**Psychosomatic Gastroenterology: concept, domain and its development**

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**Abstract:**

Integrative consideration of mind and body in history of medicine can trace back to the Inner Canon of Yellow Emperor(Huang Di Nei Jing) in approximately 2500 years ago , which was a classic book on both traditional Chinese medicine and healthkeeping for Chinese people though the term of psychosomatic medicine has only about 200 years of history by western physicians. Pathogenic theory of emotional factors and the mechanism of *pi zhu yun hua*, i.e. spleen(pi) governs(zhu) transportation (yun)and transformation(hua) of food in human gut, for physicians to understand and treat symptoms in gastrointestinal tract had also been formed at that early time. With the advent science, the medicine has been dominated by biological model, which is limited to detect structural or pathological diseases in gut and get rid of them, which seems to go further and further because of rapid progress in GI endoscopy and investigations on Helicobacter pylori. There is an urgent needed for a new model of gastroenterology to face up to challenges, which is a strategy for gastroenterologists to improve clinical practice. The concept, domain and development of psychosomatic gastroenterology will be discussed in the article.

**Key words:**Psychosomatic; gastroenterology; concept;domain; development; biopsychosocial Depariment of Gastroenterlogy, The First People’s Hospial of Changhou**,** Changzhou 213003,China Corresponding author: Cao Jianxin, Email: drtsao123@sina.cn

**Introduction**

The single biomedical model, which is limited to seeking for the attribution and treatment of organic or structural medical diseases, has encountered great challenges in clinical practice. Against this background, the confusions and challenges for gastroenterologists mainly include three aspects:①no organic or structural medical diseases can be found to explain the “functional” symptoms;②the symptoms are difficult to be treated by physicians and explained by primary organic diseases themselves or their progress;③iatrogenic stresses contribute to emotional and physical symptoms in gastroenterology.

This review mainly discusses how gastroenterologists understand and deal with these challenges, and how they get rid of the limitation of the single biomedical model on the basis of fully taking in the developed science and technology which has made contributions to medicine, so that they can better understand the biopsycosocial model of medicine by George Engel[1-3], which is, in fact, a holistic psychosomatic model of medicine, apply it to clinical practice and solve some clinical problems in gastroenterology that can’t be explained and solved by conventional gastroenterology predominated by biomedical model. Finally, a completely new system of mind-body gastroenterology termed as psychosomatic gastroenterology will be established, and the system covers conventional gastroenterology predominated by biomedical model.

