

THE TEXTBOOK OF HEALTH PSYCHOLOGY

MEENA HARIHARAN

The Textbook of Health Psychology

This book examines the concept of health psychology following its trajectory from ancient to contemporary times. It analyses the theories, practice and research in health psychology from both Indian and Western perspectives.

The volume brings together knowledge diversified across various narrow subfields. It expounds upon physiological psychology; chronic illnesses associated with physiological systems; and biopsychosocial approaches to treatment and management with therapeutic interventions integrated throughout the book. It further discusses health promotive and health risk behaviour with reference to health policies and databases at national and global levels.

This book will be beneficial to the students, researchers and teachers of psychology, applied psychology, public health, public policy, community health, and medical and paramedical studies. It will also be indispensable to the policy-makers and NGOs working in the field of public health.

Meena Hariharan is superannuated as Professor in the Centre for Health Psychology at the University of Hyderabad, India. She is the founder-director of this centre, which was launched in 2007. She is one among the very few in India working in the area of behavioural cardiology. She has developed and validated effective intervention models for cardiac patients. Her research includes quality of doctor-patient communication and ICU trauma resilience, stress and coping. She has designed intervention packages for CABG patients and standardized scales for psychosocial assessment of cardiac patients, measurement of quality of doctor-patient communication and adolescent well-being to mention a few. She is the founder-president of the Association of Health Psychologists and the editor of the *Journal of Health Studies*.



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Foreword

Notwithstanding the fact that the term ‘health’ has wide-ranging connotations which often vary across cultures, the concerns to ensure the quality of health and well-being are globally acknowledged. Etymologically, health signifies wholesomeness of a person. In a real-life context, health carries a strong connection with the experiences of happiness, sanity and cleanliness. The history of human civilization shows that there has been parallel existence of a range of healing systems from different epistemological positions and heterogeneous cultural contexts; the practice of biomedicine informed by scientific perspective has become the dominant one. It views human reality segmentally. Modern medical practice shows intrinsic tension due to the distancing between patients and the agents that deliver the health service. Health remains personalized while health care has become a professional matter. In essence, the North American values of egocentricity of self, mind-body dualism and marginalized role of culture constitute the basic framework for understanding health. This kind of atomization, specialization and fragmentation in matters of health is a relatively new phenomenon, and its problems are increasing. Contrarily, holistic worldviews were dominant until the past four centuries. They were located in local eco-cultural contexts, and therefore, access to them was within the reach of the common man. In most cases, the health-related processes were understood and easily comprehended by everybody. The processes of treatment and healing encompassed the personal, social, psychological and spiritual realms of life. The Indian perspectives and related thoughts and practices address the phenomenon of health and health care holistically.

It is interesting to note that the Hippocratic Oath observed that “the well-being of man is influenced by air, water, food, wind, and topography of the land. An organism is a living system”. Socrates had remarked that “for us, a part can never be well unless the whole is well”. Also, terms like ‘health’ and ‘holism’ are semantically very closely linked to each other. The Greek word ‘hollos’ stands for wholeness. In Anglo-Saxon usage, the terms whole, hale and holy stem from the same root. Thus, the holistic view has ancient roots. It is a global phenomenon. The indigenous medicine systems of India like *Ayurveda*, *Yoga*, *Siddha*, various practices of meditation, and traditional medicine in Tibet, China and Africa clearly aim at disease prevention, health promotion, managing psychosomatic and chronic conditions, and enhancing immune functioning in a holistic manner. The *Panchamahabhootas* (i.e. earth, water, fire, wind and ether/sky) are the common ingredients constituting the material existence of everything including the human body. *Ayurveda* relies on three bodily humours (i.e. *vata*, *pitta* and *kapha*) and three gunas (*Sattva*—illumination; *Rajas*—dynamism; and *Tamas*—passivity). They form a functioning unit. According to *Ayurveda*, patient, attendant, medicine and physician are the four pillars of treatment. It maintains multiple causation systems to explain the complexity of health and well-being. They are not a default concept. The dynamic state of *Samyavastha* (equanimity) is emphasized in several ways. As stated by Sushruta, the well-being of the self (*Atman*),

senses and mind constitutes health (prasannatmendriyamanah, swasthamityabhidhiyate). A state of *sama* is emphasized in all aspects of bodily functioning (*Sam dosha: samagnishch sam dhatu mal kriya*). Bhagavad Gita states that evenness of mind or *samatva* is *Yoga* (*samatvam yoga uchyate, Gita, 2/48*). Also, there is a distinct emphasis on appropriateness. One should be *Yukta* in all aspects of life. Gita says that “*Yoga* becomes the destroyer of pain for him who is moderate in eating and recreation, who is moderate in his exertion during his actions, who is moderate in sleep and wakefulness” (Gita, 6/17). In the Yogic system (*Yoga Sutra, 2/3*), the major problems in life or *Kleshas* (afflictions) are *Avidya* (ignorance), *Asmita* (egoism), *Raga* (attachment), *Dvesha* (aversion) and *Abhinivesha* (desire to cling to life). The various systems of *Yoga* including *Raj yoga*, *Bhakti Yoga* and *Karma Yoga* are proposed. Thus, we find that biopsychosocial and spiritual factors are taken into account in diagnosis and therapy.

The indigenous systems of medicine maintain that the body has an innate capacity to heal itself and the whole is greater than the sum of its parts. It is gradually being realized that mind and matter are indistinguishable. The basic oneness of the universe with ontological holism is an emerging view. Reductionism is being replaced by a holistic paradigm. Thus, we find the emergence of disciplines like ‘psychoneuroimmunology’. Malfunctioning or illness seems to take place in the context of mind, spirit and culture. Healing has religious, social and spiritual aspects. The experience of conscious involvement in the project of life and integration through self-transcendence is needed. To be a human is to be a spiritual person. In fact, traditional medicines are showing that the boundaries across systems are blurred. Indigenous is recast in a new *avatar* as herbal medicine. Also, healing is approached from a phenomenological perspective in which rituals and social relations play a key role. They hold a complementary relationship.

Holistic health care involves a person- or people-centred system of care, which optimally integrates the strategies addressing mind, body and spirit. Whole person and ongoing participation are key players in it. It implies a dynamic understanding of health and illness. The challenge is to establish a health care system to meet the criteria of equality, effectiveness, safety, ethics and cost-effectiveness, friendliness, interpersonal sensitivity, and connection with the larger social world. Health as wholeness cannot be confined to the body. This would require transcending the disciplinary boundaries and movement from compassion-based systems to people-centred approaches. Such an integrative approach is in tune with India’s National Health Policy, 2017; National Education Policy, 2020; and National Digital Health Mission, 2020, and Sustainable Development Goals (SDG). It is gratifying that in 2014, the Indian government established the AYUSH ministry to cater to the needs of Ayurveda, Yoga, Unani, Siddha and Homeopathy systems, and attempts are being made to promote these systems of medicine. It promotes unconventional and alternative/complementary systems of medicine.

Holistic health care demands correct and effective prevention methods and patient-centred medical care. We also need to establish correct and dignified rehabilitation and support during illness so that the physical, mental and spiritual needs are suitably addressed. Holistic integrated care for health involves exercise, socialization, safe housing and provision for adequate means so that the restrictions that compromise health can be removed. Social care and support to assist vulnerable, socioeconomically disadvantaged and elderly people through relevant legislation and the creation of fluid organizational settings and service delivery would be required. Smooth interaction between diverse functional components for optimum survival advantage should be ensured. Unfortunately, holism is used as an attractive label to recruit customers. It may be misleading if urgent life-threatening conditions are not properly attended to. Humans are complex biological and cultural systems that require coordinated time-dependent interactions between diverse functional components for optimum survival advantage. As holistic health care is culturally acceptable, efficacious and pragmatic, sincere efforts are needed to move in this direction.

This will reduce health disparity, ensure social justice and address the health crisis, which is emerging. It's a challenge as well as an opportunity for social scientists interested in pursuing the goal of health and well-being.

The Indian tradition considers that a healthy person is autolocus (*Svastha*). As a dynamic state of harmony and balance reflecting effective mind-body functioning within the ecology, health happens to be a continuous process requiring constant monitoring and adjustment on a long-term basis. It is not a one-time or short-term affair, as it relates to the entire life span, which Indians, the Vedic seers, prayed for hundred years of an active and meaningful life: *Pashyema Sharadah Shatam*. The subdiscipline of health psychology addresses questions such as: What are the psychological influences on health? How do people stay healthy? Why do people become ill? How do they respond when they get ill? The health psychological research, therefore, engages with these and related questions and tries to evolve interventions that help people maintain health and restore it in the case of illness. In the last few decades, the field of health psychology has encompassed a wide range of issues including concerns for health promotion, illness prevention, correlates of health and illness, provisions for health care systems and development of a health policy for guiding the implementation of health measures in the society.

Unfortunately, the belief that health is primarily physical in nature still prevails in a large section of the masses. This approach misses the fact that health needs to be understood as an integration of physical, social and psychological perspectives. It is well known that psychological processes such as appraisal and social support not only shape psychological functioning on a day-to-day basis but also have long-term effects. Similarly, the roles of resilience, self-regulation, positive emotions, meaning and control of beliefs have shown that psychological processes do contribute a lot towards the promotion of health and well-being. Traditionally, the psychological aspects of health were taken into account in connection with clinical psychology and psychopathology. The gradual emergence of health psychology has shifted the attention of researchers towards the problems of stress, coping and social support as major influences on health status. In recent years, an increasingly larger number of studies were launched for delineating the factors related to health behaviour that may facilitate evolving mechanisms of health promotion, especially by introducing lifestyle changes. Since many health habits are interrelated and resist change, multiple strategies are being tried out.

It is being observed that instead of individual and group interventions, social engineering might be more effective. Critical health psychology researchers have begun to deconstruct dominant meanings of health, illness and health care. They work with participants to further understand health and illness experience and seek to achieve change and transformation in an increasing range of ways. Arenas such as health consumerism, medicalization and pharmaceuticalization have become the focus of research for critical health psychologists.

It is important for psychologists to engage with the critical emerging debates around the moral panic of the 'obesity epidemic', the construction of obesity as a disease, processes of disease mongering and the role of 'big pharma' in creating and fostering new diseases.

In some respects, legislation is also found helpful. Indeed, one needs to identify the situations, which help modification of health risk behaviours creatively. Perhaps there is no such thing as a 'health behaviour' (in the abstracted sense). Rather, social practices involving behaviours with implications for health (such as smoking) are necessarily embedded in context; they need to be studied in context to understand their meaning and the logic of their enactment. A meaningful discourse about health should be situated in a specific cultural context. This becomes more important in the Indian context where the society has been undergoing socioeconomic transformation. The concomitant processes of industrialization and urbanization have led to large-scale migration of people from villages to cities. Majority of them consist of unskilled

labours working as daily wagers. The cities are experiencing unprecedented growth, leading to problems of housing, commuting to workplace, issues related to civic arrangements and provisions for health care. Especially, the lack of social security measures for a large section of the population is posing serious problems. Also, there is a visible expansion of the middle class, which is emulating the upper-middle and higher strata of the society. The result is an increase in the level of aspiration, which in turn leads to frustration and tension. In terms of health scenario, we have been witnessing a rapid rise in the incidence of cancer, cardiovascular diseases, alcohol and other substance abuse, diabetes, high blood pressure and obesity.

In this background, this book authored by Professor Meena Hariharan fulfils an important need in the field of psychology. The volume is quite comprehensive and tries to capture most of the key aspects of health psychology. It is gratifying that the author has paid attention to the Indian cultural context and documented relevant psychological contributions. They are exciting and follow different methodologies to address a wide range of issues. The volume covers most of the themes in the area and offers useful psychological perspectives.

The growing field of health psychology has uncovered many moderators and mediators of health outcomes. This field is changing the societal scenario and making a difference in the lives of people. It also has an enormous value in training, and research, as the domain of health, provides an opportunity to explore and examine psychological theories in a real-life setting. The present volume brings together wisdom from the indigenous stream and the mainstream. It attends to the foundations, processes, threats and possibilities for intervention in relation to the understanding of health and sustaining it through health protective behaviours. An interesting feature of the volume is that each chapter presents key ideas for practitioners and researchers. This furnishes a ground for building connections and pursuing interfaces across different audiences interested in the area of health. The illustrations by the artist help in easily relating the text to one's own life situations. Keeping with the contemporary health issue of chronic diseases and pain, a dedicated chapter on the pain and its psychological correlates is a value addition to the book. I take great pleasure in recommending this volume not only to the students of psychology but also to the general readers interested in delving deeper into the intricacies of health and health behaviour. I am sure that the readers from different backgrounds will enjoy reading it and researchers would venture into new and challenging areas.

