

## Unpacking the Placebo Response: Insights from Ethnographic Studies of Healing

Laurence J. Kirmayer, MD\*

This paper selectively reviews cross-cultural studies of healing to identify parallels with the process of responding to placebos in biomedical contexts. Placebo responses involve positive therapeutic effects of symbolic stimuli that may be mediated by changes in cognition and attention as well as psychophysiological mechanisms. Ethnographic studies of healing point to additional social and cultural processes that may mediate and modulate placebo responding, including: (i) the cognitive and social grounding of believed-in-efficacy and expectations; (ii) interpersonal processes of narrating and re-negotiating symptom and illness experience; and (iii) the embedding of healing in cultural ontologies, values and social institutions that define positive health outcomes and that govern the esthetics and rhetorical power of healing interventions. Research on the social-contextual basis of placebo responding can contribute to an integrative theory of healing. Because placebo responding is part of any therapeutic intervention, there is no theoretical or practical justification for the deceptive use of placebos. Strengthening the components of placebo responding inherent in clinical effectiveness will insure maximum benefit for patients and maintain the credibility and fidelity of medical practitioners and institutions.

### INTRODUCTION

There is increasing recognition that the use of placebos is not simply an ethical or pragmatic problem in medicine but points toward fundamental insights into the nature of healing. The term “placebo” is used in at least three distinct but related ways: (i) to label a beneficial therapeutic response to a treatment that is believed to have no direct biological activity; (ii) to label the control arm in a clinical trial in which an active treatment is compared to a biologically inert treatment; and (iii) to refer to any therapeutic response to treatment that is assumed to be mediated by expectations or other symbolic processes. These three uses reflect separate strands in the history of medicine as well as different clinical and experimental contexts in which placebos are used (Harrington, 2006). There have been efforts to devise terminology that recognizes these different uses, distinguishing *placebos* (an inactive or inert treatment), from *placebo effects* (the group difference between outcomes when active treatment and inactive treatment groups are compared in clinical trials) and *placebo responses* (individual's responses to a symbolic intervention) (Price, Finniss & Benedetti, 2008). However, these different uses of the term “placebo” are closely related: the assumption that placebos are inactive treatments stands behind the use of placebos as controls in clinical trials which aim to subtract “nonspecific effect” from actual efficacy through statistical comparison.

Of course, the evidence that placebos actually do have positive therapeutic effects means that any treatment may owe its efficacy in part to specific psychological or symbolic processes that mediate placebo responding.

Miller and Kaptchuk (2008) suggest re-conceptualizing placebo effects as contextual healing. This has the virtue of encouraging us to think about all of the aspects of the clinical context that might contribute to beneficial physiological, cognitive, emotional, and social responses to any treatment (Benedetti, 2011; Linde, Fässler & Meissner, 2011). These responses are not “non-specific” but involve specific mechanisms that may be evoked by particular cues. Placebo responding stands at the heart of the symbolic efficacy of all forms of medicine (Brody, 2010). Although most research on placebos has focused on psychological and psychophysiological processes, studying the social contexts of healing can illuminate the interpersonal and wider social determinants of placebo response. As this paper will argue, understanding the effectiveness of placebos and other healing interventions requires knowledge of the person's social world, contexts and commitments.

The sections that follow first consider some epistemological and methodological issues and then briefly review work on the great variety of mechanisms that may underlie placebo responding. The section on healing as placebo, summarizes some useful insights that have come from anthropological efforts to develop a general theory of

\* McGill University,  
Division of Social &  
Transcultural Psy-  
chiatry  
Culture & Mental  
Health Research Unit  
Institute of Communi-  
ty & Family Psychiatry  
Jewish General Hos-  
pital  
4333 Cote Ste Cath-  
erine Rd., Montréal,  
Québec H3T 1E4  
email: [laurence.kir-  
mayer@mcgill.ca](mailto:laurence.kir-<br/>mayer@mcgill.ca)

symbolic or ritual healing. Turning this analogy around, the next section considers the clinical and experimental use of placebos as a type of symbolic healing ritual. This includes some reflections on the ways in which placebos are viewed in biomedicine, which are tied to emerging notions of neurological personhood. The final section outlines some implications for ethical and pragmatic issues in clinical practice of understanding placebo responding as embodied processes that are socially situated and culturally mediated.

## CLINICAL AND EXPERIMENTAL EPISTEMICS OF PLACEBO

Speaking of an intervention as a placebo draws attention to the externally administered agent, often a pill or some other visible form of treatment. This encourages the observer to attribute any healing efficacy to the intervention itself. Because the placebo treatment is, by definition, inert, this poses a puzzle. If the placebo really has no (biological) effect, those who claim to benefit must be dissimulating or simply gullible, talking themselves into something that is not really happening. More accurately, since the placebo has no immediate biological activity, if it has some physiological effect, this must be through some causal chain of psychophysiological processes that translate symbolic meaning into physiological response.

Clinical trials often involve comparing an active treatment to an inactive (placebo) control. Of course, this experimental paradigm does not measure the placebo effect per se, because any improvement over time in the group receiving the placebo may reflect a myriad of other factors associated with the course of the condition being treated, including unmeasured effects of the environment or host responses. To identify the placebo effect itself, we must compare a group given a placebo (a biologically inactive treatment) to a group not receiving any treatment at all (Ernst & Resch, 1995; Hróbjartsson, Kaptchuk, & Miller, 2011). Indeed, we can begin to disentangle components of placebo responding by varying this comparison: for example, giving one group an inert pill with a strong positive message (“This will make your headache go away”) and another group the same message but a differently colored pill\*. We can also measure the strength of individuals’ expectations of improvement and see whether this correlates with positive outcome. Alternatively, in the “open–hidden” drug treatment paradigm devised by Benedetti (2009), the response of subjects who are aware they are receiving an active treatment is compared to that of subjects who are unaware they are receiving the

same treatment. Any difference between groups can then be attributed to psychologically mediated responses†.

These types of experiment can help identify the parameters that influence placebo effects and point to the underlying processes that may mediate placebo responses including cognitive expectations, emotional arousal, and the impact of relationships (Finniss, Kaptchuk, Miller & Benedetti, 2010). A growing body of work of this type has produced some surprising results that challenge conventional medical understandings of placebo. In particular, the “hidden drug versus open drug paradigm” makes it clear that a large part of the observed efficacy of many drug treatments comes from their symbolic effects (Benedetti, 2008). Being given a medication surreptitiously does not have the same degree of benefit as knowing one is taking it. Placebo effects then are part of every medical treatment and may account for a substantial part of any observed benefit. Calling a treatment a “placebo”, while often meant as a dismissal, actually points to the endogenous healing capacities of human beings, which deserve intensive study and systematic incorporation into every aspect of medical care.

## VARIETIES OF PLACEBO RESPONDING

Although references to “the placebo effect” imply a unitary phenomenon, there are as many types of placebo responding as there are forms of learning and adaptation that can give rise to physiological anticipation or psychological expectation. We can organize these varieties of placebo responding in terms of specific physiological systems (autonomic, endocrine, immune, motor, pain, etc.), expected effects (e.g., analgesia, anxiety reduction, mood elevation, impact on specific disease processes), or contexts (type of medical system, health care setting, religious ritual, etc.) (Benedetti, 2008; Benedetti, Carlino, & Pollo, 2011; Linde, Fässler & Meissner, 2011; Meissner, 2011; Pollo, Carlino & Benedetti, 2011; Pollo, Finniss & Benedetti, 2008). Alternatively, drawing from hierarchical systems theory, we can think of placebo effects in terms of the level of regulatory process and the corresponding mediating mechanisms that are influenced by learning, cognition or social interaction (Figure 1; See Kirmayer, 2004).

