

International Encyclopedia of Rehabilitation

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This publication of the Center for International Rehabilitation Research Information and Exchange is supported by funds received from the National Institute on Disability and Rehabilitation Research of the U.S. Department of Education under grant number H133A050008. The opinions contained in this publication are those of the authors and do not necessarily reflect those of CIRRIE or the Department of Education.

Psychosomatic Disorders

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Psychosomatic disorders are manifestations of physical imbalance in which emotional components have a strong influence. The link between the affect and compromised health issues can be followed, in such cases, as the disease emerges, develops or repeats its pattern over time. “Psycho” or “psyche” refers to the emotional or mind related aspects and “somatic” has to do with the organic or physical symptoms and signs observed.

Recent research has revealed that inappropriate activation of the autonomous nervous apparatus, endocrine network (hormones and internal secretion glands), and the immune system (defence structures and cells) accounts for several of the known paths that link emotional overload to a condition of organic dysfunction and, in some cases, even physical damage.

Field of Study and Synonyms

Given the way in which psychosomatic diseases are characterized by the disruption (pathology) of normally occurring vital mechanisms (physiology), as well as the peculiar interaction of the different organic systems, the field that studies them has been given a variety of names over the years. Apart from psychosomatics, *psychoneuroimmunology* is a common denotation. This complex word refers to the fact that this discipline studies the ways that the psyche (the mind and its content of emotions) interacts with the body’s nervous system and how both of them, in turn, form an essential link with our immune defences. Some have called this new field *psychoneuroimmunoendocrinology* to indicate that the endocrine, or hormonal, apparatus is also a part of our system of whole-body response (Maté 2003). An increasing tendency in academic papers has been to name it “psychophysiology”. Body-mind medicine, though, seems to be the most popular synonym.

Classification

Two of the main classification systems used in health care are the ICD 10 (International Classification of Diseases, tenth edition) and the DSMIV (Diagnostic and Statistical Manual of Mental Disorders, fourth edition). Psychosomatic disorders, however, do not fall neatly into the categories of either system. In a broad sense, the concept may include “somatoform disorders” as well as “disorders with psychological factors assumed to play a major role in the etiology, triggering, and maintenance of somatic complaints” (Flammer and Alladin 2007).

The Human Factor

Lowen (1997) describes a main trait that will often be found in the psychosomatic clinic: a seemingly adjusted personality, in which neurotic symptoms have a dramatic quality and dominate the clinical picture. Upbringing, environment, social settings, genetics and personal interpretations of events, as well as the capacity to cope with the

elements that come together as the person develops and interacts seem to play an important role when confronted with a psychosomatic manifestation. The key aspect of all these disorders is that they are enduring, relatively immutable conditions that represent a baseline substrate of impaired adaptedness, of deficiencies or distortions that limit the capacity to adapt successfully to the demands of life (Oken 2000). A neurological “wiring” develops through the influence of environmental and genetic factors as we go through life. Each event we participate in is interpreted in terms of previous events, in terms of ongoing activities, and in terms of implications for the future (Benson 1997).

Human beings themselves often prove to be one of the main challenges to the identification and successful treatment of psychosomatic disorders. For the human mind, the mind-body integration raises strong resistances; the same happens with the acceptance that we are unavoidably *vinculated* (linked). Nevertheless, body, mind and links are essential dimensions of our being, determining our life and our death, our health or our disease, our pleasure and our pain (Boschan 2007). We store memories that come to the fore at any given time from the bottom up when triggered by impulses from our environment or from within the body. Being wired, we are always scanning our body internally (Benson 1997). As we develop better investigation as well as assessment methods and broaden the sharing of empiric observation, this essential interrelation will become more evident.