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Preface

As my first initiative, I along with Professor Radhanath Rath authored the book *Coping with Life Stress: The Indian Experience*, citing the Indian case studies and analyses. Many eminent psychologists of the country expressed that they expect a textbook on health psychology from me. I started going through several textbooks in the area, speaking to students, teachers, practitioners and researchers in health psychology. It gave me an insight into the needs of the people in the field and the missing links and gaps in the available textbooks. After surveying the course structure of many universities in India and abroad, the most essential chapters to constitute the textbook were identified. This book is an outcome of such elaborate background work.

The book is divided into 11 chapters. Chapter 1 'History and Evolution of Health Psychology' tracks the origin of the biopsychosocial model of health practices to ancient Ayurveda and also chronicles the development of the division of health psychology as an alternative to the biomedical model in the Western world. Chapter 2 elaborates on the concept of health and health psychology, bringing a contrast between the Western and Indian perspectives. The chapter enumerates the biopsychosocial model of health and psychosocial factors preceding, accompanying and following health and illness, and gives the broad framework of health psychology. Chapters 3 and 4 are related to health behaviour. While Chapter 3 provides an extensive account of health protective and health promotive behaviour, Chapter 4 deals with health risk behaviour. Both the chapters provide the data related to the Indian population. Besides, Chapter 3 focuses on the rich Indian practices for health promotion and protection for enhancing well-being. Chapter 5 gives extensive treatment to the theories of health behaviour. It gives a detailed account of 10 theories and their application. Chapter 6 is on the human physiology. It explains with diagrams the structure and functions of eight systems in the human body, namely the nervous system, endocrine system, cardiovascular system, respiratory system, digestive system, renal system, reproductive system and immune system. Chapter 7 is related to stress and illness. This chapter gives a broad view of the theories of stress and sources of stress. The thrust of this chapter is on the impact of stress on health related to various systems in the body. The chapter also has a section on childhood stress as a contemporary area of concern for health psychologists. Chapter 8 discusses the biopsychosocial aspects related to chronic illnesses. It can be related to the chapter on theories of health behaviour, on the one hand, and stress and illness, on the other. The chapter while giving a brief account of chronic illnesses related to the eight systems of the body places its emphasis on the psychological state, coping process of the chronic patient and psychosocial interventions such as cognitive, affective, behavioural and motivational therapies. Chapter 9 relates to caregivers and professional care providers. The contemporary research in health psychology includes the health and well-being of these two significant partners in patient care. The aspects related to their well-being and the need for systematic formal assessments and interventions are discussed extensively. Chapter 10 is on health resilience. This is a very relevant chapter

that has enormous potential for future research and exploration. The purpose of this chapter is to highlight that illness experience and quality of life differ in persons with resilience. The chapter brings the issue of concept and measurement of resilience among persons with chronic and terminal illness and quality of life. It also suggests interventions for promoting resilience among people. Chapter 11 relates to psychosocial correlates of pain and pain management. Pain being a biological and emotional experience needs to be approached from biopsychosocial perspective. The chapter delineates various types of pain, various theories, and the cognitive, affective and behavioural dimensions associated with the experience of pain. The psychological interventions to pain are described.

The aspect of therapeutic interventions is integrated into the chapters to contextualize its relevance. Therefore, it is not given separate treatment in an exclusive chapter. This textbook is a modest attempt to address the needs of the students at undergraduate and postgraduate levels, researchers and practitioners in the field of health psychology. Every chapter and theory has a special box for the practising health psychologists providing the methods of assessments and interventions to the patients. Similarly, every chapter and theory has a special box for the researchers triggering innovative ideas for research in the concerned area. These suggestions, though not exhaustive, are expected to stimulate the students to think innovatively in culturally relevant lines so that the research is meaningful to the society and nation at large. The cultural relevance of this book is enhanced by citing not only the studies from the West but also the findings from Asian countries, particularly Indian studies. I hope the students, teachers, researchers and practising health psychologists find it useful for their purpose.

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1 History and Evolution of Health Psychology

Health Psychology as a distinct branch in the discipline of Psychology came into existence with the increasing need of viewing ‘health’ as an outcome of the symbiotic relationship between the individual’s physiological and psychological functioning. Hence, the history of Health Psychology needs to be traced by following two paths—the Western and the Indian. In both, the emphasis has to be on the health practices, from ancient to contemporary times. A scrutiny of this leads to the inference that while the Western practices of medicine and progress in medical sciences significantly contributed to the evolution of Health Psychology as a distinct 38th branch of the American Psychological Association (APA), in Indian medical science and practice of medicine, it was always an integral part though not identified by the name of Health Psychology. First, we will examine the emergence of Health Psychology from the Western perspective. Then, we will identify the roots of Health Psychology in the Indian medical system.

Health Practices in the West: Emergence of Health Psychology

Health practices in different countries underwent a number of changes influenced by the nation’s sociopolitical, industrial, economic and religious/spiritual needs and demands of the time on the one hand and inventions and discoveries in the field of science across the globe on the other. Though a few countries like India had a strong footing in a holistic approach to health from Vedic time, the credit for carving out the psychosocial aspects in health practices, highlighting its significance, advocating for it and christening it with a distinct name as ‘Health Psychology’ and establishing it as an important branch in science based on research evidence should go to the US. The emergence of Health Psychology can be tracked to about a hundred-year history of health practices in the US and Europe.

With the fall of the Roman Empire, knowledge about medical practice in the early middle age came from surviving Greek and Roman texts. Before the 4th century BC, there was a strong relationship between health beliefs and religious beliefs. Illness was believed to be the punishment of God for the sins.

4th–6th Century BCE

This period could be traced back to people’s focus in the soul—rather than the physical body. As a consequence, the treatment for illness was prayers (Hajar). The patients in Greece visited temples praying to *Asclepius*, the healing God for cure. The temples, the places of healing, had a congenial environment with gardens and fountains and provided bathing and nutrition as part of the healing process. Thus, it appeared as if the common thread of Greek medicine was a combination of spirituality and patient’s participation in the form of a positive diet and other healing

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processes such as bathing. However, the cure of illness seems to have had a strong basis on the beliefs of patients and doctors rather than any empirical evidence.

The Greeks conceived that all matter is constituted of four elements, viz. earth, water, fire and air. Later, Aristotle supported this argument and also added the fifth called 'aether'. The argument was that everything around comprised a combination of these elements in some proportion. The characteristics of the matter are determined by the proportion of these elements. Thinking along the same lines, Hippocrates (460–377 BC), regarded as the Father of Medicine, proposed the famous humoural theory. According to this theory, the human body comprises four humours or fluids, viz. blood, phlegm, black bile and yellow bile. The health and illness of human beings depended on the equilibrium of these humours. When these humours were in the right proportion, the individual enjoyed health, while disequilibrium or imbalance in their proportion caused illness. Hippocrates had concrete suggestions on the ways to maintain humoural balance through diet and exercise. This helped in shifting the role of individuals from passive to active role in sustaining wellness. Hippocrates further theorized that the dominant humour in the body determined the temperament of the individual. For example, yellow bile in excess led to a choleric temperament (short-tempered, ambitious), black bile led to a melancholic temperament (introspective, sentimental), blood as dominant humour led to a sanguine temperament (courageous, hopeful, amorous), while phlegm in excess led to a phlegmatic temperament (calm, unemotional) (Lecci & Magnavita, 2013; Clark & Watson, 2008; Arikha, 2007). Hippocrates' contributions to humoural theory can be considered significant for two reasons. First, it is the humoural theory that superseded the spiritual beliefs of illness as destiny or punishment from God, which led the church or religion to decide on health practices where the locus of control was unmistakably external. He transformed medicine into a discipline that could be taught and learned. Secondly, Hippocrates' humoural theory can be considered as the first instance of connecting physiology and psychology though not in a very scientific manner (Figure 1.1).

Further, he introduced an ethical basis to the practice of medicine, and also brought a distinct identity to the practitioners. He also set the beginning of studying the human body from the anatomical perspective and opened the thinking along the lines of the possibility of surgery. His contributions in terms of the description of diseases, and methods of preventive actions and lifestyle changes laid a strong foundation for scientific thinking for medical practice and research.

Following Hippocrates, there was a slump in scientific curiosity, exploration, discovery and invention in Europe. What was later labelled as the Big Three of Greek Philosophy had started with Socrates born in 470 BC. The philosophical discourse on the nature of the soul, its connect with intellect (mind) and dichotomy with body can be traced back to this era.

Early Period of CE

This discourse popularly known as mind-body dualism or reductionist theory of mind picked up momentum in mid-1600 with rigorous inputs from Rene Descartes who published on this in 1641.

A search for documentation on health practices revealed that after Hippocrates, there was a silence of a few centuries on any development in the area of health and biological science until 129–200 AD during which significant knowledge was added to the Science of Medicine by Claudius Galen. Galen explored the bodies of animals and humans and tracked the anatomy. His significant contributions to anatomy related to the explanation of the circulatory system, nervous system and vital organs such as brain, heart and lungs and their functions. Galen synthesized the three schools of thoughts that influenced medicine during his period, viz. the rationalists, the empiricists and Methodists (Galen, 2009). He claimed that both reason (rationalist perspective) and experience (empiricist perspective) were important for medical practice, which should also be guided by definite rules.

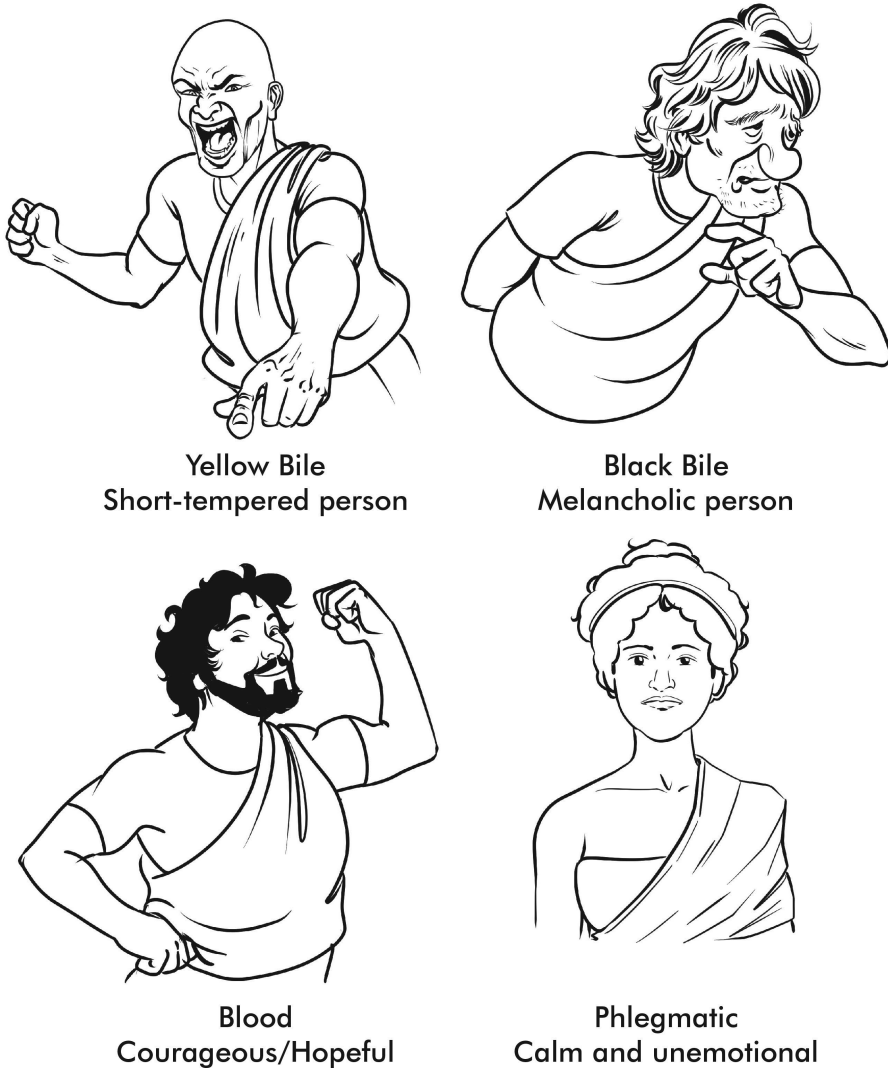


Figure 1.1 Humour and Personality Relationship.