**Challenges in clinical practice of conventional gastroenterology** Biomedical assessment systems are limited to the thought patterns where symptoms must be caused by certain diseases and the aim of a clinician is to find the disease behind symptoms[4-5]. This model can only work in the diagnosis and treatment of some, or even a few medical conditions. For instance, when a patient complained that he was suffering from the shifting pain from epigastric area to right lower quadrant, the physician could make a diagnosis of acute appendicitis after noting the stable pressure point in right lower abdomen and rebound tenderness on physical examination, then a surgery would solve the problem. However, most of the clinical problems can’t be solved in the single biomedical model. One of the confusions gastroenterologists always have is that there always are some patients seeking for medical attention, who have a lot of complaints about digestive symptoms, but they are unable to detect the “diseases” after various examinations, including endoscopy and medical imaging. Sometimes “organic diseases” could be found such as GI polyposis, chronic gastritis and intestinal metaplasia pathologically, but they are inadequate to explain these symptoms. These gastrointestinal diseases can be treated according to the related guidelines, including certain lesions found in the examination which can be removed successfully by use of Endoscopic Mucosal Resection (EMR), Endoscopic Sub-mucosal Dissection (ESD) or other endoscopic techniques. Even so, these methods do not relieve the symptoms of patients. Western medicine dominated by biomedical model describes it as functional gastrointestinal disorders (FGIDs).Primary functional gastrointestinal problems have attracted the interest and attention of some gastroenterologists. The “Rome Foundation for Functional Gastrointestinal Disorders”, established in the late 1980s, is the most influential academic organization for management of functional gastrointestinal disorders in the world. Rome Foundation has made many creative contributions, especially the classification system and general integrative psychosomatic intervention framework including psychotherapy and psychoactive medication[6-7]. Another issue puzzles gastroenterologists in clinical practice is that there are many patients with “organic” gastrointestinal diseases also have symptoms that do not correlate to their organic basis or its severity. All treatment effort within the scope of latest guidelines for the related organic diseases failed to obtain satisfactory clinical outcome. For example, the disease activity index (DAI) of patients with inflammatory bowel disease(IBD) like ulcerative colitis (UC) or Crohn’s disease (CD) shows that intestinal inflammation has been controlled well through standardized treatment strategies where stepwise approaches are applied to the control of nonspecific inflammation of patients with IBD but there are still a lot of gastrointestinal symptoms cannot be explained, namely “functional symptoms complicated with IBD”[8], which is also called “residual symptoms” of IBD or IBD-IBS by some western scholars[7,9,10].Investigations on the intervention of psychosomatic model involving psycho-social variables have showed significant improvement in terms of those unexplained symptoms, which probably indicated the dawn of psychosomatic model of treatment for some complicated IBD is coming. Clinicians should not doubt those evidence based, developed and matured achievement in biomedicine, and must acknowledge and accept the great contributions that biological science and biotechnology have made to medicine, and to translate and actively apply relevant science and technology to clinical practice in time. What we have to think about is how to comprehensively re-recognize the multiple properties of human being and multiple dimensions of medicine except biological one and how to deal with the issues that cannot be solved by conventional model of bio-gastroenterology. Clinicians discovered some problems of phenomena before conducting scientific research and solved some clinical problems “unscientifically”, which does not mean contrary to scientific spirit; actually it will provide new evidence for scientific research and accelerate the development of medical science. It is obviously unreasonable to understand and address the clinical problems with multi-dimensional patterns of gastroenterology from the single biomedical dimension, such as in FGIDs and IBD[7,11].Medicine is far more complicated than science. It is impossible for gastroenterologists to wait for new biomedical techniques to accurately handle so many patients with FGIDs and those patients with refractory and unexplained symptoms complicated with organic digestive diseases which do not yet have sufficient statistical data until the explainable and clear new therapeutic targets is found by scientific researches. **Exploration of psychosomatic model in clinical practice of gastroenterology**

The explanation and attribution of “functional” symptoms is a troublesome issue for clinical medicine. Clinicians need to find an explanation to convince their own, then to persuade patients to accept medical intervention. What they especially have to keep in mind is that patients need an explanation that they can understand and accept. Otherwise, no subsequent intervention can be made. It is not feasible, or even wrong for a clinician to attribute unexplained symptoms to “no disease” under the guidance of biomedical model. Such symptoms attribution model is hard for patients to accept. As a result, such typical conversations were often occurred during interview between doctors and patients as “you can go back home now for you have no disease!”from a doctor and “now what shall I do, doctor? I am really uncomfortable in my stomach!” from a patient. Understanding, explaining and treating “functional symptoms” from the perspective of psychiatrics is a great progress in the process of cognition. The “Rome Foundation for Functional Gastrointestinal Disorders” put forward the basic framework and principles of psychological and psychoactive medication intervention in patients with FGIDs more than 10 years ago[6]. A metaanalysis by Ford, et al[12],showed psychotherapy and antidepressants were effective in improving the symptoms of FGIDs and the overall quality of life. However, if clinicians simply attribute “functional symptoms” to psychiatric disorders such as anxiety disorder, depression disorder, and so on, they would go from one extreme of “no-disease” attribution in terms of organic diseases biologically to the other, namely excessively or hastily attributing functional symptoms to psychiatric disorders which was called jump reattribution to mental disorders psychiatrically[13]. That is still guided by the single biomedical pattern and hard for patient to accept because clinicians tend to lay more emphasis on antidepressants or general psychological counseling, ignoring the psychosomatic intervention of psychological behavior which relates to symptoms and missing the process of empathy which is essential to set up therapeutic doctor-patient relationship. Although the psychosocial background of patients is complex and various, one common aspect they all have is the same, that is, their understanding or interpretation of diseases and symptoms is irrational. Hence, to solve the psychological problems of patients, we should first find and solve the health-related problems of psychological cognition. Then it is possible to expand or extend the psychological intervention to general psychological problems. The symptom-centered stepped reattribution model, based on the above views, has gradually developed and achieved good clinical outcome[12,14,15]. In fact, it is not so hard to understand that infectious diseases encountered in various clinical specialties are usually treated by clinicians in particular department not by microbiologists. Likewise, it’s impractical for a psychiatrist or a psychologist to handle most of the patients with functional symptoms complicated with FGIDs or IBD except small portion of patients with obviously severe mental disorders. Patients with digestive symptoms would not like to see a psychiatrist or a psychologist even if a gastroenterologist who knows about it suggests referral. Jump reattribution of those functional symptoms to mental disorders may easily lead to the strained doctor-patient relationship and the patients surely seldom accept the suggestions of referral. Gastroenterologists must be the backbone force in dealing with digestive symptoms related to psychological factors, actively facing these confusions and thinking about how to re-recognize and treat the symptoms of these patients. It is high time to have a new system of gastroenterology under bio-psychosocial medical model by Engle[1-2]. Psychosomatic gastroenterology should be a right choice and right term for the new system, which develops from the exploration of clinical practice to the construction of theoretical framework.

