

## The Future of Social-Health Psychology: Prospects and Predictions

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### Abstract

Social-health psychology has made substantial contributions to health psychology and is poised to make many more in the future. Some new developments will come from empirical progress in theoretical and empirical social psychology that can elucidate the psychological mechanisms whereby social variables affect health. Others will come from technological advances, such as functional magnetic resonance imaging, that will uncover mechanisms that underlie effects of stress, coping, persuasive communications, and other factors on health. Progress will also come from social psychologists' increasing comfort with biological processes and measures, including genetics and neuroendocrine mechanisms. As such, social-health psychology will not only continue to enrich both health psychology and social psychology, but increasingly be able to speak to intervention possibilities. Moreover, by virtue of its emphasis on psychobiological mechanisms, social-health psychology leads the way for an expanding role of social psychology in the integrative science of the future.

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Social psychology has made profound contributions to the field of health psychology, a discipline to which all branches of psychology, as well as medicine, public health, and the other social sciences, contribute. Social psychological inputs are distinguished from these other fields by their focus on social processes and the mechanisms by which social support and social isolation contribute to health (Uchino, 2006), and by a distinctive knowledge of attitude and behavior change processes that help us understand when and how people change their health behaviors.

Going forward, these will continue to be important areas, but many other topics have emerged on which the social psychological perspective is distinctively valuable. These include: fully exploiting our knowledge of self-related processes to achieve attitude and behavior change; using insights gained from technologies such as functional magnetic resonance imaging (fMRI) to shed light on behavior change, stress, and coping; uncovering the psychological and biological pathways by which the social environment affects mental and physical health; understanding relationship biology, namely the processes by which intimates influence each other's biology; identifying dimensions of the social environment most likely to produce discernible changes in health; integrating human social experience with well-developed animal models that articulate the underlying biology; and epigenetic regulation of health-related outcomes by the social environment; among others.

### Attitude and Behavior Change

Historically, the first area of social psychological input to health psychology involved applying the technology of attitude and behavior change to health issues. The early contributions of Irving Janis, Howard Leventhal, and other senior scholars in the field

explored the role of fear appeals, among other interventions, in an effort to raise the sense of urgency that people experience with respect to such life-threatening habits as cigarette smoking (Janis, 1958; Leventhal, 1970). The rationale was that if you can alert people to health threats and raise their concern, you can motivate them to change their behavior.

Current approaches to changing health attitudes and behavior continue to draw on this wisdom, especially those guided by the health belief model (Rosenstock, 1966) and the protection motivation model (Rogers, 1975). In addition, as the links between attitudes and behavior have proven not to be clear cut, models that focus on the attitude-behavior relation have become especially influential. In particular, the theory of planned behavior (Ajzen, 2001) has documented the importance of social norms and perceived behavioral control, among other determinants of behavioral intentions, which, in turn, affect behavior.

In the history of social-health psychology, we have scared people and tried to educate them. Until recently, however, we have not helped them feel good enough about themselves to reduce their defensive responses to risk. Current lines of work suggest that this is a productive path. Increasingly, social psychologists have recognized that receptivity to risk-related communications and efforts to change faulty health habits are sometimes better addressed by shoring up the sense of self than by attempting to tear down defenses. Indeed, efforts to instill fear or threat can sometimes backfire, making people less rather than more receptive to health-related communications (Gerrard, Gibbons, Benthin, & Hessling, 1996).

Research on optimism (Aspinwall & Brunhart, 2000) and, more recently, on self-affirmation processes (Sherman & Cohen, 2006; Steele, 1988) indicate that a strong sense of self can make people more receptive to personally relevant risk-related information. For example, studies using self-affirmation manipulations find that when people's personal values have been strengthened, they are more receptive to communications designed to change poor health behaviors (Sherman, Nelson, & Steele, 2000). Relatedly, dispositional optimists are more receptive to personally relevant risk-related information than are pessimists, whose receptivity to risk-related information is less discriminating (Aspinwall & Brunhart, 2000). Thus, paradoxically, we seem to be coming full circle, moving toward making people feel good, rather than bad, so that they can confront threat effectively.

