Records of Two Medieval Female Doctors

A Cross-Cultural Examination of Trota and Tan Yunxian's Approaches to Menstrual Disorders

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Abstract *Menorrhagia*, commonly referred to as heavy menstrual bleeding, has been extensively studied by generations of gynecological doctors and physicians. This paper undertakes a cross-cultural investigation of treatments for menstrual irregularities as offered by two medieval female healers: Trota of Salerno, a female physician from the 12th century, whose name was recorded in a collection of medical texts known as the "Trotula Ensemble", and Tan Yunxian (談允賢), born in 1461, a Ming dynasty Chinese healer who compiled an amalgamation of 31 female patient case studies titled "Miscellaneous Records of a Female Doctor" (女醫雜言). It explores how Trota of Salerno and Tan Yunxian addressed and treated irregular menstruation, emphasizing their keen awareness of women's living conditions, social status, and emotional well-being during their respective eras. Its investigation of their diagnostic approaches to menstrual disorders aims to demonstrate how cultural, geographical, and especially gender-related factors shaped the treatment of this condition by the two female doctors. Meanwhile, their plant-based remedies further shed light on the relationship between traditional herbal recipes and global medical practices, inviting readers to discover the intersection of culture, medicine, and history through the discerning perspectives of these two remarkable women who paved the way for cross-cultural understandings of menstrual irregularities.

Keywords menstrual disorders – Trota – Tan Yunxian – medieval women – herbal medicine

Before examining how menstrual disorders were perceived and treated in classical and medieval medical treatises,[1] it is essential to first consider the historical contexts of two prominent female healers, Trota of Salerno and Tan Yunxian, and to address misunderstandings regarding the attribution of Trota's texts and the social status of female doctors during Tan Yunxian's lifetime. This clarification is key to understanding the authenticity and cultural significance of their plant-based herbal remedies, which reveal a cross-cultural approach to menstrual irregularities and suggest potential medical knowledge exchange from the medieval to early modern periods.

In her recent acknowledgment, historian Monica Green's 2024 publication clarifies that the name 'Trotula' has been misrepresented. Rather than referring to a real single historical woman from Salerno, it pertains to a collection of texts on women's medicine attributed to Trota, the authentic name of a Salernitan woman recorded in several historical medical manuscripts, such as "De curis mulierum" ("Treatments for Women") (Green 2024: 3). Also, central to the discussion of historiography is the "Trotula Ensemble" (Green 2001: xii), a collection of texts that represent some of the earliest practical attempts to address women's health challenges in the Middle Ages. Within the "Trotula Ensemble", a chapter dedicated to the treatment of excessive menstruation in "Treatments for Women" specifically presents therapeutic approaches and remedies aimed at addressing the challenges associated with irregular menstruation. Therefore, particular emphasis in the following text is placed on the analysis of medical treatments and perspectives concerning irregular menstruation in this part of the ensemble.

Building on the insights from existing scholarly research, this paper adopts a comprehensive cross-cultural analysis comparing perspectives on menstrual disorders encompassing both 'ostensibly' Western and Eastern traditions, thereby aiming at augmenting the flourishing discourse on medical history by emphasizing the gynecolo-

gical contributions of Trota and Tan Yunxian within a global medieval context.

Two Medieval Female Doctors: Biographical and Historical Backgrounds

In the late Middle Ages, the Ming dynasty established its sovereignty in mainland China. Tan Yunxian, who was born in 1461, a renowned female doctor in medieval China, lived in Wuxi 無錫, Jiangsu 江蘇 province, which is near Nanjing 南京, the capital of the Ming dynasty (fig. 1). A male cousin of Tan Yunxian, Ru Luan 茹鑾, served as the senior official deputy consultant to the commissioner of the Fujian 福建 provincial administration, a southern province with medieval capital known as Zaitun (present-day Quanzhou 泉州). He wrote a preface to "Miscellaneous Records of a Female Doctor":

> This book, was written by Tan Yunxian herself. Now, it is said to be extremely difficult for a man to excel in the field of medicine. Lady Tan Yunxian is proficient in medical studies, pulse examination, and efficient herbal prescription. Most females rely on her to maintain their health. (Yunxian 2015 [1510]: 32f.).

This passage highlights the esteem and recognition accorded to Tan Yunxian and her medical expertise. However, this does not imply that female physicians in Ming dynasty China, such as Tan Yunxian, were regarded with the same level of respect as their male counterparts during that period. Tan Yunxian came from a distinguished medical family in Wuxi. Beyond her family's official roles in the Ming government, her grandmother, Mrs. Ru, was adept in medicine. In Tan Yunxian's preface to "Miscellaneous Records of a Female Doctor", she stated that under her grandmother's guidance, she embarked on her medical studies from a young age, becoming proficient in mastering texts such as the "Nan-Ching" (Yunxian 2015 [1510]: 34f.). In the imperial China, noblewomen commonly received medical education through familial ties or marital associations as part of their upbringing (Furth 1999: 286). Angela Leung has pointed out that references to female doctors in medieval China occasionally appear in case studies authored by men or preserved in other literary forms (2003: 391). Hence, it remains crucial to underline the groundbreaking nature of Tan Yunxian as a professional and literate female doctor emerging into a male-dominated medical discourse and the potential challenges she might have encountered to gain visibility within the Ming dynasty public sphere.

