Thus, with respect to depressive symptoms,
 53 the short/short genotype of the serotonin transporter

gene appears to be risky in harsh environments but
 protective in nurturant environments. Consistent
 with this latter point, short/short individuals have
 been found to be more responsive to the protective
 effects of social support as well (Kaufman et al.,
 2004; Kilpatrick et al., 2007).

In essence, then, the early family environment
 may provide the groundwork for social competence
 and the abilities to enlist social support across the
 lifespan. In families that are warm and nurturant,
 children learn to manage threat effectively with a
 lesser physiological/neuroendocrine toll, and through
 exposure to good models, they may develop social
 skills of their own. If they are raised in cold, non-
 nurturant, or conflict-ridden families, children
 instead experience threatening events more com-
 monly and learn fewer social competencies, with
 the result that social support networks may be
 difficult to develop or use effectively. As such, early
 nurturance of offspring in response to stress might
 be thought of as a prototype for social support,
 which is mirrored throughout life in the many more
 modest supportive contacts a person encounters
 across the lifespan.

Are the benefits of being raised in a socially
 supportive environment conferred genetically or
 through the environment? In other words, do par-
 ticularly nurturant parents have particularly socially
 skilled offspring by virtue of their shared genetic
 heritage, or does nurturance itself play a role in the
 acquisition of social skills? Both mechanisms appear
 to be involved. On the one hand, certain species
 show genetically based high levels of “licking and
 grooming” in response to stress (Liu et al., 1997),
 which are transmitted to offspring as styles that
 appear in the offspring’s nurturant behavior. On the
 other hand, by cross-fostering offspring to high- or
 low-nurturant caretakers, the impact of the behavior
 itself on physiological and social functioning
 becomes clear. For example, Suomi (1987) assigned
 rhesus monkeys selectively bred for differences in
 temperamental reactivity to foster mothers who were
 either unusually nurturant or within the normal
 range of mothering behavior. Highly reactive infants
 cross-fostered to normal mothers exhibited deficits
 in social behavior, and in adulthood, they tended to
 drop and remain low in the dominance hierarchy
 (Suomi, 1991). Highly reactive infants cross-fostered
 to exceptionally nurturant females, in contrast,
 showed higher levels of social skills, and in adulthood
 were more likely to rise to the top of the dominance
 hierarchy. When highly reactive females became
 mothers, they adopted the maternal style of their

1 foster mothers, independent of their own reactivity
 2 profile (Suomi, 1987). Studies such as these provide
 3 evidence of the behavioral intergenerational transfer
 4 of nurturance over and above genetic predispositions
 5 (see also Francis et al., 1999).

6 These studies are significant for several reasons.
 7 First, they suggest clear developmental origins for
 8 social competencies that may affect social support
 9 availability across the lifespan. Second, they provide
 10 clear evidence that maternal nurturance can moderate
 11 genetic risks typically associated with the potential
 12 for maladaptive social behavior. Third, they demon-
 13 strate the nongenomic intergenerational transfer of
 14 social skills via exposure to nurturant supportive
 15 behavior. In short, then, whereas genetic factors
 16 may contribute to whether or not an individual is
 17 able to develop social competence, early nurturant
 18 experience can also be a contributing factor that
 19 may extend not only across one's own lifespan, but
 20 to one's offspring as well. Although the evidence for
 21 such a model is primarily from animals, one would
 22 expect that genomic and nongenomic factors may
 23 be involved in the intergenerational transfer of social
 24 skills and deficits in humans as well.

25 ***Gender, Culture, and Social Support***

26 **GENDER AND SOCIAL SUPPORT**

27 The previous discussion places a heavy role on
 28 mothering, at least in the animal studies implicating
 29 nurturance in offspring's social and physiological
 30 behavior. This raises the question of whether there
 31 are gender differences in the ability to provide social
 32 support to others, in its extraction from others, and
 33 in its benefits. The research evidence suggests that
 34 women provide more social support to others, draw
 35 on socially supportive networks more consistently
 36 in times of stress, and may be more benefited by
 37 social support (e.g., Taylor, Klein, Lewis, Gruenewald,
 38 Gurung, & Updegraff, 2000).

39 Although men typically report larger social net-
 40 works than women do, in part because of men's his-
 41 torically greater involvement in employment and in
 42 community organizations, studies find that women
 43 are consistently more invested in their relationships
 44 and that their relationships with others are more
 45 intimate (Belle, 1987). Women are more involved
 46 in both the giving and receiving of social support
 47 than are men (Thoits, 1995). Across the lifecycle,
 48 women are more likely to mobilize social support,
 49 especially from other women, in times of stress.
 50 Adolescent girls report more informal sources of
 51 support than do boys, and they are more likely to turn
 52 to their same-sex peers than are boys (e.g., Copeland

& Hess, 1995; see Belle, 1987 for a review). College
 student women report more available helpers and
 report receiving more support than do college men
 (e.g., Ptacek, Smith, & Zanas, 1992; see Belle, 1987
 for a review). Adult women maintain more same-
 sex close relationships than do men, they mobilize
 more social support in times of stress than do men,
 they turn to female friends more often than men
 turn to male friends, they report more benefits from
 contacts with their female friends and relatives
 (although they are also more vulnerable to psycho-
 logical stress resulting from stressful network events),
 and they provide more frequent and more effective
 social support to others than do men (Belle, 1987;
 McDonald & Korabik, 1991; Ogus, Greenglass, &
 Burke, 1990).

