



# Towards a Sociology of Placebo Response: Body, Emotions, and Semiotics of Healing

Shahram Rafieian<sup>1</sup>

<sup>1</sup> Graduate Doctoral Student, Department of Sociology, School of Social Sciences, Bangor University, Bangor, United Kingdom AND Researcher, Danesh-e-Tandorosti Institute, Isfahan, Iran

## Theoretical Study

### Abstract

With the emergence of the “sociology of body” and “sociology of emotions” in recent years, and the explosion of research about placebos and the mechanisms of their action, there is enough grounding now to consider the placebo response from a sociological point of view. These new subfields of sociology have provided enough knowledge about the primacy of action and emotions, and the importance of embodied knowledge and feelings in social interactions. Studies in medicine and psychology show that placebo response is a meaning response which develops in the context of interpersonal relationships. In this process, the embodied experience of the patient and health care professionals and their thoughts, beliefs, emotions and feelings are involved. Lines of research in the fields of placebo response, hypnosis research, doctor-patient relationship, and sociology of body and emotion are converging and provide the evidence for the role of interpersonal interactions in the healing process. Critical analysis of the placebo response provides the basis for an alternative framework to the current dominant model of health care which is biomedicine. This model is based on the dualisms and is inadequate to provide a place and explanation for psychosomatic and culture related disorders which are currently categorized under terms like “Medically Unexplained Syndromes (MUS)”. A possible new model could be constructed based on our new understandings provided by studies on placebo response. In this new model, interpersonal dynamics, intersubjectivity, and intercorporeality are core issues and in the center of attention for research and enquiry.

**Keywords:** Placebo response, Intersubjectivity, Intercorporeality, Embodiment, Emotions, Biomedicine

**Citation:** Rafieian Sh. **Towards a Sociology of Placebo Response: Body, Emotions, and Semiotics of Healing.** *Int J Body Mind Culture* 2014; 1(2): 107-16.

Received: 30 Jun 2014

Accepted: 3 Sep 2014

### Introduction

The critics of contemporary social theories believe that they are generally disembodied and the place of emotions is not clearly defined. Biological and physiological bodily processes are generally considered to be outside the territories of social sciences and the body is only considered

as an object of discourses. Rooted in the Philosophical dualisms, body and mind, nature and culture, and emotion and reason are separated. There is a form of cognitivism dominant in today's theories that ignores the integrity of body and emotions in human social life (Lyon, 1997; Williams, 1998; Williams & Bendelow, 1996).

In medicine and related disciplines, the dominant theoretical framework is the biomedical model which considers the human as

**Corresponding Author:**

*Shahram Rafieian*

*Email: rafieiansh@yahoo.com*

a biomechanical machine. This model tends to reduce the causal processes related to health and disease to the physiological and biological level of human existence. However, recent findings in the field of placebo research show the biomedical model to be inadequate to explain the healing processes happening in the clinical context and a need for a new conception (Bendelow, 2010; Rafieian, 2010). Here, first, is a brief review of findings in the field of placebo research.

### Placebo and placebo response

Placebo was originally derived from the Latin word *placere* which means "to please". For health care professionals, placebo is a way of pleasing the patients or a non-harmful method for calming them (Kradin, 2004). In fact, placebo, generally, has a negative connotation. It is an inert pill or intervention which is used to make the patient feel better. It is a kind of paternalistic sham or a trick of expectancy used in a situation in which there is no rational and scientific way of treating the patient's problem (Justman, 2011). There is a debate about the ethical issues around prescribing placebos. As it is believed that patients should be informed of their treatment plan and the interventions they receive, using placebos is a kind of deception; it hides the information about the inertness of the treatment they are receiving. In spite of this, placebos are widely used in clinical practice (Bensing & Verheul, 2010). Apart from inert interventions, drugs like antibiotics and vitamins are sometimes applied to problems which are known not to be treatable with these drugs, even when there are negative consequences. In some cases like overprescription of antibiotics, problems like bacterial resistance to antibiotics have emerged and are disadvantageous for the health of the society (Justman, 2011).