At the level of psychological mediation, placebo effects have been explained in three broad ways as a result of (i) enhancing positive emotions and optimism, (ii) reducing anxiety and other negative emotions that cause distress, and (iii) shaping attentional and interpretive or

\* The colour, size and shape of pills can influence the placebo response. Surprisingly, this fact seems to be ignored sometimes not only by clinicians but also by pharmaceutical companies (Khan, Bomminayuni, Bhat, Faucett, & Brown, 2010).

† Of course, the difference between “open” and “hidden” administration is not clear-cut because, for ethical and pragmatic reasons, people usually know they are in a situation where this may happen. Similarly, participants in placebo trials may be able to detect some aspects of the intervention based on subtle sensory or other cues. While this can be controlled for by debriefing and post-hoc statistical analysis, it reflects an important set of issues related to the ways that cultural systems—in this case the instrumental rationality of modernity—influence individuals’ attention to the body and interpretation of sensations, symptoms and clinical interventions.

attributional processes that give meaning to experience (Geers, Weiland, Kosbab, Landry, & Helfer, 2005). Clearly, these mediators can interact in many ways. Positive and negative emotions may compete for attention and mutually suppress each other. Attention and interpretation are influenced by emotional state but also can give rise to positive or negative emotions, setting up feedback loops. All of these potential mediators may be influenced by other cognitive, affective and motivational processes.

Although we think of expectations as conscious processes, there are various kinds of expectation or anticipatory responding that involve non-conscious mechanisms based on learning processes mediated by specific neural systems. For example, placebo analgesia involves the

activation of endogenous opioid pain control systems in the brainstem (Levine, Gordon & Fields, 1978). Indeed, much of the individual variability in response to both opiate and non-opiate analgesics may be determined by individual differences in the response of endogenous opiate pain-modulation systems (Amanzio, Pollo, Maggi & Benedetti, 2001). Placebo responding to analgesics also involves additional top-down influences from frontal cortex acting on rostral anterior cingulate cortex, along pathways that do not involve endogenous opioid neurotransmission (Petrovic et al., 2010). Placebo analgesia involves activation of an internal regulatory system that normally functions to control pain. These systems have multiple effects so that, for example, placebo effects on enhancing memory may also be mediated by endorphins (Stern et al., 2011). Similar systems exist for regulating inflammatory processes and various autonomic, endocrine and immune functions and these may provide the basis for a variety of specific placebo responses (Ader, 1997; Meissner, 2011; Pollo, Cariino, & Bendetti, 2011).

Placebo responses may also be mediated by classical or Pavlovian conditioning (Stewart-Williams & Podd, 2004; Wickramasekera, 1980). Classical conditioning is based on adaptive responses (e.g., salivating in anticipation of eating to aid in the digestion of food) that can be linked to new contextual stimuli. Physiological responses that are linked to stimuli by classical conditioning tend to have a compensatory physiological function that reflects specific regulatory systems (Siegel, 2002). For example, a sensory cue that has been linked to the presentation of food, triggers the release of insulin in anticipation of eating. Other classically conditioned responses are based on linking symbolic stimuli to specific responses of regulatory systems.

Classical conditioning has been shown for a wide range of physiological responses involving motor, autonomic, endocrine and immune systems, each of which may mediate specific types of placebo response (Ader, 1997). These mechanisms could build associations between particularly environmental cues and physiological responses that have clinical significance. The strength and direction of these responses will depend in part on each individual's learning history, which in turn will reflect culturally-patterned frameworks of meaning, as well as shared and idiosyncratic experiences. Classically conditioned effects constitute forms of non-conscious expectations or predispositions to respond that are part of each individual's enculturation and personal biography. Similarly, other forms of operant and sensory-associative learning can link salient stimuli to bodily responses (Hinton, Howes &

mbr.synergiesprairies.ca

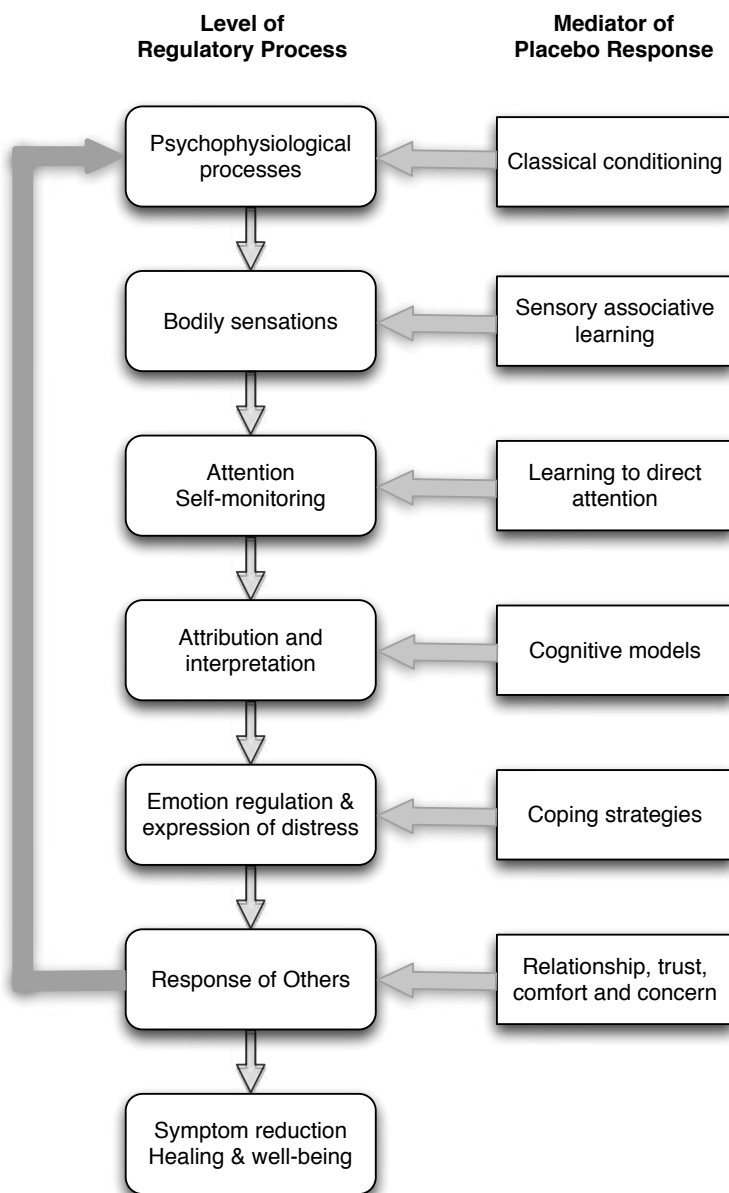


FIGURE 1. Levels of Regulation and Varieties of Placebo Response. Regulatory processes involved in placebo responding may be mediated and modified by learning mechanisms that operate at multiple levels. See Kirmayer (2004).

Kirmayer, 2008). These embodied processes of learning can contribute to placebo responding even in the absence of awareness (Frenkel, 2008). Of course, cognitive and classically conditioned learning processes usually coexist and interact and, in some situations, cognitive expectations may trump classically conditioned effects (Kirsch, 2004).