Women are also more invested in their social
 networks than are men. They are better at reporting
 most types of social network events, and they are
 more likely to report getting involved if there is a
 crisis in the network (Wethington, McLeod, &
 Kessler, 1987). In an extensive study of social net-
 works, Veroff, Kulka, and Douvan (1981) reported
 that women were 30% more likely than men to have
 provided some type of support in response to net-
 work stressors. These findings appear to generalize
 across a number of cultures as well (Edwards, 1993;
 Whiting & Whiting, 1975).

Studies of caregiving also bear out these observa-
 tions. Over 80% of this care is provided by mothers,
 daughters, and wives. For example, in the United
 States, the typical caregiver is a 60-year-old, low-
 income woman with a disabled or ill spouse. How-
 ever, daughters care for aging parents (sons are
 only one-fourth as likely to give parental care),
 mothers care for disabled children, and a growing
 number of caregivers are grandmothers caring for
 the offspring of their own children who may have
 drug or alcohol problems or HIV infection (Taylor,
 2002). Several studies suggest that men, in contrast,
 are more likely to institutionalize their wives in
 response to common causes of the need for caregiv-
 ing, such as stroke or Alzheimer disease (Freedman,
 1993; Kelly-Hayes et al., 1998).

As the previous analysis suggests, women are not
 only disproportionately the providers of social sup-
 port, they are also more likely to seek social support
 in response to stress. Two meta-analyses (Luckow,
 Reifman, & McIntosh, 1998; Tamres, Janicki, &
 Helgeson, 2002) examined gender differences in
 coping with stress and found that women were sig-
 nificantly more likely to seek and use social support
 to deal with a broad array of stressors. For example,

1 in the Luckow et al. review, of the 26 studies that
 2 tested for gender differences in coping via social
 3 support, one showed no differences and 25 showed
 4 that women favored social support more. These
 5 gender differences are more apparent in the domain
 6 of seeking emotional support than for other types of
 7 social support.

8 One might expect that if women seek social sup-
 9 port more, are more invested in their social support
 10 networks, and report that social support is more
 11 important to them than is the case for men, they
 12 might be benefited more by social support. A meta-
 13 analysis conducted by Schwarzer and Leppin (1989)
 14 found support for this hypothesis. Across many
 15 investigations, the correlation between social sup-
 16 port and good health was approximately .20 for
 17 women, but for men, the correlation was only .08.

18 Women may be somewhat more effective pro-
 19 viders of social support than men are as well. For
 20 example, Wheeler and colleagues (Wheeler, Reis, &
 21 Nezlek, 1983) studied students who remained at col-
 22 lege during the December holidays to see who became
 23 depressed and lonely in response to this stressful
 24 circumstance. The students kept track of how they
 25 spent their days, with whom they spent them, and
 26 what emotions they experienced during that period.
 27 The strongest determinant of how lonely the stu-
 28 dents were was how much contact they had each
 29 day with women. The more time a student, whether
 30 man or woman, spent with women, the less lonely he
 31 or she was. The amount of time spent with other
 32 men, for the most part, did not affect mental health.

33 Research consistent with this point has also come
 34 from studies of the differences between men's and
 35 women's abilities to provide social support for each
 36 other in times of stress and the protective effects
 37 of such efforts. An array of evidence suggests that
 38 women may be better providers of social support to
 39 men than men are to women (Thoits, 1995). For
 40 example, when men are asked where their emotional
 41 support comes from, most men name their wife as
 42 their chief source of social support and many name
 43 her as the only person to whom they confide their
 44 personal problems or difficulties (see Glaser &
 45 Kiecolt-Glaser, 1994; New England Research
 46 Institutes, 1997; Phillipson, 1997); women report that
 47 they are likely to turn to a female friend or relative,
 48 as well as to their spouse.

49 These differences appear to translate directly into
 50 health benefits. Although marriage benefits both
 51 men and women, it benefits men more (Chesney &
 52 Darbes, 1998). Thus, for example, the health of
 53 married men is better than that of single men, but

54 the health of women is less strongly influenced by
 55 marital status. Mortality rates among widowed men
 56 are higher than among widowed women, and wid-
 57 owed men who remarry die later in life than those
 58 who do not remarry; among widowed women,
 59 remarrying has no effect on age of death (Helsing,
 60 Szklo, & Comstock, 1981; Stroebe & Stroebe, 1983).
 61 As noted earlier, in experimental studies, when women
 62 and men are asked to bring their partner with them
 63 when they undergo stressful laboratory tasks, men's
 64 SNS and HPA axis responses to stress tend to be
 65 buffered by the presence of a female partner, but
 66 females' responses to stress are often stronger in the
 67 presence of a partner than when alone (see Kiecolt-
 68 Glaser, & Newton, 2001). Moreover, the downside
 69 of social contacts discussed earlier, namely the
 70 potential for conflict and other negative interac-
 71 tions, appear to weigh more heavily on women than
 72 on men. Specifically, in a large-scale review, Kiecolt-
 73 Glaser and Newton (2001) report that wives show
 74 stronger heart rate, blood pressure, and HPA axis
 75 changes during marital conflict than do husbands.