Historically, our efforts to change health behavior emphasized conscious verbal processing. Recently, research using fMRI has found that some successful health behavior change occurs outside of awareness. In a recent investigation (Falk, Berkman, Mann, Harrison, & Lieberman, 2010), participants were exposed to persuasive messages promoting sunscreen use. Those who showed significant activation in the medial prefrontal cortex (mPFC) and posterior cingulate cortex (pCC) in response to the messages showed behavior change in their sunscreen use. Most important, although individual differences in behavior were (weakly) predicted by behavioral intentions, activity in mPFC and pCC accounted for an additional 25% of variance in behavior on top of variance explained by self-reported attitudes and behavioral intentions. Put another way, processes apparently not accessible to consciousness nonetheless significantly predicted behavior change.

What is not yet known is what the activity in mPFC and pCC means. One possibility is that this activity signals behavioral intentions at an implicit level that is not consciously accessible (Falk et al., 2010). Alternatively, activity in mPFC may reflect self-referential processing and be related to behavior change primarily because participants have linked the communication to the self (see also Chua, Liberzon, Welsh, & Strecher, 2009). Evidence suggests that persuasion efforts that successfully modify a person's sense of self may be most successful in modifying behavior and aid in the process of forming specific behavioral intentions (Rise, Sheeran, & Hukkelberg, 2010).

The role of the self in health behavior modification, changes in behavior predicted by cognition and affect outside of awareness, and patterns of brain activation linked to such changes, thus, appear to be ripe areas for future development in social-health psychology perspectives on health behavior change.

### The Social Environment

Social psychologists have long known that the social environment is the key to understanding good and poor health (Cohen, 1988). We have been paramount in the field of patient-physician communication, for example, and on the uses of social power to maximize the impact of health communications (DiMatteo & DiNicola, 1982; Raven, 1993). Social support is a significant determinant of well-being, good health, rapid recovery, and low risk of morbidity and mortality, and social isolation and loneliness are known to be potent factors prognostic for poor health and mortality (Cacioppo & Patrick, 2008; Uchino, 2006). Going into the future, social psychologists will continue to uncover the biological mechanisms through which social aspects of the environment affect health. For example, recent research on oxytocin and vasopressin suggests they may play a role in social distress, with potential health implications (Taylor, Saphire-Bernstein, & Seeman, 2010). Using techniques ranging from fMRI to neuroendocrine assessments to measures of immune functioning, we are slowly but steadily discovering these connections.

A decidedly nuanced picture of how social support affects health outcomes has emerged over the last decade, and future work will round out this portrait more completely. For example, blatant or obvious efforts at social support can backfire, leaving people worse off than they would have been without the effort (Bolger & Amarel, 2007; Taylor, Seeman, et al., 2010). Instead, support is often low-key, ongoing, and invisible, provided perhaps by a snapshot of one's partner (Master et al., 2009), the sound of one's partner in the house, and other forms of warm but casual contact, rather than explicit Herculean efforts to support another person in the midst of a stressful or traumatic event (Bolger, Zuckerman, & Kessler, 2000). Often, it is the idea or perception of social support that matters more than its reality.

Likely directions for future research on social support will include a focus on relationship biology, namely the ways in which people regulate each others' physiological and neuroendocrine systems. The prototype for biological coregulation has been the mother-child relationship (e.g., Liu et al., 1997; Repetti, Taylor, & Seeman, 2002), in which both positive and negative coregulation are at least somewhat matched. Whether adult biological coregulation occurs with the same intensity and in the same ways as occur between mother and child remains to be seen; the pathways may be somewhat different (Champagne, 2010). Emerging evidence indicates that arousal and cortisol levels may be matched in couples, especially when they are experiencing negative events and especially if the relationship is distressed (Saxbe & Repetti, 2010). Whether biological indicators of positive experiences are matched as well merits additional exploration. Correspondingly, we will see a focus on the benefits of giving as well as receiving support (e.g., Brown, Nesse, Vinokur, & Smith, 2003), and the fact that the biological responses of the support provider may be affected in similar ways as occur for the support recipient.

The social environment is a significant predictor of mental and physical health, both for the good and for the bad, and social psychologists are distinctively poised to elucidate the reasons. Social psychologists have gone some distance in articulating the dimensions of the social environment that are implicated in health effects, and social evaluative threat

is known to be a particularly potent stressor (Dickerson & Kemeny, 2004). Additional attention to the health-relevant dimensions of the environment is merited.