Fig. 1 Map of the Ming dynasty territory with specific cities annotated

In ancient China, women faced significant barriers when seeking medical attention. In Leung's analysis of women's lives in premodern China, economic constraints prevented poorer women from accessing their health conditions. Even wealthy women required the presence of a male family member, such as their husband, to relay questions from male doctors, who might not even be permitted to see her face (Leung 1999: 118f.). In a Yuan dynasty male-authored book titled "Jiefu Zhuan" 節婦傳 ("The Chronicle of Virtuous Women"), the author Yuan Mingshan 元明善 described a widow who had an ulcer on her breasts. To preserve her chastity, she refused medical treatment from any unrelated men, ultimately leading to her death (2019 [c. early 14th century]: 573). It can be seen that male doctors often relied on a male family member's description of women's symptoms, which led some women, particularly widows, to refuse treatment from male medical practitioners to preserve their modesty – a phenomenon that male wri-

ters praised to emphasize a woman's 'virtue' in the patriarchal society.

It was indeed rare for women to receive medical training or to practice as doctors or healers, although roles such as *wenpo* (midwives) 穩婆 existed. In response to the challenges faced by women in seeking suitable medical care, two professions – *wenpo* and *nǚyi* 女醫 (female doctors) – emerged to publicly compete with male doctors in medieval Chinese society (Leung 1999: 121). *Wenpo* referred to midwives and wet-nurses, roles analogous to those in medieval Western society, while the latter term *nǚyi* is how Tan Yunxian described herself. Accordingly, there was a growing inclination among medieval Chinese women to consult female doctors specializing in *fuke* 婦科 (gynecology), as Tan Yunxian noted in the preface to "Miscellaneous Records of a Female Doctor": "Female family acquaintances who do not like having a male treat them came in a constant stream, and they frequently obtained unusually good results" (2015 [1510]: 37). Hence, it should be noted that Tan Yunxian was an exception, as her family's legacy in medical education and her relatively elevated social standing in imperial China facilitated her medical career.

In contrast, the accounts of Sun Yikui 孫一奎, a renowned Ming-period doctor from Anhui 安徽 province, provide a male doctor's perspective on female medical practitioners of the era in his treatise, "Yixue Quanshu" 醫學全書 ("Complete Book of Medicine"). Sun described encounters with several patients who had previously trusted contemporary female doctors (1999 [1584]). For instance, he recounted the case of a female patient who experienced syncope and convulsions postpartum, criticizing the female doctor's treatment and stating that "the female doctor seemed eager to demonstrate her skills. Yes, I was unaware of what medicine she administered, and after a short while, the chaos resumed as before" (Sun 1999 [1584]: 765). It is evident that Sun's critique of the female doctor's treatment underscores the prevailing attitudes and biases of male doctors towards their female counterparts during the Ming period.

Navigating the complexities of medieval Chinese healthcare and contending with criticisms from male doctors, it is my contention that Tan Yunxian not only exemplified proficiency in her practice but also demonstrated a deep empathy and understanding of the distinct health challenges faced by women of her era. Within her 31 case studies, Tan Yunxian often critiqued the conduct of a female patient's husband or other male family members, pointing out challenges such as their desire for a concubine or involvement in deceitful activities (Jinsheng 1999: 154). She cogently posited that such behaviors stirred feelings of anger, subsequently leading to disease (Wu 2010: 20f.). Given that Tan Yunxian resided in Wuxi, an area renowned for its scholars and physicians and in proximity to the capital, Nanjing, her reputation proliferated. This dissemination was further augmented by mentions of courtly women and female servants to noble families in her case studies, suggesting her acclaim reached even the court (Jinsheng 1999: 462).

Although the historical and medical exploration of Tan Yunxian's records began in the late 20th century in the Eastern world, it received limited attention in Western academia, particularly in English articles and books. In the early investigations of Ming dynasty medical practices, Zheng Jinsheng provided one of the pioneering analyses of Tan Yunxian's work in 1996. In his study, Tan Yunxian was acknowledged as one of the earliest female voices to challenge conventional medical beliefs and the male-dominated field of clinic occupations (Jinsheng 1996: 153). A significant work in Western academia titled "A Flouring Yin: Gender in China's Medical History: 960–1665" marked a groundbreaking exploration of women's pivotal role in China's medical history, spanning from the premodern to the early modern era. The author, Charlotte Furth, investigates the challenges faced by Tan Yunxian in her pursuit of becoming a female literati physician in the Ming dynasty of China (1999: 285–291). Also, she underscores the significance of Tan Yunxian's contributions, highlighting how she combines empirical medical knowledge with a profound understanding rooted in female experiences to address health concerns from a female doctor's perspective (ibid.: 287).

