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How Psychosocial Resources Enhance Health and Wellbeing

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How Psychosocial Resources Enhance Health and Wellbeing

Psychosocial resources are the skills, beliefs, talents, and individual personality factors that influence how people manage stressful events. They include self esteem, optimism, a sense of mastery, active coping skills, and social support. Without them, stress can take a great toll on psychological wellbeing, on biological responses to stress, and ultimately on health, but with these resources come at least three kinds of benefits. First, psychosocial resources help people to appraise potential stressors in more benign ways. Threatening events seem less so when people are armed with psychosocial resources. Second, they help people cope with the inevitable taxing events that they encounter. Psychosocial resources are reliably related to active coping strategies that involve enlisting social support, managing emotional responses to stress, and gathering information and taking direct action. People with psychosocial resources are less likely to cope through maladaptive avoidant behaviors, such as substance abuse or withdrawal. Finally, psychosocial resources foster resilience in the face of major stressors, such as natural disasters and health threats (Taylor, 1983).

For the past thirty years, we have examined how psychosocial resources affect mental and physical health. We have examined these processes in laboratory studies that manipulate stress and also among people who are going through intensely stressful events, such as coping with HIV or cancer. Figure 1 illustrates the approach that has guided our thinking. We regard the early environment and genetic predispositions as origins of psychosocial resources; we look at neural responses to threat and low chronic negative affect as correlates of psychosocial resources; we examine downstream consequences of psychosocial resources on biological stress regulatory systems; and we explore how the cumulative adverse effects of stress responses provoke accumulating damage that, in turn, predisposes to mental and physical health risks.

Psychosocial Resources: Background

What Are Psychosocial Resources?

Psychosocial resources are critical for regulating responses to threat and have been demonstrated to beneficially affect both mental and physical health. Although different investigators have focused on different resources, four that have been consistently tied to beneficial mental and physical health outcomes are optimism, mastery, self esteem, and social support (e.g., Folkman & Moskowitz, 2004; Scheier & Carver, 2003; Taylor & Stanton, 2007).

Optimism refers to outcome expectancies that good things rather than bad things will happen to the self (Scheier, Weintraub, & Carver, 1986). It has been tied to a broad array of mental and physical health benefits, including greater psychological well-being (Kubzansky et al., 2002; Park, Moore, Turner, & Adler, 1992; Scheier & Carver, 1992; Segerstrom, Taylor, Kemeny, Reed, & Visscher, 1996), lower vulnerability to infection (Cohen, Doyle, Turner, Alper, & Skoner, 2003; Segerstrom, Taylor, Kemeny, & Fahey, 1998), faster recovery from illness (Scheier et al., 1989), and a slower course of advancing disease (Antoni & Goodkin, 1988; Reed, Kemeny, Taylor, & Visscher, 1999; Reed, Kemeny, Taylor, Wang, & Visscher, 1994) (see Carver & Scheier, 2002; Scheier & Carver, 2003, for reviews).

Personal control or mastery refers to whether a person feels able to control or influence his/her outcomes (Thompson, 1981). Studies have shown a relationship between a sense of control and better psychological health (Rodin, Timko, & Harris, 1985; Taylor, Helgeson, Reed & Skokan, 1991), as well as better physical health outcomes, including lower incidence of coronary heart disease (CHD) (Karasek, Theorell, Schwartz, Pieper, & Alfredsson, 1982), better self-rated health, better functional status, and lower mortality (Seeman & Lewis, 1995). A belief in personal control is related to reduced mental and physical health risks conferred by low

socioeconomic status (SES); among people of low SES with strong beliefs in personal mastery, mental and physical health outcomes are equivalent to those seen in high SES groups (Lachman & Weaver, 1998).

A positive sense of self or high self-esteem is also protective against adverse mental and adverse health outcomes. For example, research consistently ties a positive sense of self to lower autonomic and cortisol responses to stress (e.g., Seeman & Lewis, 1995; Creswell, Welch, Taylor, Sherman, Gruenewald, & Mann, 2005). Ties to health outcomes are modest but consistently positive as well (Adler, Marmot, McEwen, & Stewart, 1999; Taylor & Seeman, 1999).