Historical Highlights

The notion that the mind affects organic processes and that what happens in the body is more or less intensely connected to thinking and emotional patterns, has been frequently described throughout history. Hippocrates (460-377 BCE), the father of clinical medicine, posited four bodily fluids (humors) that, when out of balance, led to various physical maladies. The humoral imbalances thought to cause illness, also, in his view, produce characteristic and chronic emotional states [...] Although Hippocrates may have had the details wrong, he provided prescient guidance regarding possible connection between emotion and health. (Salovey, Rothman, Detweiler and Steward 2000)

The system “*psyche* – soul/*soma* – body” has been an essential philosophical theme for at least the last 2500 years. In ancient Greece, Anaxágoras (500-428 BCE) established a distinction between the two. In the 1600’s Rene Descartes proposed that the soul’s main function is related to thinking/intellectual ability and that all other functions are part of the physical realm (Moreira 2003). Descartes called the organic component the *res extensa* (extended matter), opposed to the *res cogitans* (thinking matter), his designation for the soul. From then on the perception of the body as predominantly a mechanic system became preponderant in western culture. It was not until the second half of the last century, that the need to recover an integrated view of human life led to the inclusion and conceptualization, in modern thought, of the important role played by emotions and affective bonds in health and disease (Boschan 2007).

In 1892 Dr. Sigmund Freud collaborated with Dr. Josef Breuer in a study of hysterical symptoms, later redefined as “conversion disorders”. The techniques and theories of psychoanalysis originated as answers to the problems presented by hysterical patients. Freud stated his belief that the hysterical symptoms represented an abnormal form of discharge. When a person experiences a significant event, Freud proposes that a *discharge of feeling* is the habitual reaction. When such discharge is avoided as the

event takes place, hysterical symptoms may develop. This crucial realisation of a relationship between psychic illness and emotional energy was thus found (Boadella 1975). The concepts of Ego, Id and Superego were used by Freud to describe the structure of the psyche. The central nervous system and the concept of Freud's 'ego' are interdependent. According to Nunnely ([1] 2000), in the instance where the ego encounters deeper primitive body mechanisms is where the ego meets the other Freudian concept, the 'id'. The conscious (ego) meets the unconscious (id).

Wilhelm Reich, an enthusiast of Freud's first theories on psychoanalysis, expanded the latter's investigation of anxiety and, among other early contributions, described how it appears to be a psychic counterpart to a vasomotor neurosis (an outdated concept that refers to changes in the circulatory system due to involuntary nervous system dysfunction). The development of this theory into a full psychosomatic understanding required many more years and further research (Boadella 1975) after which emerged the basis for related psychotherapeutic approaches that include emotional treatment associated with body-work techniques.

As a young resident at the Burghölzli psychiatric hospital in Zürich, Carl Gustav Jung researched the structure of the psyche through experiments using a word association test. He noticed that particular words triggered something that interfered with normal mental processes, preventing the subject of the experiment from responding to these words in the same way that he or she responded to other words. Further, by discussing both the stimulus and the response words with the subject, Jung found that stories of painful or difficult experiences often surfaced (Sparks 2007). The following years, comprised an intensive exploration of concepts related to the unconscious, its influence on the mind and its effects on behaviour, as well as disease. His findings from this period led him to reflect that the psyche is perhaps the most baffling and unapproachable phenomenon with which the scientific mind has ever had to deal (Jung 1993).

Georg Groddeck was attuned to Freud's claims that symptoms have interior meanings, and they will recede after their meanings are understood and interpreted to a patient. Strongly backed by their clinical results and Jung's association technique, early psychoanalysts – more or less explicitly – emphasized the hermeneutic approach and opposed the medical model of diseases. Groddeck almost independently discovered some of the basic psychoanalytic concepts and procedures. His theory of illness was the most developed of the early psychoanalysis. For Groddeck there was no real difference between the psyche and the soma, between the sexes or age, or between health and illness. Because of his many contributions to the field, he is now known as the originator of the psychosomatic approach (Dimitrijevic 2008).

A major key to the understanding of psychosomatic phenomena are fight and flight reactions, studied as a component of the stress response by Hans Selye. While still a medical student Selye noticed a group of nonspecific symptoms common to the initial phase of different morbid states (Moreira 2003). He associated that condition with a "sickness syndrome", now understood to be a range of behavioural and physiological changes that help to conserve metabolic resources during periods of challenge or stress, such as loss of appetite and consequent weight loss, decreased behavioural activity, loss of interest in pleasurable activities (anhedonia), and enhanced pain sensitivity (hyperalgesia and allodynia) (Gröer, Meagher & Kendall-Tackett 2010). As a scientist

Selye continued to investigate the challenges to organic economy and developed the “stress theory”, a label he borrowed from engineering, which refers to the joint forces that act against given forms of resistance. In living organisms these forces are involved with the drive towards vitality and preservation against the ones that lead to degeneration and destruction. When the stress response is too intense or held over a long period of time without adequate return to balance, however, it can become a state of tension and restlessness, illness and suffering (Moreira 2003). Factors that trigger or maintain such state are generally named stressors. Different individuals manifest the effects of persistent stress in different organs, depending on prior susceptibility i.e., someone who already has atherosclerosis is at higher risk for a stress induced cardiac disease (Frank, Weihs, Minerva and Lieberman 1998).