76 In a theoretical model that provides a framework
 77 for these observations, Taylor and colleagues (2000)
 78 suggested that gender differences in the seeking
 79 and giving of social support may reflect, in part,
 80 a robust and biologically based difference in how
 81 men and women cope with stress. They suggested
 82 that, whereas the behaviors of fight-or-flight, namely
 83 aggression or withdrawal in response to stress, may
 84 be especially characteristic of men, a pattern termed
 85 *tend-and-befriend* may be more characteristic of
 86 women in response to stress. Tending involves nur-
 87 turant activities designed to protect the self and
 88 offspring that may promote safety and reduce dis-
 89 tress. Befriending is the creation and maintenance
 90 of social networks, especially those involving other
 91 women, that may aid in this process. Their argu-
 92 ment is predicated on the evolutionary assumption
 93 that, during human prehistory, men and women
 94 faced somewhat different adaptive challenges, and as
 95 a result may have developed different stress responses
 96 to meet those different challenges. Specifically,
 97 females of most species, including humans, have
 98 primary responsibility for the early nurturing of
 99 offspring through pregnancy, nursing, and care in
 100 early life. Stress responses in females, then, are likely
 101 to have evolved in such a way as to simultaneously
 102 protect mothers and offspring. Whereas fight and
 103 flight constitute responses to stress that can protect
 104 an individual well, tending to offspring and befriend-
 105 ing others in a social group may facilitate the joint
 106 protection of self and offspring.

1 Taylor and colleagues suggested that these stress
 2 responses may be influenced, in part, by neuroendo-
 3 crine underpinnings, such as the release of oxytocin
 4 and endogenous opioid peptides. As noted earlier,
 5 oxytocin is thought to be an affiliative hormone that
 6 may underlie at least some forms of maternal and
 7 social contact. Because the impact of oxytocin is
 8 enhanced by the effects of estrogen, oxytocin's effects
 9 are thought to be stronger in females than in males
 10 and may be implicated in the maternal tending of
 11 offspring seen in response to stress (Taylor et al.,
 12 2000).

13 In summary, then, although both men and
 14 women benefit from social support, women tend to
 15 give and receive social support from different
 16 sources. Women are disproportionately the support
 17 providers to children, to men, and to other women.
 18 The support that they provide also appears to trans-
 19 late directly into health benefits. When men seek
 20 social support, on the other hand, they are most
 21 likely to do so from a partner, and they show clear
 22 health benefits from having a marital partner.
 23 Overall, women are somewhat more likely to give
 24 social support, seek it out in times of stress, and
 25 benefit from it, patterns that may have evolutionary
 26 significance and biological underpinnings (Taylor
 27 et al., 2000; Taylor, 2002).

28 **CULTURE AND SOCIAL SUPPORT**

29 Culture is another variable that may moderate how
 30 social support is perceived or received. On the one
 31 hand, there is a large literature to suggest that the
 32 benefits of social support for mental and physical
 33 health extend across many cultures. On the other
 34 hand, the possibility that support is experienced dif-
 35 ferently in different cultures is an important issue
 36 that has not been widely addressed. Is there any
 37 reason to believe that particular cultural dimensions
 38 might be related to how and whether social support
 39 is experienced or used in response to stress?

40 Considerable research suggests that people from
 41 East Asian cultural contexts view the maintenance
 42 of harmony within the social group as an overarch-
 43 ing goal. Any effort to bring personal problems to
 44 the attention of others to enlist their help may be
 45 seen as undermining that harmony or making inap-
 46 propriate demands on the social group. Accordingly,
 47 the appreciation of these norms may lead people to
 48 avoid taxing the system by bringing their problems
 49 to the attention of others for the purpose of enlist-
 50 ing social support. By contrast, European Americans
 51 tend to see ongoing relationships as resources for
 52 helping to meet personal needs (Kim, Sherman, &

Taylor, 2008). To the extent that social support is
 53 seen as a resource, Western Europeans may seek the
 54 explicit help of family and friends to help them-
 55 selves cope more successfully with stressful events.
 56 In a series of three studies, Taylor, Sherman, Kim,
 57 Jarcho, Takagi, and Dunagan (2004) found evi-
 58 dence consistent with these points. Across multiple
 59 studies, European Americans, relative to Asian
 60 Americans and Asians, reported drawing on their
 61 social relationships more to help them cope with
 62 stressful events. Concern over disrupting the har-
 63 mony of the group, concern over social criticism or
 64 losing face, and the belief that one should be self-
 65 reliant in solving one's personal problems were
 66 found to mediate the nonuse of social support
 67 among those of Asian background.
 68