Attentional mechanisms also may play a central role in placebo responses. Focusing attention on discomfort can intensify symptoms and, conversely, distraction, or absorption in other sensations, imagery or activity can markedly reduce symptoms like pain, nausea and other forms of discomfort (Pennebaker, 1982). This attentional capacity may underlie some of the phenomena associated with clinical hypnosis (Raz, 2007; Raz & Buhle, 2006). Suggestions and expectations, whether direct or implicit can guide attention. Focus of attention and expectations interact in symptom experience (Cioffi, 1991; Geers, Weiland, Helfer & Kosbab, 2007; Geers, Wellman, Fowler, Rasinski, & Helfer, 2011).

Expectations generally involve cognitive models or frameworks and affective attitudes or stances. These models can be encoded as stories, propositions, metaphors or images that may be explicit (conscious) or implicit (non-conscious). Both implicit and explicit cognitive models can direct thinking in ways that amplify or diminish symptomatology and distress. Indeed, cognition can influence symptoms through the ways in which sensations are focused on, interpreted, labeled and attributed (Kirmayer & Sartorius, 2007). These processes represent levels or sites where the symbolic effects of placebos may exert effects. Because attributional processes are central to symptom experience, any suggestion, instruction or contextual cue that shifts attention, attributions and coping responses will, in turn, change symptom experience. These shifts can occur through reattribution, engaging with new images or metaphors, or re-narrating distress in a new story frame.

Social interaction is a powerful vehicle for conveying treatment expectations. Modeling and observational learning can result in placebo effects that are stronger than those elicited by direct verbal suggestion (Colloca & Benedetti, 2009). The doctor–patient relationship involves all of these cognitive, emotional influences but therapeutic relationships can have additional effects through neurobiological mechanisms that are fundamental to human sociality (Benedetti, 2010). For example, experiences of trust can stimulate brain oxytocin release, which increases feelings of comfort and trust, with potentially far-reaching effects on well-being, interpersonal

relationships and long-term health outcomes. This feedback loop from quality of relationships to physiology and back, depicted in Figure 1, is just one of many such potential loops, which may involve larger social processes. Of course, relationships of trust are embedded in larger social structures. For some marginalized groups, mistrust in health care institutions and professionals may reduce help-seeking and undermine the effectiveness of interventions, thus aggravating the health disparities associated with social inequities.

The social-psychological processes involved in placebo responding are not specific to placebos; they apply to any treatment. Moreover, individuals' psychological and interpersonal responses are embedded in larger sociocultural systems that give meaning to experience. Changes in the social meaning of specific treatments can, in turn, reshape expectations vastly increasing or undermining confidence and hope. There may be complex social patterns of anticipation that depend on interactions with others, social contextual cues, and cultural systems of meaning which are taken for granted or used more or less automatically because they are embodied and embedded in social practices. Based on cultural and personal meanings, people may invest in a treatment because it is consonant with their values and motivations and respond positively because of the emotional meaning of the treatment (Hyland & Whalley, 2008).

Thompson and colleagues (2009) suggest that placebo responses can reflect embodied learning and contextual responding that are independent of consciousness awareness. The symbolic, affective and esthetic responses to treatments cannot be reduced to expectations; they are part of cultural performance and participation (Myers, 2010). This means that responses to placebos or other treatment interventions need not be based on cognitive models or representations carried by the individual but may be part of a performance that involves distributed knowledge and that therefore can only be enacted through concerted social action. These enactments depend on interactions with others who are essential to create the context and shape the response. In this sense, placebo responses may be understood as social phenomena that depend on embodied experience, socially distributed or embedded knowledge, and situated practice.

## HEALING RITUAL AS PLACEBO

There is a vast anthropological literature on healing rituals in diverse cultures. Much of this has focused on the esthetics of performance and



explored the parallels between healing practices and larger cultural myths, values and social structures (Csordas & Lewton, 1998). The actual effectiveness of healing has been examined less often, but authors have attributed the potential efficacy of ritual to nonspecific effects of meaning, expectation and belief that may be related to placebo effects (Frank, 1961; Moerman, 2002).

Ethnographic studies of healing emphasize the multiple sources and complex dynamics of belief and expectation, the interpersonal processes of renegotiating illness and healing experiences, and the embedding of healing practices in larger cultural ontologies and ideologies of the person (Kleinman, 1980; Kirmayer, 2004; Waldram, 2008). These ontologies recognize different types of agency or influence as sources of healing efficacy. For example, in different systems of medicine, spirits, humors, “energies”, chemicals, or human relationships may be invoked as a powerful mediator of effective healing. These notions of agency are part of larger cultural differences in notions of the person that shape the diagnostic systems, goals and methods of healing (Kirmayer, 2007)..

There are many reasons why people may believe in the potential efficacy of a treatment and have positive expectations. These sources of hope and conviction include: the causal logic of the treatment, which may be grounded in a specific ontology or simply part of an extended metaphor that is popular, appealing or compelling; the extent of individuals’ investment in the larger healing system, which may be part of religious or other cultural identities, values and commitments; the degree to which they reject conventional biomedicine and, therefore, are open to alternative systems of medicine that challenge the hegemony of biomedicine; and, especially, compelling experiences of their own or of others that seem to demonstrate impact and positive outcomes (Kirmayer, 2006). These expectations or believed-in-efficacy then give rise to a variety of responses that can contribute to positive outcomes.

The classic account of expectancy effects in healing is found in the work of social psychiatrist Jerome Frank (1961). Frank identified four components common to all systems of healing that were part of a “shared assumptive world” between sufferer and healer: theories of affliction with particular ontologies; defined roles for healers which confer healing power, authority and legitimacy; a designated place and time for healing (often imbued with sacred qualities); and the symbolic action of the healing ritual which aims to transform the status of the sick person. Frank saw positive expectations (based on a “shared assumptive world” and the evocative power of healer, context, and treatment) as

reducing “demoralization”—a common dimension of many forms of affliction. In later versions of his theory, he considered a diversity of healing processes relevant to specific conditions (Frank & Frank, 1991). He also came to see the relevance of studies of rhetoric which examine how communication can persuade and transform experience (Frank, 1995).

The study of rhetoric takes on new significance in societies with high levels of cultural diversity where Frank’s notion of a shared assumptive world is challenged. In contemporary societies, people often participate in systems of healing with little shared experience or understanding of the specific tradition. The appeal of these heterodox traditions must be explained by the persuasive power of rhetoric and the imaginative appeal of novel models and metaphors for illness and healing (Kaptchuk & Eisenberg, 1998; Kirmayer, 2006).

