Culture and Genes: 
Moderators of the Use and 
Effect of Social Support

Heejung S. Kim, Taraneh Mojaverian, 
and David K. Sherman

Family, friends, and colleagues can all serve as potential sources of assistance and social support. However, an individual's decision about whether to seek social support (and what manner of support) depends on characteristics of the individual and the situation that the individual is confronting. For example, a stressed university professor might decide to knock on the door of a colleague to ask for social support during summer break, but the same person might decide not to do so if a colleague is feverishly working on a grant with only a few days before the deadline.

The nature of the support that a person seeks could be emotional, instrumental, or informational depending on the type of stressor and the type of support the seeker believes the colleague could or would provide. Additionally, the effectiveness of the support, both in terms of resolving the problem and reducing the psychological and physiological costs of stress, could vary with the type of support and whether it was responsive to the seeker's needs. Amidst all of these different factors influencing the support transaction, there are many systemic sources of the variability. For instance, the decision whether to seek and provide support tends to be affected by the genetic closeness of the support relationship (see Chapter 2, this volume). Provision of support during bereavement could take different forms depending on the communication context (e.g., interpersonal, small group, public; see Chapter 10, this volume; see also Pearson, Kim, & Sherman, 2009). In this chapter, the two systematic sources of variation we focus on are culture and genes. Although it is a truism that people are affected by both nature and nurture, we discuss specific ways these factors may interact and shape the social behavior of support seeking.

Researchers have defined social support as information from others that one is loved and cared for, esteemed, valued, and part of a network of communication and mutual obligations (Cobb, 1976; Cohen & Wills, 1985; Seeman, 1996). Social support may come from a spouse or companion, relatives, friends, coworkers,
and community ties, such as belonging to a church or a club. Researchers have conceptualized and operationalized social support in various ways. One can measure it as individuals’ beliefs or perceptions that they possess support (e.g., that one is loved and cared for, belonging to a network of mutual obligation; Turner, Frankel, & Levin, 1983; Wethington & Kessler, 1986). One can also refer to the use of support through the specific transactions involving the seeking and receiving of help through instrumental support (e.g., appraisals, tangible assistance, informational support) or emotional support (e.g., Burleson & MacGeorge, 2002; Cobb, 1976; Cohen, 1988).

Research has long associated social support with muted experience of stress, reduced likelihood and severity of mental and physical health problems, speedier recovery from health disorders when they do occur (Taylor, 2007), and reduced risk of mortality from serious disease (Berkman & Syme, 1979; House, Landis, & Umberson, 1988). Higher levels of social support are tied to reduced cardiovascular reactivity and hypothalamic–pituitary–adrenocortical axis activity to laboratory stressors (e.g., Eisenberger, Taylor, Gable, Hiltmert, & Lieberman, 2007; Uchino, Holt-Lunstad, Uno, & Flinders, 2001). Indeed, social support is one of the most effective ways by which people protect themselves from the adverse mental and physical health effects of stress (Taylor, 2007).

In this chapter, we first review a number of different forms of social support that vary in terms of how people use and benefit from them. We then focus on the role of culture in shaping social and relational contexts in which these processes take place, and we discuss how cultural contexts influence the use and effectiveness of these different types of social support. We review cultural factors and recent research on how genes and culture interact in the use of social support.

**Classification of Different Forms of Social Support**

Discussing the cultural and genetic influence on the use of social support requires an overview of existing conceptualization of social support use in the literature. Research has identified a number of distinctions that determine the effectiveness of social support interactions. These include perceived versus received support, the visibility of the support, and differences in the type of social support (i.e. emotional vs. instrumental).