Establishing the biographical background of Trota is complex due to the conflation between her historical identity and the later textual record known as the "Trotula Ensemble". In Monica Green's work, it clarifies that the "Trotula

Ensemble" comprises three distinct texts, only one of which – "De curis mulierum" ("Treatments for Women") – can be directly linked to Trota herself (2024). Contrary to the misleading belief that 'Trotula' referred to a single, authoritative female medical writer, Monica Green's study had established that the "Trotula Ensemble" is a multi-authored collection, composed of three distinct texts: "De curis mulierum" ("Treatments for Women"), "Liber de Sinthomatibus Mulierum" ("Book on the Conditions of Women"), and "De Ornatu Mulierum" ("On Women's Cosmetics"). The ensemble as a whole, therefore, cannot be attributed to a single author, nor can all its medical claims and stylistic choices be assumed to reflect Trota's personal voice or medical wisdom. Instead, what modern readers encounter under the label of 'Trotula' is a layered textual tradition, shaped by various hands across different periods, and ultimately compiled into the form in which it circulated from the later Middle Ages onward.

In her work, "Reconstructing the Oeuvre of Trota of Salerno," Monica Green establishes that Trota was the daughter of Peter the Cleric (2007). She further proposes that Trota, married to Zoffus, may have come from a family where she had already developed considerable skill in medicine. If we accept that this Trota—wife of Zoffus—was also the daughter of Peter, a cleric and physician, and the same Trota who wrote the "Practica secundum Trotam" and directed the compilation of "De curis mulierum", then we can reasonably picture her as a woman who understood the value of the written word and likely held firm confidence in her medical abilities (Green 2001: 207). It seems probable that both Trota and Tan Yunxian gained access to medical training through their family ties and social standing. This underscores the significant role that heritage and guidance played in shaping the paths of women in the history of medicine.

The role of the 'invisible woman' in both medieval medical narratives and the profession was underscored by Green in her article "Documenting Medieval Women's Medical Practice" (1994). In it, she identified three pivotal factors impacting a woman's legal medical career during the medieval period: class, marriage, and medical legislation within her respective society (322–352). The first two factors were pronounced in the biographical histories of Trota and Tan Yunxian. They serve as foundational context when exploring societal advancements and challenges women faced in pursuing a medical profession during the times of Middle Ages. It is difficult to verify the authenticity of Trota's professional status, as scholars have not mentioned specific manuscripts or historical records that support her role as a professor at the Medical School of Salerno. Hence, the primary lens for analyzing her journey to become a physician centers on the societal backdrop of Salerno during the 11th and 12th centuries. The significant geographical location of this region fostered medical discourse and further facilitated women's pursuits in the realm of medical science in medieval Italy.

Given that many medieval medical practitioners lacked formal university education, Prince Roger II of Sicily, who governed the provinces of southern Italy in the 12th century, decreed that practicing medicine without a legitimate examination was forbidden (Siraisi 1990: 17f.). A later decree, issued by his grandson, Emperor Frederick II of Naples, stipulated that candidates undergo public examinations conducted by the masters of the Medical School of Salerno, with tests grounded in the classical medical teachings of Hippocrates, Galen, and Avicenna (Rashdall 1895: 156). To be eligible, candidates were required to provide evidence of a thorough academic journey encompassing three years of comprehensive university studies, emphasizing areas like medicine, anatomy, mathematics, philosophy, and surgery (Walsh 1920: 59).

Given the requirements for official recognition as a medical practitioner, our understanding of the medical contributions of Salernitan women remains incomplete. As asserted by Green, Salernitan women have not been credited with any historical records, nor have they been acknowledged as professors or teachers (2001: 49). These female healers from Salerno, as indicated by various medical sources, appear to have primarily adopted an empirical approach. They were well regarded for their knowledge of plant properties and had occasionally innovated new therapeutic herbal remedies for wound cleaning and pain control (Ferraris & Ferraris 1997: 1856). While it remains ambiguous whether the Medical School of Salerno was inclusively open to women, the

significant contributions of Trota indicate a shift towards a more inclusive environment in Salerno. For example, the name 'Trotula' was recognized as a learned *nobilis matrona* (noble lady) by the English chronicler Ordericus Vitalis in his "Historia Ecclesiastica" while discussing Rodolfo Malacorona's 1059 journey to Salerno (Chibnall 1972: 47). Furthermore, the esteemed 14th-century poet Geoffrey Chaucer referenced the name of 'Trotula' in "The Wife of Bath's Prologue", while describing a book for enjoyment: "In which book eek ther was Tertulan, Crisippus, Trotula, and Helowys" (1987 [1387–1400]: 114). Such mentions demonstrate that Trota's prominence as a woman – even so different texts by possibly different authors were mixed under 'Trotula' – extended beyond the confines of Salerno or southern Italy, with her legacy resonating throughout medieval and early modern Europe.

