A Systemic Description of Service Flows in Traditional Chinese Medicine

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Abstract—Traditional Chinese Medicine can be viewed as a health promotion and healing system that has been practice, based on both philosophy and practical experience, for thousands of years. Although this medicine is crucial in the information of integrative medicine, lack of methodology and experience sharing mechanisms has impeded the development of this specific branch of medicine. This study adopts a systematic approach to describe service flows in Traditional Chinese Medicine. Following a literature review, specialist meetings and field observations are conducted to gather opinions from different perspectives. A conceptual framework was created to describe entities involved in service flows for Tradition Chinese Medicine and their inter-relationships. The framework can be used to clarify the abstract knowledge of this medicine which can contribute to the development of Traditional Chinese Medicine.

Keywords: Traditional Chinese Medicine, systemic approach, service flow, service description

I. INTRODUCTION

Traditional Chinese Medicine (TCM), as a part of Integrative Medicine, has been widely used for thousands of years to promote health and treat illness in numerous places around the world [1, 2]. TCM treats patients as whole-individuals who maintain their health through balancing their internal energy [3]. This balance can be disturbed by patient emotional or environmental factors. The main goal of TCM practitioners in providing care services is to restore patient energy and balance of physical and spiritual health [4]. Practitioners base care delivery on a body of classical TCM knowledge that has remained little changed for the last two thousand years. The original abstractions of TCM from the knowledge base that relate to human body functions and how illnesses are treated are still being practiced. Since these abstractions and methods were documented before the creation of modern medical anatomy and scientific treatments, some see TCM as a collection of dubious folk remedies [4]. Moreover, descriptions of TCM generally incorporate philosophical and practical terminology that creates barriers to understanding this classical form of medicine. TCM is complex, not only in terms of its philosophical origins that explain human bodily functions, but also in its treatment methods, which have been accumulated over a long period without having been scientifically described [5]. Systemic description is required to create a conceptual framework for organizing various materials to enable people to fully understand and operate TCM systems [6].

A systemic approach is an analytical method based on from system theory that analysts have used to gain insights into complex and dynamic systems, such as natural systems or the human body [7]. System theory believes that the properties of specific systems cannot be fully understood by explaining the functions of their individual component parts; understanding instead should come from the dynamic interactions of entities as a whole [8]. The holistic view of system theory considers system integrity for both spatial conditions and temporal completeness [9]. Moreover, a system can be viewed as a self-controlled organization in that external environmental influences can be adapted through internal regulating mechanisms to support system development [10]. This adjustment aspect of a dynamic system has been widely used in numerous fields, including in a PDCA model (plan-do-check-adjust) for managing system quality [11]. System theory provides a conceptual framework, including a set of principles, for describing and analyzing a complex system from different perspectives, including system goals, emergent properties, hierarchical abstraction, dynamic balance etc.

TCM is a form of preventive medicine that is practiced in oriental countries and widely used around the world [3]. Although TCM is classified as an alternative medicine in the U.S. and Europe, its growing popularity is attracting attention from healthcare practitioners and researchers [12]. Various reasons exist for the popularity of this traditional form of medicine. However, consumer demand, including interest in integrative medicine, is clearly driving the growing popularity of TCM [13]. TCM emphasizes the integrity of the human body and the close relationship between humans and their social and natural environment. TCM views the human body and its functions holistically, with no bodily operations or development of symptoms being understood except in relation to the whole. As the Greek philosopher Plato noted, “Cure of the part should not be attempted without treatment of the whole”. TCM documented the functions of human internal organs during the first and second centuries B.C., based on what from a modern perspective appears to be only rudimentary knowledge of internal anatomy. Practitioners of TCM believe that the basic activities of the human body can be clarified by analyzing individual patients [3]. TCM created
a conceptual system, based on ancient Chinese philosophy, to describe the functions and operations of the human body. In this system, the human body comprises five major organs and five corresponding organs, each with different functions. The definitions of each organ in TCM cannot be literally mapped to those of in Western medicine, since TCM focuses more on their functions as they interact and Western medicine more on their physiological properties [1]. These organs are connected with 12 major channels and their branches to form a complete circulation network. Within this network, energy and life essentials are transported to and from various organs to maintain the operations and dynamic balance of the human body as a whole [14].

This study attempts to create a conceptual framework for systemically describing service flows in TCM. The description focuses not on the completeness of the details of TCM, but rather adopts a holistic view that can provide common ground to motivate further discussion. Besides reviewing the literature on TCM and Integrative medicine, specialist meetings and field observations were conducted to collect and verify information presented in the framework. TCM is central to the formation of integrative medicine, and a proper framework of TCM service flow can clarify complex relationships involved in TCM and improve understanding of this complex system.