Placebos are also important in the context of clinical research. In biomedicine, to prove the effectiveness of an intervention the best method of evaluation is randomized controlled trial (RCT). Since the early days of the use of RCTs,

the placebo effect was known as an interfering or confounding factor. Placebo effects were a non-specific and unwanted healing response which was seen even in the group of the patients who had just participated in the study and received an inert intervention instead of the treatment under study. Discriminating between this so-called nonspecific healing response and the genuine effects of the intervention has been a problem in clinical studies. Because of this issue, clinical researchers are usually interested in eliminating placebo response and not in understanding the mechanisms related to its formation. This is another reason for disliking the placebo effect in clinical medicine (Bensing & Verheul, 2010; Thompson, Ritenbaugh, & Nichter, 2009).

Studies on the effects of placebo show that they are effective in treatment of different conditions like depression, anxiety, phobias, post-operative pain, headaches, ischemic pains, tobacco addiction, and asthma (Chóliz & Capafons, 2012). Moerman and Jonas (2002) point to the fact that we know that placebo as a drug or intervention is inert and there is no biochemical or physiological mechanism activated directly by placebo in the body. They believe that the mechanisms involved in producing the healing response are the result of the meaning that the patient assigns to the intervention. Based on this assumption they consider placebo response as a meaning response. In this view, any component of treatment, like the colours, smells, and voices that could have meaning for the patient, could participate in the formation of the healing response. Although the importance of these components is appreciated by placebo researchers, usually, they believe that interpersonal dynamics are the core of placebo response (Kradin, 2011a; Miller, Colloca, & Kaptchuk, 2009). Kradin (2011b) even discriminates between the healing responses developed in contexts other than interpersonal relationship and proposes to categorize them as "placebo-like" responses. Moreover, he strictly calls a healing response placebo response when it

is developed under the dynamics of interpersonal relationships. Accordingly, he defines placebo response as “a complex mind-body interaction evoked within a therapeutic dynamic, in which the offer to treat a pre-existing dysphoric condition with inert or ineffective intervention (i.e., a placebo) results in the restoration of well-being” (p. 38).

The importance of the interpersonal relationship in formation of healing response is not an unknown phenomenon. Physician and psychoanalyst Michael Balint (1896-1970) introduced the concept of “doctor as drug” and believed that the most powerful therapeutic tool a doctor has is himself or herself. Interestingly, Balint states that our knowledge about the pharmacology of this drug is limited. It means that we do not know about the dosage (frequency of visits), addictive properties (the patient’s dependence on the doctor), and side effects (the harmful effects of the therapeutic encounter) of this therapeutic agent (Kaba & Sooriakumaran, 2007)

Different mechanisms have been proposed to explain the placebo response. Psychological mechanisms are theories like the expectancy theory and conditioning theory (Price, Finniss, & Benedetti, 2008). Furthermore, affective and emotional modulation and direct embodied response to social and environmental cues have been proposed as the possible mechanisms (Bensing & Verheul, 2010; Price et al., 2008; Thompson et al., 2009). Although all these mechanisms are active in an interpersonal atmosphere, here we consider the embodied experience and emotions in the context of placebo response in more detail.

### **Embodiment, placebo response, and healer-client relationship**

To find the developmental roots of placebo response, Kradin (2011b) explores the interactions between infants and care-givers during their development. He notes that having a secure attachment is not only critical for development of

an appropriate sense of self, but also it is important in the formation of the mechanisms for coping with stress, affect regulation and ability to self-soothe. People with a history of abnormal attachment are more prone to develop psychopathology and are more vulnerable to psychosomatic disorders (Waller & Scheidt, 2006). Kradin believes that attachment behaviour is necessary for the development of placebo response. The presence of a physician, therapist, or a care-giver in general, who tries to calm the client and reduce his/her stress, initiates the mechanisms that have been built in a secure attachment since early life.