Defining the Menstrual Disorders in Trota's and Tan Yunxian's Texts

In the text "Conditions of women" within the "Trotula Ensemble", menstruation is metaphorically referred to as 'flowers': "The common people call the menses 'the flowers', because just as trees do not bring forth fruit without flowers, so women without their flowers are cheated of the ability to conceive" (Trotula 2001 [c. 12th century]: 73). However, this metaphor is only absent from the treatise "On Treatments for Women"; and Green discusses how the term 'flowers' was later replaced by the more technical term *menstrua* in some revised versions of the text (1996: 132). Out of the 22 vernacular translations of the "Treatise on the Diseases of Women" from Latin to other languages, at least 14 of them use a term synonymous with 'flowers' for the Latin word *menstrua* (Green 2001: 21). The widespread use of 'flowers' in vernacular translations suggests it originated in common speech rather than scholarly invention. While Latin medical texts favored *menstrua*, vernacular traditions retained 'flowers,' reflecting how women themselves described menstruation in everyday life (Green 2005: 53).

In order to place these terms in the context of medical history, it is necessary to look at other classic and influential texts on menstruation written by men. In his treatise titled "On Airs, Waters and Places", (c. early 4th century B.C.) Hippocrates postulated that women possess intrinsic weakness compared to men due to their humoral composition, which is dominated by cold and wet qualities. He emphasized that this constitution notably contributes to their pronounced distress during menstruation and childbirth:

> In the first place, the women are sickly and subject to excessive menstruation; then many are unfruitful from disease, and not from nature, and they have frequent miscarriages. […] The women, are of a hard constitution, from the waters being hard, ingestible, and cold; and their menstrual discharges are not regular, but in small quantity, and painful. (Hippocrates 1881 [c. early 4th century B.C.]: 15–17)

Although many contemporary historians and scholars perceive potential misogynistic undertones in this passage, I would argue that Hippocrates' limited understanding of women stemmed from the constrained anatomical knowledge available during his era, encompassing even basic physiological traits of women. For example, in an interpretation of menstrual blood in "Diseases of Women" – a passage sourced from a non-digitalized Hippocratic manuscript concerning the diseases of women – Hippocrates describes it according to Lloyd-Jones as flowing "like that of a sacrificed victim" (Lloyd-Jones 1983: 99). This sacrificial analogy, prevalent in ancient Greek medical and philosophical writings, underscores the acknowledgment of the profound discomfort and pain women may undergo during menstruation, portraying them as victims. To comprehensively explain this analogy, it is important to understand the Greeks' definition of blood in ancient Greek literary traditions. In Homer's "The Iliad", the presence of blood in the human body distinguishes mortals from the divine: "the goddess' deathless blood flowed; this was ichor, the kind of blood that flows in the blessed gods, for they eat no bread, and do not drink gleaming wine, and so are without blood, and men call them immortals" (2011 [c. 8th or 7th century B.C.]: 76). In other words, gods, who abstain from the consumption of *sitos* (grain) that is central to the agricultural cycle, lack blood and are thus immortal. In contrast, humans, bound by their consumption of *sitos*, possess blood, marking their mortality. Within

this context, one can suggest that menstrual blood transcends being merely a biological marker; it encapsulates the essence of a woman's life experiences and aligns them with the divinity associated with the immortal blood of goddesses.

Yet, despite these powerful associations between divinity and menstrual blood, later ancient philosophers and medical thinkers portrayed women in a less favorable light. Aristotle, for instance, whose original Greek phrase describes menstrual discharge as "like the blood of a freshly-slaughtered beast" (Wissing 1989: 135) is sourced from the Hippocratic Corpus (HA 581b1-2). This perspective potentially signals a deliberate shift away from the concept of the sacred. According to Helen King, Aristotle's stance on menstruation, rooted in his belief in male superiority and the portrayal of women as both physically and intellectually inferior, compares women undergoing menstruation to sacrificial victims (1998: 91). In other words, according to Aristotle's view, menstrual bleeding was not merely a biological process; it was comparable to the offering made by a sacrificial animal. Such viewpoints underscore how deeply the perception of women's frailty was entrenched in ancient Greek medical and philosophical traditions.

In contrast to the western practice of using metaphors such as flowers or trees to describe menstruation, Tan Yunxian directly referred to *yuejing* 月經 (menstruation) in her case studies of various female patients, addressing issues such as retention of menses as well as excessive menstruation. In the preface to "Miscellaneous Records of a Female Doctor", Tan Yunxian acknowledges the profound role of this treatise in shaping her understanding of menstrual disorders such as *yin-yang* 陰-陽, *qi* 氣 and *xue* 血. The *yin-yang* doctrine, derived from the ancient Chinese medical treatise titled "The Yellow Emperor's Inner Classic: Su Wen" (黃帝內經素問), commonly referred to as Huang Di Nei Jing Su Wen, served as a fundamental medical principle in traditional Chinese medicine. It reflected the ancient Chinese people's understanding of individuals' health within the broader context of the universe:

> *Yin* and *Yang* represent the laws of heaven and earth. The *Dao* (道, way) encompasses the principles of *yin* and *yang*. The *Taiji* (太極, Supreme Ultimate) in stillness generates *yin*; when in motion, it generates *yang*. The heavens originate from movement, while the earth originates from stillness. Therefore, *yin* and *yang* constitute the principles of heaven and earth. (Huang Di Nei Jing Su Wen 2015: 24)

To be more specific, classical Chinese medical scholars, including Tan Yunxian, regarded menstruation as a unique detoxification method essential for women to balance *yin*, *yang*, *qi*, and blood in their bodies, as it enabled them to expel certain impurities. This perspective contributed to an unscientific stereotype that menstruation facilitated regular detoxification, suggesting that women generally tended to live longer than men, who do not experience a menstrual cycle. Building on their understanding of menstruation, the subsequent section will comprehensively discuss Tan Yunxian and Trota's pioneering medical approaches to treating menstrual disorders as presented in their medical writings, illuminating their profound understanding of and dedication to women's health issues in their eras.

Diagnosing the Menstrual Irregularities: Trota's and Tan Yunxian's Pre-Treatment Approaches

Prior to diagnosing female patients, Trota placed significant emphasis on comprehensively understanding their physical condition and living environment at the beginning of her work "On Treatments for Women". In the opening words, she suggests, "in order that we might make a concise summary of the treatment of women, it ought to be noted that certain women are hot, while some are cold" (Trotula 2001 [c. 12th century]: 117). Building upon this principle, she introduced a method aided by Hippocratic and Galenic humoral theory (fig. 2) and other medieval Salernitan medical writings to assess the patient's specific temperament by testing whether they possessed a hot or cold bodily mixture. It is noteworthy that Tan Yunxian's records also emphasize the evaluation of the patients' bodily constitution before making a diagnosis through methods such as pulse-taking and professional inquiries into the cause of the disease. This section will present that both Trota and Tan Yunxian engaged in preliminary prepa-

rations, involving meticulous and distinct assessments of a female patient's hot or cold temperament. It will emphasize a careful consideration of various factors that may have adverse effects on women's health, including life stages, social status, challenging living conditions and even occupational aspects experienced by women in their contemporary context.

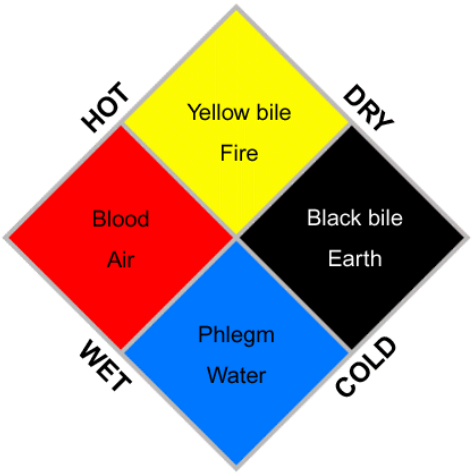

Fig. 2 The diagrams of the humours based on Hippocrates' theory.

The attention to a woman's bodily constitution primarily relied on applying the concept of hot and cold temperaments as genuine physiological categories to identify whether she was hot or cold: "We anoint a piece of lint with oil of pennyroyal or laurel or another hot oil, and we insert a piece of it the size of the little finger into the vagina at night when she goes to bed, and it should be tied around the thighs with a strong string" (Trotula 2001 [c. 12th century]: 117). Therefore, Trota's test functioned as a tool to identify the mixture that a particular woman possesses, serving as the starting point for diagnosing a patient's health problems, followed by the application of Hippocratic and Galenic medical principles. The linen cloth functions as a suppository that is drawn inward if the uterus is cold or expelled if the uterus is hot upon insertion into the vagina. The underlying rationale for this practice might be linked to the fundamental mode of healing, as introduced by Galen in "Ars Medica": "The most common and general aim of every cure of disease – that is, the opposite. As Galen said: 'Opposites are the cures of opposites.' In individual cases it is the individual opposite – for a hot disease, cold; for a cold disease, hot" (2016 [c. late 2nd century]: 69–71). That is to say, hot and cold were perceived as opposing qualities, were dry and wet. As Trota's subsequent texts affirmed, the fundamental basis for this initial test aligns with the principle that "contraries are cured by their contraries" (Trotula 2001 [c. 12th century]: 116), which indicates a close association with the theory of two dominant mixtures of humours within the human body, as promoted by Hippocrates and Galen.