Social support is the perception or reality of having people in your life who care for you and will help you in stressful times, if you need it (Wills, 1991). Research consistently shows that social support reduces negative affect during times of stress and promotes psychological adjustment to a broad array of chronically stressful conditions (see Taylor, 2009, for a review). Social support also contributes to physical health and survival. Indeed, it is the most significant and reliable psychosocial predictor of health outcomes, with effects on health on par with smoking and lipid levels (House, Landis, & Umberson, 1988).

Psychosocial Resources and Biological Stress Responses

Laboratory studies have demonstrated that people with strong psychosocial resources have lower biological responses to stress. What are these biological responses? There are two major stress systems in the body: the sympathetic nervous system and the hypothalamic pituitary adrenal system. In response to stress, these systems are activated and mobilize the organism for fight or flight. These responses are protective on the short term, but on the long-term, they carry costs. These systems may lose their resilience, laying the groundwork for chronic illness. In

laboratory studies, researchers assess heart rate and blood pressure as indicators of sympathetic functioning and cortisol as a hormone indicative of the functioning of the hypothalamic pituitary adrenal axis. As is true of heart rate and blood pressure, one expects to see cortisol levels increase in response to stress, and so cortisol profiles that are flat and elevated are among the signs that researchers consider diagnostic of compromised functioning of the HPA axis (McEwen, 1998).

Our research has shown lower heart rate, lower blood pressure, and lower cortisol responses to stress among those with strong psychosocial resources. For example, in one study we employed a composite measure of the resources noted above and found lower heart rate responses to stress tasks in the laboratory, lower blood pressure responses, faster sympathetic recovery, and a lower baseline level of cortisol (Taylor, Lerner, Sherman, Sage, & McDowell, 2003).

Psychosocial Resources and Health

As noted, there is clear evidence that psychosocial resources affect health. Our own research indicates that survival rates among men with AIDS is longer and progression of the HIV virus in asymptomatic seropositive men is less rapid among men who have strong psychosocial resources (Reed, Kemeny, Taylor, Wang, & Visscher, 1994; Reed, Kemeny, Taylor, & Visscher, 1999). Other researchers have found that psychosocial resources can affect the course of cardiovascular disease and recovery from surgical procedures, such as coronary artery bypass graft surgery (Helgeson, 1999; 2003; Scheier et al., 1989).

Armed with this evidence, pivotal questions become: What are the origins of psychosocial resources? And what are the pathways by which psychosocial resources and their origins ultimately translate into good health?

Origins of Psychosocial Resources

Psychosocial resources have origins both in genes and in the early environment. Early environment affects health not only in childhood, but throughout adulthood into old age, controlling for other risk factors. Essentially, a harsh early environment predicts early onset chronic disease, controlling for other variables. The two lines of research that have demonstrated this relationship most clearly is work showing that childhood social class predicts health outcomes (Chen, Matthews, & Boyce, 2002) and research showing that a harsh early family environment predicts health risks (Repetti, Taylor, & Seeman, 2002). Research on physical and emotional abuse and on early isolation reveals adverse effects (e.g., Fries, Shirtcliff, & Pollak, 2008; Tottenham et al., in press), but even families that are not abusive but merely conflict-ridden, neglectful, chaotic, or cold and non-nurturant show these adverse health effects (Repetti et al., 2002). Thus, the damage done by a harsh early environment is not limited to circumstances of extreme abuse. Research by Vincent Felitti and colleagues using enrollees in the Kaiser program in Southern California reported strong dose-response relationships between adversity in the early family environment and diagnosis of a broad array of health conditions (from the Kaiser archives) ranging from depression to ischemic heart disease (Felitti et al., 1998). The fact of dose-response relationships, such that the greater the adversity, the greater the health risks, is important evidence for the role of the early environment in health outcomes.

As Figure 1 shows, we regard the early environment as an important input to the development of psychosocial resources. Substantial research links economic adversity (low childhood SES) to problems in the enlistment or use of psychosocial resources, including social support, optimism, mastery, and self-esteem (Adler et al., 1999). A harsh early family environment has also been tied reliably to psychosocial deficits, including difficulty managing

emotions in challenging circumstances, and the development of chronic negative emotional states, including high levels of hostility, anxiety, and depression (Repetti et al., 2002).