II. METHOD

This study adopted a systemic approach to create a conceptual framework for describing the entities involved in TCM service flows. The adopted approach applied two research methods, including specialist meeting and field observations, for framework creation. Eight meetings were conducted in the Department of Chinese Medicine of a medical center in northern Taiwan. The meetings invited TCM practitioners, health informatics experts, and information technology specialists to discuss issues related to systemic descriptions of TCM. In one meeting, researchers and practitioners from mainland China were invited to participate. Two field observations were conducted in the outpatient clinic of the medical center to study the interactions among various roles involved in the process of TCM outpatient services. The data collected from specialist meetings and field observations were edited and discussed to identify main research themes related to the systemic description of TCM, and then were used to establish a conceptual framework for describing TCM service flow.

Two hierarchical representations from system theory were used to represent the human body as a whole and the knowledgebase of TCM. The first representation described living systems with self-organization and adoption capabilities that can receive resources from the external environment and apply them to sustain their viabilities and dynamically maintain an internal balance. This representation depicts a living system with three hierarchical levels, including pattern, structure, and process [10].

The second representation described the continuity of a knowledgebase in the field of TCM [15]. This representation represents the knowledgebase with three hierarchical levels, including philosophical theories, methodological approaches, and practical operations. The three levels indicate different abstractions involving the TCM knowledgebase in that each level contributes to the development of others.

III. RESULTS

The data from specialist meetings identified the following themes related to the systemic description of service flows in TCM:

- Lack of measurement and evaluation tools in diagnosis, treatment, and herbal formula prescriptions. TCM faces challenges related to scientific evidence and standardized procedures.
- Practitioners have rich practical experience, but no effective knowledge sharing mechanism exists that can impede the validation of the current knowledgebase and postpone the development of either TCM research activities or practical operations.

Data from field observations shows that during an outpatient session, a TCM physician can use hospital health information system to document patient conditions and prescribe required herbal formulas. However, within a four-hour outpatient session, a physician can treat disease over 50 patients, many of whom require acupuncture treatment, meaning the physician must perform different treatments in parallel. Moreover, physicians themselves cannot record critical information regarding how patterns of illness are identified for further analysis.

The findings, together with the previous TCM literature, were used to create a conceptual framework describing TCM service flow. The framework treats TCM service flow as a holistic system that comprises four entities, including: 1) a healthcare provider offering services based on the TCM knowledgebase; 2) consumers, who are viewed as whole individuals depicted with different levels of detail; 3) illness factor, namely the causes of the disturbances affecting consumers; 4) TCM service flow depicts the interaction among other three entities. Figure 1 illustrates the framework of TCM service flow.

In this framework, TCM service flow is a consumer-driven process indicating how illness factors, such as physical injury and poor lifestyle of individual consumers, can stimulate demand for TCM services and reveal symptoms and signs at the consumer level. Consumers and healthcare providers involved in the service flow then interact with each other and improve their understanding of demand. The interaction can be further described in detailed steps. After identifying consumer demand, service providers can provide certain treatments to restore consumer internal balance.
IV. DISCUSSION AND CONCLUSION

The specialist meetings conducted in this study revealed two themes regarding the current difficulties and challenges in systemically describing TCM service flow, including standardizing TCM visits and sharing practical experiences. In standardization, most TCM practitioners deliver services based on principles with thousands of years of history and many of them have various explanations of patient conditions based on practitioner knowledge and experiences. The specialists recommended that the internal consistency of the TCM knowledgebase should first be established to promote standardization. The information sharing network in the TCM community is weak. Publishing research results and sharing practical experiences in formal conventions seems unpopular. Initiatives presented in formal publications and conferences can motivate communications and research activities within the TCM community and further advance standardization.

Field observations conducted during TCM clinic sessions indicated that in hospital settings, physicians are overloaded with outpatient treatments. Individual patients must share the limited attention available from physicians, potentially leading to suboptimal results. Studies demonstrated that TCM can contribute more to primary care settings. Other study findings indicated that most TCM outpatients visited clinics to heal chronic diseases, with the goal of pain relief. This implies a certain tendency in how consumers’ preference of the use TCM services. Within TCM service flows, critical diagnostic information, and specific pattern differentiation was generally simplified or not described in detail. Recording the rationale of pattern differentiation in detail following busy clinical sessions creates difficulties in sharing TCM experiences to teach new practitioners.

The framework of TCM service flow description presented here an initial attempt to create a holistic view regarding entities and relationships in the context of TCM. The proposed framework can provide a template to roughly classify TCM knowledgebase and describe TCM entities at different levels of abstraction. The proposed framework can also be used to design TCM service flows so that they include an initial service description, with the entities and relationship represented in the framework. The framework systematically describes the TCM knowledgebase, much of which can be added to the framework to enrich the description. This framework is limited by the completeness of its TCM description. However, this study focuses on the relationship between the TCM knowledgebase and levels of abstractions and this initial attempt of the conceptualization work can motivate discussion within TCM community and promote standardization in the field. Future studies will extend this framework to a TCM consumer service model that can describe and assess specific TCM service flows.

REFERENCES


