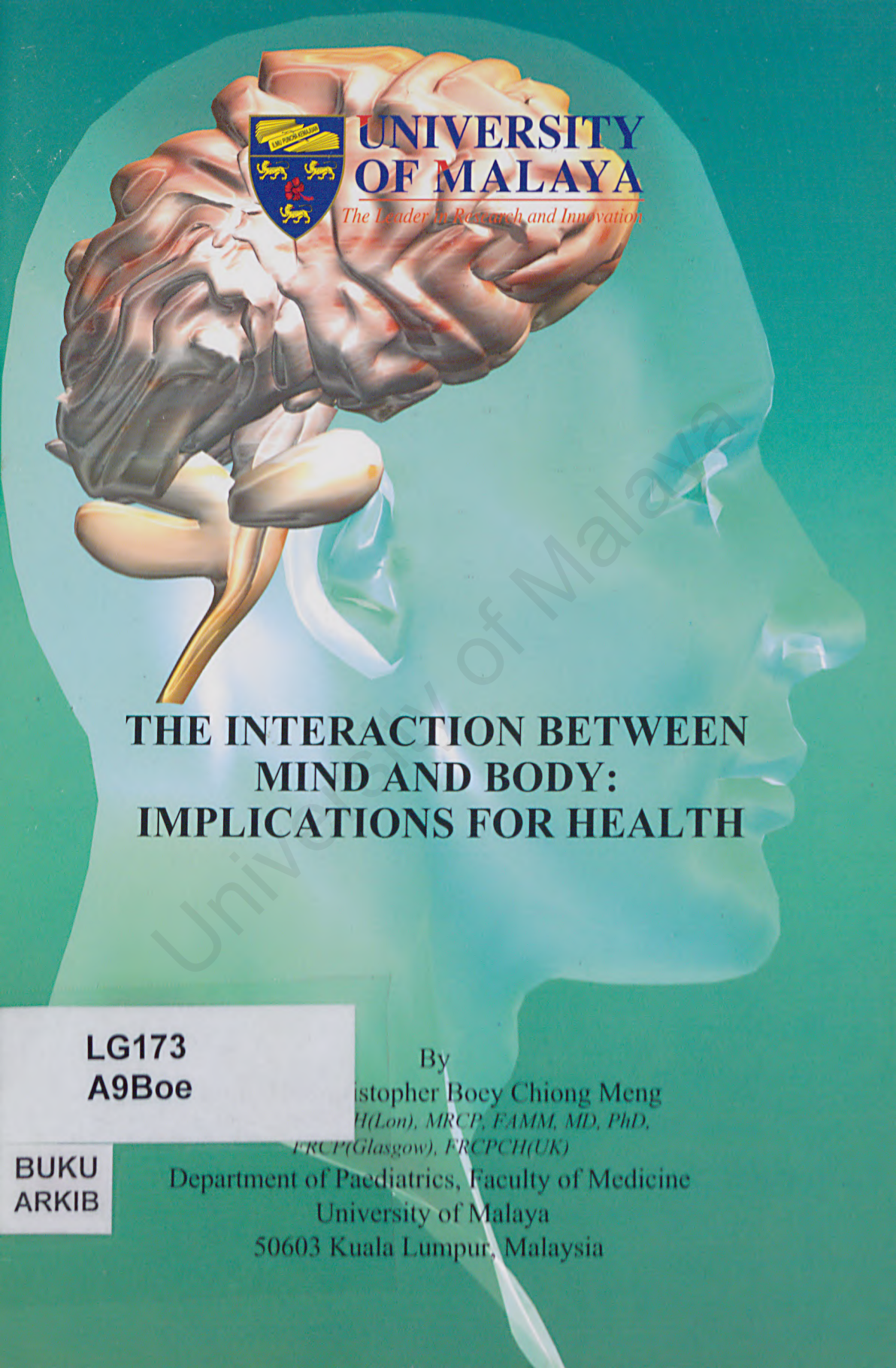


THE INTERACTION BETWEEN MIND AND BODY: IMPLICATIONS FOR HEALTH

By

istopher Boey Chiong Meng

H(Lon), MRCP, FAMM, MD, PhD,
FRCP(Glasgow), FRCPCH(UK)

Department of Paediatrics, Faculty of Medicine
University of Malaya
50603 Kuala Lumpur, Malaysia

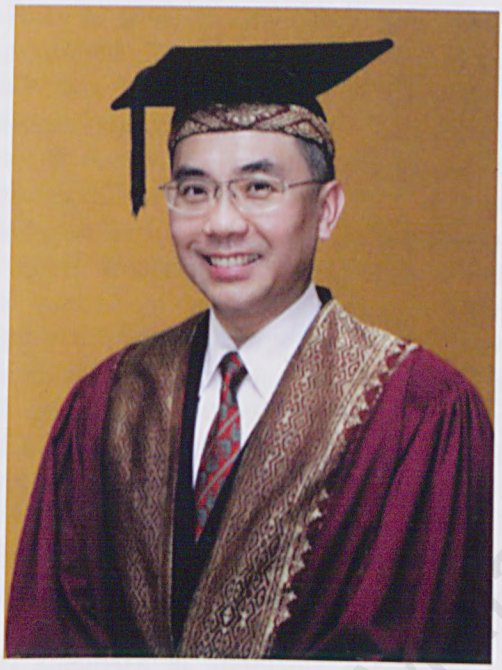
UNIVERSITY OF MALAYA

The Leader in Research and Innovation

THE INTERACTION BETWEEN MIND AND BODY: IMPLICATIONS FOR HEALTH

Inaugural Lecture by
Professor Christopher Boey Chiong Meng

26th May 2009



PROFESSOR DR CHRISTOPHER BOEY CHIONG MENG
MBBS(Lon), DCH(Lon), MRCP, FAMM, MD, PhD, FRCP(Glasgow), FRCPCH(UK)

Department of Paediatrics, Faculty of Medicine
University of Malaya, Kuala Lumpur

Born and brought up in Penang, Professor Boey graduated with a Bachelor of Medicine and Bachelor of Surgery (MBBS) from the University of London in 1987. Until 1992, he worked in various hospitals in the United Kingdom, including children's hospitals such as the Great Ormond Street Hospital for Sick Children in London and Birmingham Children's Hospital. During this period, he obtained his Membership of the Royal College of Physicians of the United Kingdom and Diploma in Child Health from the Royal College of Physicians of London. Upon returning to Malaysia, he was appointed a lecturer in the Department of Paediatrics at the Faculty of Medicine, University of Malaya on March 16th, 1992.