**Perceived Versus Received Support**

*Perceived support* is comfort obtained through the awareness of the existence of a support network (Turner et al., 1983; Wethington & Kessler, 1986). One can contrast this with received support (also referred to as *enacted support*) or concrete instances of support provision. Research has identified perceived social support availability as a positive factor in health and stress management (House et al., 1988; Sarason, Sarason, & Gurung, 1997). When people perceive that they have people around them who can help them with their problems, this knowledge may function as a buffer against stress during difficult situations (e.g., Cohen & Wills, 1985).
However, the benefits of received support are less consistent. For example, Wethington and Kessler (1986) found that perceived support was a stronger predictor for adjustments to stressful life events than received support. Whereas some studies have found positive effects for received support (e.g., Feeney & Collins, 2001, 2003), results have been mixed overall. In some cases, enacted support transactions are not associated with better adjustment and may even have a negative correlation with recipient well-being (e.g., Bolger, Zuckerman, & Kessler, 2000; Coyne, Wortman, & Lehman, 1988). For example, support recipients may interpret provision efforts as controlling or interfering (Lewis & Rook, 1999). When people perceive support as overly intrusive, it may increase the stressfulness of a situation instead of helping to reduce it (Shumaker & Hill, 1991).

Visible Versus Invisible Support

Research on invisible support further elucidates why received support may not be beneficial in some situations. Bolger and his colleagues (Bolger & Amarel, 2007; Bolger et al., 2000; Gleason, Iida, Shrout, & Bolger, 2008) have identified support visibility as an influence on support effectiveness. In their studies of invisible support—that is, support transactions that are unnoticed by the recipient—they found that perceived receipt of visible social support is more distressing than received support that the recipient has not perceived (i.e., invisible support). Using daily diary techniques following romantic couples over the course of several weeks leading up to a stressful event, they found that participants experienced less anxiety and depression when the support provider reported providing support and the support recipient did not report a support transaction compared to situations where the support recipient was aware that the partner provided support (Bolger et al., 2000).

Later studies found that for support recipients, being aware of received support may indicate a cost to self-esteem because of concern for being perceived as ineffective by the support provider. In several experimental studies that manipulated support visibility, appraisal of self-ineffectiveness mediated participants' negative responses to visible support (Bolger & Amarel, 2007). Receiving invisible support bypasses this issue, allowing for assistance to the recipient without introducing possible detrimental effects on self-esteem.

Instrumental Versus Emotional Support

When enacted, social support can take several forms. One category is emotional support, the provision of warmth and reassurance that the recipient is a valuable, cared for person. Another category is instrumental support, the provision of tangible assistance such as services, financial assistance, information, and other specific aid or goods (Taylor, 2007). Research suggests that these support types can have differing benefits to recipients, but many discussions emphasize the benefits of emotional support (e.g., Collins & Feeney, 2004; Feeney, 2004; Mikulincer & Florian, 1997). Emotional support focuses on helping the support recipient feel capable of dealing with problems. Both support recipients and
providers perceive emotional support as highly supportive (Collins & Feeney, 2004; Feeney, 2004).

Research on social support has typically conceptualized effective social support as containing emotional support. In one study, Collins and Feeney (2004) manipulated the quality of provided support (to examine how different attachment styles influence the perceived effectiveness of receiving support); their high support condition included emotionally supportive messages to the recipient, but their low support condition did not. A second study using freely constructed messages found that emotional support was most commonly used in supportive messages.

Other researchers have also pointed to the particular importance of emotional support as a psychological and biological buffering against adverse outcomes of stress (e.g., Burleson & MacGeorge, 2002; Feldman & Cohen, 2000; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Gable and her colleagues have identified support responsiveness as critical to the effectiveness of received support (Gable, Gonzaga, & Strachman, 2006; Maisel & Gable, 2009; Maisel, Gable, & Strachman, 2008). Responsive support involves the perception that the support provider understands, values, cares for, and supports the recipient, all of which researchers consider to be part of the function of emotional support. Support that fits the criteria of responsive support is more effective for recipients than support that does not.

The benefits of instrumental support are less clear in the social support literature. Some research has suggested that recipients interpret instrumental support as invasive or controlling (Feeney, 2004; Lewis & Rook, 1999). In Feeney's (2004) research on responsive support in intimate relationships, she operationalized intrusive and controlling support as providing instrumental support or giving directive advice for solving a task. Results found that instrumental support was evaluated more negatively by support recipients and predicted lower self-esteem and more negative mood than support that was emotional in nature.