Galen subscribed to the humoral theory of Hippocrates and endorsed the ethics evolved by him. Thus, medical science became a point of convergence for the study of science to understand the bodily process, a logic that enabled the doctor to infer the aetiology of disease that is important for correct diagnosis, prognosis and ethical principles to give a right direction in practising medicine. Galen's doctrine also was the first to trace any disease to a causative factor based on which the cause of ailments was divided into internal or external factors. He advocated that health was influenced by external factors such as air, diet and drinks and also by the individual's sleep, activity, rest and the state of mind. Here is where one can observe the argument of this great philosopher—doctor in relating body-mind balance to the sustenance of health, which is the fundamental principle in Health Psychology. Galen's contributions to medicine also extended to pharmacology as he came up with a number of recipes for preparing medical pills, powders, ointments and tinctures.

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Galen's contributions can be summarized as 'the science and art of medicine' because while he advocated 'evidence-based' diagnosis and treatment, his guiding principle was also logical reasoning and ethical practices.

Galen's contributions translated into Arabic were imported into many countries like Mesopotamia, Egypt, Spain and Jerusalem where schools and universities were established that preserved the translation of Galen's work.

The Christian crusades to the Middle East in the 12th century enabled the West to recover the Roman and Greek scientific knowledge. This led to the establishment of medieval universities in Paris, Bologna and Oxford. The medical curricula in some universities taught Galen's work from the 11th century. Thus, Galen's contribution constituted a strong scientific, philosophical and ethical foundation to teaching in medical sciences.

While the contributions of Hippocrates and Galen are mentioned in helping to extricate the Science of Medicine from spirituality and religion, another name that helped in releasing the Science of Medicine from the orthodoxy of religion is Rene Descartes (1596–1650). Going by the early Greek philosophers, he strongly reasoned that the material physical body is an entity that is different from the mind that is intangible. This history of dichotomy is important to modern Health Psychology. The philosophy of the 17th and 18th century played a crucial role in determining the modern notion of human nature, social structure and the concept of being healthy (Friedman & Adler, 2011). It needs to be mentioned here that Rene Descartes emphasized body-mind dualism and their independent existence. He also referred to the fact that being independent entities, mind as a 'substantial form' is united with the human body. He suggested interaction between body and mind, though he did not elaborate on the principle on which the two distinct entities guided by different laws could make the interaction possible (Figure 1.2).

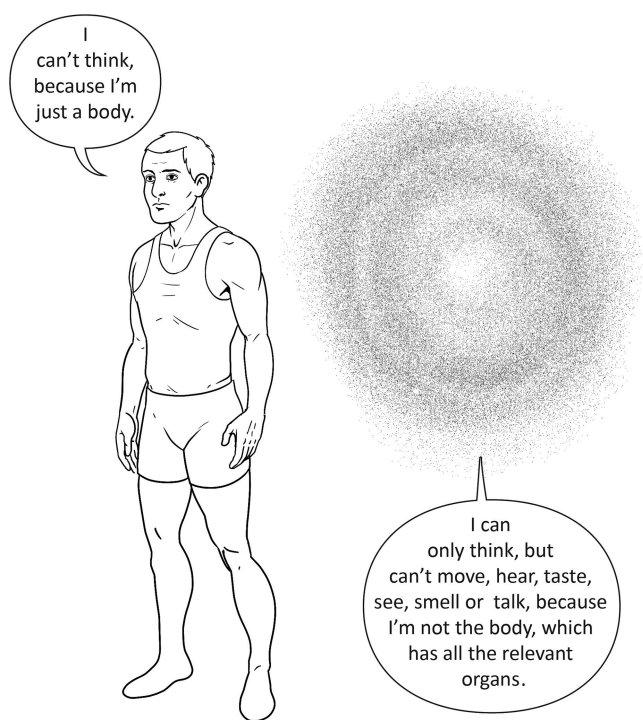


Figure 1.2 Body-Mind Dualism.

Contradicting Descartes, the famous philosopher and theologian, St. Thomas Aquinas (1225–1274) propounded that the human body considered to be ‘matter’ is a live human tissue. The ‘mind’ or ‘soul’ is present in every part of the human. This argument also assumes significance for Health Psychology in explaining the confluence of body and mind.

18th and 19th Century

The next significant work related to human science came from Darwin (1809–1882) who presented his Theory of Evolution. The crux of his theory was that the difference between man and animal was one of degree rather than of kind. His theory suggested similarities between humans and animals on a number of attributes.

Taking the cue of the striking resemblance between the humans and animals, the Russian physiologist turned psychologist Ivan Pavlov (1849–1936) conducted his experiments of classical conditioning on dogs, which he later extended to humans. The success of his experiments on animals and humans established the similarity of attribution between the two species. More importantly, Pavlov’s work laid the strong foundation for Health Psychology by revealing the relationship between the learning behaviours and physiological responses (Figure 1.3).

The students of Psychology are well versed in the details of Pavlov’s experiment. The findings proved that by artificial association, a neutral external stimulus (bell) could elicit a physiological response (salivating) in the dog. The significance of Pavlov’s contribution lies in adding the knowledge that some physiological responses can be elicited, modified and controlled by way of appropriate learning or training. This has become a very powerful model for designing interventions in Health Psychology research in contemporary times.

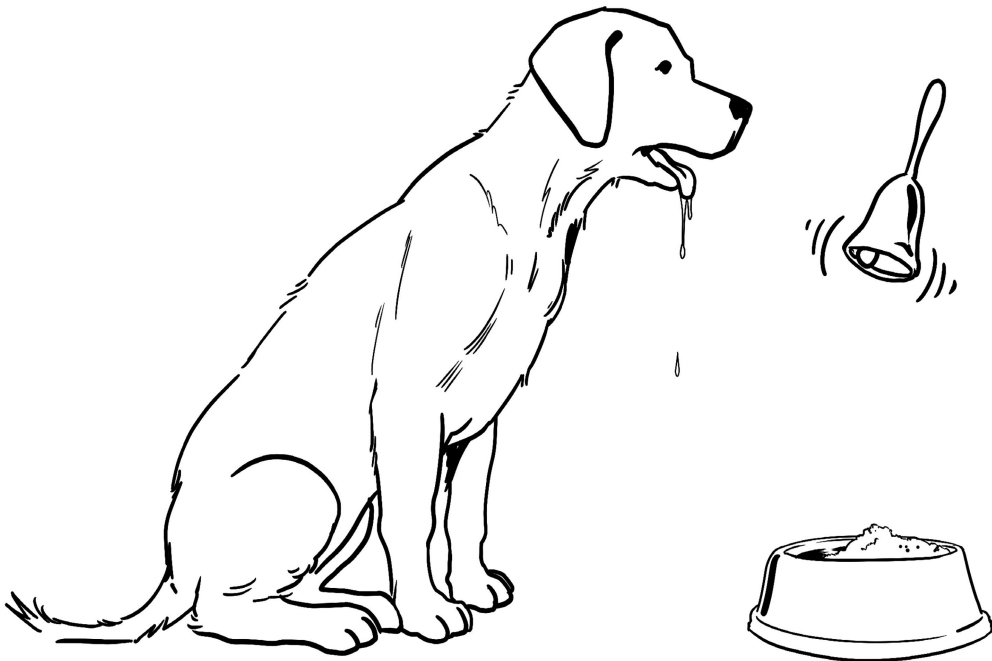


Figure 1.3 Pavlov’s Conditioning Experiment.

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Around the same time, the discipline of Psychology was given a boost by William James (1842–1910), known as the Father of American Psychology. A philosopher and psychologist, James' contribution to the emergence of Health Psychology may be two-fold. First, his writings based on the dual principles of pragmatism and functionalism brought an alternative to the inconclusive debate on body-mind dichotomy. Functionalism proposed that what is of significance is the individual's capacity to adapt to their environment helped by their thought and action. The principle of pragmatism assumed that it is impossible to prove an abstract absolute truth. Hence, it is of relevance to focus on the usefulness of the idea or 'truth'. These two principles in many ways helped in expansion of socially relevant research in Psychology.

In addition to the above, William James' theory of emotion, popularly known as the James-Lange theory of emotion (because he and the Danish psychologist Carl Lange independently proposed the theory), constituted the first theory that suggested a logical relationship between emotion and physiology. According to the James-Lange theory, an external stimulus triggers a physiological response. When this response is interpreted by the individual, the emotion is elicited.

It should be noted here that while Pavlov related physiological response to learning behaviour, James related it to emotions. In a way, both suggest a close association between physiology (body) and psychology (mind). Thus, the scientific knowledge moved from that of a disconnect between the physical and mental processes to that of a scientifically evident relation between the two.

The integral relationship between the body and mind was further strengthened by the focused work of Sigmund Freud (1856–1939) referred to as the Father of Psychoanalysis (Figure 1.4). Freud was practising as a physician when patients with various illnesses consulted him. Freud encouraged his patients to speak and listened to them attentively. After ten years of experience as a practitioner, he came to the conclusion that many of the illnesses with symptoms of convulsion, blindness, paralysis, amnesia or pain had no causal pathology. These somatic manifestations had underlying traumatic experiences as causal factors.

His first publication on *Studies on Hysteria* (1885) presented the case of Anna O who manifested multiple somatic symptoms because of traumatic events in life. His findings clearly indicated the influence of the unconscious mind on the health of the individual. Applying the theory of psychoanalysis, he explained that the emotional conflicts deeply rooted in the unconscious are converted into somatic symptoms through the voluntary nervous system. He called the condition 'conversion hysteria'. While William James' knowledge addition referred to the influence of physiological response on reaction at the mental level in the form of emotion, Freudian contribution clearly indicated that the converse is also true in the sense that the extreme emotion in the form of trauma can have its influence on the functioning of the targeted organ or system. Thus, with this suggestion of mutuality in the mind-body relationship, a future path of research in the field of Health Psychology was laid. The contemporary research in Health Psychology indicates that psychological aspects play a definite role both in the aetiology and in the treatment of illness.

When pioneering research in the field of Psychology was in progress, ground-breaking research in biological sciences also happened in the same period. Louis Pasteur (1822–1895), the French Biologist, Microbiologist and Chemist, (Figure 1.5) came with the finding of the living units called bacteria that are responsible for various diseases like cholera, typhoid, tuberculosis, pneumonia. The presence of bacteria was found in food, water and air. Subsequent research focused on preparing chemicals that could stop bacterial infections. Antiseptics and pasteurization were identified as preventive measures for bacteria. There is a need to note the involvement of bacteria in these preventive steps. Thus, while the aetiology of diseases was attributed to the

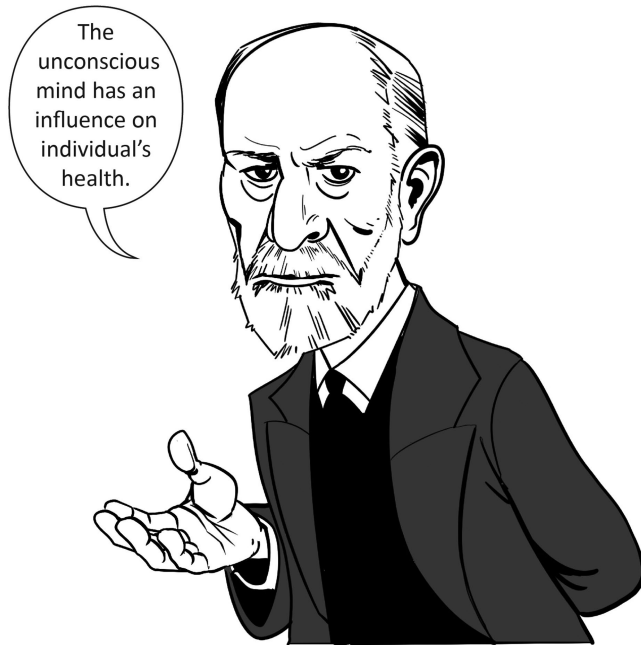


Figure 1.4 Sigmund Freud (1856–1939).

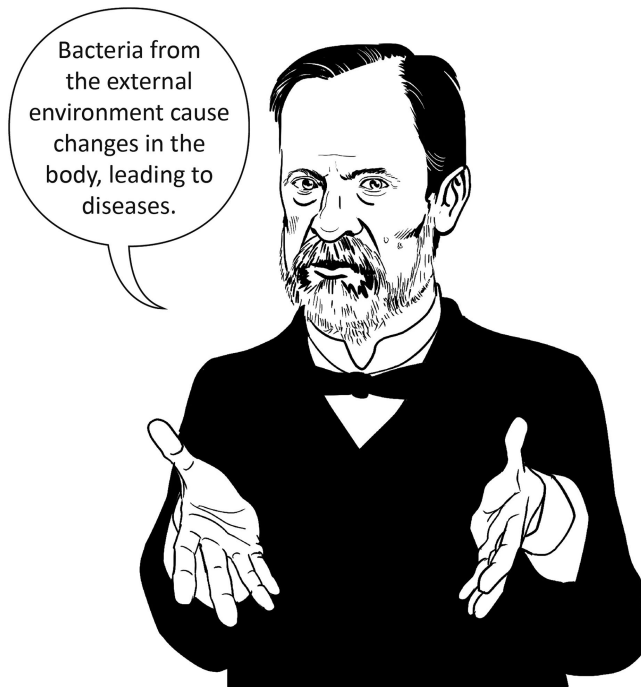


Figure 1.5 Louis Pasteur (1822–1895).