Accordingly, activation of placebo response can be considered as a common factor of different modes of psychotherapy and an effective clinical encounter in a medical context (Justman, 2011; Kradin, 2011b). Then, it could be judged that communication and rapport are key elements in evoking placebo response. In fact, new developments in the field of doctor-patient relationship research support this idea. Recent findings of placebo research and doctor-patient communication show the importance of rapport in producing placebo effects (Bensing & Verheul, 2010). Insights from attachment research and achievements from doctor-patient relationship studies introduce some factors related to the formation of placebo response. Prompt response to the call for help is an important first step. The presence of the healer as an empathic listener is crucial. The interventions should be well timed including explaining the diagnosis in a compassionate way (Kradin, 2011b). In fact, it is believed by some authors that formulation of a clear diagnosis is an important step in the activation of placebo response. Giving an accurate diagnosis helps the patient make sense of his/her suffering and assigns meaning to the patient’s illness experience. In a successful clinical encounter, the illness experience is transformed by providing a meaningful explanation. In this process, narration is essential and the patient tries to put the story of his/her experience in a

sociocultural context with the help of the health care professional (Brody & Waters, 1980; Thompson et al., 2009).

Although considering placebo response as a meaning response is an important step in understanding this phenomenon, some critics believe it should not be considered as the only mechanism involved in the development of healing response in this context. As Thompson et al. (2009) explain, meaning making is a process which is fulfilled by a conscious person; however, there are mechanisms related to placebo which happen unconsciously. These mechanisms are present during the direct embodied experience of clinical encounter and there is no need for conscious meaning making for their development. Many of these mechanisms are affect-regulating and self-soothing mechanisms which are developed in early life and are activated later without the presence of any narrative memory of them. Accordingly, both conscious and unconscious mechanisms are involved in the formation of placebo response during the interpersonal relationships between healer and client. Modulation of emotions is a key mechanism that has been considered as a possible way to activate placebo response.

### Emotions and placebo response

Emotions are complex phenomena with both bodily and interpersonal aspects. Each emotion has some physiological characteristics which are seen when that particular emotion is aroused. These physiological changes are the result of the activity of the autonomic nervous system (ANS). The ANS is not controlled by the conscious will of the person and is mainly responsible for vital activities, like change in respiratory and heart rate and in the calibre of the blood vessels. Physiological response seen in a particular emotion is not specific to that emotion and there is an overlap between physiological changes seen in different emotions. For example, accelerated heart rate could be seen in both fear and excitement (Rosenberg, 1990). These facts make

the study of emotions difficult because both bodily aspects and relational characteristics should be considered together. Emotions are always experienced during an interaction. Emotions are developed in the intercorporeal and intersubjective space and are in essence communicative (Burkitt, 2002). The social constructionist view of emotions regards them merely as the product of social interactions and neglects their biological and bodily aspects. Thus, to have a comprehensive view of the reality of emotions, there is need for a theory that includes both bodily physiological and biological grounds of the emotional experience, and the dynamics of their formation in the context of culture and social interactions (Stets, 2010; Turner, 2009). As Burkitt (2002) correctly states, it is important not to view emotions as static entities. Emotions are process-like entities which are formed in the course of interactions. In other words, emotions are always relational and always emerge in relation to somebody or something in the surrounding world.

In Rosenberg's view (1990), involuntariness of emotional experience is the essential dilemma of human emotional life and it is important in both individual goal achievement and social function. Nevertheless, there are different methods that could be used to control the emotions. Manipulating the body is a possible route. As discussed, control over respiration is one way which has been used in different mystical and self-growth training methods, rituals, and traditions. There are other ways like jogging, aerobics, and muscular relaxation. These are all categorized as "techniques of the body" by Marcel Mauss (1973). He invited anthropologists and sociologists to explore the importance of these techniques in the social life of the society. The change in the body could also be chemical like the effect of alcohol and tranquilizers (Rosenberg, 1990).

In addition, language and culture make important contributions to the formation of emotions. For example, a certain behaviour may

result in the formation of anger in a person in the context of one culture, but might not be annoying in another culture. Moreover, different languages have different vocabularies to describe emotions. This means that a social event could be described differently from an emotional perspective by people with different mother tongues (Burkitt, 2002; Rosenberg, 1990). Hence, the social context of the emotional experience plays a critical role in emotion formation.

Modulation of emotions has been proposed as a possible mechanism for placebo response (Flaten, Aslaksen, Lyby, & Bjørkedal, 2011). From a developmental point of view, emotion regulation is a skill that is learnt from early life. Care-givers always try to reinforce positive emotions and neglect or suppress negative ones in the baby. Any malformation of these abilities for affect regulation could be the source of somatic and mental pathologies later in adulthood (Kradin, 2011b; Vandenberg, 1998).