Genetic factors are also clearly implicated in psychosocial resources. For example, twin studies indicate that approximately 25% of the variance in optimism appears to be genetically based (Plomin et al., 1992). Kessler, Kendler, Heath, Neale, and Eaves (1992) reported a genetic basis for social support, which may reflect either the ability to perceive social support as available, the availability to enlist it, or both. Empirical studies suggest that genes in conjunction with the early environment can affect how people cope with stress, for example, with depression (Taylor, Way et al., 2006) or with aggression (Caspi et al., 2002; Eisenberger, Way, Taylor, Welch, & Lieberman, 2007).

Pathways to Good Health

The robust effect of early environment on health across the lifespan is often greeted with surprise. It is not immediately clear why socioeconomic or family environmental conditions in early life would affect the early onset of chronic disorders in adulthood, such as Type 2 diabetes, heart disease, or cancer. To make these pathways more transparent, our laboratory has focused on several possible mechanisms: first, the brain's responses to stress, and, second, alterations in biological stress regulatory systems.

The research on harsh early environments suggests several reliable effects on the coping skills of offspring. Children from risky families evidence higher levels of avoidant coping, such as trying to tune out stressors as much as possible (O'Brien et al., 1991; Valentiner, Hollihan, & Moos, 1994; Johnson & Pandina, 1991). But if they are confronted with stressors they cannot avoid, they may show overly aggressive responses to stressors, often ones that are perceived by others to be only moderately challenging (Reid & Crisafulli, 1990). And finally, offspring from

these harsh family environments show ineffective coping, that is, coping that does not seem to reduce the stress they are experiencing (Brody & Flor, 1998; Dishion, 1990).

In a recent investigation (Taylor, Eisenberger, Saxbe, Lehman, & Lieberman, 2006), we examined the neural bases of these coping resources in the context of the family environment. The focal question of this study was: Does the early environment compromise how the brain deals with stress? We focused on two brain regions that have been implicated in previous research as involved in the regulation of stress responses. These are the amygdala, portions of which have been tied to threat detection and fear responses, and a region of the prefrontal cortex, specifically, the right ventrolateral prefrontal cortex, which may regulate amygdala responses to threat.

We conducted an investigation to see if the reactivity of these regions to threat cues is affected by the type of early environment a person grew up in (Taylor et al., 2006). Thirty young adults participated. They completed validated questionnaire and interview assessments of the early environment and then responded to three tasks in the scanner. In one condition, they observed faces that conveyed negative emotions, specifically fear and anger. This observation task typically evokes amygdala activity because fearful or angry faces are threat cues. In other trials, they were asked to label the emotions, that is, indicate whether the faces were expressing fear, anger, or some other emotion. This task has been found to evoke RVLPFC activity, as people are processing what the emotions mean. In a control task, participants simply indicated the gender of the face, namely, whether the person pictured was more likely to be named Sam or Helen.

What one would typically see in a study such as this is: 1) amygdala activity in response to the observation of negative faces, 2) RVLPFC activity in response to labeling the faces, and 3)

a negative correlation between activity in the RVLPFC and amygdala during the labeling task. This is exactly what you see among children who have grown up in nurturant families.

However, among children who have grown up in non-nurturant families, the findings are quite different. In the observation of faces task, offspring from harsh family environments showed lower amygdala activity. This pattern suggests that in the observation task, participants from non-nurturant families may have been tuning out the stimuli, consistent with what the behavioral literature on coping among offspring of risky families has found. In the task that involves labeling emotions, however, a very different pattern of responding was found. This is a task that people are not able to avoid, and so offspring from harsh families have higher amygdala responses to the labeling task than those from nurturant families. And of particular interest is a positive, rather than negative, relationship between activity in the right ventrolateral prefrontal cortex and in the amygdala. That is, offspring from risky families appear to be trying to recruit the prefrontal cortex to manage emotional responses to stress, but it is not reducing their amygdala activity, as appears to be the case for offspring from nurturant families.

What do these results mean? They suggest that offspring from risky families may shut out threatening cues with which they do not need to engage, but when they are forced by task demands to engage, their amygdala responses are stronger, and they do not recruit prefrontal brain regions effectively for regulating amygdala responses to threatening stimuli. We conclude, then, that growing up in a risky family environment marked by harsh parenting has effects on the brain's detection of threat and the regulation of responses to threat by the prefrontal cortex. Offspring from risky families do not appear to develop effective coping skills for managing circumstances, deficits that can actually be seen in the brain's responses to threat.