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body-mind relationship in some part of the world, scientific knowledge about the environmental source of the disease was also flowing in from the same part of the world.

In the 19th century, America still had quacks and unprofessional individuals offering treatments. In a right step towards formalizing and streamlining the professional practice of medicine, the American Medical Association (AMA) was founded in the year 1847. It prescribed the minimum standards for medical education and practice. This could effectively bring regulation in medical practice enhancing the quality of patient care. However, with the physicians as regulating authority it sidelined all the other aspects not falling strictly under the realm of 'medical' denomination to peripheral levels.

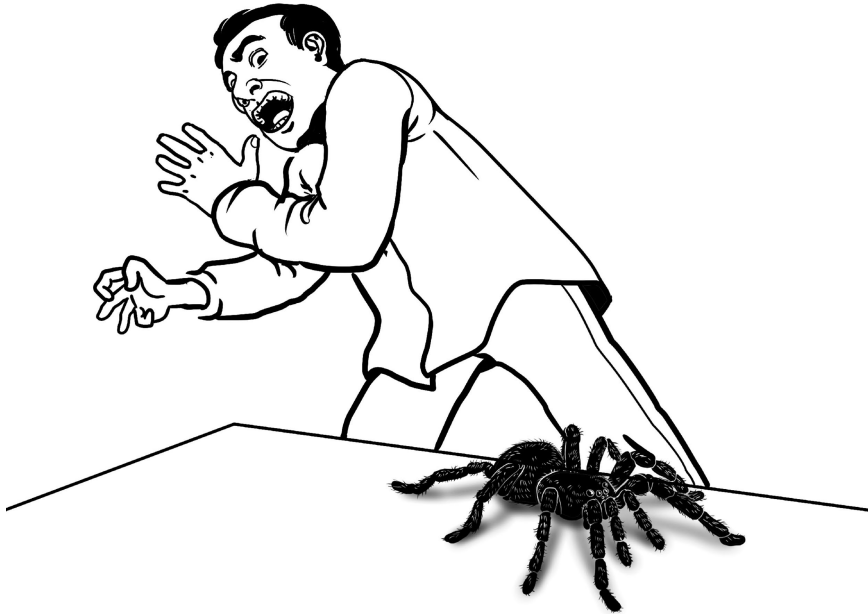
In the second part of the 19th century, i.e. in 1892, the American Psychological Association (APA) was founded as an outcome of emergence of a number of academic disciplines (including psychology) in America and the progressive movement in American politics.

Following the first survey of medical schools in America at the initiative of Flexner in 1910, efforts were made to integrate psychology into the curriculum of medical training (Vevier, 1987). This proposal was further strengthened by Franz in 1911 when he attended a conference on integration of psychology and medicine organized by the American Psychological Association. He highlighted the power of psychological aspects over pharmacotherapy in the treatment and prognosis of disease (Franz, 1912). Later, as a chairperson of a committee in the APA, he surveyed the medical schools in America and came up with the recommendation for inclusion of psychology at an undergraduate level as an essential prerequisite for medical schools. This administrative move can be considered as the first step by the US for formal integration of psychology and medicine. This was further strengthened by Bott (1928) who wrote "...our conception of health must be broadened to take these mental factors fully into account" (p. 291). He recommended that psychology be a part of formal instruction in the medical curriculum. While implementing these recommendations, psychology in the medical curriculum appeared restricted to human aspects such as doctor-patient communication, patient adherence.

What made a profound impact on medical science is the discovery of penicillin by Alexander Fleming in 1928. The impact of penicillin and sulpha drugs in treating infectious diseases was electrifying. This scientific advancement was responsible for saving many lives. The high demand for these drugs for the wounded soldiers in World War II and the lives saved provided an added value to the drugs. As a consequence, the Western world saw setting up of a number of pharmaceutical companies as well as research laboratories with concerted efforts to identify chemicals for curing diseases caused by viruses and fungi. Thus, the attention of medical research shifted to microbiology and bacteriology (encyclopedia.com, 2018). Medical schools started training the students in biochemistry and microbiology, while psychology remained on the periphery. As stated by Friedman and Adler (2011) "matters of mind were increasingly left to psychiatry, newly emerging as an important specialty" (p. 6).

During the World War II, equally important to penicillin were the services of psychologists. The American Psychological Association played a crucial role in extending their services. The US government surveys availed the services of the APA in screening and recruitment into military through psychometric assessments, motivation and enhancing the morale, as well as catering to the psychiatric needs of the soldiers. William Menninger, the American psychiatrist, was appointed as the chief psychiatrist of armed forces. He played a crucial role in identifying and utilizing the services of clinical psychologists not only for the treatment of those in need of psychotherapy but also for the purposes of preventive intervention. Thus, antibiotics on the one hand and psychological interventions on the other constituted interventions for soldiers of World War II.

While Louis Pasteur's theory established the relationship between the bacteria from the external environment and disease, the decades of scientific research of Walter Cannon also referred



Stimuli from external environment can lead to adrenalin rush

Figure 1.6 Physiological Response to External Stimulus.

to the relationship between the external environment and its impact on physiological processes. Cannon (1932, 1942) elaborated on the physiological changes in the body in response to situations inducing emotions such as anger or fear. According to him the external stimulus has the potential to induce an emotional reaction in the human being. For example, perception of a small spider can induce the reaction of fear (Figure 1.6). He mapped the drastic changes in the functioning of vital organs resulting in increased pulse rate, respiration, rise in blood sugar level, blood pressure and more blood supply to skeletal muscles. The most significant of these is the gush of adrenaline secretion. This is called acute stress response, popularly known as fight-or-flight response. He coined the word 'homeostasis', meaning that the natural course of the body is to maintain a state of balance. In a state of severe emotions, the physiological responses bring in an imbalance of deviation in blood pressure, respiratory rate, hormonal levels and so on. This induces an observable behaviour. This chain of action subsequently leads to the restoration of balance. The theory of Cannon drove home the fact that the psychophysiological functioning of a human being has to be studied in the context of the social environment. Thus, he set the idea of a triangular relationship between body, mind and society.

20th Century

Expanding the idea of Cannon, Selye (1956) theorized the human being's natural ability to adapt to the emotional turmoil. He termed it General Adaptation Syndrome (GAS). According to him, the body's natural defence enables an individual to face the threat. However, if such defence has to be used as an adaptive measure for a prolonged period, it may cause disruption to the system. This finding that continuous exposure to stress culminates in metabolic disruption or damage perhaps can be considered a major contribution to 'Psychosomatic Medicine'.

Psychosomatic Medicine evolved from the assumption that ‘soma’ (the body) is influenced by the ‘psyche’ (the mind). The American Psychosomatic Society was founded in 1942. A number of diseases related to different systems of the body such as colitis, diabetes, arthritis, dermatitis and hypertension were also studied from this perspective.

Taking into consideration the scientific developments in the field of medicine, WHO (1948) defined health as ‘A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’.

In the mid-20th century, the sociologists and anthropologists brought to the limelight the social aspects of illness. Parsons (1951, 1958) discussed the ‘sick role behaviour’ of the patients. The patient diagnosed with a disease is bestowed with some rights such as abstaining from work, as well as responsibilities such as seeking a treatment. Individual and cultural differences in health-seeking behaviour were highly pronounced. Some people delay in initiating treatment for even life-threatening health problems, while a few others consult doctors immediately even for very minor problems. Surfacing of these social aspects of health and illness indicates that diagnosis and treatment of illness need to consider this third dimension.

Strengthening the natural correlation between psychology and health further, in the late 1950s, Rosenman and Friedman (1981) put forth their observation that people with certain types of personality characteristics were prone to cardiac diseases. Persons with these characteristics were called type ‘A’ personality. Later, they established their hypothesis by their longitudinal study on a large sample. Their study specified a combination of physical, emotional, psychological and behavioural indicators.

Yet, another exciting scientific discovery of the 1950s was that of the ‘placebo effect’. Though the placebo effect was known and also demonstrated from the 18th century from the time of Haygarth (1800), it was Beecher in 1955 who published a paper titled ‘the Powerful Placebo’ where he quantified it. The placebo effect started to gain acceptance in the medical field. This replaced the belief that it is not just the chemical pill or surgical intervention that resulted in a good prognosis, but there is a very powerful human element that contributes to the outcome of treatment. This human element could be the doctor’s characteristics like what Beecher in his study termed as ‘enthusiastic surgeon or the patients’ belief system or faith in the doctor’s treatment cure’ (Figure 1.7). It could be all of them. The discovery and acceptance of the placebo effect perhaps was a significant indication to think beyond the biomedical realm for the treatment and cure of diseases.

The relationship between psychology and health was examined from a different direction by Janis (1958). He followed up the patients awaiting surgery and studied their prognosis. His findings indicated poor prognosis in patients with extremely low or high stress levels, while those with moderate stress showed the best prognosis. An examination of this opened up a new horizon of ‘handling stress’ or ‘coping with stress’.

The contemporary psychologist Lazarus (1966) was engaged in an in-depth study on the individual’s coping with stress, which continued until the 1980s. The work of Lazarus and his associate Folkman explained the significance of an individual’s appraisal of a stressful situation that provided a comprehension of its manageability, its repercussions on health and the individual’s choice of coping strategies. This line of research implied the shift of an individual’s role from that of a passive recipient to that of an active respondent in facing any stress including the threat of illness.

In 1965, there was a major shift in conceptualizing ‘pain’, which until then was constructed as a physiological phenomenon. Melzack and Wall (1965) contradicted this postulate and propounded the gate control theory. They explained that the spinal cord that constitutes the first meeting point of nerves passing through different parts of the body has a series of ‘gates’ through which messages of pain pass. A number of psychological factors decide the opening of these



Figure 1.7 Placebo Effect.

gates allowing or delaying the pain messages to be transmitted to the brain. The pain messages are allowed by opening the gates when the individual is under stress or tension; there is a lack of activities and focus of all attention in the paining organ. Conversely, when there is a positive affect state of happiness or relaxation, or the attention is on something else that is of crucial importance and the person is engaged in an activity that demands immediate attention, the 'gates' block the travel of pain message to the brain at least temporarily. The example of the continuation of the aggressive fight by a soldier injured in the battlefield was cited to explain the absence of pain experience that would debilitate action in a life-threatening situation (Figure 1.8). This gave a new insight into the psychophysiological integral functioning.

Between 1965 and 1970, two major contributions are listed in the time line of psychology, both in the field of Clinical Psychology. Beck (1967) published the psychological model of depression. The model highlighted the role of thoughts in developing and maintaining depression.

The second milestone is a publication on behavioural therapy by Wolpe (1969). Beck expounded cognitive therapy (CT) in line with his model that thoughts, feelings and behaviour are connected. Hence, by replacing the thoughts that are unhelpful, one can change the distressing emotions and subsequent behaviours. This theory and therapeutic model had their impact in later years in evolving the Health Belief Model, and designing intervention modules for the biopsychosocial approach to health.

During the same period, there was also a landmark research that gave a strong standing for Health Psychology. Neal Miller who had been engaged in research related to learning and



Figure 1.8 Gate Theory of Pain: Psychosocial Factors.

motivation became curious to understand the mutual influence between the brain on the one hand and learning and motivation on the other. This opened a new field of study called 'Behavioural Neuroscience'. His research demonstrated that it is possible to train the organism to control and regulate heartbeat, respiration, blood pressure and intestinal contraction, which are otherwise under the control of the autonomic nervous system. The study of Miller (1978) opened up the scope of technology-based research into the field of Psychology. Rigorous research followed in the area of biofeedback and relaxation aimed at consciously and voluntarily regulating the psychological function of the human body. This provided a very strong footing for establishing an inherent connectivity between psychological processes and health, as determined by normal physiological functioning. Biofeedback and relaxation turned out to be very important components in interventional studies of Health Psychology and are applied in different intervention modules to date.

