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# Social aggravation: Understanding the complex role of social relationships on stress and health-relevant physiology

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#### ABSTRACT

There is a rich literature on social support and physical health, but research has focused primarily on the protective effects of social relationship. The *stress buffering* model asserts that relationships may be protective by being a source of support when coping with stress, thereby blunting health relevant physiological responses. Research also indicates relationships can be a source of stress, also influencing health. In other words, the *social buffering* influence may have a counterpart, a *social aggravating* influence that has an opposite or opposing effect. Drawing upon existing conceptual models, we expand these to delineate how social relationships may influence stress processes and ultimately health. This review summarizes the existing literature that points to the potential deleterious physiological effects of our relationships when they are sources of stress or exacerbate stress.

#### 1. Introduction

Decades of research, including hundreds of studies and millions of participants, have now established that social relationships have a significant and robust effect on health and longevity to a degree comparable with other leading health risk factors (see Holt-Lunstad et al., 2017 for review). Further, many recent reviews summarize the processes, conditions, and biological mechanisms by which this effect operates. However, the bulk of this research has focused primarily on the protective effects of social relationship or the risk associated with lacking relationships—particularly social isolation and loneliness. Fewer studies directly address the quality of relationships.

While social connections may influence health via multiple pathways, perhaps one of the most widely researched is the *stress buffering* or *social buffering* effect (Cohen and Wills, 1985; Ditzen and Heinrichs, 2014; Gunnar and Hostinar, 2015; Hostinar, 2015). According to this conceptual model, relationships may be protective to health by being a source of support when coping with stress, thereby "buffering" the health relevant physiological responses (Cohen and Wills, 1985). Stress can be acute (short-term) or chronic (long-term). Acute stressors can become chronic when one is exposed to repeated stressful situations. For example, ongoing marital problems, an overall aversive work environment. Importantly, social support has been repeatedly shown to moderate these effects of both acute and chronic stress, with substantial evidence consistent with a *social buffering* effect (Howard et al., 2017; Phillips et al., 2009; Puterman et al., 2014; Reblin et al., 2010; Roberts et al., 2015; Spruill et al., 2016; Tomfohr et al., 2015).

Recent reviews of research clearly demonstrate that social relationships have a powerful influence on health via both acute and chronic stress processes and that early experiences, developmental factors, and differences in genetically influenced biological systems may moderate this effect (Ditzen and Heinrichs, 2014; Hennessy et al., 2010; Uchino, 2009). Importantly, despite the bulk of the literature focusing on the health promoting stress-buffering effects of social relationships, research also indicates that social stress negatively influences health (Coelho et al., 2014). In other words, the social buffering influence may have a counterpart, a social aggravating influence that has an opposite or opposing effect.

#### 2. Social buffering and social aggravation

Drawing upon existing conceptual models, we can expand upon these to delineate how social relationships may influence stress processes and ultimately health. Broadly defined, social support may be viewed as "information leading the subject to believe that he [she] is cared for and loved, esteemed, and a member of a network of mutual obligations" (Cobb, 1976). According to the *stress buffering* model (Cohen and Wills, 1985), this social support may intervene in two ways. First, it may intervene between the stimulus and the stress appraisal, such that it may be less likely to be appraised as stressful. Second, social support may also intervene between the stress appraisal and the physiological response. The original model is depicted in the top half of Fig. 1. Conversely, social relationships may also fail at either or both of these steps and/or exacerbate these points. Further, relationships may

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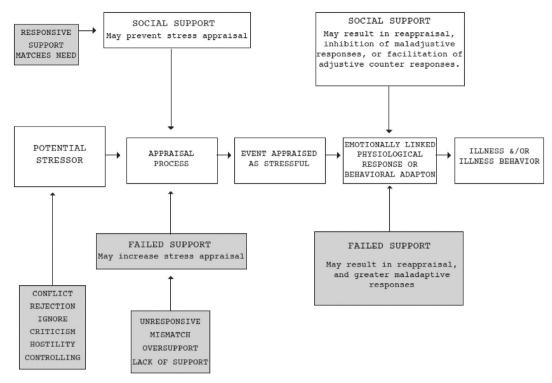


Fig. 1. Social support and social aggravation.

be the actual source of the stress stimulus (e.g., relationships may be a source of social pain via rejection). This *social aggravation* is depicted in the bottom half of Fig. 1.

To address potential *social aggravation*, this review will summarize the existing literature that points to potential deleterious physiological effects of our relationships when they are sources of stress or exacerbate stress (see Table 1). The existing epidemiological literature establishing social connection as a protective factor, or conversely social disconnection as risk factor, includes a variety of measurement approaches including structural, functional, and quality (see Holt-Lunstad et al., 2017 for review). Further, research has found that having diversity in types of relationships (e.g., friends and family and spouse) has a health benefit beyond size of social network—suggesting that having different types of relationships may fulfill a range of needs. Therefore, we will organize this review around an array of close relationship types to summarize the existing evidence and conclude by identifying gaps in our current literature that may guide further research (Francis et al., 2002).

#### 3. Marriage/couples

For most adults marriage is the central relationship in their lives, and a primary source of support, which is why it is not surprising that relationship research has focused heavily on marriage. Simply being married is associated with better mental and physical health and lower

rates of morbidity and mortality (Ben-Shlomo et al., 1993; Berkman and Breslow, 1983; Blumenthal, 1967; Floud et al., 2014; Fortmann and Gallo, 2013; Frisch and Simonsen, 2013; Gove et al., 1983; Johnson et al., 2000; Kiecolt-Glaser and Newton, 2001; Laugesoen et al., 2018; Leach et al., 2013; Lu et al., 2016; Mastekaasa, 1994; Quinones et al., 2014). Yet it is not simply being married per se that is beneficial. Quality matters and not all relationships are uniformly positive.

While the bulk of the literature has focused on heterosexual marriage, of course these processes also impact couples that are in marriage-like relationships (e.g., cohabitating) and couples that are dating. Many studies do not distinguish between married and cohabitating couples, not even testing for differences. This is perhaps because many studies have not found any difference (Barr and Simons, 2014; Drefahl, 2012; Uecker, 2012). However, other studies have found important differences between married and cohabitating couples. For example, neuro response to threat, even when matched on relationship length and quality, differed significantly between married and cohabitating couple (Coan et al., 2006). Therefore, it is important to acknowledge that while both types of couples may influence health there may also be distinctions between married and cohabitating couples.

#### 4. Source of stress

Regardless of marital status, couples may experience conflict, criticism, demands, and jealousy, creating stress within the relationship.

**Table 1**Examples of studies illustrating potential *Stress Aggravation* effects of social relationships.

Relationship type	Source of stress	Failed support	Maladaptive physiological Response
Couples	Robles and Kiecolt-Glaser, 2003	Brock and Lawrence, 2014	Smith et al., 2009
	Dempsey, 2000	Brock and Lawrence, 2009	Jaremka et al., 2013
Kin/family	Butler and Zakari, 2005	Booth et al., 2000	van IJzendoorn et al., 2008
	Davies et al., 2007	Luecken and Lemery, 2004	Lucas-Thompson and Hostinar, 2013
	Keresteš and Brković, 2016		
Social network	Rhee et al., 2017	Maisel and Gable, 2009	Steptoe et al., 2007
	Dusselier et al., 2005	Gleason et al., 2008	Uchino et al., 2012

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