In an influential paper on the effectiveness of symbolic healing, the anthropologist Claude Lévi-Strauss (1963) considered how a shamanic ritual could evoke physiological changes. For Lévi-Strauss the formal analogy or parallels between the structure of the healing ritual and the patients’ experience accounted for the healing transformation. In effect, the patient’s experience of bodily affliction was mapped by analogy onto a mythic landscape (Figure 2). This mapping might occur through divination or other forms of diagnosis before or during the healing ritual, which sometimes takes the form of a search for the nature of the affliction. Traversing this mythic landscape in image, narrative or metaphor through ritual incantations, the healer or his spirit guide

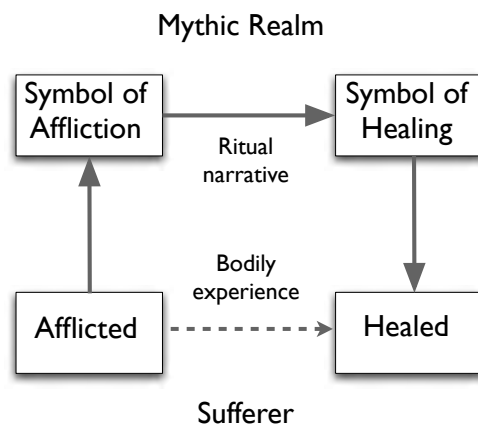


FIGURE 2. The Structural Logic of Healing Ritual. The healing ritual maps the sufferer’s bodily experience onto a mythic realm where it can be transformed by ritual action, structured according to a culturally coherent narrative. Transformation at the level of the mythic narrative then works to transform the afflicted person’s bodily experience, self-understanding and social identity from sick to healed. Based on Lévi-Strauss (1967). See also Kirmayer (1993).

mbr.synergiesprairies.ca

then moves from a place representing affliction to one that corresponds to health. This metaphoric movement somehow causes corresponding changes in attention, cognition and experience that result in healing.

The appeal of Lévi-Strauss’s account lies in its formal structure but this also is its limitation. The process of healing seems under-theorized and the mechanisms involved remain unclear (Kirmayer, 1993). In the actual example of Kuna shamans used by Lévi-Strauss, the patient does not understand the healer’s incantations, hence the impact of the ritual must be through non-linguistic aspects of the healing performance. Nevertheless, the notion that healing involves a transformative process mediated by the evocation of and participation in a mythic or “virtual world” remains a useful way to understand the rich symbolism and formal structure of healing practices (Kapferer, 2005).

Anthropologist James Dow (1986) addressed the question of the dynamics of healing, building on the work of Lévi-Strauss, with the suggestion that the transformative effects occur by attaching experience to emotionally meaningful symbols. It is the moving quality of emotion itself that ultimately does the psychophysiological or psychological work. Rituals then exert their effects by influencing emotional experience. This fits with observations that healing rituals often are structured like dramatic performances that elicit emotional catharsis (Scheff, 1979). It is also consistent with studies showing that part of placebo responding may be mediated by changes in emotional

state (Flaten, Aslaksen, Lyby, & Bjørkedal, 2011).

In my own work, I have extended these models to consider how the metaphors of healing map experience onto images or mythic narratives with different sensory, affective and cognitive qualities (Kirmayer, 1993, 2003, 2004, 2008). There is now a wealth of research showing how metaphors emerge from bodily experience and how employing a metaphor can, in turn, change bodily sensations, cognition and action (Barsalou, 2008; Gibbs, 2006). Metaphors mediate bodily experience and overarching mythic narratives that are viewed as compelling or sacred truths. The metaphoric elaboration of experience can occur through listening and imaginative representation or through ritual enactment.

In a healing ritual, the sufferer’s experience is mapped analogically onto a metaphoric representational space (Figure 3). The initial representation is extended and transformed according to the metaphoric logic and imagery of the ritual. The transformed representation is embodied and enacted by the afflicted person. In practice, this occurs as an ongoing cycle of embodiment and enactment throughout the healing ritual and in subsequent re-experiencing, recollection and narration of the ritual or its expected consequences.

Esthetics play an important role in healing rituals, making the performance attractive, compelling, absorbing or entrancing\*. Esthetic elements of the ritual portray the predicament of the suffering person and dramatize the transition from darkness and affliction to goodness, positivity, health and harmony (Kapferer & Papigny, 2005). The form, structure and sensory qualities of healing can convey specific metaphoric qualities (e.g., vigor, strength, power) (Kirmayer, 1993, 2008). These metaphors influence processes of attention, cognition and behaviour that bring the anticipated mode of experiencing into being and amplify its intensity.

Healing rituals have received so much ethnographic attention not only because of their claims for efficacy, but also because of their dramatic and arresting qualities. The arcane, numinous, rhetorically skillful and authoritative aspects of ritual performance are all strategies for mobilizing symbolic power which has social, emotional and cognitive dimensions. The power of ritual is often bodily-felt in ways that convey a sense of immediacy and conviction that something significant is happening. The power that healing rituals mobilize is often understood as not simply social or physiological but as drawing from spiritual or transcendental realms.

All of this theoretical work must be set against the observation that healing rituals often do not work—at least not as advertised or expected. A

\* The etymology of the word empathy, from the German *Einfühlung* stems from this experience of esthetic absorption.

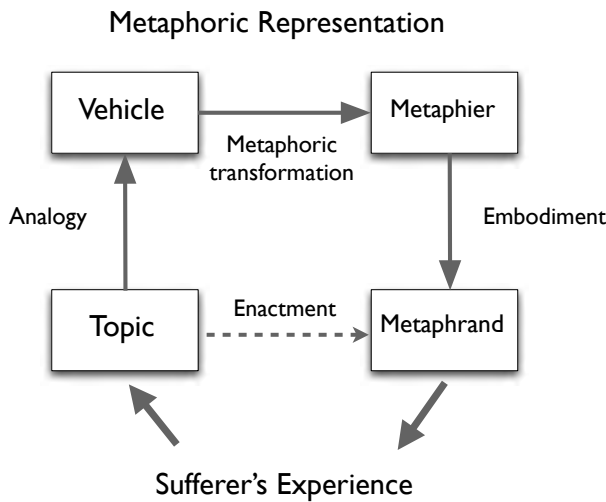


FIGURE 3. Healing Performance as Metaphoric Transformation. The sufferer’s illness experience is mapped analogically onto a representational space (in literary terms, from metaphoric topic to vehicle). The initial representation is extended and transformed according to the metaphoric logic and imagery of the ritual. The transformed representation (*metaphier*) is embodied and enacted by the afflicted person. See: Kirmayer (1993, 2003).

study of healing by Chinese shamans (*dang-ki*) in Singapore, found that many of the people resorting to this form of ritual healing did not have strong beliefs or expectations in the treatment; they sought out the healer with some tentative hope or open-minded interest to see if it might work (Lee, Kirmayer, & Groleau, 2010). People sought evidence during and after the healing that something significant had happened, noticing changes in bodily sensations or other signs. In many cases, the healing did not work quite as expected. While some people then gave up on the healer, many preserved their hope and commitment by identifying another change in symptoms or life events that they interpreted as a positive sign of healing efficacy. In this way, they could preserve and strengthen a belief in the healing efficacy. The pragmatic, tentative, subjunctivizing (“What if it works?”) stance, the active search for evidence of effectiveness, and the shifting criteria for positive outcome seen in this ethnographic study are probably not unique to this particular cultural context but are features of help-seeking in many contemporary settings and healing systems, including biomedicine.

### PLACEBO AS RITUAL HEALING

Examining the parallels between ritual healing and placebo administration can advance our understanding of the mechanisms of placebo response. Noting that most of the clinical contexts where placebos are used can be viewed as rituals, Brody proposed a “meaning model” of placebo responding, suggesting that a positive therapeutic response occurs when the patient: (i) feels listened to and attended to by the caregiver; (ii) receives an explanation of the illness that is consistent with his or her own worldview; (iii) feels care and compassion from the helper or healer; and (iv) experiences an increased sense of mastery or control over the illness (Brody, 2010, p. 161). Like Frank before him, Brody assumes that shared, culturally grounded notions of illness and healing govern the relationship with the healer. Through enacting and affirming shared ontologies “the performance of a healing ritual becomes a bodily enactment of reconnection with the community” (Brody, 2010, p. 162).