Temporally close to this discovery was a development in the area of immunology. What in fact was an incidental observation emerged as a major contribution in evolving a special research area called psychoneuroimmunology. Ader and Cohen (1975) was studying conditioning and emotional responsiveness in rats. He along with his fellow researcher Ader and Cohen (1975) was conditioning the rats for taste aversion. The experiment required them to feed the rats with saccharin water followed by an immunosuppressant called cyclophosphamide, which induced nausea in them. Because of conditioning that associated nausea with water, the rats learned to avoid water. During the next phase of the experiment, long after the effect of immunosuppressants was washed out, when Ader and Cohen (1975) force-fed the rats with saccharin water, they began to die. The rate of death was found to be directly related to the volume of saccharin water consumed. The cause of death was contracting bacterial or viral infection. That is the consequence of weakening of the immune system. Based on this, Ader and Cohen (1975)

theorized that because of the association between the saccharin water and injected immunosuppressant, the feeding of saccharin water was sufficient to induce neural signals in the brain of the rats that resulted in suppressing the immune system in the body. This gave a new insight to medical science as well as psychology that the immune system believed to be autonomous in fact is connected to the nervous system and can be influenced by it. What evolved out of it is the new insight that exposed to prolonged stress produced by life's challenges the individual's immune system is put at stake opening vulnerability to diseases caused by bacteria, virus and infection. Thus, the 19th-century knowledge that individuals were prone to diseases caused by the bacteria in the environment received added knowledge about the internal psychological state contributing to one's vulnerability. The value addition was that not everybody contacting bacteria or virus fell ill, but only those whose immune system was weak were susceptible to disease, and those under stress had a fragile immune system.

In the contemporary period, the physician George Engel investigated over six years into the sudden deaths of 170 patients. He concluded that psychological stress or trauma involving individual's self-esteem, personal threat and the humiliation or reunions following it may cause illness and even death. He postulated that the confluence of biological factors, social environmental factors like loss of a dear one and psychological factors such as inability to cope contributed to causing illness. It was Engles' efforts that advocated for replacing the biomedical approach to health that was in vogue with the biopsychosocial approach.

There was sufficient evidence to support the biopsychosocial model of Engel (1977). Evidence has been compounding from the findings of William James, Pavlov, Freud, Cannon, Selye, Janis Miller and Ader and Cohen, all of which independently suggested the important role of psychological and social environmental factors in the aetiology and treatment of illness.

After the advocacy for the biopsychosocial model of health, Health Psychology emerged as an identified branch of psychology with the American Psychological Association establishing Health Psychology as the 38th Division in the year 1978 (Figure 1.9). A few years later, in 1986 the International Association of Applied Psychology (IAAP) also established a Division of Health Psychology. Thus, America takes the credit for giving a distinct identity to Health Psychology as a specialized branch.

In the same year, i.e. 1986, the European Health Psychology Society was founded with membership from 11 countries (Schwarzer & Gutiérrez-Doña, 2000). Other countries like Canada, Australia, New Zealand, India and Japan have their own association of Health Psychology. As an initiative towards integrating the researchers in Health Psychology across the globe, in 1994, the International Society for Health Psychology Research (ISHPR) was founded, especially with a focus on bringing together researchers from developing countries.

In an effort towards consolidation of the Division of Health Psychology, the American Psychological Association, in the year 1983, organized a working conference on Education and Training in Health Psychology. The conference discussed ethical legal and cultural issues. The conference emphasized the need for a reciprocal relation between academic research and practice with an interdisciplinary orientation.

Encouraged by the distinct identity research in the field of Health Psychology picked up momentum. Concomitantly, a number of journals in the field of Health Psychology were launched. The first of them was the journal called *Health Psychology* launched in 1982 by the American Psychological Association as its official journal. Subsequent to this, the European Health Psychology Society started its journal in 1987 with a name *Psychology and Health: An International Review*. A number of other journals followed with different names such as *Journal of Health Psychology*, *British Journal of Health Psychology*, *Journal of Occupational Health Psychology*, *Journal of Health Communication*, *Japanese Health Psychology*, *Journal of Indian Health Psychology*, and *Psychology, Health and Medicine* (Figure 1.10).

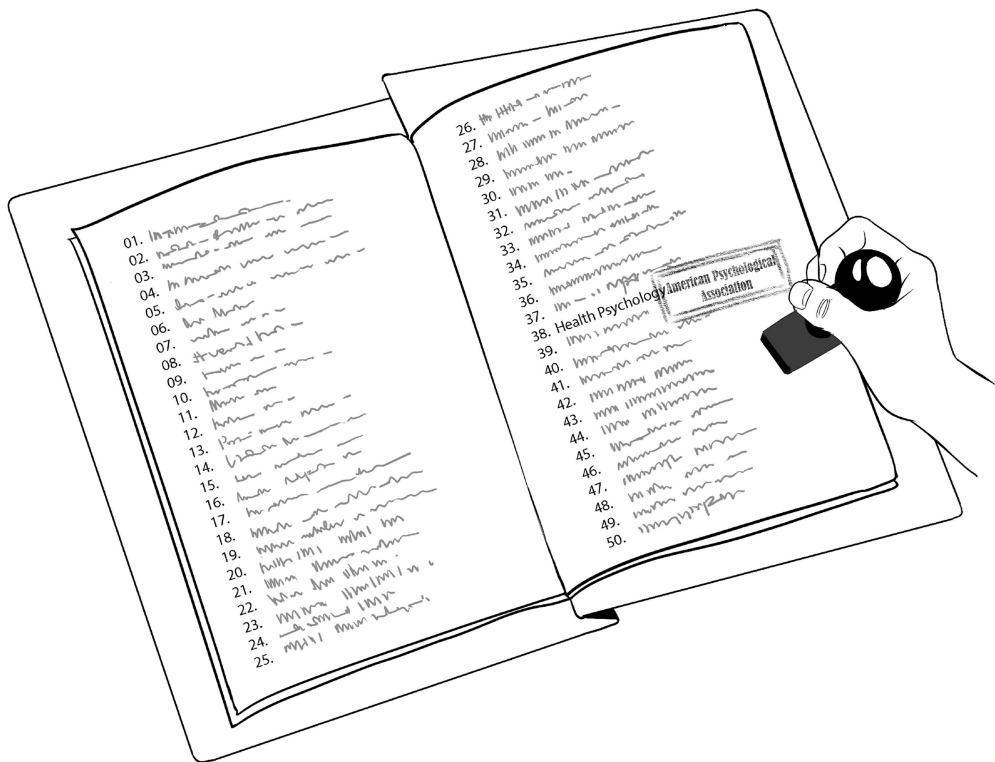


Figure 1.9 APA Includes Health Psychology as 38th Branch.



Figure 1.10 Research Publications in Health Psychology.

There is a vast scope of research in Health Psychology. The branch of Health Psychology is classified into the following sub-branches facilitating the academics and practitioners to choose their specialized field. The sub-branches that exist now are Clinical Health Psychology, Community Health Psychology, Critical Health Psychology, Public Health Psychology and Occupational Health Psychology. Several fields within Clinical Health Psychology have emerged each referring to a super-speciality. Behavioural Cardiology, Behavioural Diabetology,

Psycho-oncology, Reproductive Health are a few to name. Adequate reading material is available in each branch and sub-fields. Thus, ever since its emergence in 1978, four decades of research in the field of Health Psychology still leaves a huge unexplored area for research.

Health Psychology in India

Indian universities took some time to introduce Health Psychology in their curriculum. In the early 1990s, a few universities introduced Health Psychology as one of the subjects at the post-graduate level. The faculty teaching the subject had no formal training in the area but took the great initiative because of their keen interest and motivation.

It was in the year 2007 that the University of Hyderabad in India launched the first-ever academic unit for research and teaching Health Psychology with the author of this book as the founder Director. In the year 2008, the University of Hyderabad was the first Indian university to introduce Health Psychology as a five-year course. The Centre engaged in research in specialized branches within Health Psychology such as Behavioural Cardiology, Behavioural Diabetology, Psycho-oncology, Reproductive Health, Community Health Psychology, Geriatric Health Psychology, Pediatric Health Psychology, School Health Psychology. As the course gained popularity, the university introduced a two-year post-graduation course and a Ph.D. in Health Psychology in 2009 and 2010. Until 2019, this remains the only university in India offering a degree in Health Psychology. The chronology in the evolution of Health Psychology is projected in Box 1.1.

Box 1.1 Evaluation of Health Psychology: Time line

<i>Time</i>	<i>Event</i>
460–377 BC	Humoural theory of Hippocrates
470 BC	Socrates, Plato, Aristotle Body-mind dualism
129–200 AD	Galen's theory of causes, external and internal causal factors of illness; pharmacotherapy
1596–1650	Descartes' body-mind interaction
1809–1882	Darwin's theory of evolution and similarities between animals and humans
1822–1895	Louis Pasteur's discovery of 'bacteria' causing acute diseases
1847	Establishment of the American Medical Association (AMA)
1849–1936	Pavlov's experiment connecting the nervous system to learning
1942–1910	William James' functionalism and significance of 'usefulness of the idea' rather than proving the absolute truth. James-Lange theory of emotion showing the relationship between the external stimulus, physiological response and brain's interpretation
1856–1939	Freud's psychoanalytic theory. Dysfunction of an organ can be caused without any pathology and because of emotional conflict
1892	Establishment of the American Psychological Association (APA)
1910	Abraham Flexner's effort to integrate psychology into the medical curriculum
1912	S. I Franz recommended that the study of psychology at the UG level is a prerequisite for medical school
1928	E. A Bott recommended psychology to be part of the medical curriculum
1928	Alexander Fleming's intervention of penicillin drug
1939–1945	World War II and active role played by psychologists in assessment, recruitment, weapon design and treatment of soldiers

(Continued)

<i>Time</i>	<i>Event</i>
1932	Walter Canon's theory of stress. External situation induces negative emotion that disturbs homeostasis in the body
1956	Hans Selye's theory; human being's natural ability to adapt to emotional turmoil unless the state is prolonged
1942	The concept of 'Psychosomatism'—bodily diseases can be caused by psychological influence
1951	Parson's emphasis on studying the disease in the sociocultural context
1958	I. L. Janis' publication of the 'placebo effect'. The prognosis is the result of factors outside the pharmacotherapy
1965	Melzack and Wall's gate control theory of pain stating pain as a psychophysiological phenomenon
1966	Lazarus' contribution to the individual's appraisal of a situation and coping with stress
1967	Beck's model of depression. The relationship between thoughts, emotions and behaviour. Cognitive therapy as an intervention for faulty thoughts
1975	Ader and Cohen's chance discovery that in response to conditioned learning, the immune system is influenced through the mediation of the brain
1976	Neal Miller's contribution to biofeedback. Response of the viral physiological system can be regulated and controlled by the training/learning process
1977	Engles' proposal for the biopsychosocial model of health
1978	APA establishes Health Psychology as the 38th Division
1982	Launching of <i>Health Psychology</i> as an official journal of the APA
1986	Establishment of the Health Psychology Division in the International Association of Applied Psychology (IAAP)

A cursory look into the time line of Health Psychology suggests that a number of factors contributed to its emergence. The first factor is the philosophical discourse on the nature of mind and the debate on its relationship with body. These discourses enabled the exploration into the abstract entity of mind. The second factor is the progressive advancement in biological sciences, be it the humoral theory anatomical mapping of the human body, discovery of bacteria or endocrinal functions. Some of the scientific progress like discovery of bacteria and the subsequent invention of penicillin and its use brought about a change in the nature of disease over a period of time. As an offshoot of this when there was a spurt in pharma industries competing with each other in manufacturing drugs, it had its impact in terms of economic viability of treatment. The third factor is efforts to institutionalize and standardize the practice and curriculum of medical sciences. This enabled to incorporate the research inputs from the field of science and accommodate relevant curriculum changes from time to time. The fourth factor is sociopolitical aspects of the world that set the stage to showcase the significant role of psychologists in the treatment process. The last, but a very important, deciding factor was the progressive development in research in the field of Psychology that consistently established the physiology-psychology connectivity, thus substituting evidence-based scientific argument that answered the age-old philosophical debate on body-mind dichotomy.

Health Psychology in the Roots of Ayurveda

While it took nearly about two millennia for the Western medical knowledge to identify the psychological principles as necessary components to be integrated into medical practice and research, Health Psychology remained an integral part of Indian medical knowledge, though not

with the nomenclature of 'Health Psychology'. 'Ayurveda' is considered the root and the encyclopaedia of Indian medical science. This is more than 5000 years old, the writings of which are in Sanskrit language documented by ancient seers in India in the Vedas. Atharva Veda documents the medical knowledge in the name of Ayurveda. *Atharva Veda*, the fourth of the Vedas, was written approximately in 1500 BCE (Surendra & Prasad, 2013). The term *Ayurveda* is a combination of two words—'Ayu' meaning life (or that which is in constant move and hence dynamic) (Kapur, 2016) and 'Veda' meaning knowledge science. Thus, 'Ayurveda' refers to the 'Science of life' and its main focus is in the preservation of life.