In the case of a female patient experiencing health issues characterized by heat dominance, another medical text titled "Circa instans", attributed to the 12th-century Salernitan physician Matthaeus Platearius, recommends the application of various cold substances, such as violets, marsh mallows, and roses. According to Platearius, these cold properties are to be combined with water and utilized through vaginal suffumigation (Wölfel 1939: 29). Trota also often recommended these three herbal ingredients in subsequent texts, especially for providing a specific remedy for balancing humours in female individuals to enhance their ability to conceive. Likewise, women suffering from cold-related symptoms are advised to use hot substances, such as pennyroyal and laurel leaves, which are often mentioned in Trota's text for their warm and dry herbal properties. It is crucial to note here that the Galenic terms 'cold' and 'hot' did not solely refer to physical temperature but rather signified their ability to elicit cooling or warming effects on the body when used as medicinal remedies to balance bodily fluids (Kaye 2014: 145). Thus, Trota's primary rationale for implementing such a test becomes evident: she clearly recognized the significance of imbalanced bodily fluids, as they could contribute to various symptoms that women may suffer such as abnormal menstrual bleeding.

While Hippocrates presented the humoral theory to offer a comprehensive understanding of the external factors that may affect the imbalance of humours and become the cause of disease, he also generalized and posited that women were constitutionally colder than men, leading to ir-

regular menstruation (1881 [c. early 4th century B.C.]: 15). However, Trota's pre-treatment test disregarded this argument about women's nature and instead emphasized the diverse temperaments of women, which should be addressed with varied assistance following the test: "In order to determine which, one should perform this test. […] In either case, assistance ought to be given in this manner" (Trotula 2001 [c. 12th century]: 116). Therefore, it can be suggested that another possible reason for Trota conducting this test was to reflect her pressing concern regarding women's life cycles, particularly in relation to women's menstrual irregularities and their complications.

In Trota's examination of a woman who experienced a condition where her womb was constricted or obstructed, she took into account the varying sexual experiences of women at different stages of life and posited that the disease commonly occurs in virgins and widows. Within the societal context of medieval southern Italy, virgins, due to their lack of sexual activity, and widows, unable to consummate a second marriage while maintaining chastity, were particularly susceptible to this condition (Skinner 1993: 151). Under the patriarchal notions prevalent in medieval Europe, it was believed that since both widows and virgins did not engage in regular sexual activities, they might accumulate an excessive amount of humour in their bodies. This accumulation could potentially lead to "a defect of the menses" (Trotula 2001 [c. 12th century]: 85). This menstrual irregularity subsequently exacerbates the severity of the symptoms associated with the suffocation of the womb. It can be argued that Trota's diagnosis of menstrual irregularities concerns the widows and virgins living under the constraints of traditional Lombard law, who would have experienced particular societal pressures (Drell 1996: 210). Her preliminary test highlights the female author's concern for women in different life stages and how the conditions of their menses could be shaped by external factors, such as their sexual life.

Instead of resorting to a specific test to ascertain a female patient's hot or cold temperament, Tan Yunxian conducted a comprehensive inquiry into the woman's life, including her age, social and family status, as well as occupational conditions, with the aim of tailoring the remedy to the individual case:

> A 38-year-old woman suffered flooding [*heavy uterine bleeding*] that did not stop for three months; it turned into blood dribbling [*excessive menstrual bleeding*] that lasted for three years […]. I inquired as to the reason. She said that her family runs a kiln as their line of work; whenever her husband went out, she had to carry the bricks and tiles herself. One day she was carrying them and could not finish until the second watch; coincidentally she was menstruating, and that was when this ailment developed. I said that this is taxation from toil. (Yunxian 2015 [1510]: 48)

Tan Yunxian's thorough assessment of the female patient's personal details, echoing with Trota's consideration of women at different life stages, reflects their attentive care for women as female physicians. For example, the phrase "taxation from toil" is recurrently mentioned in six cases within Tan Yunxian's records, indicating women who suffered from exhaustion due to strenuous labor. As explained by Lorraine Wilcox, taxation in the context of the Chinese feudal governing system referred to the profound fatigue, depletion, and harm to the body that result from excessive mental or physical activities (2015: 49). This highlights a shared aspect between Tan Yunxian's inquiry and Trota's test during the pre-treatment phase, as both consider how external factors can affect women's health, potentially leading to health issues or diseases.

Contextualizing the case of this impoverished woman in Tan Yunxian's medical records, she faced considerable physical and psychological challenges. She had to juggle household responsibilities while also being the sole provider for her family. Wang Jian's research reveals that women in the Ming dynasty occupied a subordinate social position and experienced a lack of agency both within society and in their own households. Their lives were often dependent on their husbands (Jian 2016: 104). In this specific context, the female patient's disclosure of her living conditions and demanding work can be interpreted as a way to resist against her embarrassing situation and the oppressive misogynistic social system in medieval China. Consequently, when faced with severe health conditions and familial oppression,

Tan Yunxian's pre-treatment inquiry can also be served as a form of psychological counselling for the patient, offering relief from the societal and familial burdens during times of oppression.