In addition to providing service and teaching in general paediatrics at the University of Malaya Medical Centre, he also started the Unit of Paediatric Gastroenterology, Hepatology and Nutrition in the Paediatric Department in January, 1993 as the head of unit and its only staff. The unit has gradually grown and now has a team of three staff specialists. It is recognised nationally as a centre of excellence for this subspecialty, receiving referrals from hospitals and clinics throughout Malaysia. In 1996-97, Professor Boey was Visiting Fellow in paediatric gastroenterology in Sydney and Brisbane, Australia. In March 2000, he was awarded 'The Young Clinician's Award' by the Asian Pacific Association of Gastroenterology and the Asian Pacific Society for Digestive Endoscopy and in August 2000, the World Congress Travel Outreach Award by The North American Society of Pediatric Gastroenterology and Nutrition.

In 1999, Professor Boey was admitted as a member of the Academy of Medicine of Malaysia and in November that same year, he was promoted to Associate Professor in the University of Malaya. In 2000, he was awarded a Doctorate in Medicine (M.D.) for his research on recurrent abdominal pain in Malaysian children. This was a comprehensive study based on hospital and community surveys. In 2002 and 2004, Professor Boey was conferred respectively Fellowship of the Royal College of Physicians of Glasgow and Fellowship of the Royal College of Paediatrics and Child Health of the United Kingdom. Recognising the importance of inter-faculty collaboration, he went on to perform extensive joint studies between the Faculty of Medicine and the Faculty of Education on the school performance of children with gastrointestinal problems. This resulted in the award of his second doctoral degree, Doctor of Philosophy (Ph.D.), in 2004. In 2004, he was also awarded the University of Malaya Excellent Service Award. The University of Malaya promoted him to the position of Professor in December 2005.

Professor Boey has served in the Faculty of Medicine as a coordinator of the undergraduate programme. In addition, he has been involved as an invited speaker in courses on paediatrics and paediatric gastroenterology for undergraduates as well as post-graduate students, both in Malaysia and in other Asian countries such as Singapore, the Philippines and Japan. In 2002, he was appointed Visiting Associated Professor of Paediatrics at the

Juntendo University School of Medicine, Tokyo, and was subsequently promoted to Visiting Professor in July, 2007. In August 2008, he was appointed Visiting Professor of Paediatrics at Keio University School of Medicine, Tokyo. Since 1997, he has been involved in coordinating the clinical component of the MRCP(UK) and MRCPCH(UK) examinations, and in 2008, he was appointed by the Royal College of Paediatrics and Child Health as an examiner of the MRCPCH(UK) examination.

Professor Boey served as a committee member in the Malaysian Paediatric Association in 1993. In 2000, he served as secretary of the College of Paediatrics, Academy of Medicine of Malaysia and also chaired the subspecialty committee for Paediatric Gastroenterology in the College. He was also appointed an advisor to the Malaysian Breastfeeding Association in 2003. Professor Boey is currently the chairman of the Ministry of Health Specialty Credentialling Sub-Committee for Paediatric Gastroenterology. In 2007, he was conferred Fellowship of the Academy of Medicine of Malaysia.

At the international level, in June 2005, he was appointed Vice-President of the Asian Pan-Pacific Society of Paediatric Gastroenterology, Hepatology and Nutrition and became President in August 2008. In March 2009, he was appointed a Member of the European Academy of Sciences and Arts, which is based in Salzburg.

On a broader scale, in addition to activities in medicine, Professor Boey has also been active in numerous activities for the promotion of peace, education and cultural exchange. Some of the many activities he has been involved in over the years are the Fourth Asian Pacific Regional Conference organised by the International Physicians for the Prevention of Nuclear War in August1994; the 'International Seminar on Islam and Confucianism : A Civilisational Dialogue' organised by the University of Malaya in March 1995; and the National Conference on ' The Family in the K-Economy Age: Challenges to Parenthood' organised by Asia Pacific Forum on Families, Malaysia in November, 2001. In March,2005, he served as a rappateur at an 'International Conference on Peace in Palestine' held at the Putrajaya International Convention Centre. He lectured on "Media and Religion" at the

Asia Media Summit in May, 2006. In January, 2008, he was invited by Kyoto University to speak on "The Role and Mission of Education at Universities in the 21st Century – from the Viewpoints of Health, Medicine and Bioethics". He was symposium chairman in July 2008 for a panel discussion on 'Internal and External Impediments in Religion's Quest for Global Justice and Peace' at the International Conference on 'Religion in the Quest for Global Justice and Peace' organized by the Centre for Policy Research and International Studies, Universiti Sains Malaysia.

Professor Boey is happily married and lives in Kuala Lumpur with his wife, Lee Leng, and three sons, Victor, Arthur and Marcus.

Contact Details

Correspondence Address :
Department of Paediatrics, Faculty of Medicine
University of Malaya Medical Centre, 59100 Kuala Lumpur

Fax Number : 603-79556114

E-mail Address : ccmboey @yahoo.com
ccmboey@um.edu.my

THE INTERACTION BETWEEN MIND AND BODY: IMPLICATIONS FOR HEALTH

Inaugural Lecture by
Professor Christopher Boey Chiong Meng

I am deeply honoured and grateful to have the chance to deliver this Professorial Inaugural Lecture. To all of you who are gathered here today, I would like to say 'thank you very much' for taking time out of your busy schedules to attend this talk. I would also like to take this opportunity to deeply thank everyone in the University of Malaya for your friendship and support since I started working here as a paediatric lecturer on March 16th, 1992. The people I am indebted to are too many to enumerate and include all my teachers, my students, my patients, my colleagues and all my friends. Last but not least, I express my profound gratitude to my parents, my wife and my three sons for all their love and support.

The interaction between mind and body is an important topic and I believe its significance in medicine will increase in the years to come. One's view of it impacts upon many areas, such as clinical practice, organ transplantation, genetic engineering, euthanasia, terminal care, artificial insemination, contraception, abortion, psychosomatic medicine and others. The limited time available today does not permit an in-depth discussion of each issue. I would be most gratified, however, if my talk today stimulates further reflection and discussion on this subject.

Rather than just discuss the topic theoretically, what I hope to do today is to share what I have learnt about the interaction between mind and body over the years based on my own reflections, studies and clinical experience. At the same time, I wish to offer some thoughts on its relevance with regard to the maintenance of health and the role of health care professionals.

Philosophical perspectives on the interaction between mind and body

'Body' refers to all matter and physical phenomena, including the human body. 'Mind' refers to the unseen, spiritual, psychological aspects of life, including reason, intellect, memory, attention, will and emotion. It is the aspect of a person that enables the person to be aware of the world, to think and to feel.

From olden times, scholars have developed various ideas about the relationship between the mind and body. These concepts are numerous and varied but generally fall into one of two groups: materialistic and spiritualistic.