Body-mind Connections

Human beings have developed a unique degree of awareness about how life, in different aspects, can be at risk, whether a challenging event is immediately present or is simply imagined. The body hardly recognizes the difference between reality and imagination, thus responding as it knows best to uncertainty, novelty, and threat with the sympathoexcitatory preparation for action commonly known as the fight or flight response (Thayer and Brosschot 2005).

There is increasing evidence that stress has a direct biological effect on disease risk, involving the sympathetic nervous system, the Hypothalamo-Pituitary-Adrenomedullary (HPA) axis, and the inflammatory response system (Gröer, Meagher & Kendall-Tackett 2010) - a major chain reaction released by the immune complex. The interaction established among these systems and a central autonomic network (CAN) which includes both prefrontal and limbic cerebral structures, are integrated to form an internal regulation system through which the brain controls visceromotor, neuroendocrine, and behavioural responses that are critical for goal-directed behavior, adaptability, and health (Thayer and Brosschot 2005).

When the sympathetic nervous system (SNS) is activated, hormones such as catecholamines (i.e. epinephrine and norepinephrine) are released and the hypothalamus simultaneously secretes corticotrophin-releasing factor. The release of corticotrophin-releasing factor produces adrenocorticotrophic hormone from the anterior lobe of the pituitary gland. This hormone in turn stimulates the adrenal cortices to release *cortisol*, a stress hormone that helps the immune system to operate efficiently. The release of catecholamines and cortisol allows the body to break down sugar as a source of available energy (Kibler, Joshi & Hughes 2010). This represents the sympathetic adrenomedullary (SAM) system, an essential component of the normal acute alarm response to threat that produces the fight-flight reaction.

When stressors are perceived in the limbic system the brain sends signals through the sympathetic and parasympathetic systems, which generally act to oppose each other. Although the SAM system predominates in the acute stress response, it can be tonically active in some individuals, that is, highly reactive to minor perturbations (Gröer, Meagher & Kendall-Tackett 2010). The sympathetic system, associated with energy mobilization, and the parasympathetic system, associated with vegetative and restorative functions are the two major branches of the autonomous nervous system (ANS). Normally, the activity of these branches is in dynamic balance (Thayer and Brosschot 2005).

The release of catecholamines creates flight responses, such as increases in blood pressure (BP), mental agility, heart rate, breathing rate, and sweating. Activation of the SNS in the presence of a stressor results in suppression of the immune system, thereby increasing the body's susceptibility to disease when stressors are ongoing (Kibler, Joshi & Hughes 2010). Communication between the brain and immune system is bidirectional, meaning that stress can cause the brain to trigger the immune response, and the immune response can induce changes in the central nervous system (CNS), resulting in a constellation of behaviours described previously in this article as sickness syndrome. Chronic stress and immune response become mutually maintaining conditions, increasing the risk of inflammatory, neurodegenerative, and autoimmune diseases (Gröer, Meagher & Kendall-Tackett 2010). Another common consequence of immune imbalance is frequently noticed in cases when, because early immune responses shape the specific immune response to infection, dysregulation of this response may contribute to the failure to eliminate the pathogen (disease causing factor) and exacerbation of acute infection (Meaguer MW, Welsh CJR, 2010).

The inflammatory response, if inappropriate, excessive, or long-lasting, becomes the underpinning of many human diseases, such as coronary heart disease (CHD) (Gröer, Meagher & Kendall-Tackett 2010). Other examples of inadequate inflammatory processes also seem to be involved in certain stages of neurodegenerative diseases such as Alzheimer's and Parkinson's. Ordinarily, inflammation is an active defence mechanism against many types of insults. It acts to remove or inactivate pathogens and to inhibit and reverse their detrimental effects. Inflammation to the brain can be triggered by invading microbes such as viruses or bacteria, by injurious chemicals, or by physical insult. It can be initiated from within the organism as well, as happens with diseases affecting the nervous or immune systems. It can be triggered by the accumulation of modified proteins, by the chemical signals from injured neurons (nervous cells), or by an imbalance between pro-inflammatory and anti-inflammatory processes (Nivison, Guillozet-Bongaarts & Montine, 2010). Inflammatory mediators are capable of causing tissue damage if not controlled. To prevent such damage, anti-inflammatory processes normally suppress inflammation. These anti-inflammatory molecules include cortisol and cytokines such as interleukin-10 (IL-10) and transforming growth factor- β (Gröer, Meagher & Kendall-Tackett 2010).