### Stress

Perhaps the most progress in social-health psychology has been made in the field of stress. Not only is the area fairly well conceptualized, with diverse sources of stress, including daily hassles, chronic stressors, and traumas, explored in terms of their psychological and biological ramifications, but the biological routes whereby stress produces adverse health effects are also now fairly well known. Social psychologists have contributed to the burgeoning research on the effects of stress on the cardiovascular system, the hypothalamic–pituitary–adrenal (HPA) axis, and immune functioning, and the ways in which chronic or repeated activation of these stress responses contributes to allostatic load, namely, accumulating stress-related dysregulation across multiple biological systems (McEwen, 1998).

However, as we have developed useful paradigms for studying some of these issues, we run the risk of creating literatures that are paradigm-specific. The stress literature draws heavily on the Trier Social Stress Test (TSST; Kirschbaum, Pirke, & Hellhammer, 1993). An invaluable asset to building models of stress and understanding its effects on physiological functioning, the TSST is now so commonly used as a methodological proxy for stress that we risk having a literature particular to this paradigm that does not tap stress more broadly. Expanding the nature of how we study stress and guarding against paradigm-specific developments in other areas of social-health psychology would be prudent.

Increasingly, we are understanding the genetic and epigenetic mechanisms by which stress leads to disease. Perhaps the best developed model involves the glucocorticoid receptor (Cole, 2009; Miller & Chen, 2007); among other findings, these studies show that early life stress presages a proinflammatory phenotype in adolescence, potentially promoting risk for inflammation-based disorders, such as depression and heart disease. Other work by social psychologists is exploring the importance of the serotonin transporter gene (Way & Taylor, forthcoming), the oxytocin receptor gene (Kim et al., 2010), and others, whose functioning is at least partly regulated by the social environment and whose effects are relevant to health outcomes. For example, it is now known that the social stressfulness of the current environment moderates the expression of the serotonin transporter gene: In stressful environments, those with the *s/s* allelic profile show greater susceptibility to depressive symptoms (Caspi et al., 2003), whereas those in supportive environments who have the *s/s* allelic combination are protected against depressive cognitions (Taylor et al., 2006).

Work such as this indicates that genetic expression is an ongoing, life-long process, and that the nature of the social environment importantly influences these processes, in this case, completely reversing a risk factor for depression when the environment is benign. Such work also indicates that genes once thought to be prognostic for specific psychological or physical health outcomes (in this case, depression) may, in fact, be prognostic for a range of outcomes, depending upon the supportiveness or stressfulness of the social environment. Who knew that social psychologists could make contributions to genetics?! As our potential influence expands, social-health psychology can help articulate the biologically significant dimensions of the social environment that contribute to understanding how genes affect susceptibility to stress, and how epigenetic mechanisms affect their expression, with resulting health consequences.

An important characteristic of recent and future work on the social regulation of stress responses is the integration of social psychological research with related animal research.

The early fascinating work by Meaney and colleagues (Francis, Diorio, Liu, & Meaney, 1999; Liu et al., 1997) has evoked remarkable parallels in human experience, leading to extremely well-characterized pathways. For example, much is now known about the ways in which the social stressfulness of the early family environment influences such processes as emotion regulation and social skills in ways that have enduring effects on mental and physical health into adulthood and old age (Repetti et al., 2002). Although paradoxes remain, such as the fact that the HPA axis may show either hyper-responsiveness or hypo-responsiveness following exposure to severe stress (Miller, Chen, & Zhou, 2007), the integrative ties between work on humans and animals is nothing short of amazing. Making links to other well-characterized animal models in other health-related domains may be a profitable direction for future work.

### Coping

At one time, the coping literature was one of the messiest and least conceptually sophisticated literatures in psychology. Admirable conceptual coherence was subsequently provided by Lazarus and Folkman (1984) and Carver, Scheier, and Weintraub (1989), such that a coherent set of coping strategies and ways to measure them have now emerged. Among other benefits, this structure has paved the way for identifying the neural processes underlying the use and effectiveness of different kinds of coping strategies. Reactions to stressful events, for example, often engage amygdala activity involved in fear, anger, and other negative emotional states. Regions of the prefrontal cortex are thought to be actively engaged when people are making coping efforts. Research on neural bases of coping strategies conducted by Ochsner, Bunge, Gross, and Gabrieli (2002) reveals that when people are induced to reappraise emotional events, the ventrolateral prefrontal cortex plays a role in attenuating amygdala responses to these emotional stimuli. Recent research indicates that the left ventrolateral prefrontal cortex may contribute to engaging and maintaining coping strategies that involve reappraisal, whereas right ventrolateral prefrontal cortical activity appears to be implicated in altering amygdala responses to threatening stimuli (Berkman & Lieberman, 2009).