Both ways of thinking have contributed to human development over the centuries and it is important to give them due recognition. For example, those who emphasise the spiritual or 'mind' aspects have contributed to making human society humane by expounding love and moral standards. The material or 'body' approach, on the other hand, has enabled us to lay the foundation of modern science.

Problems arise, however, when there is over-emphasis on one approach to the exclusion of the other. Thus, the materialists, by regarding the physical body as the original source of being, tend to view life as essentially material in nature. They hold that the only "reality" is the physical or material world which can be seen, measured and touched. The spiritualists, at the other extreme, fall into the trap of disregarding and even despising the physical aspects of human life. They regard the physical world as an illusion. By pursuing only one aspect of the issue, both the materialists and spiritualists fail to appreciate the relationship between mind and body.

Many of the problems of humankind today can be traced back to such a separation and imbalance. Medicine is no exception. It would be ideal if we could grasp the relationship between the two elements of mind and body which are at the same time separate and united. Neither is more important or more fundamental than the other. Appreciation of the intimate interaction between mind and body has important practical implications for medicine and health. However, a survey of history shows that we have often not achieved

the right balance in our understanding of the relationship between mind and body.

A historical overview of our understanding of mind-body interaction

In primitive society (10000BC), disease was thought to be caused by spiritual powers and therefore had to be treated by spiritual means. The evil spirit entering the human being had to be liberated through exorcism and similar means. The emphasis was almost exclusively on the spirit and there was very little, if any, consideration of the physical body. In some societies even today, there is a dangerous lack of respect for medical science and an excessive reliance on superstition.

In the ancient civilizations such as the Babylonian-Assyrian Civilizations (2500-500BC), medicine was generally psychosomatic and often dominated by religion. Many Egyptian beliefs were based on myths and legends. However, there is evidence that in ancient Egypt, interest in human anatomy started to increase and there existed people who were referred to as physicians.

With time, a more holistic approach was adopted. There was more interest in the physiology of the body, while maintaining an understanding of the psychological and spiritual aspects of life. The ancient Greek physician, Hippocrates, thought to have lived around 460BC to 370BC and often referred to as the 'father of medicine', wrote in his treatise, entitled *Tradition in Medicine*, that "*no one can understand the science of medicine unless he knows what man is*", thus emphasizing that in order to cure the human body, it is necessary to have a knowledge of the whole of things. Over the following hundreds of years (100BC-AD400), although various theories of the causation of disease were put forth such as Galen's humoral theory that disease was caused by disturbance in the body fluids, medicine generally continued to adopt a holistic approach.

As we entered the Middle and Dark Ages (around AD500-1450), mysticism and religion again dominated medicine. Sinning was thought to be the cause of mental and somatic illnesses. During the Renaissance (1500-1700), there was revival of interest in the

natural sciences and their application to medicine as well as advances in anatomy, autopsy, microscopy and others.

In the 19th century, modern laboratory-based medicine, such as that of Pasteur and Virchow, opened up a new era in medicine. From that time onwards, doctors began to feel that disease had its origin in disorders of the cell. The development of better microscopes enabled more details to be examined. Medicine became more and more convinced that all disease must be associated with some kind of structural or functional cell change. Our understanding of the workings of the human body as well as of pathological processes progressed by leaps and bounds.

As time went on, however, the inter-relationship of the mind and the body was rejected as unscientific and the study of the mind was relegated only to the realm of religion and philosophy. Although it had brought about many benefits, progress in the scientific understanding and treatment of disease was, unfortunately, in many instances also accompanied by a situation where the disease was treated, but not the whole patient.

It is mainly in the last three centuries or so of human existence that, as pointed out by many historians, medicine in general has focused predominantly on the physical body as the source of disease, paying little, if any, importance on the mind. We have swung completely in the opposite direction from the days of our forefathers in primitive society where illness was thought to be entirely caused by spiritual powers. With its analytical and specialising approach, western medical science, though possessing great knowledge about pathological conditions, often regards illness and the diseased organ as separate from the human beings who are inflicted by the illness.

Professor Felix Unger, head of Cardiac Surgery at Salzburg State Hospital and President of the European Academy of Sciences and Arts, summarises the state of medical science today clearly as follows:

"*Its strong inclination towards the natural sciences has caused medicine unintentionally to regard patients as peculiar cases describable in natural-scientific terms*"(Unger, 2005)

Psychological and physical illness – is there a real division?

Let us reflect on the way we look at illness today. It cannot be denied that a large proportion of the training of doctors is centred on the scientific diagnosis and treatment of diseases of the body. There is no doubt that this is important. We also recognise the existence of disorders of the mind, devoting a whole branch of medicine – psychiatry – to it, studying it scientifically like we do the other organs of the body. However, whether consciously or not, we often separate the so-called 'mind' problems and the 'body' problems in our clinical practice, and ignore their inter-relationship.

It is a common tendency to classify illnesses into those that we think have a physical or organic cause and those which we consider to be psychological or psychosomatic or non-organic in origin. This is, of course, convenient for the busy clinician but there is increasing recognition that this clear-cut division of diseases into 'physical' (body) and 'psychological' (mind) categories is an oversimplification and often wrong. We are beginning to recognise that all diseases, even genetic diseases and congenital malformations, have both physical and psychological elements that we cannot ignore. The mind and the body may appear separate but are, in fact, unified in a single entity of life.

We know that when patients discover they have serious illness, the accompanying shock has major effects on their mental and emotional states. Illness affects how we feel in many ways, often causing one to plunge into the depths of depression. In the case of children, their self-image and development can also be affected. In many instances, the impact upon their young minds can have quite lasting consequences. We are beginning to see evidence that their state of mind, in turn, can also affect the original disease.

The mind can indeed affect the body. It is well recognised that the symptoms of 'physical' diseases such as peptic ulcer disease can worsen in times of stress. Severe emotional turmoil, we are all well aware, can precipitate a cardiac arrest. Great joy as well as deep sorrow can lead one to shed tears. Indeed, expressions in the English language such as 'trembling with fear', 'the heart beating in excitement' and 'shaking with laughter' show that even long ago, people have recognised the influence of emotions on the body.

One's emotional state is also revealed in one's physical appearance and attributes of the mind such as confidence is reflected in the quality of one's voice.

Specific instances of mind-body interaction in clinical practice

My own interest in the relationship between the mind and the body was stimulated when I started seeing children at the University of Malaya Medical Centre in the early and mid-1990s. I was struck by the numbers of children with severe physical complaints - such as headache, abdominal pain and vomiting - without any detectable physical cause. The pain that was experienced by these patients was in no way imagined; it was real and often very severe and yet conventional tests could not reveal any pathology.