The neuroimmunological axis is of particular importance in understanding how stress might activate inflammatory pathways. Virtually every immune organ is innervated by sympathetic fibers; however, the density and distribution of innervations vary between organs. Likewise, immune cells have receptors for one or more of these stress hormones or neurotransmitters, thereby allowing stress response to exert regulatory control over immune function (Gröer, Meagher & Kendall-Tackett 2010). If stressors, including emotional overload, surpass an individual's capacity for adjustment, the sympathetic activation will be maintained with incomplete, sometimes even absent, restorative function from the parasympathetic branch. Autonomic imbalance and decreased parasympathetic tone in particular may be the final common pathway linking negative affective states and dispositions, including indirect effects due to poor lifestyle, to numerous diseases and conditions as well as increased morbidity and mortality, and it may also be implicated in psychopathological conditions (Thayer and Brosschot 2005).

Stress inducing stimuli are not always objective external threats like predators or potential physical disasters, but also include the internal perception that something we consider essential to our well-being is lacking (Maté 2003). For an organism to launch a stress response there must be appraisal of the stressor as innocuous, a danger, or a challenge. This appraisal results in a perception that is often highly individualistic and influenced by gender. (Gröer et al. 2010). Variables other than gender, especially socioeconomic status or ethnicity, may influence the way in which people experience relationships, formulate their moral principles, and construct a sense of self (Frank, Weihs, Minerva and Lieberman 1998). Attentional regulation and the ability to inhibit prepotent but inappropriate responses are also important for health in a complex environment. Many tasks important for survival in today's world involve cognitive functions such as working memory, sustained attention, behavioral inhibition, and general mental flexibility (Thayer and Brosschot 2005).

The capacity of a living organism to strive for survival and preservation at all costs relies on many different mechanisms that can, however, be brutally disrupted by many human living patterns. Homeostasis is a state of self regulation that the body is constantly taken to achieve despite external demands and pressures including those generated by self-expectations, social interaction and lifestyles. In homeostasis, the concept of maintenance of physiological states within set points is an essential element (Gröer et al. 2010). Allostasis is another mechanism that requires understanding when threats to physical balance are present. The concept was originally introduced by Sterling and Eyer (1988) as a modification of homeostasis concept that had been guiding paradigm for understanding physiological adjustments to change (Gröer et al. 2010). Allostasis is the changing of various physiological set points in response to chronic stress, with the effect of producing a “load” that may contribute to pathophysiological process involved in a variety of chronic illnesses. Decreased vagal (parasympathetic) function is associated with elevated fasting glucose, increased pro-inflammatory cytokines and acute-phase proteins, as well as increased cortisol, all of which constitute allostatic load (Gröer, Meagher & Kendall-Tackett 2010).

Treatment and the Psychosomatic Approach

The treatment for psychosomatic disorders brings together therapeutic measures from the medical and psychosocial fields, many of which are formal guidelines and high standard procedures, mostly attained through the use of research data and evidence based results. Different diseases require adapted approaches and follow parameters used basically in main stream medicine, aiming at the most reliable options in each specialty. An aspect that is particularly relevant for the psychosomatic approach is the identification of biological, psychological and social (bio-psycho-social) patterns inherent to the development of the disorder and the influence of individual response to a variety of stressors.

It is important to highlight the health-care worker's role as one who can inspire hope in others. Freud (1953) described that patients' expectancies, “colored by hope and faith,” are “an effective force... in all our attempts at treatment and cure” (in: Salovey, Rothman, Detweiler and Steward 2000). Beyond reaching the appropriate diagnosis, when possible, physicians need to investigate the stress factors that contribute to patients' presentation to maximize the morale building and hence therapeutic aspects of the physician-patient relationship (Frank, Weihs, Minerva and Lieberman 1998).