How Can Psychosocial Resources Affect these Pathways?

Psychosocial resources play a vital role in the links between early environment and adult health outcomes. We begin this section by discussing the role of social support in these processes. As noted, social support, whether perceived or utilized, has a strong and beneficial effect on health. It is not immediately clear why and how social support has such beneficial effects on health outcomes, although a strong possibility is that social support keeps stress reactivity low, either by helping people to appraise potential stressors more positively, by helping them to regulate their responses to threat, or both.

To address this question, Eisenberger, Taylor, Gable, Hilmert, and Lieberman (2007) examined how social support may influence the neural regulation of stress responses. The goal of the study was to see if people who have a lot of social support are less likely to experience social threats as threatening and if they also experience lesser stress reactivity. The procedures for this three-part study were as follows. First, the twenty participants completed a daily experience sampling procedure. They carried a pager for 9 days and were beeped several times a day and asked to rate how supportive their most recent interaction partner had been. At the end of the nine-day period, the support that they reported receiving was summed.

Participants then came into the laboratory and completed a virtual social exclusion task (Eisenberger, Lieberman, & Williams, 2003). In this task, the participant plays a virtual ball tossing task in the scanner with two other people he believes to be participants. Although all three participants throw the ball to each other at the beginning of the game, over time, the participant is gradually excluded, as the other two people play with each other, ignoring the participant. In fact, the game is pre-programmed, and there are no other participants. People who play this game are surprisingly devastated by being excluded in this virtual ball tossing task and express considerable social distress. Moreover, this distress is correlated with activity in a

particular region of the brain, namely the dorsal anterior cingulate cortex (dACC). We predicted that people who had a lot of social support over the previous 9-day period would be less likely to experience social distress and would show less activity in the dACC in response to social exclusion.

In the third part of the study, participants took part in the Trier Social Stress Task (Kirschbaum, Pirke, & Hellhammer, 1993). The Trier Social Stress Task is a standardized laboratory procedure involving two specific tasks. Participants count backwards as rapidly as possible, say by 13s by 2,095, while an experimenter urges them to go faster or interrupts them to start over when they have made a mistake. In the second task, participants are asked to spend five minutes preparing a speech which they then deliver to an audience that has been pretrained to be unresponsive and to communicate signs of boredom and a poor impression of the speech. Typically these tasks evoke strong increases in heart rate and blood pressure and a rise in cortisol levels. We expected to see that people with strong levels of social support would show lesser increases in heart rate, blood pressure, and cortisol during the stress tasks.

As we predicted, we found that people who had strong experiences of social support had lower dorsal anterior cingulate cortex activity in response to the scanner social exclusion task than those with lower levels of social support. If there are many people that you can count on who are supportive and care for you, being excluded from a virtual social task may not matter as much as it would to people who do not have as much social support. With respect to the neuroendocrine evidence, we found that people who had many experiences of social support on a daily basis also showed lower cortisol activity during the laboratory portion of the TSST. We conducted mediational analyses and found that individual differences in activity in the dACC mediated the relationship between social support and cortisol reactivity during the TSST. These

findings tell us that social support is influencing the brain's responses to threat tasks, which in turn, keeps biological responses to stress at lower levels.

In a related investigation, we examined whether individual differences in psychosocial resources might affect stress responses in similar ways (Taylor et al., 2008). Specifically, we created a composite measure of optimism, self-esteem, mastery, and related resources and asked whether they, too, influence how the brain processes threat. In this study, participants completed questionnaire assessments of psychosocial resources and participated in the Trier Social Stress Task described earlier. Participants also completed the fMRI fearful faces task described earlier. We expected to see that psychosocial resources would be protective against stress by leading to lesser amygdala activity during the observation of fearful or angry faces, greater RVLPFC activity while they were being labeled, and lower cortisol responses to stress during the TSST.

This is essentially what we found. Psychosocial resources were tied to greater RVLPFC activity during the labeling of fearful and angry faces and to lower amygdala activity as expected. Psychosocial resources were also tied to lower cortisol and systolic blood pressure responses during the TSST. Most important, lower amygdala activity mediated the relation of psychosocial resources to lower cortisol reactivity. This evidence, then, tells us that individual differences in psychosocial resources influence the brain's responses to threat, which in turn, reduces neuroendocrine responses to stress.