A survey I did in the 1990s of some three thousand elementary school-children in Malaysia revealed that about ten percent of them suffered from the syndrome of recurrent abdominal pain, defined as at least three episodes of stomach-aches intense enough to interfere with their daily lives over a period of at least three months. On looking systematically at Malaysian children with recurrent abdominal pain who were admitted to hospital, I found that a significant proportion of over 95% did not have detectable abnormalities that could account for the symptom, whether on physical examination or investigation, including gastrointestinal endoscopy.

For example, the organism *Helicobacter pylori* was once proposed to be an important cause of childhood recurrent abdominal pain. However, various paediatric studies suggest that this is not necessarily true (Sherman and Macarthur, 2001). In a study performed between 1995 and 1997 on *H. pylori* sero-positivity, I noted a relatively high prevalence of *H. pylori* (16.7%) in asymptomatic Malaysian teenagers, indicating that the organism could be present without causing symptoms. In the same study, the prevalence of *H. pylori* sero-positivity among asymptomatic Malaysian children was lowest in Malays (6.6%), intermediate in Chinese (10.4%) and highest in Indians (17.9%). Interestingly this was the opposite of the prevalence pattern of recurrent abdominal

pain that I found in the same population where recurrent abdominal pain was most common in the Malays (11.9%), intermediate in the Chinese (9.3%) and least common in the Indians (8.2%). Current research shows that childhood recurrent abdominal pain is multi-factorial in origin with a major psycho-social component.

What was worrying, however, was that all the children I saw at that time with recurrent abdominal pain had missed school on account of their symptoms, with at least a third having missed over two weeks of school in the previous six months.

I went on to perform more in-depth studies to correlate the presence of stressful life-events and the occurrence of recurrent abdominal pain, and found a strong correlation between them in both rural and urban school-children aged between nine and fifteen years. The life-events included events such as the loss of a family member through death, the change in occupation of a family member, hospitalisation of a family member, the child's own hospitalisation, recent change of address, change in occupation of an immediate family member, failure in a major school examination and bullying at school. The presence of stressful life-events was not only associated with increased complaints of physical symptoms, but was also linked to poor academic performance. *(A list of some of my published work on the above subject is provided in Appendix B)*

Another condition that we frequently see these days is the syndrome of recurrent cyclical vomiting, which is a disorder characterised by recurrent stereotypical bouts of vomiting with intervening periods of normal health and the absence of an organic cause. At least half of the patients we see with this syndrome have some kind of psychosocial precipitating factor.

The most recent child I saw with recurrent vomiting was a ten-year-old boy. The episodes of vomiting were severe, resulting in electrolyte disturbances. Hospital investigations did not reveal any organic cause for the symptoms. The only child of well-educated parents, there were no obvious precipitating factors at first. However, a more detailed history revealed that there was a profound feeling of guilt in the family originating in the grandfather and transmitted also to his father. The grandfather was a soldier who had killed during war and unresolved feelings of profound guilt led him to commit

suicide a number of years ago. The family did not discuss this matter openly. However, it was a severe shock to the sensitive young boy and suppressing it all was undoubtedly an important cause of his symptoms. Once the problem was recognised and the whole family was gradually encouraged to talk about it, the episodes of vomiting started to reduce.

The results of my studies and the experiences of my patients have made me convinced that we cannot separate issues of the mind from those of the body. We cannot just look at the physical aspect alone even though it may appear that the patient – whether adult or child - is only complaining of a physical symptom such as "abdominal pain" and "headache" or diagnosed with a so-called "physical disease" like "asthma" and "diabetes". We need to know what the patient and, indeed, the family are thinking about and feeling – otherwise we would not be able to treat the patient completely. A doctor needs to pay attention to more than a diseased organ, more even than the whole man – it is crucial that he considers the man in his world.

The second outcome of my studies is the realisation that an important obligation of adults today is to create the conditions in the family, the school and in society for children to grow up happily with healthy bodies and minds. Symptoms such as stomach-aches and vomiting can often be a child's subconscious cry for help. Giving adequate time to the child and listening with concern to whatever he or she has to say is essential if we wish to understand the world of our children and help them. Parents and teachers who do not realize this point exacerbate the problem and end up putting further pressure on the child. This can lead to chronic illness.

The body's reaction to psychosocial stress and depression

Next, I would like to examine some studies published in the medical literature that have addressed the issue of mind-body interaction. One of the areas where mind-body interactions can be studied is the effects of mental conditions such as depression and stress on the body. "Stress" can be described as a condition that affects people when the demands made on them exceed their capacity to meet those demands (Kaplan and Sadock, 1998).

A number of papers have shown that there is association between depression and stress on the one hand and diseases traditionally thought to be "physical" or organic diseases on the other.

For example, there have been reports of a significant association between Crohn's disease and psychiatric factors. Depression was found to coexist with Crohn's disease more often than would be expected by chance (Helzer,1984; North and Alpers, 1994; Gerbert 1980). It is unclear whether depression occurred as a result of the disease, or whether depression played a role in facilitating the expression of the inflammatory bowel disease.

Depression has also been found to increase mortality and morbidity in patients with heart failure, regardless of its aetiology. Such adverse associations persist after adjustment for conventional prognostic risk factors. (Jiang et al, 2002)

It is not entirely clear what the mechanisms are that account for the observed association between various diseases and depression or stress. In recent years, there have been various studies that attempt to look at possible mechanisms although we still do not have a completely satisfactory explanation.

For instance, depression has been found to be associated with inflammation as evidenced by the finding of increased levels of C-reactive protein (Ford, 2004). Increased TNF-alpha levels (Tuglu, 2003) and coagulation factors (Panagiotakos, 2004) have also been shown to be present in depression. Animal studies show that mice subjected to maternal deprivation develop a behavioural pattern reminiscent of depression and are more susceptible to inflammation (Varghese, 2006).

It has also been proposed that another possible mechanism linking depression with disorders such as cardiac pathology is autonomic imbalance. Some of the abnormalities that have been found include impaired parasympathomimetic functions (Nahas et al, 2007) and a dominant sympathetic drive (Gorman and Sloan, 2000).

Whatever the mechanisms may be, mental or psychological stress has been linked to a variety of other conditions such as skin

disorders, allergies, asthma and even malignancy. Depression and hopelessness seem to reduce the body's resistance, making one vulnerable to various illnesses. These are areas that require further study.

The effect of a positive mind-set on the body

While there has been a surge of studies on the negative effects of stress and depression on the body, much less is known about the effect of a positive mind-set but it seems reasonable to propose that a positive mind-set should also have positive effects on the body. There are not many studies that test and document this possibility. In one study quoted in Kaplan& Sadock's *Synopsis of Psychiatry* (1998), important symbolic events were found to have a positive significant short-time effect on mortality and potentially on health in general. Symbolic events that were studied – such as the Chinese harvest moon festival for Chinese women – prolonged the lives of patients dying from malignant neoplasms and cerebrovascular diseases.