If aid is sought, it is probably for a condition that represents an impairment of the body's constant tendency towards equilibrium, surpassing the individual's capacity to deal with or understand the ill disposition at hand. The person with a psychosomatic disorder is indeed feeling what they describe, no matter how it seems disconnected from a common syndromic or pathological manifestation. Important to know is that the person in search for help is suffering and living in a state of imbalance. Psychosomatic conditions and disorders give clear signals that attention has to be paid to the conflicts in the organism, which are causing painful symptoms (Nunnely [2] 2000). Therefore it is reasonable to expect that fear, anxiety and a state of vulnerability may surface. Some patients are, of course, manipulating to jump the queue, but for others, merely knowing the physician is available and responsive may exert a concrete effect on the anxiety that underlies their symptoms (Frank, Weihs, Minerva and Lieberman 1998).

In the psychosomatic illnesses it is almost always a 'bodily disturbance' for which the patient seeks help (Nunnely [2] 2000). The magnitude of the problem is obvious: one in six participants consulting their family physician suffers from a *somatoform disorder* causing serious impairment. (Arnold et al. 2009). Though characteristic organic illness might not be identified when a psychosomatic condition is the case, there is an ailment that diminishes life quality and distorts the perception of good health. Included in this picture is the range of interpersonal, social, environmental, educational, occupational, economic, and legal problems. 'Prognosis and treatment' take us astray and a further explication that the psychosocial problems may also be those that develop as a consequence of psychopathology does so even more (Oken 2000). When symptoms or signs are present but the investigation fails to identify patterns that link the organic dysfunction or complaint to a major bio-psycho-social influence, chances are that an inadequate understanding of that type of disorder will carry the risk of an incomplete or delayed therapeutic plan.

Gupta and Lang's (2009) review on psychogenic movement disorders (PMDs) exemplify some of the challenges around the investigation and treatment options. The PMD's are movement disorders that result from psychological or psychiatric rather than neurological disturbance. The primary psychiatric diagnosis varies; most cases are considered to be *conversion disorders*, in which the problem is caused by an unconscious mechanism, but infrequently some are factitious disorders or malingering, in which the abnormal movements are purposefully feigned (Gupta and Lang 2009). Motor conversion is estimated to occur at the rate of approximately 5 per 100,000 and thus manifests itself in a large proportion of all conversion cases. Recent research has begun to unravel the pathophysiology of motor conversion disorders and has emphasized the need for approaching somatoform disorders as neurophysiologic disturbances with functional and behavioral manifestations (Krem 2004). A delay in diagnosing PMDs should be avoided at all costs. Failure to do so often results in multiple referrals, repeated unnecessary diagnostic tests, unjustified and potentially harmful treatments including medication trials and even surgeries, and the perpetuation of the belief of underlying organic illness. This also delays the initiation of appropriate treatment (though treatment is often very different), which reduces efficacy, particularly if treatment is started 6–12 months after onset of the movement disorder. (Gupta and Lang 2009).

It is important not only to address and treat negative mental states but also to monitor treatments for effectiveness (Kendall-Tackett [b] 2010). The psychosomatic scene posits

the need for continuous attention to the fact that one change in any of the variables involved might bring a meaningful change to the whole picture, for the better or the worse. One very common behavioral pathway through which these variables operate, leading to negative outcome, is noncompliance, a factor that has been documented as a major basis for the decompensations that require hospitalization or other acute medical care (Oken 2000). According to Frank, Weihs, Minerva and Lieberman (1998) the patient as an autonomous individual who can be fully known by his or her current presentation is a legal, medical, and even biologic fiction since human mental and physical functioning evolves in continuous interaction with the environment. The prolonged state of alarm associated with negative emotions likewise places an excessive energy demand on the system. On the way to death, however, premature aging and disease characterize a system dominated by negative affect and autonomic imbalance (Thayer and Brosschot 2005).

Some Practical Tips

The fact that some patients present symptoms and signs that do not match known clinical criteria is a reality encountered in practice. Because of that, a new perspective has been sought leading to the conclusion that patients' minds should no longer be considered separate from their bodies and treatment goals should be that they experience total health improvement (Kathol et al. 2009). Mind-body connections in health have an enormous amount of scientific support. The next step should be to integrate these findings into health care settings, to prevent and treat illness (Kendall-Tackett [b] 2010).