Although investigators have considered these different distinctions of social support more or less independently, one can easily find an underlying common explanation for why some types of social support are more effective than others. That is, the effectiveness of social support seems to largely depend on how independent, agentic, and autonomous the support allows recipients to feel. Forms of social support that could threaten perceptions of autonomy tend to have less benefit. The observed importance of agency led us to consider how types of social support might function in cultural contexts in which people hold different assumptions about the importance of personal agency. In the next section, we review research findings that show how culturally divergent views on the self and its relationship with others intersect with the existing conceptualization of social support and, in turn, lead to different outcomes of support receipt.

**Cultural Influence on the Use and Effect of Social Support**

In different cultures, people hold different views of the self in terms of how to be a good person (Markus & Kitayama, 1991) and, consequently, they hold different models of agency that provide implicit frameworks of ideas and practices
that guide social actions (Markus & Kitayama, 2003; Markus, Uchida, Omoregie, Townsend, & Kitayama, 2006). In individualistic cultures, such as in the United States, the dominant model is an independent self that regards a person as possessing a set of self-defining attributes, which guide action through expression of personal beliefs and achievement of personal goals (Markus & Kitayama, 1991; Markus, Mullaly, & Kitayama, 1997). Associated with this model of self is a disjoint model of agency (Markus & Kitayama, 2003) whereby people act according to their own decisions based on their own volition and goals, independent from others. Applying this model to the context of social relationships, good and healthy relationships are those in which individuals respect independence and freedom of others through actions that promote their sense of personal agency and self-esteem (e.g., Bolger & Amarel, 2007; Collins & Feeney, 2004).

By contrast, in collectivistic cultures, such as in many parts of Asia, the dominant model is that of an interdependent self that regards a person as a flexible, connected entity who is bound to others and who prioritizes group goals over personal beliefs, needs, and goals (Kitayama & Uchida, 2005; Markus & Kitayama, 1991). Associated with this view of self is a conjoint model of agency in which actions are responsive to obligations and expectations of others, and roles, goals, and intentions are interpersonally anchored (Markus & Kitayama, 2003). In these cultures, relationships are less voluntary and more “given” (Adams, 2005; see also Chapter 3, this volume), and actions taken within the context of relationship are motivated by shared goals and the desire to promote stronger interdependence (e.g., Kim, Sherman, Ko, & Taylor, 2006). These cultural differences in expectations and norms regarding coordination of relationships have implications for whether people use social support, the mode of support they use, and the effectiveness of seeking support.

Research on cultural differences in social support seeking has demonstrated that Asians and European Americans differ in their willingness to use social support to deal with stressors (Kim et al., 2006; Taylor et al., 2004; for a review, see Kim, Sherman, & Taylor, 2008). Overall, Asians and Asian Americans report seeking social support less than European Americans do, whereas these groups do not differ from each other in their use of other coping methods to deal with stressors (e.g., planning, positive reframing, active efforts to cope). This difference is particularly pronounced between Asian nationals or Asian immigrants and European Americans; the difference between later generation Asian Americans and European Americans is considerably smaller, although significant (Taylor et al., 2004).

The source of this difference appears to be cultural variation in the extent to which individuals are concerned about the potential negative impact of support seeking on social relationships. Several studies (Kim et al., 2006; Taylor et al., 2004) have shown that Asian American college students were more concerned than European American students that seeking support would cause them to lose face, disrupt group harmony, and receive criticism from others, and these relationship concerns seemed to have discouraged them from drawing social support from close others. Further evidence for the explanation that relationship concerns are driving the observed cultural differences in social support seeking comes from a series of experimental studies in which we primed different relational goals and examined the effects of this priming on social support
seeking. In these studies (Kim et al., 2006), we primed European American and Asian American college students with ingroup, outgroup, or personal goals and asked them to indicate their intention to seek social support. The results show that European Americans' willingness to seek social support did not differ regardless of which relational goals they were thinking about, whereas Asian Americans were much more responsive to the salient relational goal in deciding whether to seek social support. Asian Americans in the ingroup goals condition reported less willingness to seek social support than in the personal or outgroup goals condition.