What are the effects of positive psychological events on the body? Although we are still in the early stages of understanding and case–controled studies are hard to come by, it would be a mistake to underestimate their effects. Actual experiences of individual patients at some point or other of our working life often testify to this fact. I feel it is very important for doctors, nurses, medical students, patients and their relatives to be aware of this.

At this point, I would like to introduce the experience of the late Dr. Norman Cousins (1915–90), formerly an adjunct professor at the School of Medicine, University of California, Los Angeles (UCLA), who was dedicated to exploring the mind-body connection in health and healing.

In the 1920s, when Dr Cousins himself was diagnosed with tuberculosis, he was sent away to a sanatorium where he noticed that although two patients might have similar medical conditions, the one who was hopeful and optimistic was far more likely to actually recover. Years later, he himself survived a life-threatening connective-tissue disease at the age of fifty and recovered from

cardiac infarction at the age of sixty-five. While cooperating fully with his physicians, Dr Cousins also realised that a crucial factor in his recovery was his own powerful determination to beat his illness. He subsequently became convinced that a positive determination to overcome illness could actually stimulate our organs and even individual cells towards health.

In an article published in 1976 in the *New England Journal of Medicine*, Dr Cousins commented on his experience as follows:

> *"The will to live is not a theoretical abstraction but a physiologic reality with therapeutic characteristics"*

> *"I have learned never to underestimate the capacity of the human mind and body to regenerate – even when the prospects seem most wretched. The life-force may be the least understood force on earth..... Human beings tend to live too far within self-imposed limits. It is possible that these limits will recede when we respect more fully the natural drive of the human mind and body toward perfectibility and regeneration. Protecting and cherishing that natural drive may well represent the finest exercise of human freedom"*

Almost a hundred years ago in 1910, Dr William Osler, Regius Professor of Medicine at Oxford University made a similar observation in the *British Medical Journal*.

> *"Nothing in life is more wonderful than faith - the one great moving force which we can neither weigh in the balance nor test in the crucible. Intangible as the ether, ineluctable as gravitation, the radium of the moral and mental spheres, mysterious, indefinable, known only by its effects, faith pours out an unfailing stream of energy....."*

Practical clinical implications – The importance of giving patients the courage not to be defeated by their illness

What is the practical clinical implication of knowing that there is close interaction between mind and body?

Based on his experience, Dr Cousins stated as follows:

> *"One of the doctor's biggest jobs is to encourage to the fullest the patient's will to live and to mobilize all the natural resources of body and mind to combat disease."*

S is a patient I know who is now in her twenties. She had biliary atresia, a condition that often leads to death in the early years of childhood if not successfully treated. Fortunately, she was operated on successfully in infancy. Although the operation managed to overcome biliary obstruction and re-establish bile flow, her liver had already been damaged before surgery and she needed constant follow-up and surveillance. About five years ago, her mother, who had been her pillar of support, died from breast cancer. Her bereavement together with her own chronic illness caused her to fall into the depths of depression and she lost the will to live. However, with constant encouragement from her father as well as the medical and nursing staff, she managed not only to live on but also developed the courage to pursue tertiary education.

When I saw her, she told me with pride that she had completed her masters thesis on the activities of young women during the Second World War. It was an academic thesis but at the same time, it was full of feelings of sympathy for the plight of war victims. Her sensitivity was no doubt sharpened by the fact that she had undergone illness and bereavement herself. I thought it was wonderful that she managed to turn her own misfortune into something very positive.

This experience illustrates that illnesses can serve to nourish our hearts. Indeed, a person who understands his illness correctly and perseveres through it will achieve a greater depth, strength and greatness in life.

It also serves to remind health care professionals of the importance of providing constant warm encouragement to their patients in addition to dealing with the actual disease itself. Encouragement does not simply mean unreasonably telling the patient that an illness can be cured completely. It means not giving up on the patient as a human being even when the disease cannot be cured. This experience emphasises the importance of encouraging

the strength of mind that enables the patient to rise above an illness and achieve great satisfaction despite the disease still being present.

Lessons from the life of Helen Keller

The positive interaction between mind and body is well-illustrated in the lives of many people, some well-known while others, less so. Nevertheless, they all demonstrate the fact that the severity of a physical handicap varies according to the person's emotional reaction to it. Blindness and deafness, for example, may seem to be completely physical problems. However, does the handicap result in loss of hope or does it become a challenge to be overcome? Helen Keller is a shining example of someone who has attained great heights despite physical handicap.

Helen Keller was born in Alabama in 1880. At the age of nineteen months, she was afflicted by an acute life-threatening illness that eventually left her blind and deaf. The years that followed were hellish for her family. There was no way to communicate with the young child. Imprisoned in her body, lonely in a silent world and unable to tell others her feelings and wishes, Helen would often rage about like a wild animal.

Helen's life was transformed when she met her teacher, Anne Sullivan, who was herself partially blind. There was a significant moment when Helen first realised that things around her had names. It was the moment when Ann Sullivan placed one of Helen's hands in a stream of water and then spelled the word *water* into her other palm.

Helen described her feelings at that moment beautifully in her autobiography, *The Story of My Life*:

> "*I stood still, my whole attention fixed upon the motions of her fingers. Suddenly, I felt a misty consciousness as of something forgotten – a thrill of returning thought; and somehow the mystery of language was revealed to me. I knew then that 'w-a-t-e-r' meant that wonderful cool something that was flowing over my hand. That living word awakened my soul, gave it*

light, hope, joy, set it free! There were barriers still, it is true, but barriers that could in time be swept away."

From that moment onwards, Helen continued to make astounding progress. She eventually graduated from college and dedicated herself to helping the blind and handicapped.

Helen Keller's story is a testimony to the powerful interaction between mind and body, and shows that the remarkable potential latent within the life of a single determined individual need not be held back by physical disability. Conversely, as emphasised hundreds of years ago in a time-honoured Oriental writing, *"....even if someone has great physical strength, if he lacks a resolute spirit, he cannot give full play to his abilities."* (edited by Philip Yampolsky and translated by Burton Watson).

Helen's story also contains an important lesson for health-care professionals. Her moment of break-through, related above, is now well-known but it was actually only possible because of something less well-known but equally important - Ann Sullivan's patience and her belief in Helen's potential. Helen had initially rejected any contact with Ann Sullivan, but as a result of Sullivan's painstaking effort to reach out to Helen, a warm and solid relationship of trust was forged which enabled the break-through to occur. Ann Sullivan was an educator, not a health-care professional, but doctors and nurses, and indeed everyone who has the responsibility to care for a patient, have much to learn from her courageous example.