69 Social support is thought to be a universally help-
 70 ful resource, however, which suggests that there may
 71 be cultural differences in the ways that it is used or
 72 experienced. Forms of social support that do not risk
 73 disturbing relationships may be more sought out
 74 and be more beneficial for those from Asian cultural
 75 backgrounds. Thus, implicit social support, similar
 76 to perceived support, may be commonly experienced
 77 by East Asians; it refers to the comfort provided
 78 through the awareness of a support network rather
 79 than through the use of a support network. By
 80 contrast, explicit social support, which is used
 81 by European Americans, may correspond more
 82 closely to the conventional Western definition of a
 83 social support transaction; that is, as the use of social
 84 networks that involve solicitation of advice, instru-
 85 mental aid, and emotional support.

86 The utility of this distinction was demonstrated in
 87 an experimental study (Taylor, Welch, Kim, &
 88 Sherman, 2007) in which Asian Americans and
 89 European Americans were primed with either an
 90 implicit or explicit support manipulation. Participants
 91 in an implicit support condition thought about a
 92 group they were close to and wrote about the aspects
 93 of the group that were important to them, whereas
 94 participants in the explicit support condition were
 95 told to think about people they were close to and to
 96 write a letter asking for advice and support during
 97 upcoming stressful tasks. Subsequently, participants
 98 went through several laboratory stressors. Asian
 99 Americans who had completed the implicit support
 100 task experienced less stress and had lower cortisol
 101 responses to stress compared with those who com-
 102 pleted the explicit support task, whereas the reverse
 103 was found for European Americans.

104 Like the research on perceived support noted
 105 earlier, implicit social support may have many of the

1 same mental health and health benefits as social
 2 support that is explicitly drawn on in times of stress.
 3 There is a potential broader lesson to be learned
 4 from these beginning studies of cultural differences
 5 in the experience of social support. As research has
 6 clarified the ways in which extracting support from
 7 others may be costly, the benefits of just knowing
 8 that others care for you have come into view.

9 ***Providing Social Support***

10 **COSTS AND BENEFITS OF PROVIDING**
 11 **SOCIAL SUPPORT**

12 Conceptualizations of social support have been
 13 guided by the implicit assumption that support is
 14 beneficial for the recipient but costly for the provider.
 15 On the surface, this is a fairly sensible assumption.
 16 The provision of advice, emotional support, or tan-
 17 gible assistance can be costly to a support provider,
 18 at least in time, and potentially in resources as well.
 19 Virtually all acts of social support, ranging from
 20 listening to a friend's woes about her marriage to
 21 taking in family members who are out of work,
 22 involve an outlay of at least some resources.

23 This viewpoint may also have been shaped by
 24 evolutionary perspectives on altruism, which
 25 encompasses some of the actions usually construed
 26 as social support. Altruistic behavior has presented
 27 something of a problem for traditional evolutionary
 28 theory. Put in its simplest form, the paradox is, how
 29 do we pass on our altruistic genes to future genera-
 30 tions if those very genes can put us at risk, thereby
 31 reducing the probability that we will pass on our genes
 32 at all? The warning cry of the sentinel, common to
 33 some rodent species, is often presented as an example.
 34 On the lookout for danger, the sentinel sees a predator
 35 such as a hawk and then lets out a loud and distinc-
 36 tive warning cry that not only sends his companions
 37 scampering for safety, but attracts the attention of
 38 the predator, increasing the likelihood that the
 39 sentinel itself will be the predator's meal. Although
 40 the kinds of social support that we commonly find
 41 in contemporary society do not typically put people
 42 at potentially fatal risk, in our early prehistory,
 43 giving aid to another person facing a severe threat
 44 (such as a predator) may well have done so, under at
 45 least some circumstances, and thus the question is a
 46 fair one.

47 Altruism has largely been rescued by the concept
 48 of reciprocal altruism (Hamilton, 1963; Trivers,
 49 1971), which maintains that altruists do not dis-
 50 pense altruism at random but are more likely to aid
 51 genetically related others and behave altruistically
 52 toward others when there is some expectation

of reciprocity. Providing social support is norma- 53
 tive, and to the extent that people typically spend 54
 their time in the company of familiar social net- 55
 works of mutual obligation, there is every reason to 56
 expect that a favor done by one person may be 57
 reciprocated by another at another time.¹ 58