**Implicit Versus Explicit Social Support Use**

Given that cultural difference in willingness to seek social support seems to center on individuals' concerns about relationship consequences, the element of disclosure in social support seeking becomes particularly important. In the traditional view on enacted social support, verbal interactions occupy an important role in support transactions. For example, to seek social support, people often have to disclose their stressors or stressed feelings. In so doing, they have to reveal information that might implicate their relationships with others in a negative manner. Thus, we consider the disclosure element of social support seeking to be the key to understand the cultural differences that we found.

It is important to note that even enacted social support does not require disclosure through explicit seeking and receipt to be beneficial. When people are experiencing stressors, sometimes the support network can only be imagined (Smith, Ruiz, & Uchino, 2004). People think of their families during difficult times at work or look at pictures of their children when they are away from home (Master et al., 2009; Taylor, Welch, Kim, & Sherman, 2007; see also Chapter 11, this volume). This aspect of social support, it is important to point out, does not require the verbal expression or disclosure that characterizes the more explicit support seeking such as asking for instrumental help or emotional consolation that yield the cultural differences that we described elsewhere (Kim et al., 2008).

Thus, we contrast explicit social support, people's specific recruitment and use of their social networks in response to specific stressful events, with more implicit social support, which we define as being in the company of close others without disclosing or discussing one's problems with specific stressful events. Implicit support can also take the form of reminding oneself of close others; this conceptualization particularly emphasizes the absence of explicit disclosure and sharing of the stressful events.

On the basis of the cultural analysis offered earlier, one would predict that Asians and Asian Americans would especially benefit from social support that involves awareness of and reflection on supportive ties (i.e. by implicit support) but not from explicit social support that involves asking for aid or solace. In contrast, European Americans may benefit more from the explicit seeking of solace. Indeed, a study in which Asian Americans and European Americans (Taylor et al., 2007) engaged in a task that makes different forms of support salient prior to engaging in a lab stressor (Kirschbaum, Pirke, & Hellhammer,
1993) supported the prediction. In this study, we instructed participants to think about a group to which they are close and to write about the aspects of that group that are important to them (in the implicit support condition) or to think about people to whom they are close and to write a letter directly asking for advice and support for the upcoming tasks from one of these people (in the explicit support condition). Asian Americans in the implicit support condition reported less stress and had lower cortisol levels following the lab acute stressors than did Asian Americans in the explicit support condition. Explicit support led European Americans to experience less stress and have lower post-task cortisol levels than did the implicit support. Taken together, these results suggest that the culturally inappropriate form of social support (i.e., explicit for Asian Americans and implicit for European Americans) actually exacerbated stress rather than reduced it.

**Solicited Versus Unsolicited Support**

This research suggests that the use of explicit social support among people from collectivist cultures may have negative implications, but it is important to note other research that suggests positive ramifications of explicit support use in some cases. For instance, Uchida, Kitayama, Mesquita, Reyes, and Morling (2008) showed that perceived receipt of emotional support predicted positive emotions more strongly among Asians than among European Americans. For European Americans, the link between perceived emotional support and subjective well-being disappeared after controlling for self-esteem, whereas perceived emotional support continued to predict subjective well-being among Asians. Whereas the positive effect from perceived support was beneficial only to the extent to which it enhanced self-esteem for European Americans, this was not the case for Asians.

We explored another factor that may be involved in the success of an explicit support interaction: whether or not the recipient sought support (Mojaverian & Kim, 2010). We contrasted solicited support (i.e., support that the recipient previously requested) with unsolicited support (i.e., support given without prompting from the support recipient). We hypothesized that cultural factors may be involved in how the recipient interprets these different support transactions.

