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Unveiling the Factors behind the Lack of Human Anatomy Knowledge in Traditional Chinese Medicine

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Abstract

Traditional Chinese Medicine (TCM) is a holistic approach to healthcare that has been practiced for thousands of years. TCM offers effective treatments for a wide range of health conditions. However, in comparison to modern medicine, TCM places less emphasis on human anatomy in its diagnostic and treatment practices and has not developed a comprehensive system of human anatomy. By delving into the history, traditions, religion, and practice of TCM, the factors that have limited the development of human anatomy in TCM are identified. Firstly, reverence for tradition and religion may have suppressed motivation for advancement in this area. Secondly, the subjective nature of diagnosis and evaluating treatment outcomes in TCM reduces the necessity of studying human anatomy. Thirdly, the traditional education system in China had hindered the integration of human anatomy into TCM. Finally, cultural perspectives that prioritize the body as an integrated whole have also influenced the development of TCM. The findings of this study offer valuable insights into the unique perspectives and values associated with TCM. Bridging the gap between ancient wisdom and modern science will allow TCM to evolve while retaining its core principles. The integration of human anatomy into TCM will rejuvenate the whole research field by providing new insights into the mechanisms of TCM and maximize its potential in treating a wider range of diseases. TCM has made tremendous contributions to human health in the past and will continue to do so in the present and future.

Keywords: traditional Chinese medicine, human anatomy, TCM, disparity, education

1. Introduction

In modern medicine, human anatomy holds a central and foundational role in understanding the structure, function, and interconnections of the human body. It serves as a fundamental discipline that forms the basis for medical education, research, and clinical practice. The study of human anatomy involves examining the body's organs, tissues, systems, and their

spatial relationships. This understanding enables accurate diagnoses, treatment strategies, surgeries, and interpretation of medical imaging (Eizenberg, 2015; Hussain et al., 2022).

Traditional Chinese Medicine (TCM) is a comprehensive medical system originating from ancient China. With its roots dating back over 2,500 years, TCM does have some knowledge of human anatomy, although it is not as extensive as in modern medicine. TCM's understanding of human anatomy is rooted in the concept of the body's energetic pathways, known as meridians, through which Qi (vital energy) flows (Liu, Zhu, & Li, 2021). TCM recognizes the existence of various organs and their functions, but the perspective differs from the anatomical structures studied in Western medicine. According to TCM theory, each organ is associated with specific functions, emotions, and energetic properties. For example, the heart is considered the organ responsible for circulating blood and housing the Shen (spirit), while the lungs are associated with respiration and the regulation of Qi. TCM also acknowledges the existence of channels and collaterals, which are pathways through which Qi and blood flow, connecting the organs and various parts of the body (Lv, 2021).

It is important to note that TCM's understanding of the human body is primarily based on observations of symptoms, patterns, and energetic imbalances rather than detailed anatomical dissections. The focus is on maintaining the balance of Qi and the harmonious functioning of the body's systems. While TCM may use terminology that refers to organs, meridians, and energetic pathways, it should not be considered an equivalent or comprehensive anatomical understanding (Matos, Machado, Monteiro, & Greten, 2021). This lack of human anatomy raises questions about the scientific validity and effectiveness of TCM in the context of modern medical knowledge and advances (Eigenschink, Dearing, Dablander, Maier, & Sitte, 2020; "Hard to swallow," 2007; Shang, Huwiler, Nartey, Jüni, & Egger, 2007).

By delving into the history, traditions, religion, and practice of TCM, we have identified the factors that have limited the development of human anatomy in TCM. These factors include the subjective nature of diagnosis and evaluating treatment outcomes, which reduces the need for human anatomical knowledge. Additionally, the hindrance posed by the traditional education system in introducing human anatomy, reverence for tradition and religion, and cultural perspectives that prioritize the body as an integrated whole all contribute to the reduced necessity of incorporating human anatomy into TCM practice. Understanding the relationship between TCM and human anatomy is crucial for effective communication between TCM practitioners and modern medical professionals, bridging the gap between traditional and modern healthcare systems, and enhancing the scientific understanding of TCM (Cyranoski, 2018; Qiu, 2015).

2. Results

2.1 Reverence for Religion and Tradition Might Suffocate the Motivation for Advancement

TCM is deeply influenced by Daoism and Confucianism. The Daoist concept of yin and yang and Confucian concept of the five elements are central to TCM. TCM is built upon the principles of Yin and Yang, the Five Elements, and the concept of Qi, which is the vital energy believed to flow through the body (Aung, Fay, & Hobbs, 2013). TCM takes a holistic

approach, viewing the body as an interconnected system where balance is crucial for good health (Lu, Jia, Xiao, & Lu, 2004). TCM incorporates various modalities, including acupuncture, herbal medicine, dietary therapy, tui-na massage, and mind-body practices like Qi Gong and Tai Chi. TCM also recognizes the importance of mind-body practices, such as meditation and lifestyle modifications, for overall well-being (Fogaça, Portella, Ghelman, Abdala, & Schveitzer, 2021; Jahnke, Larkey, Rogers, Etnier, & Lin, 2010).