Consistent with contemporary Western notions of psychotherapy, Brody emphasizes the positive effects of supportive, caring and compassionate emotional relationships. In fact, many forms of traditional healing do not involve much listening, communication or explicit support to the patient. These modes of healing must mobilize other social processes to facilitate healing. Much ritual healing is aimed not at the suffering individual but at their social and spiritual context.

It aims to put right the sociomoral world of the afflicted person, as well as that of his or her family and community (Turner, 1977). This may be deemed successful even if the patient continues to be symptomatic.

Brody summarizes his view of placebo as the outcome of medical ritual in this way:

“A simple way of expressing what we know about the placebo response is that the human brain seems to be hard-wired to get better in illness, and that certain sorts of mental stimuli seem capable of turning on this hard-wired system to produce symptom relief. The elements that make up ritual seem to be especially effective in turning on the wiring circuits.” (p. 163)

Though deliberately phrased in simple language that makes no claim for scientific precision, it is instructive to consider the implications of Brody’s choices of metaphor because similar locutions are common in both mass media and the medical literature. My aim in unpacking Brody’s account is not to take him more literally than he intends, but to show how the metaphors in this passage convey certain common assumptions about mind, brain and personhood that influence the way that both professionals and patients think about placebos.

First, Brody emphasizes an endogenous “hard-wired” healing system or mechanism. Although he uses the singular (“*the* hard-wired system”), clearly there are multiple regulatory systems involved and, in most treatment contexts, multiple systems will be activated and interact to give rise to any observed effects. More significantly, he brackets off the developmental and learning history of these systems by calling them “hard-wired”. In describing the effect of these systems, Brody uses grammar that implies it is the brain that gets better. This metonymic use of the brain for the person is increasingly common in popular and scientific discourse (Vidal, 2009). Of course, placebo effects do involve alterations in brain chemistry and function (Benedetti, 2011). Generally speaking, though, it is not the brain that is afflicted and that gets better in healing but the *person*. This distinction is important because the person is much more than a brain and its regulatory systems. The person includes cognitive processes that are embodied, socially embedded, and enacted and hence, not reducible to the brain (Kirmayer & Gold, 2011). Moreover, it is not simply illness that is modified by ritual healing but *sickness*—that is, the sufferer’s social identity as a person with an affliction (Young, 1992). This is why healing may be judged successful even when

symptoms and disability continue. As well, the stimuli or cues that activate the endogenous healing systems are not strictly “mental” (in the sense of being located in our psychological processes) but also social and their power and evocativeness derive from larger cultural systems of meaning. Ritual healing is not simply a matter of turning on endogenous self-regulatory or healing systems, but an ongoing process of modulation of experience that involves interpersonal interactions that can reinforce or undermine the therapeutic effect. In terms of placebo as healing ritual, this means that the impact of any intervention extends beyond the clinical interaction or moment of treatment administration to include later processes of socially-mediated reflection, narration, re-interpretation, and re-evaluation.

Closer attention to particular systems of healing reveals other commonalities but also distinctive features that may point to unique mechanisms and sources of efficacy. In a recent paper, Kaptchuk (2011) examines the parallels between the healing rituals of Navajo healing, acupuncture and biomedical treatments. Although these systems of healing differ profoundly in theory and practice, all three involve rituals that invoke positive expectations and engagement, affective-experiential warranting of the power and authority of the healer or the treatment, and cognitive-perceptual transformations of illness experience. Kaptchuk suggests that healing rituals engender a receptive mode of participation that makes the participant more open to therapeutic suggestion.

The nature of the rituals involved in biomedicine influence the specific processes involved in clinical engagement, warranting of medical power and authority, and therapeutic transformations of experience. Indeed, all three of these functions may be fused in a single medical act or intervention. Naming a disease and prescribing a treatment are interventions that only doctors can perform, reflecting their specific social power and authority. This social power, in turn, imbues the act of diagnosis and treatment with symbolic transformative power. Simply labeling a symptom or illness sets up a whole set of expectations, possibilities, and ways to think about and interpret experience. The consequences depend not only on the patient’s own expectations but also on how others respond to the diagnostic label.

The acts of prescribing and taking a pill occur in the context of a relationship between patient and physician, and the meaning of that relationship and of the medication itself are embedded in larger cultural systems of meaning and practice. These practices involve social institutions, rules and norms that give biomedical treatments *performative efficacy*.

Rituals are *performative* in the sense of bringing into being specific social states of affairs and, as a byproduct, new configurations of the person. Performative speech acts are statements that create the social reality they name as when, for example, a justice of the peace pronounces a man and woman “husband and wife.” These rituals work because we all agree that the verbal act—performed by the appropriate authority—transforms the person’s social status. Similarly, physicians are assigned a specific type of social authority to make clinical diagnoses and prescribe medications or other types of medical treatment. Prescribing a treatment, whether active or placebo, conveys the message “you are being treated and will get better.” But the transformative effects of placebo occur not only because the doctor says this will help or declares that we are healed but because the patient undergoes cognitive, emotional, experiential changes in response to contextual cues. The biomedical intervention is usually not a declarative statement (like a faith healer emphatically saying, “Now you are healed!”) but an implicit suggestion built into an intervention, and reinforced by statements framed as possibilities (“This should make you feel better”) or even questions (“Are you starting to feel better yet?”). These forms of suggestion have their own distinct pragmatic linguistic and psychological dynamics.

Ultimately, healing rituals, including the techno-scientific practices of biomedicine, are not only performative acts but also emotionally engaging social events in which both healer and patient are active. As such, healing involves processes of thinking, feeling and imagining one’s way into new modes of experiencing. A more complete account of the effects of symbolic healing will therefore require theories of the psychophysiology of imagination and of the socio-psychology of rhetorical persuasion (Kirmayer, 2006).

## IMPLICATIONS FOR CLINICAL EPISTEMOLOGY, ETHICS, AND PRACTICE

The perspective on placebo as ritual performance sketched above has implications for the ways in which placebos are used in current biomedical research and diagnostic situations as well as for arguments recently advanced for the increased use of placebos in clinical care.

In clinical settings, placebos are sometimes used to support diagnostic claims about the nature of a patient’s symptoms or condition (Fässler, Meissner, Schneider & Linde, 2010). A positive response to placebo is interpreted as evidence that a patient’s symptoms and distress are exaggerated,



fabricated or psychogenic in origin. It is, perhaps, not unreasonable to think that in forms of pathology where beliefs and expectations play a central role (e.g., the vicious circles of a panic attack or hypochondriasis) an intervention that directly targets beliefs and expectations would have great efficacy. Hence, to the extent that giving a placebo creates expectancy effects, we might expect greater responses in such conditions compared to illnesses where cognitive processes appear to play a less central role. For example, those who respond to placebo analgesia are sometimes taken to have had symptoms of psychogenic rather than organic pain—notwithstanding the fact that the distinction between psychogenic and organic has been challenged by pain researchers who find that precisely the same central pathways are involved in pain of diverse origins (Gatchel, Peng, Peters, Fuchs & Turk, 2007; Melzack & Katz, 2007) and even from words or other social stimuli like interpersonal rejection (Richter, Eck, Straube, Miltner & Weiss, 2010; Eisenberger, & Lieberman, 2004). A charitable interpretation of “psychogenic” would include causal effects of the range of psychological and associated physiological influences discussed throughout this article, but the term is all too often used reductively and pejoratively to imply fictive influences (“merely” induced by psychological and personality influences) in contrast to “real” somatic ones (i.e., changes registered in and measured in terms of the chemistry and physiology of the body) (Kirmayer, 1988).