Receiving social support without asking may be a fundamentally different event from receiving social support as a result of active seeking. Given the form that relationships take in interdependent cultures such as those of East Asia, seeking social support raises relationship concerns discussed previously in the chapter (see also Kim et al., 2008). However, receiving unsolicited support may not activate relationship concerns in the same way and may promote a sense of social belonging and strengthened relational ties. As Uchida et al. (2008) suggested, unsolicited support may affirm the self as interdependent, because this support is freely given by the provider and may be interpreted as genuine care and concern for the recipient.

Given the cultural emphasis on individual agency among independent cultures, receiving unsolicited support may damage self-esteem for European
Americans more than for Asians for whom self-esteem concerns may not be as central (Heine, Lehman, Markus, & Kitayama, 1999). By contrast, for European Americans the solicitation of support is an outcome of personal choice to seek support and hence, it may be construed as an agentic action of using social resources. Supporting this notion, Bolger and colleagues’ (Bolger & Amarel, 2007; Bolger et al., 2000; Gleason et al., 2008) research on support visibility discussed earlier points to the costs to self-esteem that receiving social support may have among European Americans. However, explicitly seeking social support may reinforce self-esteem by maintaining control and independence (Leary, Tambor, Terdal, & Downs, 1995).

Mojaverian and Kim (2010) conducted two studies examining psychological responses to solicited and unsolicited social support among European Americans and Asian Americans. In one study, participants read a series of vignettes describing a hypothetical stressor and a stressor resolution using solicited or unsolicited support. Participants indicated how they would feel in each of the vignettes in order to address how solicited and unsolicited support may have different effects. For example, we instructed participants to imagine a situation in which they are having trouble balancing schoolwork and a part-time job and either ask their friends for advice or receive unsolicited advice from their friends. Results showed that Asian American participants reported better outcomes (less negative emotions) from imagining unsolicited support compared to solicited support. European American participants reported better outcomes (more self-esteem) from imagining solicited support rather than unsolicited support.

In a second study (Mojaverian & Kim, 2010), we exposed participants to a stressor in a laboratory setting and gave them the opportunity to enlist help from a fellow participant (a confederate) or spontaneously gave them help on the task before they had a chance to ask for it. Participants then reported how they felt about the help. Replicating the first study, Asian American participants who received unsolicited support reported more positive emotions, reported more self-esteem related to academic ability, and rated the task as less stressful than did those receiving solicited support. European Americans did not show clear benefits of solicited support over unsolicited support, but trends suggested the predicted pattern (i.e., better outcomes from solicited support than from unsolicited). These studies suggest that unsolicited support may be a method of explicit support that people from collectivistic cultures find more effective than solicited support.

*Emotional Versus Instrumental Support*

There are also differences in the type of support that people seek. As described previously, social support may come in a form of emotional support (e.g., warmth and nurturance provided by other people) or instrumental support (e.g., tangible assistance or informational support), and the type of support people seek is influenced by culture.

The prioritization of independent selfhood in the United States seems to contribute to preference for emotional over instrumental support, because
emotional support helps restore important aspects of the independent self, such as high self-esteem, or provide affirmation that the recipient is good and adequate (Steele, 1988). Moreover, one fundamental American value is personal responsibility, the belief that the individual is responsible for his or her own life outcomes (Kluegel & Smith, 1986). As such, support providers may refrain from giving instrumental support, preferring emotional support, because they believe that the recipient should solve the problem without tangible help but with emotional encouragement from others. Thus, providing emotional support affirms the recipients’ thoughts and emotions, while allowing them to solve their problems on their own. Instrumental support, in contrast, especially when visible, can actually increase the recipient’s stress level (Bolger & Amarel, 2007) because instrumental support may imply that the support recipient lacks the competence or independence necessary to deal with the stressor unassisted. Thus, receiving help or advice can be detrimental to one’s sense of personal agency and autonomy, and consequently, one’s self-esteem.