As mentioned, emotions are always relational and have bodily components which are basically under the control of the ANS. Deregulation of ANS leads to formation of different health problems like asthma and irritable bowel syndrome (Riedl et al., 2008). An effective relationship with a health care professional could result in positive change in the client's emotional profile which may calm the ANS and relieve the symptoms. For example, Lyon (1997) explains that respiration is a mediator between social and interpersonal interactions and internal physiological processes. The respiratory system is usually controlled by the ANS, but any change in emotions could change the pattern of respiration. This pattern could also change in different social contexts, and in this way the internal physiological state and external social context become coordinated.

As mentioned, techniques of the body are used to modulate the emotions. One of these techniques is hypnosis. Essentially hypnotic phenomena develop in an interpersonal relationship. Hypnosis has been used for

treatment of many mental and physical disorders. Some researchers of hypnosis believe that there are common mechanisms involved in the formation of healing response in hypnosis and placebo response. Elements like suggestions and expectancy are present in both contexts and they believe that alteration of consciousness or trance experience is not a necessary component for healing formation. This group of researchers, mainly advocates of a sociocognitive theory of hypnosis, believe that hypnosis is a kind of role taking and this role taking is the cause of bodily changes that are experienced in hypnosis. They also believe that this role taking could happen in ordinary clinical encounters and the trance state is not a necessary component of the healing response that is seen in hypnotherapy (Lynn, Kirsch, & Hallquist, 2008; Raz, 2007).

In the context of mental health, the regulation of emotions has a more critical role. With the development of biological psychiatry and neuropsychiatry, drug therapy has become the dominant way to control emotional distress. The insufficiency of this approach has led to the development of debates in the form of pharmaskepticism which essentially questions the possibility of solving complex psychosocial problems by simplistic means like technical interventions and drug therapy. In spite of the fact that clinical guidelines recommend that sub-threshold and mild depression should not be treated by antidepressants and psychosocial intervention should be used as first-line treatment, this does not happen in practice and antidepressants are prescribed in the first encounter (Bendelow, 2010).

In terms of emotions and their relationship with placebos it has been shown that placebo administration reduces negative emotions. Furthermore, positive emotions are reinforced when placebos are used, and as a consequence, the opioid activity becomes increased. In contrast, when the content of information given to the patient is anxiety-inducing, negative emotions are elicited and a negative effect is imposed on

healing response. This process is called the Nocebo effect (Flaten et al., 2011).

There is also a close relationship between emotions and pain experience which is important for analgesic placebo response. We will consider this relationship briefly.

### **Pain and placebo response**

Evidence from pain research in different disciplines supports the idea that pain is not only a somatic experience, but also has emotional, cultural, and sociological aspects. As neuroscientist, Antonio Damasio (2000) states that the emotional aspect of pain experience is critically important in coping with pain and some techniques, like hypnosis, manipulate this aspect of pain experience and make it more tolerable. Bendelow and Williams (1995) take a sociological point of view to the topic and speak about the need for transcending the dualisms in pain theories. They state that pain lies in the border between biology and culture and could be viewed from a sociological point of view. Evidently, for this exploration there is a need for an embodied social theory in which the interaction between biological body and sociocultural environment is accurately defined. As Bendelow and Williams (1995) explain:

“...pain is, of course, an everyday experience linking the subjective sense of self to the perceived 'objective' reality of the world and other people. In this respect, the impact of culture affects and informs the experience of pain, which constitutes an integral, yet hitherto poorly researched part of health and illness. Moreover, both its exploration and explanation demand the dissolution of dichotomous thinking which has impeded a unified understanding and recognition of its cultural and biological elements” (p.162).

These facts make the traditional approach of biomedicine to pain, which only considers it as a biological and physiological experience, insufficient. To have a more comprehensive view, there is also a need for phenomenological and sociological understanding of pain experience.

For example Osborn and Smith (2011) explored the phenomenological experience of patients with chronic benign low back pain and the way their sense of body and self is affected by this experience. They showed that pain experience affects the sense of self in this group of patients and “parts of the body that were painful, difficult to control and in conscious awareness were felt to be alien and excluded as ‘not me’, not part of the preferred self” (p. 221).