The idea that support provision is inherently 59
 costly is also given credence by research on caregiv- 60
 ing. Many people are involved in giving care to 61
 elderly parents, spouses, and disabled children. The 62
 costs of caregiving can be substantial, as it can be a 63
 difficult, grinding, chronic stressor. Over half of 64
 contemporary caregivers work outside the home, 65
 and many need to modify their job or reduce their 66
 hours to accommodate their caregiving. For older 67
 people, such caregiving can be a fatal undertaking, 68
 with caretakers at high risk for physical and mental 69
 health problems. Nearly 60% of elderly caregivers 70
 show signs of clinical depression. Evidence of immu- 71
 nocompromise is often present in caregivers, which 72
 can leave them vulnerable to flu and respiratory dis- 73
 orders, and they show a poorer response to the 74
 influenza vaccine as well (Kiecolt-Glaser, Glaser, 75
 Gravenstein, Malarkey, & Sheridan, 1996; Newsom 76
 & Schulz, 1998; see also Esterling, Kiecolt-Glaser, 77
 & Glaser, 1996). Other studies have found that the 78
 stress of caregiving can have adverse effects on wound 79
 repair (Kiecolt-Glaser, Marucha, Malarkey, Mercado, 80
 & Glaser, 1995), on the regulation of SNS responses 81
 to stress (Mills et al., 1997), and on declines in nat- 82
 ural killer (NK) cell function (Esterling et al., 1996). 83
 Moreover, these immune alterations can persist well 84
 after caregiving activities have ceased (Esterling, 85
 Kiecolt-Glaser, Bodnar, & Glaser, 1994). Caregivers 86
 shake off infectious disease very slowly and are at 87
 heightened risk for death. Schulz and Beach (2000), 88
 for example, found that the chances of dying in 89
 a given 4-year period for an elderly person involved 90
 in stressful caregiving were 63% higher than for 91
 elderly people without these responsibilities (see 92
 also Cacioppo, et al., 2000; King, Oka, & Young, 93
 1994; Spitze, Logan, Joseph, & Lee, 1994; Wu, Wang, 94
 Cacioppo, Glaser, Kiecolt-Glaser, & Malarkey, 95
 1999). 96

Evidence like this would seem to bear out the 97
 viewpoint that giving social support is costly. 98
 However, the majority of these studies have focused 99
 on populations in which any adverse effects of pro- 100
 viding care would be expected to be seen. A number 101
 of the situations studied involve particularly burden- 102
 some caregiving. A number of the samples involved 103
 the elderly, who are at particular risk for health 104
 problems. Many others have focused on samples 105

1 with extreme demands on their time. It is reason-
 2 able to think that, although caregiving may provide
 3 a glimpse into the extremes of social support
 4 provision, it may not characterize support provision
 5 generally.

6 In recent years, the potential benefits of giving
 7 social support have become better understood.
 8 There are a number of reasons to believe that provid-
 9 ing social support to another might be stress reduc-
 10 ing for the provider, as well as for the recipient. As
 11 the reciprocal altruism perspective just described
 12 suggests, providing support to others, as in the form
 13 of specific aid, increases the likelihood that there
 14 will be people there for you when your needs arise,
 15 a perception that can be comforting in its own right,
 16 as the perceived social support literature shows.
 17 Giving support to others may cement a personal
 18 relationship, provide a sense of meaning or purpose,
 19 and signify that one matters to others, all of which
 20 have been found to promote well-being (e.g.,
 21 Batson, 1998; Taylor & Turner, 2001). Empirical
 22 research suggests that helping others may reduce
 23 distress and contribute to good health (Brown,
 24 Brown, House, & Smith, 2008; Li & Ferraro, 2005;
 25 Schwartz, Meisenhelder, Ma, & Reed, 2003). A
 26 study by Brown, Nesse, Vinokur, and Smith (2003)
 27 assessed giving and receiving social support in an
 28 older married sample and related it to mortality
 29 over a 5-year period. Death was significantly less
 30 likely for those people who reported providing
 31 instrumental support to friends, relatives, and
 32 neighbors and to those who reported providing
 33 emotional support to their spouses. Receiving sup-
 34 port did not affect mortality, once giving support
 35 was statistically controlled. The study also statisti-
 36 cally controlled for a wide variety of potential con-
 37 tributors to these effects, and the relationships held.
 38 This study thus provides important evidence that
 39 the giving of support can promote health and/or
 40 retard illness progression.

41 Although the exact mechanisms underlying the
 42 benefits of support provision are not yet understood,
 43 the animal studies on the impact of nurturant
 44 behavior on offspring that were described earlier
 45 may be instructive. These studies found that, not
 46 only were offspring soothed by nurturant contact,
 47 but also the animal providing the nurturant contact
 48 was benefited as well. Specifically, benefits to off-
 49 spring were mirrored in the nurturers in the form of
 50 reduced sympathetic arousal and higher observed
 51 calm (Wiesenfeld, Malatesta, Whitman, Grannose,
 52 & Vile, 1985; Uvnas-Moberg, 1996; see also Adler,
 53 Cook, Davison, West, & Bancroft, 1986; Altemus,

Deuster, Galliven, Carter, & Gold, 1995). Thus, it
 54 is possible that the benefits of providing social sup-
 55 port operate through some of the same physiologi-
 56 cal and neuroendocrine pathways whereby the
 57 receipt of support from others seems to achieve its
 58 benefits. In addition, if oxytocin and other hor-
 59 mones are implicated in the provision of social sup-
 60 port, the anxiolytic properties of oxytocin, coupled
 61 with its established role in down-regulating SNS
 62 and HPA axis responses to stress, may provide a
 63 second potential point of departure for understand-
 64 ing the health benefits of providing social support,
 65 as well as receiving it.
 66

Social Support Interventions:
Clinical Implications

67
 68
 69 The implications of social support research for
 70 clinical practice and interventions are substantial.
 71 As one of the best established resources contributing
 72 to psychological well-being and health, clinical
 73 efforts to enhance or improve social support are
 74 well-placed. Moreover, when people are experienc-
 75 ing intensely stressful events, social support is not
 76 inevitably forthcoming. Even when people in a
 77 social network make efforts to provide social sup-
 78 port, those efforts may not always be effective, as
 79 noted earlier. Consequently, a broad array of clinical
 80 support interventions have arisen to augment social
 81 support, especially for those experiencing gaps in
 82 the support they receive from others.