However, the reasoning behind this diagnostic use of placebos is fallacious for several reasons. As discussed earlier, placebo analgesia is mediated by the same endogenous pain control systems that may be activated in coping with pain of any origin. Moreover, the processes involved in placebo responding occur with biologically active treatments and account for much of their efficacy. The mechanisms of symptom control can be influenced by placebos regardless of the original cause of symptoms or illness. Hence, the placebo response cannot be used diagnostically to show that an individual’s clinical condition is primarily due to psychological or social factors or mechanisms.

The placebo response also cannot be viewed as a neutral baseline in clinical trials against which to measure the effectiveness of interventions because, like any “active” agent or treatment, it is also responsive to many contextual factors involved in clinical trials. As a result, the mechanisms of placebo response overlap and interact with the unique mechanisms of efficacy of the intervention. At the same time, the clinical experimental context of the randomized clinical trial is a fraught situation that engenders complex

expectancies of its own. People may hope they are receiving active treatment but must contend with the possibility they are not (Kaptchuk et al., 2009). They thus may experience some mitigation of the benefit that might be achieved if they were confident they were receiving the best possible treatment. In contemporary biomedical research and clinical settings, where risk and benefits are presented probabilistically, people must judge the likelihood that will get benefit. Individuals may respond differently to these complex communications. In a randomized trial, some participants may have diminished expectations due to the possibility of receiving an ineffective treatment; others may convince themselves they are receiving active treatment if they interpret idiosyncratic experiences as cues.

The recognition that placebos “really work” might encourage their deliberate use in medical care. But giving an biologically inactive treatment while claiming it is active constitutes a type of deception. Recently, Foddy (2009) has argued for the deceptive use of placebos when they would have a stronger beneficial effective than other available treatments. He is able to advance this argument because he adopts a minimalist view of the practice of medicine in which the physician is a technician applying a one-off treatment. But medicine involves building therapeutic relationships to the clinician and to the health care system as a whole. It is this trusting relationship that the patient will bank on for help in the future.

Arguments for the benefits of the deceptive use of placebos in medical care tend to be based on a narrow, instrumental view of the doctor–patient relationship as well as limited understanding of the nature of placebo responding. The clinical encounter involves dimensions of empathic recognition, relationship building, trust, education and advocacy that may contribute to the efficacy of specific treatment interventions, including placebos (Benedetti, 2011). Kaptchuk and colleagues developed a paradigm for decomposing elements of the placebo response (comparing, for example, sham acupuncture with and without various ritual components (e.g., warm and attentive relationship to practitioner) (Kaptchuk, et al., 2008; Kelley et al., 2009). Each element added something to the effectiveness of a treatment, with a warm and supportive patient–practitioner relationship probably accounting for the largest single component. This observation has important implications for the potential use of placebos in clinical care. If the clinician–patient relationship is actually the most powerful component of a placebo response, protecting and preserving the relationship is crucial and bad faith may ultimately destroy the positive effect. Of course, it is

possible to have a lot of faith in a warm and personable or authoritative and rhetorically powerful charlatan and, indeed, go to one's grave secure in the illusion one is being well cared for, but again, any wholesale use of placebos occurs in a larger social context where such hucksterism will be damaging to others and to the adaptive functioning of a whole community.

Lying and subterfuge are corrosive to trust. Discovering that the doctor "lied" will damage future collaboration (both with this doctor and with others by association). Indeed, if it was widely known that doctors give placebos, then the effect of every existing treatment would be reduced since people could always suspect they were receiving an "ineffective" treatment. If patients knew that it was always a possibility that they were being given placebos, this might erode the efficacy of treatments in general (but see Martin & Katz, 2010), as well as undermining confidence in the trustworthiness of doctors, and in the reliability of the institution of medicine as a whole. In the end, any analysis of the effects of deception that remains at the level of the individual is inadequate because medicine is also a social institution: health care contributes to the fabric of civil society. Knowing that doctors in general may lie, would damage trust in individual physicians, in the whole institution of medicine, and potentially also in broader social institutions that underwrite medical care.

The whole discussion of deception may be moot because, in fact, placebos demonstrably *do not* depend on deception (Kaptchuk et al., 2010). Moreover, there are ways to openly endorse and encourage placebo effects without engaging in deception. For example, referring to "the power of the mind" is both a plausible and culturally consonant non-deceptive explanation of a placebo effect that is, in fact, reinforced in certain cultural and religious contexts.

In summary, the context effects that underlie placebo responding are important components in any effective medical treatment. Giving people positive expectations, realistic hope and optimism is crucial both for strengthening the healing relationship and insuring treatment efficacy. Prescribing the best effective treatment will also maximize placebo effects, enhance expectations and increase the potential for positive responding in the future. However, there is no ethical or pragmatic justification for the use of subterfuge or deceit in the delivery of placebos because the same beneficial effects can be achieved by truthful communication that also strengthens and maintains a working alliance and confidence in the health care system.

## CONCLUSION: EMBODIMENT, ENACTMENT AND THE RHETORICS OF HEALING

The idea of placebo is a biomedical construction because it is only in the disenchanted world of scientific medicine that the therapeutic effectiveness of words, symbols and rituals can be viewed as suspect. When only direct chemical or physical effects are recognized as causal agents then the power of symbolic interventions requires special pleading. Placebo research has clearly shown that symbolic stimuli and positive expectations set in motion specific physiological processes that mediate a wide range of placebo effects. These mechanisms vary according to the type of symbolic stimulus or context and the resultant expectations. For example, under specific circumstances, symbolic interventions may activate endogenous opioid pain control systems to produce analgesia, dopaminergic reward systems to produce elevated mood, and immunologic responses to reinforce host resistance to infection.

"Placebo" names a social situation not a substance. Placebo responding reflects the ways that people think, act, feel and respond physiologically to an intervention they believe and expect will be of help. Defined in this way, placebo responses clearly are based on beliefs and expectations. But beliefs and expectations themselves are complex and only partially dependent on individual cognitive processes. Beliefs and expectations may follow from bodily experiences, enactments, contexts and commitments more than any explicit cognitive model. Indeed, these same aspects of embodiment may give rise to placebo responses in the absence of explicit beliefs and expectations.

A view of biomedical treatment as ritual healing leads us toward a model that bridges the psychological view of placebo responding as based on endogenous healing processes with a social view that focuses on cultural models of affliction and healing. Mediating these two poles of experience are symbolic (especially metaphoric) processes of communicative action that link bodily processes and social discourse. The mechanisms of ritual healing involve both sociopsychological (persuasive, rhetorical) and psychophysiological processes of imaginative engagement. Unpacking the mechanisms that subserve these processes can provide the basis for an integrative theory of symbolic healing that includes the many varieties of placebo response alongside the social, psychological and biological processes that accompany every biomedical intervention.

## ACKNOWLEDGEMENT

An earlier version of this paper was presented at the workshop, "Using Social Science to Elucidate Placebos: Examining a Powerful Effect

through a Non-medical Lens," Department of Psychiatry, McGill University, July 6, 2010. I thank Amir Raz, the workshop participants, and the anonymous reviewers for their very helpful comments.