The very concept of life according to Ayurveda is an amalgamation of 'Sharira' (the body), 'Indriya' (sense organs) and 'Satya' (the purest form) and 'atma' (self). Thus, the core concept of life includes the sense organs, which can be called the essential components to feed the mental processes.

The ancient Indian seers, Bharadwaja, Kashyapa and Dhanwantri, are said to be practitioners of Ayurveda. It was Agnivesh who is said to have developed the basic Ayurveda text for internal medicine. Acharya Charaka, the disciple of Agnivesh, revised the work and was responsible for handing down the knowledge to posterity. The great three classical texts of Ayurveda comprise 'Charaka Samhita', 'Sushruta Samhita' and 'Ashtanga Hridayam Sangraha'. *Charaka Samhita* relates to the diagnosis, cure and prevention of disease. It documents the details of medicinal properties of 10,000 plants. *Sushruta Samhita* elaborates on 1120 health conditions, 300 operations involving 42 surgical procedures. *Ashtanga Hridayam Sangraha* refers to 'Kayachikitsa' or internal medicine. Apart from these, the other three classics are 'Sharnghdhara Samhita', 'Bhava Prakasa' and 'Madhava Nidanam'.

Ayurveda conceived the human body made of 'panchamahabhootas' or the five prime elements, viz. *Pruthvi* (Earth), *Apah* (Water), *Teja* (Fire), *Vayu* (Air) and *Akasha* (Sky). Their solitary or combinational presence in different properties is seen in various structures and functions of the body. The three main forces called 'doshas' of the body, 'vata', 'pitta' and 'kapha', have the five elements as the constituents. Depending upon the proportion of three 'doshas' existing in the human body, the temperament or the personality or constitutional health (Prakriti) of the individual is determined. The ideal state of health and well-being is when these 'doshas' in the right natural proportions are in perfect harmony. An increase or decrease of any creates an imbalance.

Health in Ayurveda is referred to as 'Svastha', one who is centred in the self. Maintenance of health calls for not only a balance of the three *doshas* but also functional adequacy of body tissues ('*dhatu*'), metabolic enzymes required for digestive functioning (*agni*), proper elimination of metabolic byproducts through the excretory system (*mala*), fulfilment of needs of sensory (*indriyas*) and mental faculties (*manah*), as well as satisfaction of 'self' (*atma*).

Health in Ayurveda is defined as '*prasannatmendriyamanah*', implying a state where the physical, mental and spiritual aspects of the individual are in a state of contentment. Thus, the definition is very much inclusive and qualifies as holistic. Further, it goes on to explain 'health care' as a process that provides optimal physical and psychological state for the individual through changing seasons, by an appropriate use of sensory modalities (*artha*) and the right choice of action (karma). This in fact refers to 'stability in true self', suggesting a state of physical, mental and spiritual well-being (Sharma, Chandola, & Singh Basisht, 2007).

Ayurveda's approach to health is person-centred. The primary concern of this medical system is the prevention of disease by abiding health rather than treating the disease. In the event of failing this, the treatment efforts involve restoration of balance between the affected functions, tissues, environment and the whole person (Morandi, Tosto, Di Sarsina, & Dalla Libera, 2011). The treatment of the patient is decided on the basis of two examinations. The first is by examining the patient ('RogiPariksha') and then the disease ('RogaPariksha') (Dalal, 2016). The totality of the examination includes the physical state of the patient (disease location, symptom, digestion, metabolism, pulse, excretion matters, tongue, eyesight etc.), constitution

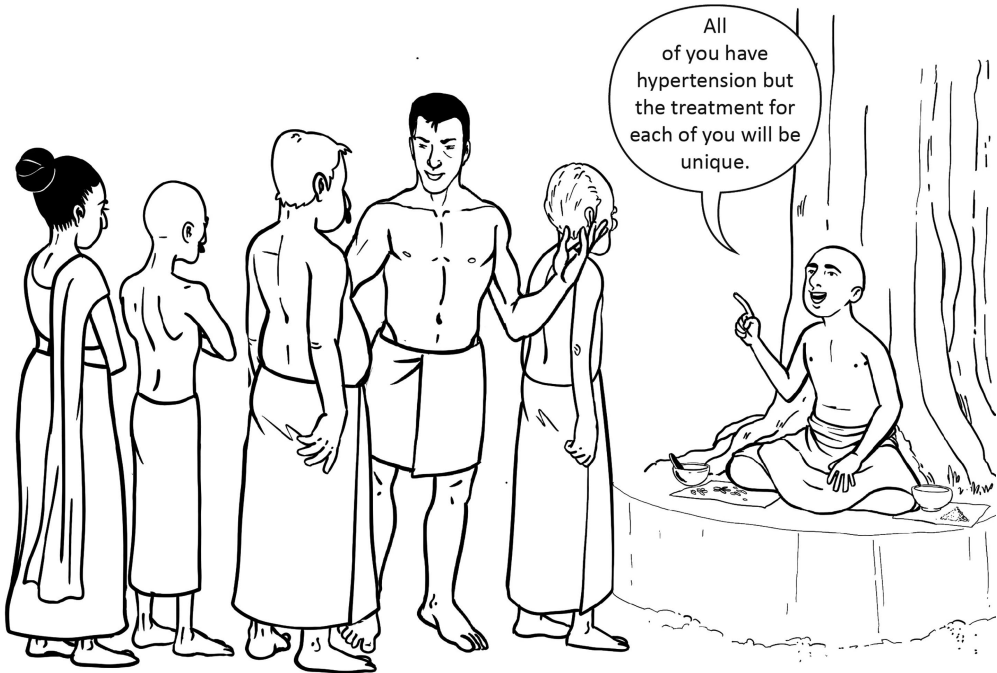


Figure 1.11 Indian Origin: Contributions of Ayurveda.

of the patient, heredity, residential location, surrounding environment and the climate or season (Figure 1.11).

The basis of Ayurveda is the assumption that each individual is unique in physical constitution and thereby the interaction between the dynamic mind and the environment also produces a unique outcome. Hence, the treatment is unique to every person. It is this characteristic of Ayurveda that did not satisfy the Western medicines' expectation of standardization and replication through clinical trials. The focus of Ayurveda is in two-fold: preventive and curative.

Ayurveda medicine pre-supposes that individual's health and well-being is determined by 'Achar', 'Vicahr', 'Ahar' and 'Vihar' meaning daily activities, thoughts and attitudes, diet and nutrition, and leisure and relaxation (Dalal, 2016).

To acquire the complex knowledge and skills involved in Ayurveda, one would have to study the discipline for 12 years to qualify as a 'Vaidya' (doctor). With all its complexities, the system of Ayurveda also developed eight specialized branches as follows:

- 1 *Kayachikitsa* (Internal medicine)
- 2 *Balachikitsa* (Paediatric medicine)
- 3 *Grahachikitsa* (Psychiatry)
- 4 *Urdhvangachikitsa* (Issues with the upper part of the body)
- 5 *Shalyarogachikitsa* (Surgery)
- 6 *Damstrachikitsa* (Toxicology)
- 7 *Jarachikitsa* (Geriatrics)
- 8 *Vajikaranachikitsa* (Reproductive health)

The basic principles like 'dosha' theory and person-based holistic approach are the same for all these specialized branches.

The treatment procedure in Ayurveda goes far beyond the administration of medicine or surgery. Hence, it may best suit to term it as the ‘healing process’. The process of healing involves five senses, viz. sight, sound, taste, touch and smell through which the balance of ‘*doshas*’ is achieved. Even according to contemporary psychology, sensory inputs are considered the doorways to the functioning of mind. Ayurveda’s strong assumption that the mind has the power of healing the body led to therapeutic healing through the five sensations. Many problems related to the digestive system, anaemia, inflammation and burns are treated with ‘colour therapy’. The discipline of psychology also assumes that colours have a direct and significant impact on health (Kurt & Osueke, 2014; Azeemi & Raza, 2005).

Healing through sound (Kumar, Badhe, & Santhiya, 2014; Lynch et al., 2018) uses music, bell, ‘*mantras*’ and chanting. Apart from these external agents, the ‘*Nada Yoga*’ in Ayurveda also prescribes listening to one’s ‘inner sound’. Of the many interventions used in Health Psychology, music therapy has proved to have a positive impact on a number of problems related to sleep, anxiety, Attention Deficit Hyperactive Disease (ADHD) and even the non-communicable diseases (NCDs). What is experimented in contemporary Health Psychology was scripted and practised in Ayurveda, the ancient Indian medicine. Researchers in the field of child development have proved the soothing effect of the sound of heartbeat on the infants.

One of the aspects of treatment in Western medicine is the prescription of diet. Ayurveda propounds six facts of taste—sweet, sour, salty, bitter, pungent and astringent. An intimate relationship is postulated between the patterns of diet and the three types of personality traits called ‘*trigunas*’ (*Sattva*, *Rajas* and *Tamas*). The diet that has a good balance of these tastes is supposed to be good for health and well-being. Depending on the nature of the problem, the tastes are regulated in the prescribed diet.

Western psychology has advocated the therapeutic role of touch right from the time the child is born. Ayurveda advocated not only the sensation of touch but also appropriate pressure at various critical points through various massages. The massage therapy called ‘*Marna*’ aims at stimulating different points for flow of energy.

What is known as ‘aroma therapy’ in present days was an integral part of Ayurveda. The oils made of various herbs are used as the therapeutic ingredient. Different herbs give different aromas, which when inhaled are supposed to stimulate the limbic system in the brain. The limbic system is associated with emotion. By impacting the affect of the individual, which in turn influences the disequilibrium in the body, the healing is achieved.

Thus, Health Psychology is ingrained as an integral part of Ayurveda medicine by emphasizing the body-mind integration in sustaining health, falling ill, treatment and prevention of disease. The system of Ayurveda from very ancient times is holistic in the true sense of approaching health by meticulously considering an individual’s constitution, mental state, behaviour, and physical and social environment in a systematic way.

One may wonder as to why Ayurveda gave into Western medicine in India, the place of its origin. The answer lies in the political history. History has documented clearly the multiple foreign invasions suffered by India. This strongly impacted the Indian way of life. The invasions of Turkey and Afghanistan and the subsequent destruction of Indian literature and the cultural influence of the invaders resulted in departing from the lifestyle prescribed by Ayurveda and a decline in the practice of it. It also gave India a new system of medicine called ‘Unani’, which is a combination of Arabic medicine and Ayurveda.

Later when India came under colonial rule, the British prohibited Ayurveda. Lord McCauley decreed that Western medicine must be practised in the whole country under the governance of the East India Company. However, following India’s independence, sincere attempts were made to revive Ayurveda. It is now recognized as medicine both for practice and for teaching

and research. India now has a number of Ayurveda hospitals. Ayurveda is taught as an organized and recognized curriculum in colleges and universities. The Government of India now has an exclusive ministry for alternative medicine that has an acronym *Ayush* (Ayurved, Yoga, Unani, Siddha and Homeopathy).

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2 Wellness, Illness, Health and Health Psychology

One of the often chanted *mantras* (prayers) among the Hindus is as follows:

Sarvea bhavanthu sukhinah
Sarvea santhu niramaya
Sarvea bhadrani pasyanthu
ma dukhabhaga bhaveth

The prayer is for universal wellbeing. It means “May all be happy; May all be free from illness; May all see good; May no one suffer”. As referred by many sources including research papers, this prayer belongs to the Hindu scripture of Brihadaranyaka Upanishad (1.1.14). One may note here that the prayer refers to happiness, seeing good, freedom from illness and suffering—all in a single verse. Thus, it connects happiness and seeing good to freedom from illness and suffering, indicating a close connection between the physical suffering and the psychological state. This is one of the many evidences that indicates that the term ‘health’ has been construed as a phenomenon that encompasses more than the physical health for thousands of years. A scrutiny into the etymology of the term ‘health’ clearly connotes the ‘wholeness’ of the state. The roots of the word can be traced back to Anglo-Saxon words meaning ‘whole’, ‘hale’ and ‘holy’. However, in the process of comprehending this ‘wholeness’, different people prioritize different aspects depending on several demographic factors and their own state of health.