The effectiveness of medical and psychiatric interventions may be improved by treatment methods that address interpersonal processes in the patient's world that may have contributed to the dysfunctional state and help to maintain it (Frank, Weihs, Minerva and Lieberman 1998). The effectiveness of the writing or verbalization task is believed to be based on its ability to help people work through the traumatic event (Salovey, Rothman, Detweiler and Steward 2000). The centrality of language in shaping experience has important implications for the understanding of many psychosomatic reactions in women and men. Patients with cryptic bodily symptoms may be expressing physically what they cannot safely put into words (Frank, Weihs, Minerva and Lieberman 1998). In any encounter, the bodily signs convey a message concerning the affect in circulation. In the psychosomatic phenomena, we see stagnation at this archaic level of communication, or a marked dissociation between these archaic levels of communication for certain affects and other modes, we could call more symbolic, for other issues (Boschan 2007). A focused brief psychotherapy that puts this dilemma into words in a supportive context may at times relieve symptoms that have confounded the patients and their physicians for months or years (Frank, Weihs, Minerva and Lieberman 1998).

Although evidence is preliminary, both cognitive therapy and interpersonal psychotherapy likely have an anti-inflammatory effect. Interpersonal psychotherapy focuses on improving social support, which buffers stress and down-regulates the inflammatory response. Cognitive therapy lowers inflammation by changing the negative beliefs that up-regulate the stress and inflammatory response (Kendall-Tackett [a] 2010). Motivation for treatment is important since cognitive-behavioral therapy requires an active attitude on the part of the patient and includes homework and exercises. (Arnold et al. 2009). A good reminder, for this matter, is that the word

therapy comes from the Greek word '*therapaea*' which means 'service', 'being with', or 'attending'. It does not mean 'doing things to' (Nunnely [1] 2000).

Social support may assist in preventing illnesses, whereas social isolation has the potential for negative health outcomes. An important implication for behavioural correlates of immune function is that some may be altered to promote healthy lifestyles (Kibler, Joshi & Hughes 2010). Not only does the provision of social support influence one's emotional state, but a person's emotional state also influences the likelihood that social support is provided. We would expect that people would be more likely to provide on-going assistance to others who maintain a more positive outlook on life (Salovey, Rothman, Detweiler and Steward 2000). To establish love bonds counteract the force of death instinct, which refers not only to the propensity to die but also to the difficulty of investing in life as something that deserves to be lived (Boschan 2007)

Stress management and relaxation interventions may hold promise for reducing some of the adverse immunological effects of stress (Kibler, Joshi & Hughes 2010). Hypnosis is indicated as an effective adjunct in the treatment of psychosomatic disorders [...] Modern hypnotherapy appears to be comparatively superior to classical hypnotherapy (Flammer and Alladin 2007). Meditation and the relaxation response are broadly studied and used in many reference clinics specialized in psychosomatics. The relaxation response is essentially like a pill – a certain way of thinking causes physiological changes within the body, much like those expected of and induced by a pharmaceutical agent (Benson 2009). Such interventions seem to provide an adequate emotional response, which represents a selection of an optimal response and the inhibition of less functional ones from a broad behavioural repertoire in such a way that energy use is matched to fit situational requirements. (Thayer and Brosschot 2005)

Some popular recommendations are still emphasized, ridding the body of unnecessary overload. Thus the therapeutic effectiveness of smoking cessation, reduced alcohol consumption, and increased physical activity rest in part on their ability to restore autonomic balance and increase parasympathetic tone (Thayer and Brosschot 2005). Exercise, particularly, can contribute to an increase in stress resiliency. The body initially experiences exercise as a stressor. However, as exercise becomes more regular and level of fitness improves, exercise reduces stress. Exercise not only lowers stress but specifically lowers the inflammatory response to stress (Kendall-Tackett [b] 2010). Nutritional benefits are also among the main traditional options, in this case, the aim is to specifically lower inflammation levels. Diet supplements with eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) (omega-3s) are showing a lot of promise in treating both physical and mental health problems, and they do not appear to have negative side-effects that non-steroid anti-inflammatory drugs (NSAID's) do, except the very highest dosages (Kendall-Tackett [b] 2010).

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