Two experiences revealing the strength of the mind in the face of terminal illness

Terminal care is another area where due consideration of the mind is of utmost importance but sadly, often forgotten. Again, I would like to discuss this issue by relating the stories of two patients.

T is an eleven-year old girl I know who died of leukaemia a few years ago. Coming from another part of the country, it was not easy for her to adapt to life in Kuala Lumpur while having to come to terms with the reality of her diagnosis. In the beginning, she fell

into a depressed state and shut herself up from other people except her parents. Over the subsequent months, however, she developed a great realisation. She realised that the quality and significance of one's life is not necessarily dependent only on its length, but increases in proportion to the depth with which one lives one's life and the value one creates. It was a remarkably profound and mature realisation for any person, let alone for a child of her age. Young children, especially sick ones, often have thoughts that are more profound than we can ever imagine.

During the last year of her short life, she determined to do something useful with her life. She decided to challenge herself to do well in her primary school examinations (UPSR). Although her illness resulted in her missing a lot of school, her determination was strong and she gave everything she had to her studies.

As Helen Keller once said, "*When we do the best that we can, we never know what miracle is wrought in our life, or in the life of another*". Her parents and many friends around her age were greatly moved and encouraged when she managed to obtain 4 A's in the examination in spite of her illness. It was not the examination result itself that was most important but rather it was the tenacity of her spirit and the determination not to be defeated by her illness that really moved others.

Just before she died, she expressed the wish to attend university. Although some may call her unrealistic, I cannot help but marvel at the resilience and positivity of her spirit. My young friend eventually grew weaker and finally passed away. Although weak and diseased, she had a peaceful countenance at death. One's appearance at death is a good indicator of one's state of mind.

At a time when a disease is incurable, it is easy for both patient and doctor to harbour feelings of futility and uselessness. There is also a temptation to carry out desperate, heroic acts. I think there is much for both doctors and nurses to learn from the courageous attitude of this young patient in facing death. I have certainly learnt a lot personally from her.

The second patient, Jeffy, was a nine-year-old boy whom Dr Elizabeth Kubler-Ross described in her book *Death is of Vital*

Importance: On Life, Death and Life after Death. He developed leukaemia and had been in and out of hospitals since the age of three years. When Dr Ross saw Jeffy for the last time in hospital, he was pale, weak and unsteady as a result of central nervous involvement. It was becoming obvious that he only had a few weeks, at the most, to live. That day, Jeffy said, "I want to be sure that I am taken home today". Dr Ross talked to his parents and they finally agreed to allow Jeffy to have his wish. Once they got home and arrived in the garage, Jeffy said to his father, "Take my bicycle down from the wall". Let me read to you Dr Ross's own account of what happened subsequently.

Jeffy had a brand-new bicycle that was hanging on two hooks inside the garage. For a long time, the dream of his life had been to be able, once in his lifetime, to ride around the block on a bicycle. And so his father had bought him a beautiful bicycle. But because of his illness, he had never been able to ride it. It had been hanging on those hooks for three years. Now Jeffy asked his father to take it down. With tears in his eyes, he asked his father to put the training wheels on the bicycle. I do not know if you appreciate how much humility it takes for a nine-year-old boy to ask for training wheels, which are usually only for little children.

And the father, with tears in his eyes, put the training wheels on his son's bicycle. Jeffy was like a drunken man, barely able to stand on his feet. When his father finished putting on the training wheels, Jeffy took one look at me and said, "And you, Dr Ross, you are here to hold my mom back". Jeffy knew that his mom had one problem, one piece of unfinished business. She was not yet able to learn the love that can say "no" to her own needs. Her biggest need was to lift up her very sick child onto the bicycle like a two-year-old, to hold on to him and to run with him around the block. This would have cheated him out of the greatest victory of his life.

Therefore I held his mom back, and her husband held me back. We held each other back and learned the hard way how painful and difficult it is sometimes to allow a vulnerable, terminally ill child the victory and the risk to fall and hurt and bleed. But then Jeffy drove off.

After an eternity, he came back. Jeffy was the proudest man you have ever seen. He was beaming from one ear to the other. He looked like somebody who had won an Olympic gold medal. (Elizabeth Kubler-Ross, 1995)

Jeffy's appearance at that time was unusually beautiful, in spite of the severity of his illness. Jeffy was, in Dr Ross's words, "*like somebody who had won an Olympic gold medal*." I could sense the power of the mind of this little boy manifesting in his frail and diseased body.

One week later Jeffy passed away. A week after Jeffy's death, it was the birthday of Dougy, Jeffy's younger brother. Dougy related how after the bicycling episode, Jeffy, without telling his parents, had given him the bicycle as a birthday present. Jeffy had told Dougy that he wanted to have the pleasure of personally presenting his brother his most prized bicycle. However, he knew he could not wait another two weeks until it was Dougy's birthday, as he knew he would most likely be dead by then. Jeffy was thus taking care of 'unfinished business'.

Dr Ross comments as follows:

"*In all my work with patients, I learnt that whether they are chronic schizophrenics, severely retarded children, or dying patients, each one has a purpose. Each one cannot only learn and be helped by you, but can actually become your teacher*".

Both these experiences remind me how important it is for us as care-givers to do our best to pay great attention to the state of our patients' minds in the final moments of life. In addition to helping our patients, we will be surprised how much we can also learn ourselves. It is a grave mistake to separate the mind from the body and consider only the physical disease, leading us to sometimes administer treatment to terminally-ill patients excessively and unreasonably, thereby causing more pain and anguish. Such an attitude also leads to despair and loss of hope for both the terminally ill patient and care-giver when all medical treatment is futile.

There is an important difference between the courage to look the truth in the face, accepting the fact that all living things must die

while creating value out of the remaining days of life, and the typically arrogant pathological view that life and death should be subject to our will, desire and control.

The doctor-patient relationship: A relationship of trust between two fellow human beings

The experiences I have related emphasise the crucial importance of the doctor-patient relationship. This applies also to nurses and all other health-care-givers, including family members, who take on the role of caring for a sick patient.

While it is vitally important that we offer all that we can to the patient based on our respective training and specialties, it is actually the relationship of trust between two fellow human beings – the care-provider and the patient – that enables the patient to, in the words of Dr Norman Cousins quoted earlier, "*mobilize all the natural resources of body and mind to combat disease*".

Let me share some lessons that I have been privileged to learn from a recent experience of mine.

M is a patient I saw during my recent sabbatical in Japan. She is twenty-five years old and lives some two to three hours away by car from the Tokyo hospital where I was working. She has suffered from depression since childhood. As a result she has become increasingly withdrawn socially.