83 Some of these are family support interventions.
 84 For example, when a person has been diagnosed
 85 with a chronic condition or illness, the family's par-
 86 ticipation in an intervention may be enlisted to
 87 improve the diagnosed patient's adjustment to the
 88 condition. In addition, as noted earlier, involving
 89 the family in health behavior change programs may
 90 be beneficial for effective management of the disorder
 91 (see Taylor, 2008).

92 Family support interventions may also be emo-
 93 tionally soothing to family members as well, in
 94 part by alleviating anxiety that may be generated
 95 by incomplete understanding or misinformation.
 96 Explaining exactly what the patient's condition is,
 97 what treatments will be needed, and how the
 98 family can help can mean that support provided
 99 by family members may be more forthcoming
 100 and effective. In addition, family members may
 101 receive guidance in well-intentioned actions that
 102 should nonetheless be avoided because they are
 103 experienced as aversive by patients (e.g., Dakof &
 104 Taylor, 1990; Martin, Davis, Baron, Suls, &
 105 Blanchard, 1994).

1 For the most part, people who need help managing
 2 stressful events turn to their family, to friends,
 3 and to experts, such as medical caregivers, for the
 4 support that they need in times of stress. In some
 5 cases, however, that support is not forthcoming.
 6 Family and friends may be ill-equipped to provide
 7 the kind of support that a person needs for any of
 8 several reasons. Some conditions for which a person
 9 may require social support are stigmatizing ones,
 10 such as HIV, cancer, or epilepsy, and stigmatizing
 11 conditions can drive friends and family away
 12 (Wortman & Dunkel-Schetter, 1979). In other cases,
 13 a person's particular problems, such as the discovery
 14 of a chronic disease, can lead to questions and concerns
 15 that can be answered only by people with
 16 similar problems. Consequently, social support groups
 17 have arisen, as potential low-cost and efficient vehicles
 18 for meeting unmet social support needs. As of
 19 1979, over 15 million Americans were using social
 20 support groups as a primary vehicle for their mental
 21 health services (Evans, 1979), and those numbers
 22 have grown over the past 25 years. Recent studies
 23 estimate that about 25 million individuals participate
 24 in support groups at some point during their
 25 life (Kessler, Mickelson, & Zhao, 1997), with whites
 26 and women more likely to participate than non-
 27 whites and men (Davison, Pennebaker, & Dickerson,
 28 2000).

29 Social support groups were originally conceived
 30 of as small, face-to-face voluntary groups of individuals
 31 who came together to solve a problem or help
 32 each other cope with handicaps or illnesses, especially
 33 through the provision of emotional support
 34 (Katz & Bender, 1976). Some of these groups originally
 35 were grass-roots organizations formed by
 36 patients themselves, but more commonly, these support
 37 groups included a professional clinician, either
 38 as an initiator and organizer, or as an ongoing counselor
 39 who facilitated group interaction. Self-help
 40 groups, a particular type of social support group, do
 41 not include the participation of a trained professional,
 42 once the group is established (Katz & Bender,
 43 1976). Originally, social support groups developed
 44 to treat a broad array of problems, disorders, and disabilities,
 45 including alcoholism, drug abuse, chronic diseases,
 46 loss of a partner through divorce or death,
 47 and most commonly, obesity (see Taylor, Falke,
 48 Shoptaw, & Lichtman, 1986 for an early review).

49 Social support groups continue to be a vital
 50 resource for the chronically ill and to people managing
 51 problems, such as obesity and alcoholism. These
 52 groups provide a format for discussions of mutual
 53 concern that arise as a result of illness, provide specific

54 information about how others have dealt with similar
 55 problems, and provide people with the opportunity
 56 to share their emotional responses with others sharing
 57 the same problem (Gottlieb, 1988). Such groups
 58 can potentially fill gaps in social support not filled
 59 by family and friends or may act as an additional
 60 source of support provided by those going through
 61 the same event.

62 How effective are these groups? A large number
 63 of studies have evaluated the efficacy of social support
 64 groups by comparing people who have actually
 65 participated in such groups with those who have
 66 been waitlisted for participation and/or with non-
 67 participants, and these studies have generally found
 68 beneficial effects (see Hogan & Najarian, 2002 for a
 69 review). For example, social support groups have
 70 been found to reduce psychological distress for
 71 rheumatoid arthritis patients (e.g., Bradley, et al.,
 72 1987), cancer patients (e.g., Telch & Telch, 1986),
 73 and patients who have had a myocardial infarction
 74 (e.g., Dracup, 1985), among many others. As noted,
 75 self-help groups may especially benefit those with
 76 disorders that are stigmatizing, such as AIDS, alcoholism,
 77 breast and prostate cancer, and epilepsy
 78 (Davison, Pennebaker, & Dickerson, 2000; Droge,
 79 Arntson, & Norton, 1986).

