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Can We Improve Our Physical Health by Altering Our Social Networks?

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ABSTRACT—***Persons with more types of social relationships live longer and have less cognitive decline with aging, greater resistance to infectious disease, and better prognoses when facing chronic life-threatening illnesses. We have known about the importance of social integration (engaging in diverse types of relationships) for health and longevity for 30 years. Yet, we still do not know why having a more diverse social network would have a positive influence on our health, and we have yet to design effective interventions that influence key components of the network and in turn physical health. Better understanding of the role of social integration in health will require research on how integrated social networks influence health relevant behaviors, regulate emotions and biological responses, and contribute to our expectations and worldviews.***

Over the last 30 years, there has been substantial interest in defining the role that social environments and supports play in health maintenance and disease etiology (e.g., Cohen, 2004; Uchino, 2004). Researchers have found the most consistent and provocative results in a group of studies focusing on *social integration*—one's membership in a diverse social network. Prospective community studies indicate that those with more types of relationships—for example, being married; having close family members, friends, and neighbors; and belonging to social, political and religious groups—live longer (reviewed by Berkman, 1995; Berkman & Glass, 2000; Seeman, 1996). More socially integrated people also have less cognitive decline with aging (reviewed by Fratiglioni, Pallard-Borg, & Winblad, 2004), less dementia (reviewed by Fratiglioni et al., 2004), and greater resistance to upper respiratory infections (Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997).

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It is not only studies of community samples that suggest that social integration has health benefits. More diverse networks are also associated with better prognoses among those facing chronic life threatening illnesses. For example, in longitudinal-prospective studies, more socially integrated individuals at high risk for or suffering from cardiovascular disease develop less arterial calcification (Kop et al., 2005), have a lower incidence of stroke (Rutledge et al., 2008), and live longer (Rutledge et al., 2004) than do their less integrated counterparts. Greater social network diversity is also associated with a decreased risk for the recurrence of cancer (reviewed by Helgeson, Cohen, & Fritz, 1998).

A graded relation between integration and better health was found in many of these studies (e.g., Berkman & Syme, 1979; Cohen et al., 1997; Seeman et al., 1993), but in some cases the association was attributed primarily to poorer health among the most isolated (see review by House, Landis, & Umberson, 1988). It has been proposed that associations between social integration and health may be driven by two separate processes: one associated with being isolated versus having some minimum number of contact types (common threshold is between one and three), and the other associated with incremental increases in network diversity (Cohen, 2004).

The most striking and consistent evidence for associations between social relationships and physical health derives from the social integration studies. However, there is also evidence that those who report that others will provide them with aid when they are in need (perceived social support) are protected from the pathogenic effects of life stress (Cohen, 2004). For example, there is some evidence for perceived emotional support protecting against the increased risk for mortality associated with high levels of stressful life events (Rosengren, Orth-Gomer, Wedel, & Wilhelmsen, 1993) and work stress (Falk, Hanson, Isacsson, & Ostergren, 1992). There is also evidence for perceived support delaying the progression of chronic life-threatening illnesses. For example, greater levels of perceived social support are associated with longer survival following

heart attacks (reviewed by Lett et al., 2005) and possibly with survival from breast cancer (Gidron & Ronson, 2008; Soler-Vila, Kasl, & Jones, 2003) and HIV-AIDS (Lee & Rotheram-Borus, 2001; Patterson et al., 1996). Presumably, this protective effect occurs because perceived support reduces the stress associated with having a potentially fatal disease.

Finally, negative aspects of social relationships including social losses (Stroebe, Schut, & Stroebe, 2007), negative interactions (Kiecolt-Glaser & Newton, 2001; Rook, 1984), and loneliness (Cacioppo, Hawkley, & Berntson, 2003) may be detrimental to health. For example, the loss of close others through divorce or death is associated with greater morbidity and mortality risk (reviewed by Stroebe et al., 2007), and both conflicts with close others (reviewed by Kiecolt-Glaser & Newton, 2001) and feelings of loneliness (Cacioppo et al., 2003) have been associated with cardiovascular, endocrine, and immune changes thought to be detrimental to health.

The size, consistency, and range of the established relationships between our social networks and morbidity and mortality often lead us to talk about them as if they were causal. However, the truth is, we do not know this. This literature is based on prospective correlational research. Good prospective studies eliminate the possibility of reverse causality (illness causing deterioration of social networks). They accomplish this by assessing social characteristics and then following people to measure subsequent changes in health (controlling for baseline health). These studies also tend to control for spurious "third" factors such as age, sex, ethnicity, and socioeconomic status that could influence both the nature of our social networks and our health. Even so, there are still many psychosocial, environmental, and biological factors that could account for a correlation between a social factor and health outcomes.

Experimental-intervention studies (randomized clinical trials), the gold standard for both the psychological and medical communities, could provide the critical causal evidence. However, there are surprisingly few experimental studies testing the possibility that interventions that increase the diversity of our social networks, increase our social support, or decrease conflict and loneliness would be beneficial to our health. Moreover, the intervention studies that do exist seldom draw inspiration from the evidence reported in the correlational literature. In particular, although the correlational studies have found that characteristics of natural social networks were protective, intervention studies have generally manipulated support by facilitating interactions with strangers facing the same or similar threats (cf. Helgeson & Cohen, 1996). Most of the intervention studies have been done with cancer patients comparing participation in therapy groups with other cancer patients to usual care. Because the therapy is conducted in groups, these studies are generally referred to as tests of the effectiveness of social support. Although two early studies did find beneficial effects of group psychotherapy on survival (Fawzy et al., 1993; Spiegel, Bloom, Kramer, & Gottheil, 1989), this work has been criticized in terms of design and data interpretation (Coyne, Stefanek, & Palmer, 2007; Fox, 1998). Moreover, more recent work (Cunningham et al., 1998; Ilnyckyj, Farber, Cheang, & Weinerman, 1994) including studies conducted at multiple sites with larger samples (Goodwin et al., 2001; Spiegel et al., 2007) has failed to replicate the early results.