She had a follow-up on February 27th this year. That day, it snowed for the first time in Tokyo this year. She did not turn up, so instead, I saw the father who had come alone. I had not met M before and it was also the first time I was meeting the father together with a colleague who was a psychiatrist.

The father brought depressing news. M was getting worse and had written a suicidal note. Not being a psychiatrist myself, I could only sit and listen in silence as my psychiatric colleague desperately went all out to counsel the father. Putting aside my own professional inadequacies, I felt that as one human being reaching out to another,

I had to do something concrete. All that I could think of at that time was to write a short note to M myself.

It consisted of only four sentences and went as follows,

"*Dear Ms M,*

There is something higher than the sky.
That is your life.
Please treasure your life.
I wish you a bright future.

Chris Boey from Malaysia"

This was translated by my colleague into Japanese and handed to the father. The father was quite delighted as the relationship between him and his daughter had become increasingly tense of late, and it was not possible for him to communicate directly with her. However, bringing a message from another person was something else and he looked forward to doing so.

My message had a strong effect on the patient, more than I could imagine. She wrote back as follows,

"Dear Dr Chris,

Thank you very much for your wonderful letter. I must say that I was taken by surprise, but was extremely happy. I was refreshed.

Today, I had been feeling low-spirited and had been sleeping most of the day. When I saw the message in your letter, my eyes moistened and I started to cry. You see, I had been feeling particularly depressed lately and thinking that I would like to die as soon as possible. So, when I read your message that there was something higher than the sky and that was my life, tears started to flow from my eyes though I could not explain why. I felt very happy, as though something bright had entered my heart. I truly and truly thank you very much.

If ever our paths should cross, I really wish to meet you."

I was profoundly moved myself by her response. A week later, I decided to travel to where the family lived to do a home-visit and follow-up. It was a beautiful rural area where the family lived with snow-capped mountains even in the spring month of March. When I was there, I was pleased to find the patient herself in good spirits.

The patient kept asking me what the father had told me about her when he came alone to the clinic in February. Did he say anything bad about her? I could immediately sense the tension between father and daughter, and emphatically told the patient that I was moved by the father travelling all the way to Tokyo on his own in the snow for the sole reason that he was concerned about her.

I emphasised over and over again, "*Your father was really worried about you. He did not say anything bad about you. He travelled so far in the snow just for you. He only expressed concern about you.* " At this point, both father and daughter broke into tears and I could see that the icy relationship between them had started to thaw. It was a most moving and rewarding encounter for both the family and for me.

I did what any human being could have done and it did not require any specialist knowledge or training. I have learnt a lot from this experience that I wish to share particularly with the younger doctors and medical students. We may become professionals, doctors, specialists and, some of us, even subspecialists, but we must never forget that in the doctor-patient relationship, we are, first and foremost, a human being responding to another human being. There are times when the value created may not be directly related to the university training and post-graduate qualifications that we have received.

Conclusion – Looking towards the future

Evidence, both laboratory and clinical, is accumulating that the mind and the body cannot be separated. We need to reflect on our tendency to separate problems of the mind from those of the body both in research and in clinical work, and realise that true health must include both the physical body and the mind.

I have also emphasised in this lecture that an important obligation of adults today is to create the conditions in the family, the school and in society for children to grow up happily with healthy bodies and minds. Giving adequate time to the child and listening with concern to whatever he or she has to say is essential if we wish to understand the world of our children and help them.

One of the most important implications of our understanding of the interaction between the mind and body is our appreciation of the tremendous potential that exists in the life of each individual. Therefore, in addition to offering the best of medical and surgical therapy, it is essential to fully engage the patients' own ability to mobilize the forces of mind and body in their battle against illness. With regard to this, it is the bond of trust between doctor and patient, between one human being and another, that most of all can help the patient to strengthen the power of the mind.

To ensure that future generations of doctors, nurses and other health-care professionals realize the full significance of these points is, I believe, one of the most important tasks of a medical school. The late Professor Norman Cousins, whom I quoted earlier, stated:

"*One of the biggest needs in medical education today is to attract students who are well-rounded human beings; who will be interested in people and not just in the diseases that affect them; who can comprehend the reality of suffering and not just its symptoms; whose prescription pad will not exclude the human touch.*"

It is not an easy task. Indeed, it is an up-hill task but let us take heart from the words of Royal Professor Ungku Aziz who served as our Vice-Chancellor at the University of Malaya from 1968 to 1988:

"*Be patient, never give up and carry through to the very end*".

What matters is the will to do it and the wisdom expressed by a well-known Malay proverb is worth remembering:

"*Hendak seribu daya, tak hendak seribu dalih.*"
(When one truly seeks to achieve something, thousandfold power will arise; when there is no will to do so, a thousand excuses will be found).

Finally, I wish to quote an excerpt from a poem written by Dr. Daisaku Ikeda, whom I regard with the most profound gratitude as my mentor in life. It was this poem that came to mind when I was striving to encourage my young friend who was contemplating suicide.

There is something vaster
than the wide open sky—
and that is, my life

There is something deeper
than the fathomless sea—
and that is, your life.

There is something more precious
than all the treasures of the universe—
and that is, our lives.

(Excerpt from *Peace—The Foundation for Lasting Human Happiness* by Daisaku Ikeda)

Thank you very much for your kind attention throughout the talk. I wish to conclude by wishing you all the best of health and great success in your careers.

Appendix

Appendix A: References and recommended reading

1. Cousins,Norman, Anatomy of an Illness as Perceived by the Patient. *New Engl J Med* 1976;295:1458-63

2. Cousins, Norman, Anatomy of an Illness as Perceived by the Patient, Reflections on Healing and Regeneration. Bantam Books, New York, 1981

3. Cousins, Norman, Healing and Belief, Human Options, New York: WW Norton, 1981

4. Ford, D.E.; Erlinger, T.P. Depression and C-reactive protein in US adults: data from the Third National Health and Nutrition Examination Survey. *Arch. Intern. Med.* 2004;164:1010–1014.