## REFERENCES

- Ader, R. (1997). The role of conditioning in pharmacotherapy. In A. Harrington (Ed.), *The Placebo Effect: An Interdisciplinary Exploration* (pp. 138–165). Cambridge: Harvard University Press.
- Amanzio, M., Pollo, A., Maggi, G., & Benedetti, F. (2001). Response variability to analgesics: A role for non-specific activation of endogenous opioids. *Pain*, *90*, 205–215.
- Barsalou, L. W. (2008). Grounded cognition. *Annual Review of Psychology*, *59*, 617–645.
- Benedetti, F. (2008). Mechanisms of placebo and placebo-related effects across diseases and treatments. *Annual Review of Pharmacology and Toxicology*, *48*, 33–60.
- Benedetti, F. (2009). *Placebo Effects: Understanding the Mechanisms in Health and Disease*. Oxford, England: Oxford University Press.
- Benedetti, F. (2010). *The patient's brain: The neuroscience behind the doctor–patient relationship*. New York, NY: Oxford University Press.
- Benedetti, F., Carlino, E., & Pollo, A. (2011). How placebos change the patient's brain. *Neuropsychopharmacology*, *36*(1), 339–354.
- Brody, H. (2010). Ritual, medicine and the placebo response. In W. S. Sax, J. Quack & J. Weinhold (Eds.), *The Problem of Ritual Efficacy* (pp. 151–167). Oxford, England: Oxford University Press.
- Cioffi, D. (1991). Beyond attentional strategies: cognitive-perceptual model of somatic interpretation. *Psychological Bulletin*, *109*(1), 25–41.
- Colloca, L., & Benedetti, F. (2009). Placebo analgesia induced by social observational learning. *Pain*, *144*(1–2), 28–34.
- Csordas, T. J., & Lewton, E. (1998). Practice, performance, and experience in ritual healing. *Transcultural Psychiatry*, *35*(4), 435–512.
- Dow, J. (1986). Universal aspects of symbolic healing: A theoretical synthesis. *American Anthropologist*, *88*, 56–69.
- Ernst, E., & Resch, K. L. (1995). Concept of true and perceived placebo effects. *British Medical Journal*, *311*(7004), 551–553.
- Eisenberger, N. I., & Lieberman, M. D. (2004). Why rejection hurts: a common neural alarm system for physical and social pain. *Trends in Cognitive Sciences*, *8*(7), 294–300.
- Fässler, M., Meissner, K., Schneider, A., & Linde, K. (2010). Frequency and circumstances of placebo use in clinical practice: A systematic review of empirical studies. *BMC Medicine*, *8*, 15.
- Finniss, D. G., Kaptchuk, T. J., Miller, F., & Benedetti, F. (2010). Biological, clinical, and ethical advances of placebo effects. *Lancet*, *375*(9715), 686–695.
- Flaten, M. A., Aslaksen, P. M., Lyby, P. S., & Bjørkedal, E. (2011). The relation of emotions to placebo responses. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *366*(1572), 1818–1827. doi: 10.1098/rstb.2010.0407
- Foddy, B. (2009). A duty to deceive: Placebos in clinical practice. *American Journal of Bioethics*, *9*(12), 4–12.
- Frank, J. D. (1961). *Persuasion and healing: a comparative study of psychotherapy*. Baltimore, MD: Johns Hopkins Press.
- Frank, J. D. (1995). Psychotherapy as rhetoric: Some implications. *Clinical Psychology: Science and Practice*, *2*(1), 90–93.
- Frank, J. D., & Frank, J. B. (1991). *Persuasion and Healing: A Comparative Study of Psychotherapy*. Baltimore, MD: Johns Hopkins University Press.
- Frenkel, O. (2008). A phenomenology of the 'placebo effect': Taking meaning from the mind to the body. *Journal of Medicine and Philosophy*, *33*(1), 58–79.
- Gatchel, R. J., Peng, Y. B., Peters, M. L., Fuchs, P. N., & Turk, D. C. (2007). The biopsychosocial approach to chronic pain: Scientific advances and future directions. *Psychological Bulletin*, *133*(4), 581–624.
- Geers, A. L., Helfer, S. G., Weiland, P. E., & Kosbab, K. (2006). Expectations and placebo response: a laboratory investigation into the role of somatic focus. *Journal of Behavioral Medicine*, *29*(2), 171–178.
- Geers, A., & Rose, J. (2011). Treatment choice and placebo expectation effects. *Psychology Compass*, *5*(10), 734–750.
- Geers, A. L., Weiland, P. E., Kosbab, K., Landry, S. J., & Helfer, S. G. (2005). Goal activation, expectations, and the placebo effect. *Journal of Personality and Social Psychology*, *89*(2), 143–159.
- Geers, A. L., Wellman, J. A., Fowler, S. L., Rasinski, H. M., & Helfer, S. G. (2011). Placebo expectations and the detection of somatic information. *Journal of Behavioral Medicine*, *34*(3), 208–217.
- Gibbs, R. W. (2006). *Embodiment and cognitive science*. New York, NY: Cambridge University Press.
- Harrington, A. (2006). The many meanings of the placebo effect: Where they came from, why they matter. *BioSocieties*, *1*, 181–193.
- Hinton, D. E., Howes, D., & Kirmayer, L. J. (2008). Toward a medical anthropology of sensations: Definitions and research agenda. *Transcultural Psychiatry*, *45*(2), 142–162.
- Hróbjartsson, A., Kaptchuk, T. J., & Miller, F. G. (2011). Placebo effect studies are susceptible to response bias and to other types of biases. *Journal of Clinical Epidemiology*, *64*(11), 1223–1229.
- Hyland, M. E., & Whalley, B. (2008). Motivational concordance: An important mechanism in self-help therapeutic rituals involving inert (placebo) substances. *Journal of Psychosomatic Research*, *65*(5), 405–413.
- Kapferer, B. (2005). Ritual dynamics and virtual practice: Beyond representation and meaning. In D. Handelman & G. Lindquist (Eds.), *Ritual in Its Own Right* (pp. 35–54). New York: Berghahn Books.