In contrast, people from more interdependent cultures generally accept influence from close others as natural or normative (Markus & Kitayama, 1991; Morling, Kitayama, & Miyamoto, 2003). In addition, Asians have a lesser need for high self-esteem than do European Americans (Heine et al., 1999) and a greater reluctance for direct emotional expression (Butler, Lee, & Gross, 2007, 2009; Kim & Ko, 2007). Moreover, as the conjoint model of agency would suggest, a problem for an individual is shared among close others and solved conjointly with little concern for recipient’s self-esteem and autonomy. In these cultural contexts, problem-focused social support, giving advice and providing concrete help, would be an effective way to resolve stressors as well as to affirm the relationship between provider and recipient.

Indeed, both previous research (Xu & Burleson, 2001) and our own recent research has documented that European Americans were more likely to seek emotional support from their partners, whereas Asian Americans were more likely to seek instrumental support from their partners (Kim et al., 2006; Sherman et al., 2010; Taylor et al., 2004; see also Mortenson, Liu, Burleson, & Liu, 2006). For example, we conducted a study in which Asian American and European American participants completed a stressful task in the lab with a friend present, while a hidden video camera recorded their interactions (Sherman et al., 2010). European American participants sought considerably more emotional support than Asian Americans, whereas there was no significant difference in seeking instrumental support.

Other researchers have found similar cultural differences for social support provision as well (Chen, Kim, Mojaerian, & Morling, in press). Focusing on support provision factors, these studies examined differences in the type and frequency of provided support as well as the motivations underlying support provision behaviors. Using an open-ended response format, the researchers asked participants in the United States and Japan to recount their most recent inter-
A second study examined motivations for support provision and found that emotion-focused support provided by European Americans was motivated by a desire to increase relationship closeness and enhance the support recipient’s self-esteem. For Japanese participants, provision of emotion-focused support was predicted by a desire for increased relationship closeness. When one considers motivations for providing problem-focused support, one finds that both Japanese and European American participants were motivated by a desire to increase relationship closeness.

This research points to different foci surrounding emotional and instrumental support provision in interdependent and independent cultures. In independent cultures, the focus is on the recipient and maintaining his or her self-esteem and autonomy. In interdependent cultures, the focus is on assuaging the stressful situation, with the provider taking on the problem alongside the support recipient. Taken together, primarily focusing on comparisons between Asians and European Americans, the research supports the idea that culture may be a significant moderator of the use and effect of social support as it provides specific guidelines and assumptions about social relationships and the role of individual in relational contexts.

**Cultural and Genetic Basis of Social Support Use**

Extending our findings on the cultural difference in the use and effect of social support, the next question we addressed centers on the basis of these behavioral patterns. It is our contention that these differences arise from individuals’ participation in divergent cultural contexts. In explaining culture-specific behaviors, one can also speculate about genetic bases of such differences. Psychological and behavioral differences often have at least some genetic basis (e.g., Kessler, Kendler, Heath, Neale, & Eaves, 1992; Waltitza et al., 2002), and it is known that there are ethnic differences in distribution of genotypes of many polymorphisms (e.g., Gelernter, Kranzler, & Cubells, 1997). Therefore, one possibility is that dominant biological, psychological, and even behavioral tendencies among ethnic groups are genetically as well as culturally based (cf. Spielman et al., 2007). As differences in genotypes can strongly affect cultural patterns (Boyd & Richerson, 1985; Lumsden & Wilson, 1981), it might be the case that so-called cultural norms in behaviors might arise from different genetic characteristics of the population. At the same time, culture is not only constrained by genetics, but also influences the behavioral expression of genes (Boyd & Richerson, 1985; Lumsden & Wilson, 1981) and, consequently, can result in diverse psychological and behavioral expressions of genotypes. In our research, we have examined the interaction between genetic factors and culture as potential determinants of reliance on social support in stress coping. Much research has demonstrated the independent impact of biological factors (see Chapter, 11, this volume) and cultural factors (as reviewed in preceding sections; see also Chapter 10, this volume) on relationship processes. Yet, relatively little research has examined how these two factors might interact to mutually constrain the influence of each other. In the following section, we review research that investigated the interaction between culture and genes.
Gene x Environment Interactions

A growing body of evidence suggests the significant role of genes in influencing particular psychological and biological outcomes, such as proneness to psychological and physical illnesses (e.g., Collier et al., 1996; Lesch et al., 1996). Yet research suggests that environmental input can significantly moderate the effect of genes (e.g., Bakermans-Kranenburg & van IJzendoorn, 2006; Caspi et al., 2003).

