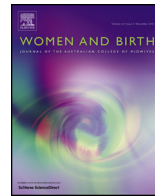




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ORIGINAL RESEARCH – QUANTITATIVE

Traditional Chinese medicine perspective on constitution transformations in perinatal women: A prospective longitudinal study

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ABSTRACT

Background: Pregnancy is an important stage in life for many women. Humans are complex organisms that are prone to exhibiting gradual alterations in their constitutions that fluctuate with age, diet, and living environment. This is particularly true during the pre- and postnatal periods, in which qi and blood are required to ensure foetal growth.

Aim: To examine women's constitutional transformation of pre-pregnancy, pregnancy, and postpartum.

Methods: A prospective, longitudinal study was conducted, and structural questionnaires were used to collect data. The participants were healthy pregnant women 21–49 years of age. Data were collected at six times: during the first (weeks 6–13), second (weeks 14–27), and third (weeks 28–40) trimesters and during the postnatal admission (1-week postnatal) and home self-care (6-week and 6-month postnatal) periods, yielding 86 valid questionnaires. A cubic polynomial regression analyses with generalised estimation equations (GEEs) method was used to reveal the trend of constitution score by different constitutions.

Findings: Significant differences ($p < .0001$) for the scores of Yang-Xu (yang-deficiency), Yin-Xu (yin-deficiency), and Tan-Shi-Yu-Zhi (phlegm-dampness and blood-stasis) constitutions were observed at pre-pregnancy, pregnancy, and 6 months postpartum. A least significant difference test showed that the scores obtained in the pregnancy period and at 6 months postpartum were higher than those of pre-pregnancy, indicating mitigated constitutional imbalance during postpartum. The highest scores of the Yang-Xu and Tan-Shi-Yu-Zhi constitutions occurred in the first trimester (36.02 ± 8.00 vs. 30.00 ± 7.21), and the highest scores of Yin-Xu constitution occurred in the third trimester (32.95 ± 7.48). The lowest scores of the Yang-Xu constitution were obtained at 6 months postpartum (25.24 ± 5.63) and during pre-pregnancy (25.26 ± 4.82), and those of the Yin-Xu and Tan-Shi-Yu-Zhi constitutions were observed in the pre-pregnancy (25.48 ± 4.46 vs. 19.94 ± 3.09). The 6-month postnatal scores of the Yang-Xu constitution nearly recovered to the prenatal level, whereas those of the other two constitutions did not.

Conclusion: The results indicate that women's constitutions underwent changes throughout the perinatal stages. These findings provide a valuable reference for healthcare professionals in administering perinatal care and demonstrate empirical evidence for use in future intervention-based research.

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1. Introduction

Pregnancy is an important stage in life for many women. The physiological changes caused by foetal development (following postnatal adaptation) from newborn birth influence maternal physical health. Constitution, according to theories of traditional Chinese medicine (TCM), is defined as an individual characteristic in light of congenital heredity and acquired factors, which includes appearance, physical function and mental status.¹ It demonstrates complex but stable characteristics in the morphological, structural, physical, and psychological dimensions. These characteristics can determine an individual's susceptibility to disease and pathological tendencies.² Data from the four diagnostic methods of Chinese medicine (including inspection, auscultation/olfaction, history taking and palpation) may be analysed according to Chinese medicine theories to arrive at a constitutional diagnosis, for example 'Qi vacuity pattern'.³ Furthermore, humans are complex organisms that are prone to exhibiting gradual alterations in their constitutions following changes in age, diet, and living environment.⁴ Regarding pregnant women, theories of TCM have asserted that giving birth causes a deficiency in qi and blood causing them to be physically weak. Thus, postnatal women are prone to blood stasis and illness when exposed to either cold or dampness. In addition, qi/blood deficiency renders postnatal women susceptible to the common cold and other illnesses.⁵ Consequently, constitutional changes during the perinatal period are particularly important. During pregnancy, minor constitutional changes occur over time because of the need to replenish qi and blood, which ensure proper foetal growth.⁴ An ancient Chinese idiom states that women are inclined to fear cold during early pregnancy (which creates uncomfortable symptoms) but have adverse reactions to heat in the later pregnant stages. This implies that the constitution undergoes substantial changes during the stages of pregnancy. Wang⁶ reported significant differences in constitution before and after pregnancy, observing that the average scores from a constitutional scale increased during pregnancy. Nevertheless, little empirical research has addressed constitutional changes in relation to the perinatal period. Therefore, the aim of the study was to explore the constitutional changes that occur from pre-pregnancy, pregnancy, and postpartum to provide evidence-based data regarding perinatal constitutional changes. The study may thus be used as a reference for healthcare professionals in promoting maternal and child well-being.