**Challenge and theoretical exploration on psychosomatic gastroenterology**

**Diversity of the concept of psychosomatic gastroenterology:**

There has been no common definition and connotation of psychosomatic medicine. Due to the uncertainty of definition and connotation, psychosomatic medicine is sometimes not well distinguished from “psychogenic” and “holistic medicine”, and is often mixed[16-17].

Throughout the world, within the scope of all theory and practice of psychosomatic medicine, it generally has three models[16,18,19]: ①Psychosomatic medicine is a special field or subspecialty of psychiatric medicine, nearly the same as consultation-liaison psychiatry(CLP), whose practitioners are mainly psychiatrists. Its purpose is to identify, diagnose and treat the complicated psychiatric disorders and related diseases of the patients within medical conditions. The target of identification and treatment is psychiatric disorders instead of the physical symptoms and diseases of patients. In the United States, psychosomatic medicine officially became a subspecialty of psychiatry in 2003. Therefore, it is also the mainstream model of psychosomatic medicine practiced in the US.②Psychosomatic medicine is a branch of medicine, a primary discipline independent of psychiatry, internal medicine or surgery. It is mainly practiced in Germany and Japan. Although its concept has been different from that of consultationliaison psychiatry, it is still difficult to define the scope of its clinical application. Actually, it is still hard to be accepted and applied by non-psychiatric specialties.③ Psychosomatic medicine is a method or model of holistic medicine to deal with patients. The concept has been developing for nearly 40 years. It originated from the bio-psycho-social medicine model put forward by Engel in the late 1970s[1-2], which refers to taking biological, psychological and social factors into consideration in comprehensive and integrative way in the process of diagnosis and treatment of medical conditions. The model can be applied to all clinical specialties, including psychiatry itself.