For example, having a particular genotype (i.e., the short variant) of the serotonin transporter polymorphism (5-HTTLPR) is related to various behavioral phenotypes, such as trait anxiety (Schinka, Busch, & Robichaux-Keene, 2004), depression in conjunction with life stress (Caspi et al., 2003; Taylor et al., 2006; but see also Risch et al., 2009; Uher & McGuffin, 2010), and attachment avoidance (see Chapter 11, this volume). However, individuals with low socioeconomic status (SES), compared with those with higher SES, showed an attenuated plasma prolactin response to serotonin-releasing agent, fenfluramine, suggesting decreased sensitivity to serotonin but only among participants with the 5-HTTLPR short allele (Manuck, Flor, Ferrell, & Muldoon, 2004). Additionally, the expression of the 5-HTTLPR varies as a function of daily events, such as the perceived severity of a given stressor (Gunthert et al., 2007). Similarly, people with the genotype for low levels of the enzyme metabolizing the neurotransmitters serotonin, epinephrine, and norepinephrine (monoamine oxidase A; MAOA) may be more likely to develop antisocial behavior as adults following maltreatment as children than people with the high MAOA activity genotype (Caspi et al., 2002). These findings suggest that the phenotypic expression of different genotypes may be considerably moderated by the input from the environment.

Culture as a Moderator for Genetic Influence

Building on the evidence regarding the Gene x Environment interaction, we propose that culture represents a potentially important source of environmental input. The previous research has typically operationalized environment as personal environment that may vary in the degree of supportiveness or hostility. Culture is similar to such a conceptualization of the environment in that it provides a context that affords opportunities and constraints for the development of psychological tendencies. Yet culture differs from such a conceptualization of environment in that culture cannot be described in terms of qualities that have implications for better or worse psychological outcomes. Culture is a system that provides specific norms, rules, and guidelines for how to conduct actions in given situations, and thus, meanings to those acts (Bruner, 1990; Kim & Markus, 1999; Shweder, 1990). Thus, many studies in cultural psychology show that even a similar underlying motivation can lead to drastically different actions and psychological consequences in different cultures (e.g., Heine et al., 1999; Kim & Markus, 1999; Mesquita, 2001; Taylor et al., 2008).

Thus, in our research, we began to examine the role of culture in moderating the outcomes of genetic predisposition. We investigated the cultural and genetic basis of social support use, focusing on an oxytocin receptor gene (OXTR) rs53576.
(Kim et al., 2010). *OXTR rs53576* is a polymorphic site in the oxytocin receptor gene, which is localized in a single copy to chromosome 3 of the human genome (Gimpl & Fahrenholz, 2001). Although its neural mechanisms are still unknown, *OXTR rs53576* has been linked to differences in hypothalamic-limbic structure and function among humans (Tost et al., 2010). A few studies have tested the connection between *OXTR* gene and social behavior phenotypes; one animal study shows that mice with a null mutation in the *OXTR* gene tend to be more aggressive (among males), less maternally nurturing (among females), and less distressed by social isolation, and they have impaired social memory (Takayanagi et al., 2005).

In terms of behavioral phenotype among humans, people homozygous for the *G* allele of *OXTR rs53576*, relative to those with the *AG/AA* genotype, exhibit more sensitive parenting behavior (Bakermans-Kranenburg & van IJzendoorn, 2008), show greater sensitivity to infant crying (Riem, Pieper, Out, Bakermans-Kranenburg, & van IJzendoorn, 2011), and show more empathy (Rodrigues, Saslow, Garcia, John, & Keltner, 2009). In the studies that examined three genotypes separately, people with the *GG* genotype, relative to those with the *AA* genotype, report being less lonely (Lucht et al., 2009) and have more prosocial temperament (Tost et al., 2010); those with the *AG* genotype fall between the two homozygous genotypes.