80 Other benefits include helping patients to
 81 develop the motivation and techniques to adhere to
 82 complicated treatment regimens (Storer, Frate,
 83 Johnson, & Greenberg, 1987). Support groups
 84 may encourage adherence for several reasons. In the
 85 course of interacting with others, a participant may
 86 learn techniques that others have used successfully
 87 to maintain adherence or to cope effectively with a
 88 disorder, and adopt those techniques to combat his
 89 or her particular barriers to adherence. Because
 90 people may commit themselves to change their
 91 behavior in front of others in the support group,
 92 they may be especially motivated to maintain adherence
 93 (e.g., Cummings, Becker, Kirscht, & Levin,
 94 1981). Emotional support and the encouragement
 95 that others with similar problems provide can also
 96 encourage adherence to treatment.

97 Although social support groups have the potential
 98 to provide both emotional and informational support
 99 to participants, they may be better at providing
 100 educational than emotional benefits. In a review
 101 of cancer support groups described earlier, Helgeson
 102 and Cohen (1996) found that educational groups
 103 were more effective in meeting patients' needs
 104 than were support groups specifically aimed at
 105 the provision of emotional support. As noted, because
 106 relationships among support group members may

1 seem artificial or not as intimate as “natural” rela-
 2 tionships, relations in the support group may be
 3 more appropriate for providing information about
 4 the target problem or for managing it, whereas
 5 family or close friends may be better sources of
 6 emotional support.

7 A controversial issue in the support group litera-
 8 ture has been whether participation in support
 9 groups among the chronically or terminally ill may
 10 promote better health and long-term survival.
 11 An early study of advanced breast cancer patients in
 12 a weekly cancer support group provided evidence
 13 that participants survived longer than nonpartici-
 14 pants (Spiegel, Bloom, Kraemer, & Gottheil, 1989).
 15 However, a follow-up investigation was unable to
 16 replicate this finding (Spiegel et al., 2007), and so
 17 whether the benefits of support group participation
 18 include the slowing of disease progression remains
 19 at issue.

20 Social support groups were widely heralded early
 21 in their history because they presaged a low-cost,
 22 convenient treatment option for people who might
 23 otherwise not have a therapeutic venue for their
 24 problems. Some studies, however, suggested that self-
 25 help groups actually reach only a small proportion
 26 of potentially eligible members (Taylor, Falke,
 27 Shoptaw, & Lichtman, 1986), appealing disproportio-
 28 nately to well-educated, middle-class white
 29 women. Not only is this the segment of the popula-
 30 tion that is already served by traditional treatment
 31 services, but at least one study (Taylor et al., 1986)
 32 suggested that participants in self-help groups were
 33 actually the same individuals who were using support
 34 services of all kinds, including therapists, ministers,
 35 family, friends, and medical experts.

36 Other factors can limit the effectiveness of sup-
 37 port groups as well. In an evaluation of sources of
 38 satisfaction and dissatisfaction among members of
 39 cancer support groups, reported difficulties included
 40 logistical problems of getting to the face-to-face
 41 support group on a regular basis, irritation or annoy-
 42 ance over a particular individual or individuals in
 43 the group, concerns that meetings were too large,
 44 and concern that topics were too narrow and did not
 45 cover the issues in which prospective participants
 46 were interested (Taylor, Falke, Mazel, & Hilsberg,
 47 1988).

48 The limited appeal of face-to-face groups has
 49 been somewhat offset by the rise of formal and
 50 informal internet support groups (Davison,
 51 Pennebaker, & Dickerson, 2000). Social networks are
 52 clearly expanding. MySpace and other social net-
 53 working sites have more than 90 million members

(Hulbert, 2006), indicating shifting patterns in 54
 social ties. In addition to these networking ties, 55
 informal social support groups have increased sub- 56
 stantially in number over the past decade. While 57
 not providing the benefit of face-to-face social con- 58
 tact, they are logistically much easier to access, they 59
 are inexpensive (once one has a computer and an 60
 internet connection), they provide opportunities to 61
 come and go at will and at times of personal need, 62
 and they may be a more acceptable mode of help- 63
 seeking for men than traditional support groups 64
 have been (e.g., Bunde, Suls, Martin, & Barnett, 65
 2006; Fogel, Albert, Schnabel, Ditkoff, & Neugut, 66
 2002). The wealth of information that is now avail- 67
 able on the web also means that answers to many 68
 specific questions can be answered without long- 69
 term participation in a support group. 70

71 Because internet-based support groups are a rap- 72
 idly growing means of providing social support, 73
 especially for individuals with chronic illnesses or 74
 other stressful conditions, efforts have now gone 75
 into evaluating their effectiveness. For example, in one 76
 study (Barrera, Glasgow, McKay, Boles, & Feil, 2002), 77
 160 type II diabetes patients were randomized into 78
 one of four conditions: diabetes information only; a 79
 personal self-management coach; a social support 80
 intervention; or a personal self-management coach 81
 coupled with the social support intervention. All 82
 four conditions were implemented via the internet.
 83 After 3 months, individuals in the two social support
 84 conditions (both with and without the personal
 85 coach) reported significant increases in perceived
 86 support, both with respect to their disease specifi-
 87 cally and in general.