There was a strong emphasis on the ancient texts and classical literature that form the foundation of TCM theories and practices(Cheung et al., 2021; Lu et al., 2004). Authoritative TCM texts, such as the Huangdi Neijing (Yellow Emperor's Inner Canon) and other historical texts, are highly revered and considered the primary sources of knowledge. However, while these classical texts offer valuable insights into TCM principles, diagnostics, and treatments, they do not extensively cover human anatomy. The traditional focus of TCM has been on holistic principles, understanding the body as an interconnected system of energy pathways and organ systems. As a result, the detailed study of human anatomy was not given the same level of emphasis as other aspects of TCM.

Furthermore, the respect for tradition and the status quo within TCM has contributed to a reluctance to incorporate new knowledge, including advances in human anatomy, into the practice. The reverence for ancient texts and long-standing TCM traditions can create a conservative approach that resists change or integration with new medical knowledge. The influence of religious and philosophical traditions, such as Daoism and Confucianism, has further shaped the perception that health and disease are interconnected with spiritual, emotional, and energetic aspects of human beings, rather than focusing on anatomical structures.

2.2 The Subjective Nature of Diagnosis and Evaluating Treatment Outcomes Reduces the Need for Human Anatomical Knowledge

TCM relies on a long history of clinical observations and experiences. It has a unique approach to healthcare that differs from the evidence-based practices commonly associated with modern medicine. TCM is deeply rooted in ancient Chinese philosophy, with its own theoretical framework and diagnostic and treatment methods. TCM has its own system of evidence and validation, and its approach to healing is more nuanced and subjective (Eigenschink et al., 2020; Matos et al., 2021).

In diagnosis, TCM doctors observe physical characteristics such as complexion, body shape, and the tongue's color and coating. They ask about symptoms, medical history, and lifestyle factors. They examine the pulse and evaluate the patient's breath, voice, and any specific odors. TCM diagnoses are based on patterns of disharmony rather than specific diseases. These patterns are identified through the information gathered, and help determine the underlying imbalances in the body and disturbances in the flow of Qi and blood.

One of the key principles of TCM is personalized care. Treatment in TCM is tailored to the individual's unique pattern of symptoms and signs rather than solely focusing on specific anatomical structures. The doctors would prescribe herbal medicine to restore balance; use

acupuncture to reestablish Qi flow, employ Tui Na massage to stimulate circulation and energy flow. Additionally, TCM practitioners may recommend specific foods and dietary adjustments to support the healing process. Treatment effectiveness in TCM is evaluated subjectively through patient feedback, changes in the overall pattern of disharmony, and the restoration of the body's energetic balance (Matos et al., 2021). The goal in TCM is to restore balance and harmony within the body, rather than aiming for a specific anatomical correction or complete elimination of symptoms (Xutian, Cao, Wozniak, Junion, & Boisvert, 2012).

The holistic nature of TCM and its focus on personalized care make it challenging to establish a direct correlation between human anatomical structures and treatment effectiveness. As a result, the standard for cure in TCM is often less focused on specific anatomical corrections and more on achieving overall balance and symptom relief. The focus on individualized care and subjective evaluation of treatment outcomes in TCM contributes to a diminished need for extensive knowledge of human anatomy in the context of treatment efficacy. This subjective nature of diagnosis and evaluating treatment outcomes in TCM reduces the need for detailed human anatomical knowledge.

2.3 Traditional Training Practices and Lack of Teaching Facilities Hinder the Development of Human Anatomy

In ancient times, the training of TCM doctors was different from the current education system. TCM training in ancient times was primarily based on apprenticeship and the passing down of knowledge from experienced practitioners to their apprentices. The training process involved several key aspects.

Family lineage: TCM knowledge and skills were often passed down within family lineages, with the knowledge being transmitted from one generation to the next. This allowed for the preservation and continuity of TCM practices within specific families.

Master-apprentice relationship: Aspiring TCM doctors would seek out experienced practitioners and establish a master-apprentice relationship. The apprentice would learn from the master through observation, hands-on practice, and guided instruction (Ma et al., 2021).

Practical experience: Practical experience was a crucial component of TCM training in ancient times. Apprentices would accompany their masters during patient consultations, diagnoses, and treatments. Through direct observation and hands-on participation, they would learn to identify patterns, understand treatment principles, and gain practical skills in herbal medicine, acupuncture, and other TCM therapies (Dong, 2013; Xutian et al., 2012).