5. Gerbert B. Psychological Aspects of Crohn's Disease. *J Behav Med.* 1980 Mar;3(1):41-58

6. Gorman, J.M., Sloan, R.P. Heart rate variability in depressive and anxiety disorders. *Am. Heart J.* 2000

7. Helzer, J.E.; Chammas, S.; Norland, C.C.; Stillings, W.A.; Alpers, D.H. A study of the association between Crohn's disease and psychiatric illness. *Gastroenterology.* 1984;**86**:324–330

8. Hippocrates. Tradition in Medicine. In: Hippocratic Writings. Ed. GER Lloyd. Penguin Books Ltd, Middlesex, England. 1983

9. Ikeda Daisaku. Peace—The Foundation for Lasting Human Happiness (a poem). *SGI Newsletter* (2007):7234

10. Jiang, W.; Krishnan, R.R.; O'Connor, C.M. Depression and heart disease: evidence of a link, and its therapeutic implications. *CNS Drugs.* 2002;**16**:111–127

11. Kaplan & Sadock. Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry. Eighth Edition. Lippincott Williams & Wilkins. 1998

12. Keller, Helen. The Story of My Life. Bantam Books, New York, 1990

13. Kubler-Ross, Elizabeth, Death is of Vital Importance: On Life, Death and Life after Death, ed Goran Grip. Barrytown, NY: Station Hill Press, 1995

14. Kubler-Ross, Elizabeth, The Wheel of Life, A Memoir of Living and Dying. Touchstone Rockefeller Center, 1997.

15. Nahas, Z., et al. Serial vagus nerve stimulation functional MRI in treatment-resistant depression. *Neuropsychopharmacology.* 2007;**32**:1649–1660

16. North CS, Alpers DH. A review of studies of psychiatric factors in Crohn's disease: etiologic implications *Ann Clin Psychiatry.* 1994 Jun;6(2):117-24.

17. Osler, William. The Faith that Heals *Br Med J.* 1910 June 18; 1(2581): 1470–1472

18. Panagiotakos, D.B., et al. Inflammation, coagulation, and depressive symptomatology in cardiovascular disease-free people; the ATTICA study. *Eur. Heart J.* 2004;**25**:492–499

19. Sherman PM, Macarthur C. Current controversies with *Helicobacter pylori* infection in the pediatric population. *Front Biosci* 2001;6:E187-92

20. Tuglu, C.; Kara, S.H.; Caliyurt, O.; Vardar, E.; Abay, E. Increased serum tumor necrosis factor-alpha levels and treatment response in major depressive disorder. *Psychopharmacology. (Berl.).* 2003;**170**:429–433

21. Unger, F. & Ikeda, D. A Dialogue – Compassion and Tolerance. *The Journal of Oriental Studies* 2005;15:8-9

22. Varghese, A.K., et al. Antidepressants attenuate increased susceptibility to colitis in a murine model of depression. *Gastroenterology.* 2006;**130**:1743–1753

23. Yampolsky, Philip B. (Editor), Watson, Burton(Translator). Letters of Nichiren, pp 316. Columbia University Press, New York, 1996

Appendix B: Selected related research papers and book chapters by the author

1. Boey CCM, Bohane TD. How to investigate the child with recurrent abdominal pain. *Journal of Paediatrics, Obstetrics and Gynaecology* 1998; 24(1): 16-18

2. Boey CCM , Goh KL, Lee WS. Childhood recurrent abdominal pain in Malaysia - a preliminary report. *Sing Paediatr J* 1999; 41(1): 39-42

3. Boey CCM, Goh KL, Lee WS. Pediatric gastrointestinal endoscopy in Malaysia. *Gastrointestinal Endoscopy* 1999; 49(2): 269 – 272

4. Boey CCM, Goh KL, Lee WS, Parasakthi N. Seroprevalence of *Helicobacter pylori* infection in Malaysian children: Evidence for ethnic differences in childhood. *J. Paediatr. Child Health* 1999; 35(2): 151-2

5. Boey CCM, Yap SB. An epidemiological survey of recurrent abdominal pain in a rural Malay school. *J Paediatr Child Health* 1999; 35: 303-305

6. Boey CCM. Does *Helicobacter pylori* have a role in recurrent abdominal pain? *Sing Paediatr J* 1999; 41(4): 229-231

7. Boey CCM. Recurrent Abdominal Pain in Malaysian Children. (*MD Thesis*). University of Malaya, 2000

8. Boey CCM. *Helicobacter pylori* and recurrent abdominal pain : a review of the literature. *Malaysian Journal of Paediatrics and Child Health* 2000; 12(No. 1 & 2):6-10

9. Boey CCM, SB Yap. The prevalence of recurrent abdominal pain in eleven to sixteen-year old Malaysian school-children. *J Paediatr Child Health* 2000; 36:114-116

10. Boey CCM. Recurrent abdominal pain in Malaysian children: a preliminary survey of differences in children's

responses to questions concerning stressful situations. *Singapore Paediatr J* 2000; 42:109-112

11. Boey CCM , KL Goh, Hassal E, Magid M. Endoscopy in children with recurrent abdominal pain. *Gastrointest Endosc*. 2001; 53:142-3

12. Boey CCM, Goh KL. Predictors of health-care consultation for recurrent abdominal pain among urban schoolchildren in Malaysia. *J Gastroenterol Hepatol* 2001; 16:154-9

13. Boey CCM , Goh KL. Recurrent abdominal pain in Malaysian children: clinical profiles and outcome. *Dig Liver Dis* 2001; 33:83-4

14. Boey CCM, Goh KL. Predictors of recurrent abdominal pain among 9 to 15-year-old urban school-children in Malaysia. *Acta Paediatr* 2001; 90:353-5

15. Boey CCM, Goh KL. Stressful life events and recurrent abdominal pain in children in a rural district in Malaysia. *Eur J of Gastroenterol Hepatol* 2001; 13:401-4

16. Boey CCM, Goh KL. Recurrent abdominal pain and consulting behaviour among children in a rural community in Malaysia. *Dig Liver Dis* 2001; 33:140-4

17. Boey CCM. Lactase deficiency among Malaysian children with recurrent abdominal pain. *J Paediatr Child Health* 2001; 37:157-60

18. Boey CCM, Goh KL. The significance of life-events as contributing factors in childhood recurrent abdominal pain in an urban community in Malaysia. *J Psychosom Research* 2001; 51(4): 559-62

19. Boey CCM, Omar A, Phillips JA. Academic achievement of primary school children in an urban community in Malaysia: the significance of recurrent abdominal pain and other factors. *Singapore Paediatr J.* 2001; 43(4): 138-42

20. Boey CCM, Goh KL. Psychosocial factors and childhood recurrent abdominal pain. *J Gastroenterol Hepatol* 2002; 17(12): 1250-3

21. Boey CCM. Correlation among Academic Achievement, Recurrent Abdominal Pain and other Factors in Year Six Primary School Children in Petaling Jaya, Malaysia (*Ph.D. Thesis*). University of Malaya, 2003.

22. Boey CCM, Omar A, Phillips JA. Correlation among academic performance, recurrent abdominal pain and other factors in year 6 urban primary school children in Malaysia. *J Paediatr Child Health* 2003;39(5):352-7

23. Boey CCM. Book chapter 'Somatization and Recurrent Abdominal Pain'. In: Pediatric Gastroenterology 2004. Reports from the 2nd World Congress of Pediatric Gastroenterology, Hepatology and Nutrition (Paris, France July 3-7, 2004). Medimond, Bologna, Italy. pp 319-325