

From the Editor's Desk

AN INTRODUCTION TO MIND-BODY MEDICINE

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The World Health Organization defines health as “a state of complete physical, mental and social well-being”. Mental health is an integral & essential part of health; indeed, there is no health without mental health. Scientific research has now established that the mind is basically a manifestation of complex electrical & chemical activities within the neural circuits of the brain. In simple words, the mind is a group of complex functions of the brain. The main components of the mind include consciousness, thought, emotion, & behaviour. Other important dimensions of the mind include memory, intelligence, attitudes, motivation, & character. Mental health is a state of well-being characterized by the ability to successfully regulate thoughts, emotions, & behaviour, understand the feelings of others & respond appropriately, have healthy relationships with other people, feel enthusiastic & motivated, work productively & fruitfully, adapt to change, & cope with stress & realize one's full potential. Mental health is the foundation for the well-being & effective functioning of individuals, families, society, and humanity as a whole.

Psychosomatic medicine is a speciality that seeks to advance the scientific understanding & multidisciplinary integration of biological, psychological, behavioral & social factors in human health & disease & to incorporate this understanding into health care.¹ Related fields include **mind-body medicine, behavioral medicine, integrative medicine, & health psychology**. The boundaries of all these disciplines are not clearly defined, and there is significant overlap.¹ Mind-body medicine focuses on research and practices pertaining to the interrelationships of the mind, brain, bodily organ systems and behavior (Lane, 2009).¹ According to the Center for Mind-

Body Medicine, USA, mind-body medicine focuses on the interactions between mind and body and the powerful ways in which emotional, mental, social and spiritual factors can directly affect health.

How does the mind influence physical health? The pathways from mind to body can be classified into the following levels: (A) mental / psychological / behavioral states & traits, (B) brain, (C) information transfer systems (ANS, endocrine, immune) & (D) body proper (end-organs).² The mind (A) can influence the body (D) only through levels B & C.² Introducing the brain into psychosomatic research may identify causal mechanisms that link thoughts & emotions to the regulation of peripheral biological phenomena.³ This is the basis of the new field called “**brain-body medicine**”.³ The concept of mind-body medicine can actually be subsumed under brain-body medicine. Brain-body medicine focuses on interactions between the brain, peripheral pathways & bodily end-organs.¹ **The prefrontal cortex, limbic system & hypothalamus** play a critical role in the interactions between the mind & brain-body pathways. **Brain-body pathways are the physical substrates that mediate the association between the mind & physical health.** The main brain-body information transfer systems are the autonomic nervous system, the hypothalamic-pituitary-adrenal (HPA) axis & the neuro-immune pathway. Extensive scientific research over several decades has clearly established the powerful influence of emotions on these brain-body information transfer systems. In addition, mental health influences physical health through the “health behaviour pathway” too. Health behaviour covers a range of activities such as maintaining personal hygiene, eating sensibly, sleeping well, avoiding smoking & alcohol, exercising regularly, following medical prescriptions etc.

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Mind-body therapies such as meditation, prayer, yoga, relaxation therapy, etc., produce health benefits mainly through the brain-body information transfer systems.⁴ For example, functional neuroimaging has shown that music can modulate activity of limbic, paralimbic brain structures & hypothalamus. Music therapy can thus influence peripheral physiological processes through the brain-body information transfer systems.^{5,6}

All these interesting concepts are covered in this issue of the Annals of SBV. The physiological effects & health benefits of music therapy & yoga are explored in a series of reviews. In addition, this issue also contains special articles on stress medicine & the association between spirituality & health.

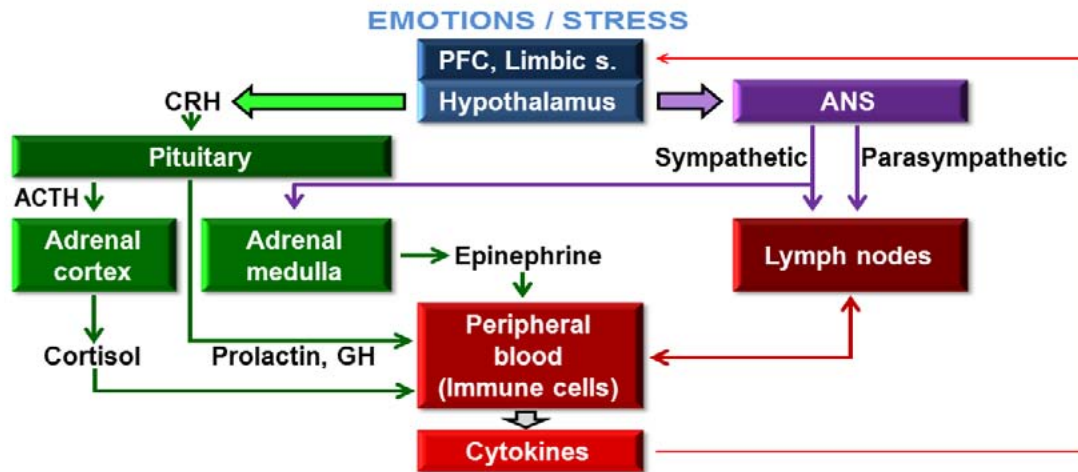


Figure 1: This picture illustrates how the emotions & stress influence physical health through the **brain-body information transfer systems**. The brain regulates the immune system through the autonomic and neuroendocrine systems. The figure depicts sympathetic innervation of the adrenal medulla, which secretes epinephrine, and sympathetic and parasympathetic innervation of lymph nodes. The HPA axis, prolactin, and growth hormone, together with epinephrine, influence the immune cells that secrete cytokines. (PFC = Prefrontal cortex)

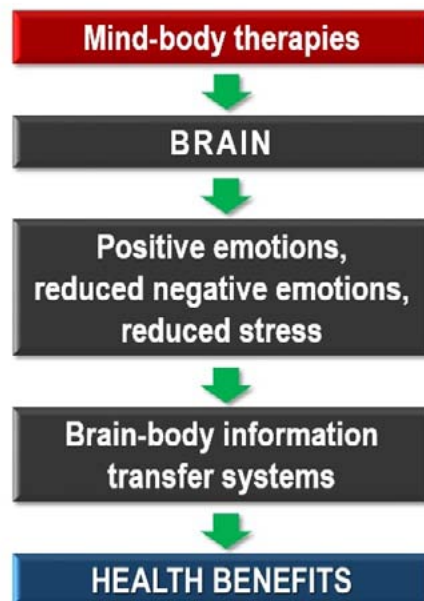


Figure 2: Mind-body therapies such as meditation, prayer, yoga & music therapy act on the brain, where they generate positive emotions, reduce negative emotions, & reduce stress. This translates into health benefits through the brain-body information transfer systems.

References

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