The coping resources that protect people against adverse effects of stress and confer resilience are now also fairly well detailed (Ryff, 1989; Taylor et al., 2008), as are the specific mechanisms by which psychosocial resources affect health outcomes. For example, Taylor et al. (2008) found that people who had greater psychosocial resources in the form of optimism, mastery, and self-esteem showed activation in the right ventrolateral prefrontal cortex that was related to lower amygdala responses in reaction to threat cues: These changes, in turn, were tied to lower physiological and neuroendocrine stress reactivity. It is likely that the enduring effects of such resources on health outcomes occur in large part because the cumulative adverse effects of stress are lower in people with strong resources, that is, the allostatic load model (McEwen, 1998).

Paralleling this work on positive resources, social psychologists such as Karen Matthews, Howard Friedman, and Steve Cole have made seminal contributions to understanding individual differences in hostility, negative affectivity, and rejection sensitivity, respectively, that have been linked to enhanced risk for both acute and chronic health disorders (Cole, Kemeny, & Taylor, 1997; Friedman, 2008; Goldbacher & Matthews, 2007). Increasingly, we are discovering the ways in which these enduring risks are reflected in patterns of neural activation in the brain during stressful encounters, and how they contribute to adverse mental and physical health outcomes.

Our understanding of these risks and resources is now so advanced that integrative multi-component longitudinal models of the relation of social psychological factors to health outcomes can now be constructed. Such models may include genetics, aspects of the early environment, and macro-level variables such as socioeconomic status (SES) as antecedents to psychosocial resources and risk factors; these resources and risk factors, in turn, affect neural responses in the brain that regulate autonomic, neuroendocrine, and immune responses to threatening circumstances, which over time, accumulate as health risks. Such social, psychological, and biological integration in life-course models is virtually unprecedented in other domains in psychology.

### **Pain**

Pain management has historically been a major concern of medicine and clinical health psychology. Recently, social-health psychology research has revealed the intricate interplay of physical and social pain, yielding not only an improved understanding of pain but possibilities for pain management in the future. For example, work by Eisenberger and associates has shown that the neurocircuitries for physical and social pain overlap and that augmenting or ameliorating one type of pain often has corresponding effects on the other; this work charts the pathways from the subjective experience of pain, through the brain in the dorsal anterior cingulate cortex (dACC), to peripheral physiology (Eisenberger, 2011). This is another example of a multi-level integrative approach that brings social and biological factors together, and can serve as a model for other such endeavors.

### **Relating Macro-Level Variables to Health**

Social psychologists have, historically, made important contributions to the study of racism, sexism, discrimination, and prejudice. Increasingly, research indicates that there are adverse health consequences of these processes (Brondolo, Rieppi, Kelly, & Gerin, 2003; Richman, Bennett, Pek, Siegler, & Williams, 2007). Going into the future, social-health psychologists are uniquely poised to use their knowledge of discrimination and prejudice to understand the specific routes by which such experiences adversely affect health. Increasingly, researchers are also understanding that culture affects not only what resources people bring to bear on stressful events, but how they do so and what effects they have (Kim, Sherman, & Taylor, 2008). As social psychologists have become interested in macro-level phenomena such as SES (Adler & Stewart, 2010), they have helped to define the specific psychological and biological pathways whereby these macro-level variables have effects on individual health. As these examples attest, the trends toward bringing research on social issues and problems to the individual and biological levels is an important contribution that social-health psychologists are especially equipped to promote.

### **Training in Social-Health Psychology**

In the past, many advances in social-health psychology have been achieved by teaming up with biomedical researchers who contribute the biological expertise needed to identify underlying pathways to health outcomes, but increasingly social psychologists will do this work themselves. Many social psychologists now measure heart rate and blood pressure or collect a few hopefully well-timed saliva samples to access cortisol levels. But truly integrative biomedical work needs to move beyond these very basic assessments to chart

pathways using multiple appropriately timed biological assessments. Ultimately, the contributions of social psychologists to health psychology can only be strengthened as social psychologists acquire biological expertise.