In respect to the commonality between Tan Yunxian and Trota's theoretical basis of their pre-treatment activities, Tan Yunxian's approach coincided with the Western principle of 'contraries are cured by their contraries', which was similarly embraced by Trota and can be traced back to the ancient Chinese medical treatise titled "The Yellow Emperor's Inner Classic: Su Wen" (Huang Di Nei Jing Su Wen 2015). This principle is commonly known as to "[i]nvestigate their *yin* and *yang* [*association*], to distinguish soft and hard [*medication*]. In the case of *yang* diseases, treat the *yin*; in the case of *yin* diseases, treat the *yang*" (Huang Di Nei Jing Su Wen 2011: 125). To facilitate a better understanding of the relationship between humoral theory and *yin-yang* discourse, refer to fig. 2, where the red and yellow areas can be interpreted as *yang*, and the black and blue parts can be understood as *yin*. Firstly, *yin* and *yang* can be analogized to cold and hot in the Hippocratic and Galenic theory of four qualities, representing complementary and opposing forces. Secondly, in Chinese medical discourse, *yin* and *yang* extend beyond representing heat and coldness in terms of temperature; they must be considered in conjunction with *xue* (blood) and *qi* (Nie 2016: 81). According to Paul Unschuld, *qi* is commonly interpreted as vital energy or breath in Western contexts. Phrases such as *qi-shao* 氣少 (short of breath) imply a state linked to insufficient *qi* in the body, often specific to the weakness of a particular organ (Huang Di Nei Jing Su Wen 2011: 125).

A section titled "Regulating Menstruation Theory" in the "Yellow Emperor's Inner Classic" offers a more detailed and nuanced theory regarding the various classifications of *yin-yang* (Huang Di Nei Jing Su Wen 2015). It explains that *yang-xu* 陽虛 (*yang* deficiency) is associated with external coldness, while *yin-xu* 陰虛 (*yin* deficiency) is linked to internal heat. On the other hand, *yang-sheng* 陽盛 (an excess of *yang*) results in external heat, while *yin-sheng* 陰盛 (an excess of *yin*) leads to internal coldness (Huang Di Nei Jing Su Wen 2015: 303). It is worth noting that a person's bodily constitution cannot be strictly classified into a single type, such as *yang-xu* or *yin-xu*, because there are individuals who may exhibit excesses or deficiencies in both *yin* and *yang* elements, and as a result, the function of each organ may weaken due to these imbalances (pachuta 1991: 46). Building upon this intricate *yin-yang* system, Tan Yunxian demonstrated adeptness in incorporating the complementary and opposing aspects of *yin-yang* theory to tailor remedies for her female patients. Recognizing the deficiency of *qi* and excess of blood in the 38-year-old woman's body, she provided a remedy titled "Decoction to Supplement the Center and Boost Qi" 補中益氣湯 for women suffering from irregular menstruation.

Another case concerning irregular menstrual cycles in Tan Yunxian's records involves a 53-year-old patient. Through preliminary inquiry, Tan Yunxian discovered that she also experienced physical exhaustion similar to that of the 38-year-old woman who worked near a kiln. In order to develop a more comprehensive treatment plan, Tan Yunxian examined her pulse to determine the underlying cause:

> She suffered an ailment with deficiency of both qi and blood. I rechecked her pulse; the heart channel pulse was extremely floating and surging, and it would stop for six beats [*irregular pulse*]. […] The heart is the master of the whole body; when her heat fire stirred, menstruation did not come when expected, increasing her deficient and weakness. (Yunxian 2015 [1510]: 122)

In order to develop a personalized solution for addressing the irregular menstruation in the 53-year-old woman case, Tan Yunxian's primary focus was to address the *qi* deficiency in the body. Owing to the patient's habitual overexertion, she had incurred damage to her heart.

According to Elisabeth Hsu, the assessment of the tactile attributes of *mai* (vessels, pulses, and channels) in "Su Wen" remains a professional diagnostic technique in early Chinese medicine for diagnosing illnesses through pulse examination (2010: 65). This diagnostic method addresses concerns related to the mineral imbalance within an individual's body, specifically regarding *yin* and *yang*, as well as the water and fire elements. Building upon this diagnostic technique, Tan Yunxian's medical decisions were guided by her use of pulse-taking, a practice that demands a profound comprehension of the intricate connection bet-

ween pulse qualities and the corresponding issues within the organs.

Therefore, Tan Yunxian's pulse quality assessment led to the prescription of a remedy comprising "Decoction to Supplement the Center and Boost Qi", in conjunction with "Er Chen Tang" 二陳湯 and the herbal formulation "Gui Po Wan" 歸珀丸, all aimed at restoring *qi* and *xue* (blood) within the patient's body. Concurrently, recognizing the compromised spleen's inability to regulate and control bleeding, Tan Yunxian advised the patient to add additional herbs to the aforementioned medicinal mixtures. These herbs, such as *xiangfu* 香附 (usually referring to the rhizome of *Cyperus rotundus*) and *zelan* 澤蘭 (*herba lycopi*), were specifically chosen to strengthen spleen functionality (Yunxian 2015 [1510]: 123).