2. Literature review

Constitution is a unique physiological state that is formed based on a combination of influences (e.g., environment, sleep-wake cycle, and diet) during the physical development process.² Yao et al.⁷ categorised constitution into nine types: balanced, qi-deficiency, yang-deficiency, yin-deficiency, phlegm-dampness, heat-dampness, blood-stasis, qi-stagnation, and inherited special constitutions. Some scholars have classified constitution into four types: susceptible to cold, water retention, weak energy, and poor digestive function,⁸ or into three categories: qi-stagnation, yang-abundance, and balanced.⁹ A balanced constitution is the ideal constitution, which exhibits a balance of yin-yang. The most common constitution is that of yang-deficiency.¹⁰ A person with a yang/qi deficiency (Yang-Xu) constitution exhibits reduced physical function and a myriad of symptoms, including fatigue, shortness of breath, soft stool, and polyuria.¹¹ A yin/blood-deficiency (Yin-Xu) constitution is associated with increased thirst, hot flashes, hard stool, and oligouria.¹² The symptoms of the phlegm-dampness and blood-stasis (Tan-Shi-Yu-Zhi) constitutions include dizziness, chest tightness, and numbness in the lower extremities.¹³

Differences in constitution primarily stem from congenital factors (e.g., paternal and maternal contributions to fertilisation

and foetal development) or acquired influences (e.g., living environment, dietary habits, and societal circumstances).¹⁴ *Huangdi Neijing*, an ancient Chinese medical text, states that the constitution formed by paternal and maternal contributions is merely a foundation but remains unfixed and thus inclined to change based on a variety of influences in an acquired environment. These influential factors include heredity,¹⁵ age,⁸ gender,¹⁶ diet and nutrition,¹⁷ physical exertion,¹⁵ energy,¹⁸ geographic environment,¹⁹ and the current living environment.¹⁷ In other words, constitution is closely related to emotion and lifestyle. Regarding fertilisation, the maternal constitution determines the congenital constitution of the foetus; after birth, age and various acquired factors cause changes in the constitution and may lead to disease susceptibility during the various stages of life.

A woman's constitution changes during pregnancy because foetal growth and prenatal care require qi and blood. If the mother has a balanced constitution, the foetus is likely to have a normal development. Due to the placental connection between the foetus and mother, maternal organ's yin-yang levels and flow of qi, blood, and body fluid can influence the constitution of the foetus.²⁰ During pregnancy, a yin-deficiency constitution can cause bleeding and emotional instability of the mother and retarded foetal growth; a yang-deficiency constitution may lead to water retention in the lower extremities; and a blood-stasis constitution can cause discomfort, including abdominal pain and chest tightness.^{4,21} The research of Chen et al.²² indicated that mothers with a yang-deficiency constitution tend to experience abdominal pain, which leads to an increased risk of premature delivery. TCM suggests that the postnatal constitutions tend to result from a deficiency in blood and blood stasis. Specifically, a deficiency may result from the depletion of qi and blood during delivery that cannot properly be restored in a timely manner. Blood stasis results from the stagnation of blood flow during the late stages of pregnancy. In addition, the existence of lochia in the postpartum period may lead to stasis of blood, which may affect the evolution of the uterus and new blood cell production.²³ A study by Wang et al.²⁴ demonstrated that deficient-, cold-, or phlegm-dampness constitution mothers tend to give birth to deficient- or cold-constitution babies, whereas heat-dampness constitution mother tend to give birth to heat-dampness constitution babies. In conclusion, the body constitutions of the mother and baby are mutually influential. To give birth to a balanced constitution baby, it is important for the mother to properly nurse, which may lead to a reduced susceptibility to disease in the child.

3. Methods

A prospective longitudinal study was conducted. Data were collected using structured questionnaires. Approval was obtained from the Institutional Review Board of Kaohsiung Medical University Hospital (KMUH-IRB-970397). Sampling was obtained at a medical centre in Southern Taiwan. All of the participants provided their signed written consent. The recruited participants included pregnant women 21–49 years of age,^{1,25} who presented with no systemic diseases, could communicate in Mandarin or Taiwanese, and were willing to participate in the study. Using established prenatal examination schedules (developed by the Ministry of Health and Welfare, Taiwan), data were collected at six times: prenatally during the first (weeks 6–13), second (weeks 14–27), and third (weeks 28–40) trimesters; following admission to the postnatal ward (within 1 week after delivery); and after discharge home (6 weeks and 6 months following delivery). Data were collected on site during the prenatal examination and postnatal hospitalisation periods. The questionnaires were mailed to the participants for completion after they returned home. Of the 93 questionnaires distributed, 7 were excluded because of

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