Psychosocial Resources and Health Outcomes

Does the model pictured in Figure 1 predict health outcomes? In other words, by knowing a person's psychosocial resources, can we make educated guesses about what their health will be like across the lifespan? In one effort to address this important and complex question, we developed a collaborative relationship with the CARDIA study (Coronary Artery

Risk Development In Young Adults). CARDIA is a large prospective study of risk factors for coronary artery disease in African-Americans and whites. It has so far followed participants over a 15-year period, enabling an examination of our model (Figure 1) to specific health outcomes.

We have thus far addressed three such outcomes. The first is metabolic functioning. Metabolic functioning is a composite risk factor for diabetes, coronary artery disease, hypertension, and other chronic health conditions. It is comprised of such indicators as cholesterol, insulin, glucose, triglycerides, and waist circumference. We also examined the relation of the model to C-reactive protein, which is an indicator of inflammatory processes that has been implicated as a risk factor for both mental disorders, such as depression, and physical health disorders, such as heart disease. And third, we examined whether the model can predict the development of hypertension.

We had 3,225 participants complete our assessments of childhood SES and early family environment and complete a physical exam which assessed metabolic functioning, C-reactive protein, and blood pressure. We used structural equation modeling to examine the viability of a model similar to that pictured in Figure 1. Unfortunately though, from a psychosocial standpoint, we were able to look at only depression, hostility, and social support as the psychosocial measures. Nonetheless, the model proved to be a good fit for explaining variability in all three of the health outcomes, including not only blood pressure but change in blood pressure over time. These findings provide direct evidence that psychosocial factors are implicated in health risks tied to low SES in childhood and to a harsh early family environment.

Conclusions and Implications

Are there applications of this work? The realization that psychosocial resources arise in the early family environment and from genes may imply that these patterns are established very early in life and that there may not be much room for improvement. Accordingly, this would seemingly limit possibilities for intervention. This is clearly not the case, however. For example, some of our genetics work has shown that when people are in a supportive environment, even genes that would normally predispose to adverse stress responses such as depression and anxiety are expressed differently and may even become protective against the adverse effects of stress (Taylor, Way et al., 2006). How might we engineer a positive social environment?

A first point of intervention concerns the early environment. Because the damage of low socioeconomic conditions and a harsh family environment occurs so early in life, it is important to intervene at the earliest possible time. Children who are may be risk need to be identified very early, as babies or toddlers or even pre-natally, so that the psychosocial environment can be improved. Interventions with families to improve parenting practices, for example, are essential and for the most part appear to be successful (McLoyd, 1998). However, an important predictor of decline in the psychosocial environment of the family is economic downturns: When people are under stress, fear losing their jobs, or are having difficulty meeting their financial obligations, family relations deteriorate. As such, economic downturns represent a high risk circumstance for the kinds of risky families dynamics documented here. Interventions, then, need to start early with parenting classes, training manuals, skill training in emotion regulation and empathy, among other interventions, for parents and children alike.

Our research also clearly points to a mechanism that links social support to health outcomes via neural regulation of stress reactivity. Accordingly, attempting to personally

engineer one's environment so that it is relatively low in stress and high in social support is another way to guard against the adverse effects of stress, even those that may be related to genes. The lesson to be learned is that everyone should be encouraged to build supportive social networks and participate actively in them. Those who are unable to do so on their own may need assistance.

Another strategy is to cultivate psychosocial resources for improving wellbeing. There are a number of books that can help people do this, including Sonja Lyubomirsky's book, *The How of Happiness,* Seligman's *Learned Optimism*, Diener's *Happiness*, and Fredrikson's (2009) *Positivity*.

Not everyone can engineer their personal environment in such a way as to foster psychosocial resources on their own. But, there is every reason to believe that therapeutic interventions, such as cognitive behavioral treatments to modify coping skills, can help people think about their lives differently and deal with stress more effectively. So, for people who are unable to achieve this reengineering, there are numerous sources of help.

In conclusion, the importance of psychosocial resource, such as social support, optimism, a sense of mastery, self esteem, and active coping skills, should not be underestimated. These resources, the groundwork for which is laid early in life, help people stave off psychological distress and ill health across the lifespan.

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