- Kapferer, B., & Papigny, G. (2005). *Tovil: exorcism & healing rites*. Negombo, Sri Lanka: Viator Publications.
- Kaptschuk, T. J. (2011). Placebo studies and ritual theory: a comparative analysis of Navajo, acupuncture and biomedical healing. *Philosophical transactions of the Royal Society B: Biological Sciences*, 366(1572), 1849–1858.
- Kaptschuk, T. J., & Eisenberg, D. M. (1998). The persuasive appeal of alternative medicine. *Annals of Internal Medicine*, 129, 1061–1065.
- Kaptschuk, T. J., Friedlander, E., Kelley, J. M., Sanchez, M. N., Kokkotou, E., Singer, J. P., . . . Lembo, A. J. (2010). Placebos without deception: a randomized controlled trial in irritable bowel syndrome. *PLoS one*, 5(12), e15591.
- Kaptschuk, T. J., Kelley, J. M., Conboy, L. A., Davis, R. B., Kerr, C. E., Jacobson, E. E., . . . Lembo, A. J. (2008). Components of placebo effect: randomised controlled trial in patients with irritable bowel syndrome. *British Medical Journal*, 336(7651), 999–1003.
- Kaptschuk, T. J., Shaw, J., Kerr, C. E., Conboy, L. A., Kelley, J. M., Csordas, T. J., . . . Jacobson, E. E. (2009). “Maybe I made up the whole thing”: Placebos and patients’ experiences in a randomized controlled trial. *Culture, Medicine and Psychiatry*, 33(3), 382–411.
- Kelley, J. M., Lembo, A. J., Ablon, J. S., Villanueva, J. J., Conboy, L. A., Levy, R., . . . Kaptschuk, T. J. (2009). Patient and practitioner influences on the placebo effect in irritable bowel syndrome. *Psychosomatic Medicine*, 71(7), 789–797.
- Khan, A., Bomminayuni, E. P., Bhat, A., Faucett, J., & Brown, W. A. (2010). Are the colors and shapes of current psychotropics designed to maximize the placebo response? *Psychopharmacology*, 211(1), 113–122.
- Kirmayer, L. J. (1988). Mind and body as metaphors: Hidden values in biomedicine. In M. Lock & D. Gordon (Eds.), *Biomedicine Examined* (pp. 57–92). Dordrecht, Netherlands: Kluwer.
- Kirmayer, L. J. (1993). Healing and the invention of metaphor: The effectiveness of symbols revisited. *Culture, Medicine and Psychiatry*, 17(2), 161–195.
- Kirmayer, L. J. (2003). Reflections on embodiment. In J. Wilce (Ed.), *Social and Cultural Lives of Immune Systems* (pp. 282–302). New York, NY: Routledge.
- Kirmayer, L. J. (2004). The cultural diversity of healing: Meaning, metaphor and mechanism. *British Medical Bulletin*, 69(1), 33–48.
- Kirmayer, L. J. (2006). Toward a medicine of the imagination. *New Literary History*, 37(3), 583–605.
- Kirmayer, L. J. (2007). Psychotherapy and the cultural concept of the person. *Transcultural Psychiatry*, 44(2), 232–257.
- Kirmayer, L. J. (2008). Culture and the metaphoric mediation of pain. *Transcultural Psychiatry*, 45(2), 318–338.
- Kirmayer, L. J., & Gold, I. (2011). Re-socializing psychiatry: Critical neuroscience and the limits of reductionism. In S. Choudhury & J. Slaby (Eds.), *Critical Neuroscience: A Handbook of the Social and Cultural Contexts of Neuroscience*. Oxford, England: Blackwell.
- Kirmayer, L. J., & Sartorius, N. (2007). Cultural models and somatic syndromes. *Psychosomatic Medicine*, 69(9), 832–840.
- Kirsch, I. (2004). Conditioning, expectancy, and the placebo effect: Comment on Stewart-Williams and Podd (2004). *Psychological Bulletin*, 130(2), 341–343; discussion 344–345.
- Kleinman, A. M. (1980). *Patients and Healers in the Context of Culture*. Berkeley: University of California Press.
- Lee, B. O., Kirmayer, L. J., & Groleau, D. (2010). Therapeutic processes and perceived helpfulness of dang-ki (Chinese Shamanism) from the symbolic healing perspective. *Culture, Medicine and Psychiatry*, 34(1), 56–105. doi 10.1007/s11013-009-9161-3
- Levine, J. D., Gordon, N. C., & Fields, H. L. (1978). The mechanism of placebo analgesia. *Lancet*, 23, 654–657.
- Linde, K., Fässler, M., & Meissner, K. (2011). Placebo interventions, placebo effects and clinical practice. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 366(1572), 1905–1912.
- Martin, A. L., & Katz, J. (2010). Inclusion of authorized deception in the informed consent process does not affect the magnitude of the placebo effect for experimentally induced pain. *Pain*, 149(2), 208–215.
- Meissner, K. (2011). The placebo effect and the autonomic nervous system: Evidence for an intimate relationship. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 366(1572), 1808–1817.
- Melzack, R., & Katz, J. (2006). Pain in the 21st century: The neuromatrix and beyond. In G. D. Young, A. W. Kane & K. Nicholson (Eds.), *Psychological Knowledge in Court* (pp. 129–148). New York, NY: Springer.
- Miller, F. G., & Kaptschuk, T. J. (2008). The power of context: reconceptualizing the placebo effect. *Journal of the Royal Society of Medicine*, 101(5), 222–225.
- Moerman, D. E. (2002). *Meaning, medicine, and the “placebo effect”*. New York, NY: Cambridge University Press.
- Morton, D. L., Brown, C. A., Watson, A., El-Deredy, W., & Jones, A. K. (2010). Cognitive changes as a result of a single exposure to placebo. *Neuropsychologia*, 48(7), 1958–1964.
- Myers, W. B. (2010). The placebo as performance: Speaking across domains of healing. *Qualitative Health Research*, 20(9): 1295–1303.
- Pennebaker, J. W. (1982). *The Psychology of Physical Symptoms*. New York, NY: Springer.
- Petrovic, P., Kalso, E., Petersson, K. M., Andersson, J., Fransson, P., & Ingvar, M. (2010). A prefrontal non-opioid mechanism in placebo analgesia. *Pain*, 150(1): 59–65.
- Pollo, A., Carlino, E., & Benedetti, F. (2011). Placebo mechanisms across different conditions: from the clinical setting to physical performance. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 366(1572), 1790–1798.
- Price, D. D., Finniss, D. G., & Benedetti, F. (2008). A comprehensive review of the placebo effect: Recent advances and current thought. *Annual Review of Psychology*, 59, 565–590.
- Raz, A. (2007). Hypnobo: Perspectives on hypnosis and placebo. *The American Journal of Clinical Hypnosis*, 50(1), 29–36.
- Raz, A., & Buhle, J. (2006). Typologies of attentional networks. *Nature Reviews Neuroscience*, 7(5), 367–379.
- Richter, M., Eck, J., Straube, T., Miltner, W. H., & Weiss, T. (2010). Do words hurt? Brain activation during the processing of pain-related words. *Pain*, 148(2), 198–205.
- Scheff, T. J. (1979). *Catharsis in Healing, Ritual, and Drama*. Berkeley, California: University of California Press.
- Siegel, S. (2002). Explanatory mechanisms for placebo effects—Pavlovian conditioning. In H. A. Guess, A. Kleinman, J. W. Kusek & L. W. Engle (Eds.), *The Science of the Placebo: Toward an Interdisciplinary Research Agenda* (pp. 133–157). London, England: BMJ Books.
- Stern, J., Candia, V., Porchet, R. I., Krummehner, P., Folkers, G., Schedlowski, M., . . . Schönbachler, G. (2011). Placebo-mediated, naloxone-sensitive suggestibility of short-term memory performance. *Neurobiology of Learning and Memory*, 95(3), 326–334.



- Stewart-Williams, S., & Podd, J. (2004). The placebo effect: Dissolving the expectancy versus conditioning debate. *Psychological Bulletin*, 130(2), 324–340.
- Thompson, J. J., Ritenbaugh, C., & Nichter, M. (2009). Reconsidering the placebo response from a broad anthropological perspective. *Culture, Medicine and Psychiatry*, 33(1), 112–152.
- Turner, V. W. (1977). *The ritual process: Structure and anti-structure*. Ithaca, NY: Cornell University Press.
- Vidal, F. (2009). Brainhood, anthropological figure of modernity. *History of the Human Sciences*, 22(1), 5–36.
- Waldram, J. B. (Ed.). (2008). *Aboriginal Healing in Canada: Studies in Therapeutic Meaning and Practice*. Ottawa, Canada: Aboriginal Healing Foundation.
- Wickramasekera, I. (1980). A conditioned response model of the placebo effect predictions from the model. *Biofeedback and Self-Regulation*, 5(1), 5–18.
- Young, A. (1992). The anthropologies of illness and sickness. *Annual Review of Anthropology*, 11, 257–285.