Attempts to reduce the recurrence of heart attacks by increasing patients' perceived social support have also been unsuccessful. One multisite trial in which nurses regularly called and visited patients to provide social support actually found negative effects of the intervention on women and no benefit to men (Frasure-Smith et al., 1997). Another trial used cognitive behavioral therapy in an attempt to increase perceptions of social support from existing natural networks (Berkman et al., 2003). Although patients in the intervention group reported greater support, there was no effect on disease recurrence.

Why is it important to know if altering our social networks will improve physical health? From the health perspective, the benefits of engineering healthier social environments are obvious. Helping people maintain good health and address bad health has potential for controlling health care costs, as well as promoting happier and healthier lives. The role of social environments may be especially important for older persons who commonly experience major social transitions such as retirement, bereavement, and inability to participate in social activities because of disability or lack of mobility (Pillemer, Moen, Wethington, & Glasgow, 2000). However, they are also essential for those with chronic life threatening illnesses such as heart disease, cancer, and HIV. What may be most interesting is that the social integration literature suggests that social environments may play an essential role in the health and well-being of people who are neither challenged by major life stressors nor by serious disease.

What is less obvious is that both good health and disease are powerful outcomes that may provide insights and tools to pursue more basic social psychological questions. Particularly, how do characteristics of our social networks influence our cognitive, behavioral, and physiological responses? To understand how social environments influence one's health, we need to consider the potential roles of social control (social norms and pressures), regulation of emotions and biological responses, and the social environment's contribution to our expectations and world views, including our life goals and feelings of control, optimism, purpose, trust, and self-esteem (e.g., Brissette, Cohen, & Seeman, 2000; Cohen, 2004; Cohen & Lemay, 2007). If our social environments do influence our health, some or all of these processes may operate as key mechanistic pathways.

What should the field be doing? Clearly, this is a domain in which psychologists have the potential to make scientific and practical contributions to health care. It is also a domain that will allow us to investigate how the nature of our social networks influences basic psychological processes such as motivation, social influence, decision making, and emotional regulation.

We have documented a strong and reliable association between the diversity of our social networks and our longevity and risk for disease. Even though the basic association was first reported 30 years ago (Berkman & Syme, 1979), we still do not know why it happens, we still do not have convincing causal evidence, and we still have not designed interventions that influence the key components of the network and, in turn, physical health. The provocative associations between social integration and physical health are derived primarily from the work of social epidemiologists and draw on their expertise in assessing the distribution of disease in the population. However, the goals we present here draw on the strengths of psychological theory and methodology. This includes designing and testing social experiments and developing theory and empirical tests of how our social networks "get under the skin" to influence disease and mortality.

Our intent here is not to spin elaborate theory, but to frame a set of questions about the psychological meaning of social integration and how that meaning might explain its importance for health (cf. Cohen, 1988). What are the psychological characteristics of socially integrated people that help to prevent or cope successfully with disease? Do socially integrated people interact on a more regular schedule, more often, or with more people? Do they have different expectancies, perceptions, and outcomes of social interactions? Do they feel more responsible for other people in their network? Do they perceive that people in their networks feel more responsible for them? Are they more or less subject to social influence? Does belonging to a diverse network enhance their ability to regulate their emotions? Does a more diverse network provide a broader range of effective support resources? Is network diversity more important than numbers of people per se as a determinant of loneliness? Is it the behavior of their networks that influences their health, or is it their beliefs about the meaning of belonging to a diverse network?

Although not studied in the context of social integration, psychologists have contributed significantly to our understanding of the potential role of other social constructs in health, particularly in regard to their effects on psychological well-being. As alluded to earlier, it is possible that social integration operates through other social constructs. For example, the associations of social integration and health could be mediated by perceived social support. Socially integrated people may also have fewer negative interactions (interpersonal stressors) and at least part of the social integration effect may be attributable to feelings of loneliness on the part of the most isolated (Cacioppo et al., 2003; Sorkin, Rook, & Lu, 2002). Future work examining these constructs simultaneously with social integration can help answer these questions.

How can we effectively intervene in natural social networks to make them more diverse? Changing natural networks is challenging (cf. Gottlieb, 2000). It might involve activating dormant but existing domains (e.g., bringing persons together with estranged family members), adding additional domains (e.g., facilitating joining of a social or recreational group consistent with the person's interests), or providing social skills-training to facilitate maintenance of current relationships and creation of new ones. On the other hand, a better understanding of why social integration is so closely tied to health might alternatively suggest intervening in the more proximal causes whether it be increasing feelings of belonging, engagement, self-confidence, control, or purpose; promoting positive health practices and discouraging negative health practices; encouraging emotional regulation; or increasing social support.

Our argument is a simple one. There is an extremely provocative and reliable association between the nature of an individual's social network and their health. This association has implications for both the basic understanding of how social environments control cognition, behavior, and physiology and for prevention of disease and maintenance of good health. We believe that psychologists have the unique skills and knowledge base to address these questions.

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