‘Health’ as Understood by People

Researchers have studied people’s understanding of the concept of health varying in the nature of their sample. Hariharan, Monteiro, Asha and Rao (2019) studied the understanding of ‘health’ among children from class 6 to class 10. Their survey on 667 children with a question ‘what do you understand by ‘being healthy?’ evolved responses classified under three subthemes—the meaning of health, ways to be healthy and indices of good health. The responses referring to the meaning of health ranged from concrete aspects such as having healthy genes and the absence of disease to general abstract statements connoting the value of health such as it is ‘God’s gift’ or ‘health is greater than wealth’. It also included behavioural aspects. Their explanation in terms of indices of health matched Bennett’s (2000) explanation of health in terms of ‘Being’, ‘Having’ and ‘Doing’. The responses referred to ‘being in peaceful state’, ‘having the energy and ability to work’ and ‘doing’ in terms of play, academic performance, coping effectively—all of which reflect ‘success’ or accomplishment. Further, the study found that the complexity of the concept of health indicated a developmental trend as seen in the increase of complexity in their perception as they progressed in the class they studied. Children from higher classes gave

a more number of responses that were multifaceted. What is to be noted here is that among children, the concept of health included not only an absence of disease and index of physical fitness, but also the state of ‘wellness’ indicated by their reference to ‘peace’ and the ‘wholeness of the state’ that facilitated their performance in expected fields.

A similar study conducted on Canadian children was reported by Normandeau, Wins, Jutras and Hanigan (1998). Data was collated through structured interviews and open-ended questions from 1674 children between 5 and 12 years. Children’s concept of health was measured on four dimensions, viz. criteria of good health, behaviour related to ‘being healthy’, consequences of good health and threats to health. The results were by and large similar to the Indian study by Hariharan, Monteiro, Asha and Rao (2019). The findings revealed that children as young as five years of age included mental health in conceptualizing ‘being healthy’. Three factors emerged as an index of good health. The first criteria were participation in sports and the absence of disease, both pointing to ‘being functional’. The second criteria were having good mental health as indicated by ‘wellbeing, feeling good about self’, and having good relationships with others. The third criteria named healthy lifestyle were maintained with the practice of a healthy diet, hygiene and good sleep. The study also found differences in age, socioeconomic background and personal experience as factors influencing differences in responses. The significant inference that follows these two studies is the multidimensionality in children’s concept of ‘health’ across cultures and time. They perceived health in a holistic way rather than a physical state.

There have been very interesting studies investigating adult’s understanding of the term ‘health’. Benyamini, Leventhal and Leventhal (2003) asked 500 elderly people to rate the factors important as health indices. What emerged as the most important factor was vitality or the ability to do things one is expected to do. The study also found that the ratings were affected by the current health state of the respondents. Those in good physical state mentioned things like ‘the ability to exercise regularly’, while those in poor health referred to their recent symptoms of poor health.

Krause and Jay (1994) conducted in-depth interviews on a sample of 158 individuals. They were asked to rate their own health status. The researchers examined the frame of reference used by the respondents. The findings indicated that the older respondents used ‘health problems’ while evaluating the health status, while the younger participants referred either to general physical functioning or to health behaviour. The findings also revealed differences based on race and education. Thus, the concept of ‘health’ is so significantly real and contemporary to the person that the explanation to a certain degree seems to be influenced by the subjective state.

Blaxter (1990) conducted a survey on the British population to examine their understanding of ‘health’. She surveyed a huge sample of 9000 people who responded to a questionnaire that elicited what they thought of ‘being healthy’ with reference to ‘identified other’ and also with reference to their own self. The findings suggested that ‘health’ indicated the following:

- 1 Not being ill—no symptoms of illness and no visit to the doctor
- 2 Having a reserve—having a strong family, recovering fast from a surgery
- 3 A behaviour—taking care of one’s self, regular exercise etc.
- 4 Vitality and physical fitness—very often, men responded with the expression of ‘feeling fit’, while women referred to ‘feeling full of energy’. Being lively and having good social relationships were the indices of this
- 5 Psychosocial wellbeing—having connotation of ‘mental state’ such as being in harmony, feeling proud or enjoying with others
- 6 A function—ability to perform duties independently without experiencing any limitations

These categories suggest that people's idea of 'health' has a multidimensional characteristic rather than restricting it to the physical robustness or the absence of illness.

Herzlich (1973) conducted open interviews with middle-class professionals on their concept of health, sickness, death and their idea of relationships between individuals, society and nature. The psychosocial analysis revealed that though it was common to perceive 'health' as the absence of illness, it was not limited to this. The concept of health was constructed with all its complexity of maintaining the balance between the physical, psychological, emotional and social aspects of the individual that culminated in a state of 'wellbeing'.

One can notice that the common thread that runs across all the studies explained above is the invariable reference to disease or illness. Thus, the very concept of 'health' seems to be having an innate connection with disease or illness. The definition of World Health Organization also has a reference to disease. WHO defines health as 'A complete state of physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity' (WHO, 1948). The fact that even WHO's definition of health has a reference of disease needs to be taken into cognizance. Though health is defined with reference to disease, the emphasis is mainly on wellbeing. Though the 'complete state of physical, mental and social wellbeing' appears to be more an ideal state, the goal of the individual should be to attain proximity to this state. The closer the one is towards this 'totality', the higher will be the wellbeing.

Models of Health

The health models were constructed depending upon whether the emphasis was on the 'Disease' or 'Wellbeing'. The biomedical model laid emphasis on the disease, while the biopsychosocial model laid emphasis on wellbeing.

Biomedical Model

The term 'biomedical' can be explained as connoting the idea that the problem of disease is biological and the solution to it is medical. The roots of the biomedical model are the reductionistic argument, which conceived body and mind as two separate and disintegrated entities. The focus of this model was the state of disease rather than the state of 'health'. The individual suffered diseases because of chemical imbalance in the body, deviation or dysfunctions of the cells or the neural network. The invention of bacteria added another scientific aetiology from an environmental source. Thus, the biomedical model propounded that disease is a manifestation of disequilibrium on a biological basis due to either internal biological dysfunction or malfunctioning or inflicted by external factors from the environment. Thus, the biological model construes the individual as a passive recipient and a 'victim' of disease.

The concept of the biomedical model perceives the human body as a mechanical mobile machine, which may go out of order due to either external intrusions or wear and tear in some specific parts. Just as the way a machine is either functional or non-functional, the medical model depicts disease and health as polar opposites. One is either healthy or unhealthy or diseased. Thus, when there is no disease, one is supposed to be healthy. When an individual is diagnosed with a disease, the treatment is administered by the doctor in the form of medicine, which 'repairs' the biomedical imbalance and cellular problem or 'removes' the external intrusions causing the diseased state.

The disease according to the biomedical model manifests in the form of symptoms either located in the specific body organ or indicated by deviation from the normal functioning of a system in the body. The diagnosis is based on these symptoms. The treatment through medication

results in disappearance of these symptoms, thus shifting the position of the person from 'diseased' to 'healthy'. Thus, the concepts of health and illness are dichotomous.

This in a way promoted the idea of 'a pill for every ill'. To a certain extent, this was also evidenced when the majority of diseases were of acute nature like typhoid, tuberculosis and cholera, which were easy to cure with penicillin and sulpha drugs. Death rates due to these diseases declined remarkably.

The state of health can be labelled as a state of 'ease' and disruption to this state as 'Dis-ease'. According to the biomedical model (Figure 2.1), the two states are mutually exclusive and dichotomous. The cause of 'Dis-ease' state could be both internal and external, with the same consequence of shifting the individual to the state of 'dis-ease' from 'ease'. However, the corrective measure in the form of treatment is necessarily external with the power of restoring the individual's state to 'ease' or 'health'. The main elements of this model are assumptions of biological functions and treatment approach based on statistical normality.

The biomedical model can be compared to the S-R model of behaviour. In both, the major common drawback was ignoring the 'Organism' as thinking, feeling and expressing entity. Hence, the criticisms of the two theories have been almost on the same ground.

The model mainly emphasizes the 'Disease pole' of the dichotomy. The conceptualization is based on 'one cause and one cure' for every disease, infirmity or dysfunction. The glaring vacuum in this model is ignoring the human being as the medium of experiencing and expressing

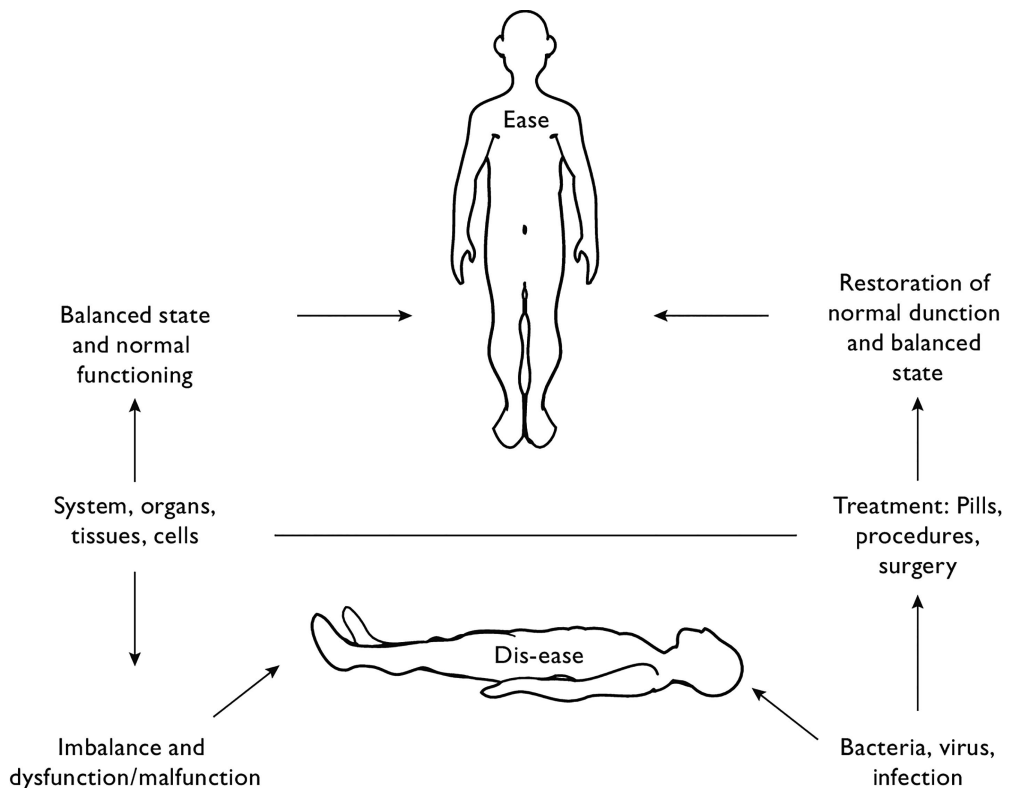


Figure 2.1 Biomedical Model of Health and Illness.

Box 2.1 Significant Aspects of the Biomedical Model

- 1 The individual has two separate entities called 'body' and 'mind' that function independently.
- 2 Health and disease refer to the physical states that have no natural continuity. One is either diseased or healthy at any point.
- 3 Health is the absence of disease.
- 4 'Disease' is a symptom physically manifested with an underlying abnormality, malfunction or dysfunction within the body.
- 5 The individual is a passive victim of circumstances that induce a disease in him/her.
- 6 The diagnosis of the disease is based on the symptoms.
- 7 Diseases are treated by interventions from outside by administering medication or surgery.
- 8 The patient is a passive recipient of treatment.
- 9 The cure is indicated by the absence of symptoms where the individual is assumed to have moved to the state of health.
- 10 Irritability, emotional turmoil or delusions are unrelated to the bodily function.

the symptoms of the disease. A number of syndromes with multiple underlying causes have no logical explanation in this model.

Further, the symptoms experienced and expressed by the individual have wide variations. For example, the subjectivity in experiencing pain is scientifically endorsed by the gate theory.

The formula of cause and effect is not satisfactory considering the absence of universality in its operation. For example, the biomedical theory has no satisfactory explanation as to the process by which, exposed to the same environment and bacteria, only some individuals prove vulnerable, while others do not get the disease.

The definition of health as polar opposites fails to explain the phenomenon where despite the disease or injury, the individual functions at an optimal level. Similarly, it also has no explanation when there is dysfunction of the organ with no underlying pathology. Hence, Radley (1994) stated that explaining health and disease in dichotomy is just a linguistic artefact. As observed by Siegel (1986), the biomedical model assumes that 'disease catches individual rather than the individual catching the disease', thus reducing the role of an individual to an 'absorbing agent'.

The lacunae of the model can be best understood from the example in Box 2.2. The example presents two versions of the diagnosis, impairment and prognosis of the disease.