### **Implications for Theory, Policy, and Interventions**

One of the general strengths of social psychological inputs to health psychology is that typically studies are theoretically guided, rather than targeted only to a specific problem, such as reducing obesity or stopping smoking. This means that results of social psychologically guided health studies can feed back into the refinement of a theory. An immodest example is the theory of positive illusions (Taylor & Brown, 1988). Initially, this theory developed because interviews conducted with breast cancer patients revealed that, often times, breast cancer patients hold falsely positive beliefs about their likelihood of recovery or the progress of their disease (Taylor, 1983) that, nonetheless, appear to foster good psychological functioning (e.g., Helgeson, 2003; Helgeson & Fritz, 1999). Subsequent research outside the health domain revealed positive illusions to be quite commonly held, and decades of research have documented their consequences for health and well-being, refining the theory in the process (Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000). Thus, the initial findings in the health domain were subsequently extended into social psychological processes more generally, influencing a broad array of researchers in social and personality psychology.

Important contributions to theory can often come about by simply listening to people talk about their health-related experiences. The common sense model of illness (Leventhal, Weinman, Leventhal, & Phillips, 2008) is an excellent example of how understanding the ways in which people characterize their illnesses has led to the theoretical articulation of dimensions of the illness experience that predict important outcomes such as interpretation of symptoms, treatment seeking, and adherence to treatment.

Social psychologists' roles in developing interventions have been primarily in collaboration with clinical teams who implement multi-component interventions to achieve health behavior change or improve coping. But social psychological research alone provides important bases for interventions. Social psychologist Irving Janis knew this well, and used it to develop the first analysis of why some surgery patients coped better during recovery than others. Insights such as these have been taken to a higher level through elegant interventions with patients crafted by James Kulik, Heike Mahler, and their associates (Kulik & Mahler, 1989; Mahler & Kulik, 2002). Dunkel Schetter's (2011) research on the adverse effects of stress on pregnancy points to coping interventions that may improve birth outcomes, especially in minority populations. Jamie Pennebaker's profound insights into how writing interventions can help people manage intensely stressful events have blossomed into full-fledged clinical and online interventions (Lepore & Smyth, 2002; Pennebaker, 2004).

Many areas of social psychology have direct relevance for national policy. Social psychologists have already helped to define legislative and funding initiatives and shape the health-related policies that guide the nation. For example, Nancy Adler's work (Adler & Stewart, 2010) on how SES affects health has augmented awareness of the impact of SES on mental and physical health outcomes, and demonstrated to policy makers the important contributions that social psychological work can make. Roxane Cohen Silver has served on the Board of Homeland Security because of her expertise in stress and trauma. In that capacity, she has not only shaped how homeland security informs the public about terrorism threats, but has testified before Congress to help shape policy concerning

psychological dimensions of disaster preparedness and response. These are two examples of how social-health psychology can and already does address important policy issues.

There is a large and important role that social-health psychology can fill for social psychology more broadly. Because of its emphasis on biology and its incorporation of technologies such as brain imaging, social-health psychology represents one of social psychology's chief tickets into integrative science, that is, the use of multiple scientific perspectives and levels of analysis to solve issues common to multiple scientific disciplines. Social psychologists are poised to be increasingly important and cooperative players on the ever-growing scientific stage. Thus, an overarching future direction of social-health psychology is an expanding role in the integrative science of the future.

### Short Biography

Dr Shelley E. Taylor received her PhD in psychology from Yale University. After a visiting professorship at Yale and assistant and associate professorships at Harvard University, she joined the faculty of UCLA in 1979. Her research interests, which are detailed at her website, include the psychological and social origins and moderators of biological responses to stress. Professor Taylor is the recipient of a number of awards, including election to the National Academy of Sciences, the Institute of Medicine, and the American Academy of Arts and Sciences. She received the American Psychological Association's Distinguished Scientific Contribution to Psychology Award, the William James Fellow Award of the Association of Psychological Science, the Donald Campbell Award in Social Psychology, a 10-year Research Scientist Development Award from the National Institute of Mental Health, an Outstanding Scientific Contribution Award in Health Psychology, and the Lifetime Achievement Award from the American Psychological Association. She is the author of more than 350 publications in journals and books and is the author of *Social Cognition*, *Positive Illusions*, *The Tending Instinct*, and *Health Psychology*.

### Endnote

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