In addition to findings regarding *OXTR*, research links social and emotional sensitivity to oxytocin as a neuropeptide. For example, intranasal administration of oxytocin leads to increased ability to infer the affective mental state of others (Domes, Heinrichs, Michel, Berger, & Herpertz, 2007) and to greater interpersonal trust (Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005).

Given the link between socioemotional sensitivity and the *OXTR*, we examined the roles of culture and *OXTR* in influencing the use of emotional social support (Kim et al., 2010). As the research reviewed in this chapter shows, culture differs in the norms regarding seeking social support, emotional support in particular, as a means to cope with stress. Therefore, we predicted that Americans would report using emotional support more than Koreans to manage distress. We further predicted that, under conditions of high distress, Americans with the *GG/AG* genotype, having higher sensitivity to socioemotional norms, would seek emotional support more than Americans with the *AA* genotype, because emotional support seeking is a normative coping response in the United States. By contrast, Koreans with the *GG/AG* genotype would not increase support seeking any more than those with the *AA* genotype, because emotional support seeking is a non-normative coping response. In summary, we obtained a Gene × Culture interaction in social support use.

Similarly, *OXTR* also appears to be involved in emotion suppression (Kim et al., 2011). Emotional suppression was most clearly observable among Koreans with the *OXTR GG* genotype, compared with those with *AA* genotype. Among Americans, the pattern was reversed, such that those with the *GG* genotype engaged in less emotional suppression, compared with those with the *AA* genotype. Solicitation of social support, particularly for emotional support, requires people to reveal their emotions. Thus, the *OXTR Gene × Culture inter-
action in emotional suppression may be related to understanding the OXTR Gene × Culture interaction in social support seeking described above.

Taken together, it appears that those who are more genetically prone to be socioemotionally sensitive seek social support more, and suppress emotion less, but only when it is a culturally sanctioned way of coping (Kim et al., 2010, 2011). These findings demonstrate the importance of examining the interaction of genetic and cultural influences in conjunction with documented cross-cultural differences.

OXTR, like many polymorphisms that are associated with psychological differences, has ethnic differences in its allelic distribution (e.g., Gelernter et al., 1997; Way & Lieberman, 2010). In particular, there is a larger proportion of the A allele among East Asians and East Asian Americans than among European Americans (Kim et al., 2010, 2011). One model, termed culture–gene coevolution or dual inheritance theory, was proposed to explain these genetic differences in the context of psychological and behavioral tendencies that possess at least a partial genetic basis. It proposes that cultural tendencies are adaptive and influence the social and physical environments under which genetic selection operates (Boyd & Richerson, 1985; Cavalli-Sforza & Feldman, 1981; Chiao & Blizinsky, 2010). In particular, it has been suggested that cultural values serve as a buffer against genetic susceptibility to psychological vulnerability (Chiao & Blizinsky, 2010). It might be the case that the cultural value of collectivism among Asians, which is characterized by greater structural and institutional emphasis on social relations and interpersonal coordination, serves to buffer against the genetic susceptibility to lower socioemotional sensitivity.

Conclusion

In this chapter, we reviewed a number of factors that moderate the use and effectiveness of social support. Aspects of the support itself (e.g., whether it was received or perceived, instrumental or emotional), aspects of the individual (e.g., their genetic predisposition for socioemotional sensitivity), and aspects of the larger context in which support was sought (e.g., culture) all influence who uses social support, how it is used, and whether it is beneficial. The different levels of analysis included genes, biology, emotions, behavior, relationships, and culture.

What is exciting and important as research moves forward is a greater integration of these levels of analysis to understand not only how these factors independently contribute within the social support transaction, but also how these factors shape the behaviors in conjunction with one another. The studies reviewed in this chapter show that both biological antecedents (e.g., genes) and outcomes (e.g., cortisol stress response) of the social support process function within a larger sociocultural context. Genes and hormonal stress responses may often be considered to be basic human processes, but whether genes are expressed and whether hormones are activated depends in part on the cultural background of the individual and the context within which the individual lives.
References