A 50-year-old IT executive suffered a paralytic stroke of his left part of the body six months ago. His left leg still has a drag, and his left hand has not achieved perfect coordination. The IT executive, though permitted by the doctor to resume normal routine, has not returned to work.

In box 2.2 both the versions are true in terms of diagnosis, impairment and prognosis. The doctor's version is based on the objective assessment, while the patient's version is based on his subjective experience. Both are based on 'Perception'. The doctor's perception is grounded in his medical knowledge, professional experience and skills, while the patient's perception is based on his beliefs, attitudes, expectations and values. The doctor's version is that of disease, while the patient's is that of illness.

Box 2.2 Paralytic Stroke: Two Versions

<i>Dimensions</i>	<i>Doctor's version</i>	<i>Patient's version</i>
Diagnosis	Mild stroke, with a history of hypertension	Severe stroke
Impairment	Slight weakness of the left leg and mild coordination dysfunction in the left arms. Language and cognition intact	Left leg doesn't work. Left hand is useless
Prognosis	Good. Able to do almost all activities Is fit to return to work	Have become handicapped Unable to play tennis or cycle Still feel very sick Cannot go back to office

Kleinman (1980) brings a clear distinction between the two. 'Disease' according to Kleinman refers to the bodily condition, the presence of pathology that is for the doctor to diagnose and treat. 'Illness' refers to the experience of that disease by the patient, the way the person understands the disease. This happens in the backdrop of a number of factors such as the individual's knowledge about the disease, belief about its impact, past experience, expectations and the values related to a number of factors such as autonomy, dependence. Dalal (2016) observes, "clearly, disease is a medical term; illness refers to psychological side..." (p. 10). By reducing the role of the patient into a passive recipient of the disease and treatment, the biomedical model turned a blind eye to the psychological factors of the patient that makes the prognosis a reality. All the personal psychological characteristics of the patient operate in a social context but not in isolation. For example, the patients' knowledge and experience about the disease originates from the social source. Similarly, the expectations and values also have a social context and relevance. The biomedical model is totally silent on this dimension.

The example in Box 2.3 clarifies this aspect.

An examination of the case described in Box 2.3 clearly reveals the social influence (family being the first social agent) on the individual's recovery from surgery. While the medical assessment and advice are for resuming the normal social roles, the indulgence of the social support system (which, in middle-class Indian society, is overwhelming, particularly in the event of illness) prolongs one's return to the state of 'health' from that of 'disease'. In the words of one Indian Cardiac Interventionist, "the actual problem for the Cardiologist is not the patient who is advised bypass surgery, but it is the so called friends and acquaintances of the patient who narrate the cases they 'know' and induce a set of beliefs and attitudes in the patient". A patient who has narrated two cases of deaths following surgery by two independent 'friends/relatives' suffers high anxiety induced by internalization of consequences and negative thoughts.

The social aspect of the disease encompasses the capacity of the patient to fulfil the responsibilities in a social role to the expectations of society. The level of expectations influences his continuation of ceasing the role of the patient. Thus, while 'disease' is a doctor's assessment and 'illness' is a patient's experience, 'sickness' is the social role of the person determined by society. The biomedical model has no single reference to this aspect.

The biopsychosocial model of health evolved out of the inadequacies inherent in the biomedical model.

Box 2.3 Recovery of CABG Patient

The 58-year-old man has been discharged from hospital after Coronary Artery Bypass Grafting (CABG). The box presents the doctor's advice, inputs from the social support system and patients' reaction/response in three separate columns. This presentation relates to six weeks after the surgery.

<i>Dimensions</i>	<i>Doctor's advice</i>	<i>Social support (family)</i>	<i>Patients' reaction/response</i>
Diet	Low on oil and carbohydrate Low salt High fibre	Food served has no oil and no carbohydrate No salt Boiled vegetables and fruits	Food is tasteless. I have not regained my appetite
Activities	Can gradually resume normal activities. Can resume all his roles. Should walk regularly	Assistance and support extended in every activity. Patient's family roles are transferred to other members. Walking can wait for some more time because it was 'heart surgery' that you have undergone	It is taking very long for my recovery. I don't know when I will be 'normal' again
Work	Can return to work	You have accumulated a lot of leave. Use them now and take a complete rest	My professional responsibilities are now on my counterpart. I cannot take so much stress now
Prognosis	Recovery is good	Take your own time. You are sick. You have our support	I am still sick

Biopsychosocial Model

The biopsychosocial model of health evolved from the criticisms of the biomedical model. Engel (1977), a strong critique of the biomedical model for its excessive focus on biological aspects for aetiology and medical aspects for cure, proposed the biopsychosocial model. As the name suggests, the biopsychosocial model gives prominence to psychological and social factors as significant contributors to health and illness in addition to the biological factors.

At the very outset, the biopsychosocial model rejects the two assumptions of dichotomy as conjectured in the biomedical model. The first is the dichotomy of health and disease as two opposite poles. To explain it further, the biopsychosocial model, which construes body and mind as two separate entities, rejects their independent functioning. It conceives a close and continuous interaction between the body and mind contributing to the state of health or illness. Its challenge to the dichotomy of health and illness is on the ground that there is a possibility of positioning oneself between these two poles. First of all, recovery from certain illness could be a slow and gradual process where there is a scope for the person to move gradually from illness to wellness. Secondly, illness may vary in severity and consequences. While some may be a temporary indisposition, some may be severe causing permanent infirmity (e.g. amputation of a limb) while

some other may be terminal. Thirdly, while the polar opposite position may be somewhat true in case of acute illnesses, in case of chronic diseases like hypertension, arthritis, diabetes, one may find the BP 'slightly high', 'very high' or normal; and the same with the sugar levels in the blood. Finally, even when the BP is high one may not label oneself as 'sick'. Thus, the biopsychosocial model postulates health (wellness) and illness not as two separate and independent concepts but as two ends of the continuum varying in degree.

As indicated in Figure 2.2, it is possible for an individual to position oneself at any point of the continuum depending upon one's own judgement that includes the medical diagnosis and label, as well as one's own subjective perception of 'illness'. The optimum state of health or wellness is a conceptual position when the individual feels highly energetic and happy and shows an optimum level of performance. By envisaging the position of the individual on any point of the continuum, the model places equal importance to both health/wellness and illness, both of which are states that come out of a symbiotic relationship between biological, psychological and social factors.

This model, in fact, can be viewed as an extension of the biomedical model. While the biomedical model emphasizes one cause and one treatment, the biopsychosocial model propounds that multiple factors interplay as determinants of health and illness. One may wonder about the possibility of interaction between the three factors named in the model. It may sound improbable, but the macro-level factors of psychological and social processes interact with biological factors at the micro level. This is explained using the system theory. According to the system theory, all levels of organization in an entity are hierarchically connected to each other. A change in any one level impacts all the other levels bringing changes therein. Adopting it in the biopsychosocial model of health, it can be explained that the biological factors involving the micro-level process are nested within the psychosocial aspects that involve the macro-level process. Any changes in the micro level (e.g. biochemical imbalance) bring about a concomitant change in the macro level (e.g. mood changes and social response to the affective disposition). The vice versa is also accepted. The multidimensionality of 'biopsychosocial' factors is explained in the model as constant operating forces starting from aetiology, symptom manifestation to the treatment process.

The crux of the biopsychosocial model lies in answering the question 'when does a person feel he/she is sick?' Engel (1977) explains that some individuals express a somatic condition or an emotional upheaval as 'problem of living', while others perceive it as 'illness'. The reason

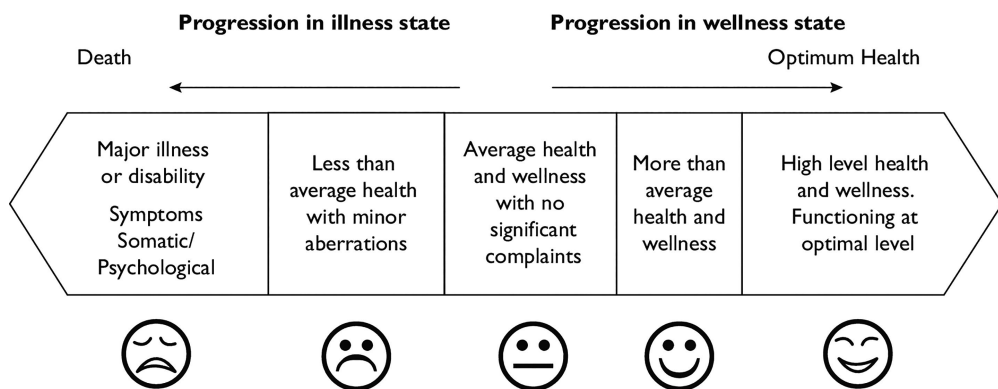


Figure 2.2 Biopsychosocial Model of Health and Illness.

lies in whether or not the person is willing to live the ‘sick role’ and seek health care. Again, the surfacing of symptoms experienced in the form of pain has several expressions varying in form and degree as a function of demographic and cultural factors (Mohan, 2010). Engel further explains the concept of being sick with ‘grief’ in people experiencing grief reporting ‘ill’ with both somatic and psychological symptoms. Given such complexity, the practising physician should have knowledge in the field of psychology and understand the social processes in the context of the patient in addition to his knowledge and skill in medicine. Alternatively, the diagnosis and treatment process must involve a teamwork that includes expertise from all the three fields concerned.

Viewed from the prism of the biopsychosocial model, one realizes as to how the aetiology, symptoms/syndromes, treatment and prognosis of illness or the state of wellness can be explained from a wide spectrum of possible forces operating in combination. Figure 2.3 summarizes the complex confluence.

The health and illness status of the individual is determined by the curious interplay between the three forces. For example, the mere genetic predisposition of the individual does not result in the illness (e.g. cancer) in the person. Only when the lifestyle behaviour of the person (smoking) subscribes substantially to place him/her in the ‘at-risk’ category does the person get cancer. Similarly, though the environment is full of staphylococcus infection, not everyone exposed to the infection is affected, but a person who has been exposed to severe stress such as bereavement in the family contacts the infection because the stressful experience would have weakened the immune system. This is about the aetiology of illness or health. A more complex situation of all the forces interplaying with each other is explained in the following case.

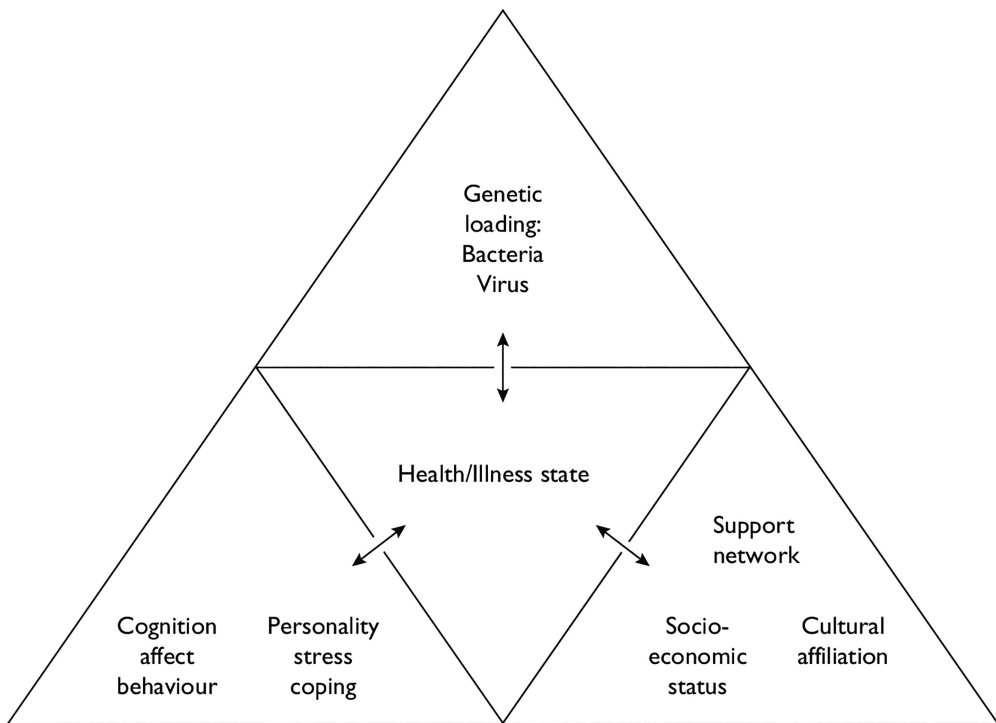


Figure 2.3 Biopsychosocial Model: Symbiotic Relationship among Factors.