 From all above, the model of psychosomatic medicine can be considered as the third medical treatment tool in addition to drugs and surgery. Because of the various opinions of the connotation of psychosomatic medicine, diverse psychosomatic schools of thought emerged. The understanding and clinical practice of psychosomatic gastroenterology also have various connotations and forms. At present, there are three main forms or genres.①Biomedicine-oriented psychosomatic gastroenterology, which explores the relationship between brain and digestive organs by means of scientific technology and belongs to “brain body” medicine instead of “mind body” medicine as brain itself is a part of body. The main genre of gastroenterology is neuro-gastroenterology based on brain-gut axis and gut-brain interaction.②Psychiatryoriented psychosomatic gastroenterology, where psychosomatic medicine is regarded as a subspecialty of psychiatry, nearly equals to consultation-liaison psychiatric gastroenterology. In narrow sense, it is essentially the same as psychiatry, whose practitioners are psychiatrists. In this model, functional gastrointestinal symptoms are simply regarded as unrecognized or missed mental disorders.③ Holistic medicine-oriented gastroenterology, which means that psychosomatic medicine could serve as a method or a mean to be applied to gastroenterology. In this model, the synergistic effects of biological, social and psychological factors are comprehensively considered in the process of diagnosis and treatment. When prescribing psychotropic substances, gastroenterologists should not only master the knowledge of psycho-pharmacology, but also learn about the related psychological factors while using psychoactive medicine. Clinical practice has found that psychological cognition of drugs of the patients is strongly associated with adherence to psychopharmacological treatment, efficacy and self reported prevalence and severity of side effects. It was once called pharmaco-psychology [20], but the study was almost forgotten by the medical community. The practice of psychosomatic medicine is not exactly the same as the widespread establishment of psychiatry or psychology department in general hospitals. All physicians, including psychiatrists, can take on work guided by psychosomatic medicine through shortterm systematic training. Non-psychiatric specialists are strongly suggested to undergo short-term formal training of medical psychology, psychiatry and so on. Then guided by the model of holistic psychosomatic medicine, they can solve the clinical problems closely related to psychosocial factors within their own specialty.

1. **Domain and development of psychosomatic gastroenterology:**

Psychosomatic gastroenterology originated from the reflections of clinical diagnosis and treatment of FGIDs in western medicine. From the publication of the first document on the diagnostic criteria of IBS in 1989 to the publication of RomeIII in 2006, it has been clear that psychosocial factors are widely involved in the development of FGIDs. At the same time, it has also been suggested that psychological intervention.TCAs and SSRIs can be added to the treatment strategies of FGIDs according to the conditions of patients,and when certain indication appear clinically, active referral to the psychiatric department has been suggested[6]. The publication of series of documents of Rome Ⅳ also discusses the multi-dimensional comprehension of FGIDs and psychological intervention including the use of psychotropic medication. IBD-IBS have been mentioned in the 71 cases of Rome Ⅳ Multi-dimensional Clinical Profile for Functional Gastrointestinal Disorders (MDCP)[7]. This also means that the treatment strategies of functional gastrointestinal symptoms are moving towards the psychosomatic model. In perspective of Traditional Chinese Medicine (TCM), holistic thoughts of integrating mind with body in medicine can trace back to Inner Canon of Yellow Emperor(Huang Di Nei Jing) of about 2500 years ago, which is an amazing classic book on not only medicine but healthkeeping as well. In the book, pathogenic theory of emotional factors and the mechanism of pi zhu yun hua had been recorded. The mechanism of pi zhu yun hua means spleen(pi) governs(zhu) transportation (yun) and transformation(hua) of food in human gut[16]. The treatment target for gastrointestinal illness is pi, not gastrointestinal tract itself. But the simple integrative thought of psychosomatic gastroenterology still stay at the level of medical philosophy and has not brought a substantial change to the diagnosis and treatment in clinical practice. Recent 3 to 4 decades, some gastroenterologists have realized and found the effects of psychosocial factors in FGIDs, but for a long time it is confined to the use of antidepressants and anxiolytics according to their own rich and extensive clinical experience personally in biologically psychiatric model. In recent years, some like-minded gastroenterologists in terms of insight on medical model have gradually returned to and carried forward the holistic concept in traditional Chinese medicine, and absorbed the research achievement of western psychosomatic medicine. Then several professional academic groups have been established in China[21]. In 2011, the first professional committee or academic group related with psychosomatic gastroenterology, which is called “psychosomatic health of digestive system committee” was established on the platform of the Western Psychiatry Association. The Zhengzhou Group on psychosomatic gastroenterology was set up soon after. In 2014, a national collaboration group on psychosomatic digestive diseases was set up under the Chinese Society of Gastroenterology. The Chinese Digestive Psychosomatic Union (CDPU) was set up in 2017. The work of these organizations on psychosomatic gastroenterology has gradually moved towards standardization. In 2015, a Chinese consensus on management of mind-body problems in gastroenterology was published[22].Chinese gastroenterologists should not be confined to the concept of gastrointestinal motility and the functionalorganic to understand gastrointestinal illness including diseases and functional symptoms in GI tract[7]. Instead, they ought to apply the holistic thinking pattern of psychosomatic medicine to assessing and treating “functional symptoms” complicated with a large number of primary or organic diseases from multiple dimensions in clinical practice. Chinese psychosomatic gastroenterology has jumped out of the boundaries of FGIDs and applied holistic pattern of psychosomatic medicine to almost all digestive diseases. Apart from identifying and dealing with psychological disorders in digestive department, psychosomatic gastroenterology should have a broader scope and tougher tasks.