In pain experience, especially when it is chronic, negative emotions like feeling of nervousness, fear, and anxiety increase the pain. Placebo analgesia reduces the pain by reducing the negative emotions via the verbal information that the pain will decrease after the intervention. Moreover, any information that increases negative emotions can increase pain (Flaten et al., 2011). This information could be about the meaning of pain in the patient’s life, prognosis of the disorder, and the possible ways for managing the problem.

Considering these facts, pain can be managed appropriately only when a multi-dimensional approach is applied. Exploration of the meaning of pain in the individual’s life and emotions related to it is critically important in this approach.

### **Placebo response and biomedicine**

As seen in the above discussion, placebos are inert per se and the placebo response develops as a result of mind-body mechanisms which are activated in the context of interpersonal interactions in a clinical setting. This notion could not be well explained by the current dominant model of medicine which is biomedicine. In biomedicine, the main focus is on the biological aspect of human beings. In this model, human subjectivity is considered as a secondary or additional issue and the data gained from this level is considered to be less reliable in comparison to the information gained from biology and physiology. In other words, there is a categorization of hard data and soft data according to the source of information in which the hard data

are objective and reliable and the soft data are subjective and unreliable. This conception is rooted in the Cartesian philosophical tradition which considers the mind as separate from the body. In this model, psychosocial aspects of health and disease are considered as secondary or marginal and biology as central (Bendelow, 2010; Bendelow & Williams, 1995; Kirkengen & Thornquist, 2012; Rafieian, 2010).

To explain the placebo response, there is a need for an alternative framework. As medicine is a practical enterprise, theory is generally neglected in this field, but as Alderson (1998) states theories “powerfully influence how evidence is collected, analysed, understood, and used, it is practical and scientific to examine them. Hypotheses are explicit, but when theories are implicit their power to clarify or to confuse, and to reveal or obscure new insights, can work unnoticed” (p.1007)

As discussed, interpersonal dynamics and mind-body mechanisms are essential to explain the placebo response. To develop such an alternative framework, a non-dualistic philosophical conception of mind-body-society is needed. Merleau-Ponty’s (1908-1961) phenomenological tradition is a possible alternative. Merleau-Ponty challenged the basic assumption of the Cartesian tradition that mind is substantially distinctive from the body. In his view, subjectivity is grounded in the body. We experience the world through the body and it is the centre of our experience (Kirkengen & Thornquist, 2012).

In biomedicine, the body is an object; a physiological machine without any connection to memory and meaning. However, in the phenomenology of Merleau-Ponty, the lived body is not just an object. Body has two aspects: it is a biological organism and an incarnate subject (Kirkengen & Thornquist, 2012). In contrast to the Cartesian body which is merely a physical entity, the lived body is a part of the world, inseparably enmeshed and embedded in it. In addition, for Merleau-Ponty, perception is not an inner

representation of reality but it is openness to being. Furthermore, perceiving the other is not just formation of a mental representation, but subjects are open to each other. Intercorporeality means that subjects are connected to each other through a similar belongingness to a common world. The embodied thoughts, feelings, intentions, and etcetera are visible to the others and this manner the subjectivity is publicly available (Crossley, 1995).

The main source of knowledge for biomedicine has come from the dissection of the dead body and the studies conducted on animals. Consequently, the abilities and possibilities of the lived body are not considered in biomedical knowledge. The body in biomedicine is free from embodied thought, feelings, and emotions (Twigg, 2006). It is clear that this conception is inadequate to explain the nature of placebo response. Instead, Merleau-Ponty’s philosophical framework provides a sufficient grounding on which placebo response could be explored. The lived body, situated in the intersubjective and intercorporeal space, is continuously assigning meaning to her experience, which could result in healing response. History and memories are imprinted in the body and become reactivated through embodied experience. Currently, because biomedicine does not have the necessary theoretical framework to define the lived body, it avoids the placebo response and dismisses it as a non-specific trivial healing response. In fact this model is unable to explain any health condition which is the result of complex interactions of body-mind-society and goes beyond the skin boundaries. Because of this failure, terms like “Medically Unexplained Symptoms” (MUS) have been coined in medical literature to describe these conditions. In fact, changing the theoretical framework might make these unexplained symptoms explainable (Bendelow, 2010).