88 Internet social support can be useful with children
 89 as well. For example, STARBRIGHT World is a
 90 computer network that serves hospitalized children,
 91 providing interactive health education and oppor-
 92 tunities to meet online with children in other hospi-
 93 tals who have similar disorders (Hazzard, Celano,
 94 Collins, & Markov, 2002). In one study evaluating
 95 the effectiveness of this program, children who par-
 96 ticipated reported more support, were found to be
 97 more knowledgeable about their illness, and were
 98 rated as lower in negative coping.

99 To date, a large-scale evaluation of internet social
 100 support resources has not been undertaken, largely
 101 because it is difficult to identify all of the sources
 102 that are available and all of the ways in which people
 103 distinctively use them. What research literature there
 104 is, however, suggests that these internet resources are
 105 used for many of the same purposes as face-to-face
 106 groups are (Davison et al., 2000), and that, as such,

1 they can be a valuable source of both informational
2 and emotional support.

3 **Conclusion**

4 Across the lifespan, nurturant, supportive contact
5 with others, a sense of belonging or mattering to
6 others, and participation in social groups have been
7 tied to a broad array of mental health and health
8 benefits. Indeed, the social environment appears to
9 be instrumental in helping people develop the
10 abilities to build emotionally supportive ties with
11 others and to construe social support as available.

12 Socially supportive ties are clearly beneficial in
13 times of stress and may achieve these benefits in
14 large part by helping individuals to control their
15 emotional responses to stressful situations, such as
16 anxiety and depression, and by keeping physiological,
17 neuroendocrine, and immunologic responses to
18 stress at low levels or by promoting faster recovery
19 of these systems following stress. As such, social
20 support has translated into mental and physical
21 health benefits across numerous studies.

22 Social relationships are inherently double-edged,
23 and so ties with others are not inevitably supportive;
24 gaps in support, misfired efforts at support, and
25 blatantly unsupportive behavior from others in
26 times of stress are well-documented. In part because
27 of these observations, researchers and practitioners
28 are increasingly recognizing that the perception of
29 social support, even in the absence of its utilization,
30 may account for many of its benefits.

31 Many important issues remain for investigation.
32 Among the most important conceptual issues is the
33 integration of social support into our understanding
34 of the psychological and biological concomitants of
35 relationships more generally. The growing literature
36 on developmental antecedents of social support may
37 be especially helpful in building such an integrative
38 model. The biological mechanisms underlying the
39 benefits of social support also merit continued
40 investigation. In particular, animal studies have
41 been very useful for identifying underlying mecha-
42 nisms relating social contacts to health outcomes,
43 and this rich source of insights should continue to
44 be mined. Much emphasis has been placed on
45 SNS and HPA axis responses to stress as primary
46 pathways affected by social support. Continued
47 exploration of the possible roles of oxytocin, endog-
48 enous opioid peptides, and other hormones is
49 warranted.

50 Why the mere perception of support has such
51 strong effects on well-being and health merits contin-
52 ued consideration. Does perceived support operate

through similar mechanisms as actual social support, 53
or are other factors, such as genetic predispositions, 54
more significant influences? Some issues that will 55
merit additional research are only just being recog- 56
nized, and these include cultural differences in the 57
experience of social support and the psychological/ 58
biological benefits of providing support to others. 59

On the clinical side, perhaps the most compel- 60
ling and provocative issues center on the potential 61
health benefits of social support interventions, social 62
support groups, and the enormous role that internet 63
support increasingly plays in people's lives. Targeting 64
people who otherwise may lack sufficient or effective 65
social support, such as patients with stigmatizing 66
conditions and their families and the isolated 67
and/or infirm elderly (Weber, Roberts, Yarandi, 68
Mills, Chumbler, & Wajzman, 2007; Winningham 69
& Pike, 2007), needs to assume high priority. 70

What is, perhaps, most striking about social sup- 71
port research is the astonishing expansion of con- 72
texts and vehicles that have arisen to provide support 73
and to address potentially unmet support needs. 74
Once the value of social support for health and 75
mental health was identified, it became understood 76
for the valuable resource it is. As such, social support 77
is a cornerstone of the important insights that health 78
psychology has yielded. 79

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83 **Notes**

- 84 1. Of interest in this context is the observation that, in com-
85 munal relationships, there are norms explicitly *against* reci-
86 procity (Clark & Mills, 1979), favoring instead the notion
87 that a communal relation with another transcends what
88 would otherwise be obligations for reciprocity.

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