Classical texts: Ancient TCM practitioners relied heavily on studying classical texts, such as the Huangdi Neijing (Yellow Emperor's Inner Canon), Shennong Ben Cao Jing (Divine Farmer's Materia Medica), and other influential TCM texts. These texts provided theoretical foundations, diagnostic methods, and treatment principles, serving as important references for TCM practitioners to deepen their understanding and refine their skills (Ma et al., 2021).

As a direct result of the traditional teaching practices, the concept of formalized medical schools did not exist in ancient China. Studying human anatomy requires substantial

investment in terms of financial resources and dedicated facilities. Establishing and maintaining such facilities demands significant financial investment and infrastructure, which were not available or prioritized in the training process of ancient TCM. It was difficult to establish formal teaching facilities and standardized anatomical curricula without a medical school. China did not have a public, modern, dedicated TCM teaching facilities with human anatomy until 1956 ((Ma et al., 2021) https://english.bucm.edu.cn/; and https://www.sohu.com/a/284829405_702009). Therefore, the educational structures of the ancient era prevented the formation of medical school-like facilities for the study of human anatomy in China. This, in turn, limited the incorporation of human anatomy into TCM practice.

2.4 Chinese Culture Hinders the Donation of Cadavers for Medical Research

Chinese culture has long held the belief that the body should be respected, even after death. This belief is reflected in the elaborate funeral rituals and customs that have been practiced for centuries. Ancestral worship, mourning periods, funeral processions, and burial practices all play a role in honoring the deceased and ensuring their peaceful rest (Fu & Glasdam, 2022; Li et al., 2020; Wu et al., 2018).

One important concept in Chinese funerals is rest in peace or peaceful rest in the earth. This phrase reflects the belief that the deceased should be laid to rest in the ground, symbolizing a state of tranquility and peace in the afterlife. It emphasizes the wish for the deceased to find eternal rest and a sense of security in their final resting place (Lee, 2009).

Another important concept in ancient Chinese funerals is that treat death as you would treat life or handle death with the same importance as life. This concept emphasizes that the process of dealing with the deceased should be approached with the same level of care, respect, and attention as one would give to the living. This concept originated from ancient Chinese religious beliefs and philosophical thoughts (Fu & Glasdam, 2022).

These beliefs and concepts have made it difficult to obtain cadavers for medical research in China. For many people, donating a body for medical study would be seen as a dishonorable act or a sign of disrespect towards the deceased and their family. However, attitudes towards body donation for medical research have evolved over time, and in contemporary China, there is a growing acceptance and understanding of the importance of donating bodies for scientific and medical advancement (Li et al., 2020; Wu et al., 2018).

3. Conclusion

A nuanced understanding of the relationship between TCM and human anatomy reveals a historical trajectory shaped by diverse factors. Originating from practical experiences intertwined with Daoist and Confucian principles thousands of years ago, TCM in its early stages lacked a robust anatomical foundation. The nature of medical practice during ancient times, characterized by subjectivity, diminished the imperative for intricate knowledge of human anatomy. In addition to this inherent characteristic, the training methodologies employed for physicians in ancient China, coupled with a scarcity of medical facilities and a limited inclination toward anatomical research, acted as further impediments to the evolution

of anatomical knowledge within TCM. The veneration of medical authorities and the influence of religious beliefs created a climate that restrained both opportunities and motivations for innovation within the TCM framework. Furthermore, the cultural norms surrounding Chinese funeral practices discouraged the donation of bodies for anatomical research, imposing an additional barrier to the exploration of human anatomy within the realm of TCM. The collective impact of these multifaceted factors has resulted in a noticeable dearth of anatomical research within the context of TCM.

Now, nearly all TCM medical schools in China mandate human anatomy courses for students (Yan, Cheng, Zhou, Yang, & Li, 2021). The incorporation of anatomical knowledge into TCM represents a transformative step in TCM evolution toward a more profound comprehension of human health. Further research exploring the anatomy underlying TCM can provide numerous practical benefits, including improving understanding of meridian pathways and acupoint locations, elucidating mechanisms of action, enabling integration with modern medicine, expanding clinical applications, and enhancing TCM education and training (Cyranoski, 2018; Qiu, 2015; Sugand, Abrahams, & Khurana, 2010). Bridging the gap between ancient wisdom and modern science will allow TCM to evolve while retaining its core principles. TCM has made tremendous contributions to human health in the past and will continue to do so in the present and future. A new era for TCM is unfolding.

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Authors contributions

As the sole author of this work, LZ contributed to all aspects of the study including research design, data collection, data analysis, and writing of the manuscript.

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