There is a need to consider subjectivity and phenomenological experience in explaining placebo response. Moreover, to explore the placebo response and other related phenomena,

there is a need for a trans-disciplinary framework. As shown, placebo response is an interpersonal, mind-body, and biological phenomenon and neglecting any one of these aspects results in an insufficient explanation. American psychiatrist George Engel (1980, 1981) was the first theorist who considered this issue and developed a biopsychosocial model based on a systems approach. In this model, the health condition does not only make changes in one of the biological, psychological, and social domains, but any change in one of these domains could impose changes in other domains via downward and upward causation. As a result, to have a comprehensive understanding of a health issue there is need for different domains of knowledge and this understanding should not be confined to one branch of knowledge (not just biology as it is usually seen in biomedicine). For example, in a patient with heart attack, although the primary lesion is in the heart muscles, the patient might become depressed and he or she may not be able to work anymore. Then, his or her psychological and social health is affected as well.

Accordingly, to have a comprehensive understanding of placebo response two aspects should be considered. First, the phenomenological and lived experience of the people involved is important for an accurate formulation of the processes and phenomena. Second, a systemic view is needed in which biological, psychological, interpersonal, and even environmental factors are explored.

### Summary and conclusion

Placebo response is a mysterious phenomenon for health care professionals, usually associated with cheating the patient or unwanted effects in clinical trials, and thus, it is usually avoided in research. On the other hand, many clinicians use placebos in their daily practice. It is, therefore, an enigma in medicine and health care. Recent findings in placebo research show that placebo response essentially develops in interpersonal interactions and is a relational process. Both

conscious and unconscious processes are involved in the formation of healing response. The conscious processes are mainly in the form of meaning assignment and related to the fact that any intervention has a meaning for the patient. The unconscious processes are the result of the embodied experience of the client and related to the activation of soothing mechanisms that are developed since early life via attachment mechanisms with the care-givers.

Placebo response, like other complex body-mind-social processes, has been neglected in medical research because the dominant model of modern medicine, meaning biomedicine, does not have the necessary theoretical framework to analyze the complex interactions that go beyond one level. A trans-disciplinary method of investigation is needed. For this purpose, the biopsychosocial model which is based on systemic thinking and developed by George Engel is an appropriate model. This model provides a comprehensive view of complex mind-body-society interactions.

As Williams (2006) states, to bring the body into medical sociology, it is not enough to limit our knowledge to biology. Instead he believes that we should deconstruct the unity of biology and think instead in terms of anatomy, physiology, neurobiology, endocrinology, genetics, and etcetera (p.15). An alternative to this approach could be thinking in terms of emerging interdisciplinary branches of knowledge like social psychiatry, psycho-biology, psychoneuro-immunology, and affective neuroscience.

In terms of the theoretical framework needed, it seems that the biopsychosocial model is the best available grounding. Nevertheless, as mentioned, the phenomenological and first-person experience should be incorporated in this model. Uexkull and Pauli (1986) have attempted to further develop the biopsychosocial model by incorporating the concept of semiosis (the process of sign interpretation) as a translator of the flow of information between different domains. Furthermore, semiosis could explain the

phenomenological processes, like imagination and thinking, which occur at the level of first person experience. Brier (2003, 2008) has tried to develop a more elaborated model which is the result of the incorporation of systemic cybernetic and (bio) semiotic concepts. This model is called cybersemiotics. Rafieian (2010) has tried to apply this model to medicine. Further elaboration of this model is beyond the scope of this paper.

Evidently, further development of the theoretical framework needed for explanation of mind-body-social phenomena, like placebo response, would facilitate the improvement of health care systems in the society.

### Conflict of Interests

Authors have no conflict of interests.

### Acknowledgments

I would like to thank Professor Howard Davis for his comments on an earlier version of this paper.