The author believes that the scope and tasks of psychosomatic gastroenterology related to gastroenterologists include:①abnormal cognition and health seeking behavior associated with functional gastrointestinal symptoms. Such behavior as doctor shopping and cyberchondria of the time are the most typical examples[23];②functional gastrointestinal symptoms related to general psychological factors;③gastrointestinal symptoms which are caused by mental disorders and psychoactive medical treatment, such as gastrointestinal symptoms complicated with anxiety and depression disorders, as well as adverse effects of psychotropic drugs like antidepressants on digestive tract;④mental disorders complicated with organic digestive diseases, i.e., hepatic encephalopathy; ⑤functional symptoms secondary to organic digestive diseases, such as those in patients with UC that are difficult to be explained by the activity of primary disease. Some scholars use residual symptoms of IBD or IBD-IBS to describe these functional symptoms[9,10,24];⑥iatrogenic stress induced by biological indicators related to digestive diseases, such as psychological problems caused by tumor markers, hepatitis virus, Helicobacter pylori(HP), intestinal metaplasia and other medical term of diagnosis with negative meanings like gastric carcinoma;⑦indications of surgeries for functional GI symptoms mis-attributed to certain organic diseases to be treated by surgical operation and psychosomatic problems associated with postoperative rehabilitation. For example, surgeries for most chronic appendicitis cannot relieve the symptoms complaining of patients, and there are some postoperative symptoms that cannot be explained by conventional biological complications after operations.

In China, psychosomatic gastroenterology passed through the most difficult period. It has entered the rapidly developing period. The first textbook of continuing medical education of psychosomatic gastroenterology, *Theory and Practice on the management of Mind-Body Problems of gastroenterology in China*, has been published by the Chinese Medical Association.The concept of holistic psychosomatic gastroenterology has been gradually formed. As traditional Chinese medicine included the macroscopic ideas of holistic medicine over 2500 years ago, there is reason to believe that psychosomatic gastroenterology may develop much more rapidly in China than in western countries whose medicine is predominated by biological model deeply and extensively. Only when more and more likeminded gastroenterologists try their best to construct a theoretical system of psychosomatic gastroenterology with some new integrative psychosomatic assessment like “diagnostic criteria for psychosomatic research” (DCPR) by G. Fava, et al[25-26].and develop an operational and repeatable model for clinical gastroenterologists can the “psychosomatic dream of gastroenterology” be realized. It will be not only helpful to relieve the sufferings of patients and improve their global quality of life but also beneficial to relieve the confusions of gastroenterologists in their clinical practice[27]. Therefore, both patients and gastroenterologists will benefit a lot from the psychosomatic model of gastroenterology. **Conclusion**

A large number of clinical problems in gastroenterology involve not only biological variable but psychosocial ones as well. Besides affecting the prognosis of patients, it is an important source of tense even terrible doctorpatient relationship. Psychosomatic gastroenterology does not mean that a gastroenterologist ought to switch over to psychological counseling, or even become a professional psychotherapist and psychiatrist. More exactly, it attempts to encourage gastroenterologists to get rid of the limitation of the simple biomedical model and learn some knowledge and applied skills associated with psychology or psychiatry through special training for short term and apply them to clinical practice. There is an urgent need to change the single biological model of thinking of gastrointestinal illness and clinical practice pattern, and to incorporate biological, social and psychological factors into the clinical practice in gastroenterology[28]. Psychosomatic gastroenterology, an innovative subject of gastroenterology with multiple dimensions, which is helpful in the clinical management of the digestive diseases, has been gradually developed. **References**

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