### References

- Alderson, P. (1998). The importance of theories in health care. *BMJ.*, 317(7164), 1007-1010. Retrieved from PM:9765175
- Bendelow, G. (2010). Emotional health: challenging biomedicine or increasing health surveillance? *Crit Public Health*, 20(4), 465-474.
- Bendelow, G. A., & Williams, S. J. (1995). Transcending the dualisms: towards a sociology of pain. *Sociology of Health & Illness*, 17(2), 139-165. Retrieved from <http://dx.doi.org/10.1111/j.1467-9566.1995.tb00479.x>. Retrieved from Blackwell Publishing Ltd.
- Bensing, J. M., & Verheul, W. (2010). The silent healer: the role of communication in placebo effects. *Patient.Educ.Couns.*, 80(3), 293-299. doi:S0738-3991(10)00326-5 [pii];10.1016/j.pec.2010.05.033 [doi]. Retrieved from PM:20638817
- Brier, S. (2003). The cybersemiotic model of communication: An evolutionary view on the threshold between semiosis and informational exchange. *Triple C*, 1(1), 71-94.
- Brier, S. (2013). *Cybersemiotics: Why information is not enough*. Toronto, Canada: University of Toronto Press.
- Brody, H., & Waters, D. B. (1980). Diagnosis is treatment. *J Fam.Pract.*, 10(3), 445-449. Retrieved from PM:7354290
- Burkitt, I. (2002). Relations, feelings and images in emotional experience. In J. Barbalet (Ed.), *Emotions and sociology* (pp. 151-167). Oxford, UK: Blackwell.
- Choliz, M., & Capafons, A. (2012). The placebo in the context of scientific theories. *Theory and Psychology*, 22(4), 513-526. doi:10.1177/0959354311432903.
- Crossley, N. (1995). Merleau-ponty, the elusive body and carnal sociology. *Body Society*, 1(1), 43-63. doi: 10.1177/1357034X95001001004.
- Damasio, A. (2000). *The feeling of what happens: body and emotion in the making of consciousness*. New York, NY: Mariner Books.
- Engel, G. L. (1980). The clinical application of the biopsychosocial model. *Am J Psychiatry*, 137(5), 535-544. Retrieved from PM:7369396
- Engel, G. L. (1981). The clinical application of the biopsychosocial model. *J Med Philos.*, 6(2), 101-123. Retrieved from PM:7264472
- Flaten, M. A., Aslaksen, P. M., Lyby, P. S., & Bjorkedal, E. (2011). The relation of emotions to placebo responses. *Philos.Trans.R.Soc Lond.B.Biol.Sci*, 366(1572), 1818-1827. doi:366/1572/1818 [pii];10.1098/rstb.2010.0407 [doi]. Retrieved from PM:21576139
- Justman, S. (2011). From medicine to psychotherapy: the placebo effect. *Hist Human.Sci*, 24(1), 95-107. Retrieved from PM:21491788
- Kaba, R., & Sooriakumaran, P. (2007). The evolution of the doctor-patient relationship. *Int.J Surg.*, 5(1), 57-65. doi:S1743-9191(06)00009-4 [pii];10.1016/j.ijsu.2006.01.005 [doi]. Retrieved from PM:17386916
- Kirkengen, A. L., & Thornquist, E. (2012). The lived body as a medical topic: an argument for an ethically informed epistemology. *J Eval.Clin Pract*, 18(5), 1095-1101. doi:10.1111/j.1365-2753.2012.01925.x [doi]. Retrieved from PM:22995016
- Kradin, R. L. (2004). The placebo response: its putative role as a functional salutogenic mechanism of the central nervous system. *Perspect.Biol.Med*, 47(3), 328-338. doi:S1529879504303285 [pii]. Retrieved from PM:15247500
- Kradin, R. L. (2011a). Placebo response: a consideration of its role in therapeutics. *Curr.Psychiatry Rep.*, 13(1), 37-42. doi:10.1007/s11920-010-0158-y [doi]. Retrieved from PM:20878506
- Kradin, R. (2011b). The placebo response: an attachment strategy that counteracts the effects of stress-related dysfunction. *Perspect.Biol.Med*, 54(4), 438-454. doi:S1529879511400119 [pii];10.1353/pbm.2011.0046 [doi]. Retrieved from PM:22019533
- Lynn, S. J., Kirsch, I., & Hallquist, M. N. (2008). Social cognitive theories of hypnosis. In M.R. Nash & A. J. Barnier (Eds.), *Oxford handbook of hypnosis* (pp. 111-140). Oxford, UK: Oxford University Press.

- Lyon, M. L. (1997). The material body, social processes and emotion: techniques of the body' revisited. *Body Society*, 3(1), 83-101.
- Mauss, M. (1973). Techniques of the body. *Economy and Society*, 2(1), 70-88. DOI:10.1080/03085147300000003.
- Miller, F. G., Colloca, L., & Kaptchuk, T. J. (2009). The placebo effect: illness and interpersonal healing. *Perspect.Biol.Med*, 52(4), 518-539. doi:S1529879509400036 [pii];10.1353/pbm.0.0115 [doi]. Retrieved from PM:19855122
- Moerman, D. E., & Jonas, W. B. (2002). Deconstructing the placebo effect and finding the meaning response. *Ann.Intern.Med*, 136(6), 471-476. doi:200203190-00011 [pii]. Retrieved from PM:11900500
- Osborn, M., & Smith, J. A. (1998). The personal experience of chronic benign lower back pain: An interpretative phenomenological analysis. *British Journal of Health Psychology*, 3(1), 65-83. Retrieved from <http://dx.doi.org/10.1111/j.2044-8287.1998.tb00556.x>. Retrieved from Blackwell Publishing Ltd.
- Price, D. D., Finniss, D. G., & Benedetti, F. (2008). A comprehensive review of the placebo effect: recent advances and current thought. *Annu.Rev Psychol*, 59, 565-590. doi:10.1146/annurev.psych.59.113006.095941 [doi]. Retrieved from PM:17550344
- Rafieian, Sh. (2010). Cybersemiotic medicine: A framework for an interdisciplinary medicine. *Cybernetics and Human Knowing* 01/2010; 17:65-93., 17(3), 65-93.
- Raz, A. (2007). Hypnobo: perspectives on hypnosis and placebo. *Am J Clin Hypn.*, 50(1), 29-36. Retrieved from PM:17685242
- Riedl, A., Schmidtman, M., Stengel, A., Goebel, M., Wisser, A. S., Klapp, B. F. et al. (2008). Somatic comorbidities of irritable bowel syndrome: a systematic analysis. *J Psychosom.Res*, 64(6), 573-582. doi:S0022-3999(08)00061-5 [pii];10.1016/j.jpsychores.2008.02.021 [doi]. Retrieved from PM:18501257
- Rosenberg, M. (1990). Reflexivity and emotions. *Social Psychology Quarterly*, 53(1), 3-12.
- Stets, J. E. (2010). Future directions in the sociology of emotions. *Emotion Review*, 2(3), 265-268. doi:10.1177/1754073910361975.
- Thompson, J. J., Ritenbaugh, C., & Nichter, M. (2009). Reconsidering the placebo response from a broad anthropological perspective. *Cult.Med Psychiatry*, 33(1), 112-152. doi:10.1007/s11013-008-9122-2 [doi]. Retrieved from PM:19107582
- Turner, J. H. (2009). The sociology of emotions: basic theoretical arguments. *Emotion Review*, 1(4), 340-354. doi:10.1177/1754073909338305.
- Twigg, J. (2006). *The body in health and social care*. Palgrave MacMillan: Basingstoke, UK.
- Vandenberg, B. (1998). Hypnosis and Human Development: Interpersonal Influence of Intrapersonal Processes. *Child Development*, 69(1), 262-267. Retrieved from <http://dx.doi.org/10.1111/j.1467-8624.1998.tb06147.x>. Retrieved from Blackwell Publishing Ltd.
- Von Uexkull, T., & Pauli, H. (1986). The mind-body problem in medicine. *Advancement of Health*, 8(4), 158-174.
- Waller, E., & Scheidt, C. E. (2006). Somatoform disorders as disorders of affect regulation: a development perspective. *Int.Rev Psychiatry*, 18(1), 13-24. doi:N7567324726L33M7 [pii];10.1080/09540260500466774 [doi]. Retrieved from PM:16451876
- Williams, S. J. (1998). Modernity and the emotions: corporeal reflections on the (IR) rational. *Sociology*, 32(4), 747-769. doi:10.1177/0038038598032004007.
- Williams, S. J. (2006). Medical sociology and the biological body: where are we now and where do we go from here? *Health (London.)*, 10(1), 5-30. doi:10/1/5 [pii];10.1177/1363459306058984 [doi]. Retrieved from PM:16322041
- Williams, S. J., & Bendelow, G. A. (1996). The 'emotional' body. *Body Society*, 2(3), 125-139. doi:10.1177/1357034X96002003007.