A Comparison of Trota and Tan Yunxian's Herbal Remedies for Treating Menstrual Disorders

While the last section has provided a comparative analysis of Tan Yunxian`s and Trota's approaches to menstrual disorders, carefully taking into account a female individual's social status, living conditions, and personal circumstances, the following section will examine the shared understanding demonstrated by Trota and Tan Yunxian's selection of herbal ingredients for treating immoderate menstruation. This seeks to uncover a deeper interrelation between Trota's and Tan Yunxian's understanding of the therapeutic attributes of individual herbs, coupled with an exploration of ethnobotany within the broader framework of medieval medical practices on a global scale.

An example of the use of *xiangfu* in gynecology in traditional Chinese medicine can be found in Li Shizhen's 李時珍(1518–1593) "Compendium of Materia Medica" 本草綱目:

> The aroma of *xiangfu* is neutral and not overpowering; it is fragrant and has the ability to diffuse. Its taste is primarily pungent, which aids in dispersing stagnation; slightly bitter, which helps direct *qi* downward; and with a hint of sweetness, which brings harmony. It is the main herb for treating *qi* stagnation disorders and is commonly used in gynecology. (Shizhen 2009 [1596]: 238)

This herb, *xiangfu*, a member of the *Cyperaceae* family, was noted for its efficacy in treating irregular menstruation. Intriguingly, Trota also incorporated an ingredient from the same herbal genus in her medical recipe to address menstrual retention. Prior to examining these two specific herbs in detail, it is pertinent to observe that plants within the same genus, despite differing in species, may exhibit comparable therapeutic characteristics and properties suited to alleviating particular ailments. This concept forms the basis of the groundbreaking work by Nobel laureate Tu Youyou, who identified antimalarial compounds within the *Artemisia* genus (Tu 2011: 1217–1220). The purpose of drawing a parallel between the herbs utilized in the recipes of these two female practitioners is not to directly substantiate any exchange of goods or knowledge between them. Rather, it seeks to underscore a convergence of practical wisdom across distinct regions, offering insight into contemporary discussions regarding the relationship between Western biomedicine and traditional Chinese medicine.

In Trota's herbal recipe "Trifera Magna", which addresses menstrual retention, she mentioned a herb called *iunci*, translated as *galingale* or *galangal* (Green 2001: 158). *Galingale* is one of many species in the *Cyperaceae* family, known for its aromatic rhizomes, while *galangal*, as Green annotates, is a China root herb (*ibid.*). However, *galangal* is entirely different from *galingale*; it is a type of turmeric that spread from India via maritime routes, gaining momentum in the Middle Ages. It reached China's coast in the seventh century, East Africa in the eighth, West Africa by 1200, and Jamaica in the eighteenth century (Nair 2019: 2). In classical Chinese medical texts, it first appeared in the "Xinxiu Bencao" 新修本草 and was later recorded in the "Bencao Gangmu" 本草綱目, both of which were widely used in traditional Chinese medicine for treating menstrual disorders (Feng *et al.* 2011: 335). In Latin, *ciperus* refers to the triangular root of *iuncus*, which may have led Monica Green to identify Trota's reference to *iunci* with *Cyperus longus* (fig. 3) in the glossary (2001: 281).

Interestingly, in the aforementioned two case studies of female patients documented by Tan Yunxian, she prescribed a herbal remedy titled "Decoction to Supplement the Centre and Boost Qi" (2015: 33). This concoction includes an herb

from the *Cyperaceae* family, called *xiangfu* 香附, specifically *Cyperus rotundus* (fig. 4) in Western herbal nomenclature. The following discussion focuses on uncovering the properties of *Cyperus longus* and *Cyperus rotundus* to highlight their uses in treating menstrual disorders.

Tan Yunxian attributed this recipe to a distinguished male physician, Zhu Zhenheng 朱震亨 from the Jin-Yuan period (1127–1368), who was also known by his style name, Danxi 丹溪 (Jian 2016: 170). His significant work "Danxi Xinfa" 丹溪心法 ("Danxi's Essential Methods"), a collection compiled by his disciples in the mid to late 15th century, highlights *Cyperus rotundus* as a key herb for addressing excessive menstruation: For women with excessive menstrual bleeding, administer a pill made of *xiangfu* (*Cyperus rotundus*) and *baizhi* 白芷 (*Angelica dahurica*). The treatment should primarily use medicines that significantly nourish and replenish the *qi* and *xue* (blood), support the spleen and stomach, and mildly incorporate medicines to calm the descending heart fire. By treating the heart, nourishing the *yin*, and conserving *yang*, the menstruation should naturally stop (Dan Xi 2008: 109). It is significant to note that traditional Chinese medicine has documented the therapeutic qualities of *Cyperus rotundus* in treating menstrual disorders prior to other recorded instances.

The textual history of the herb *Cyperus rotundus* in traditional Chinese medicine can be traced back to its earliest references regarding the treatment of irregular menstruation. The first such mention was made by a Jing era male physician, Li Dongyuan 李東垣, in the gynecology section of his work "Lanshi Micang" 蘭室秘藏 ("A Secret Book Kept in Chamber") (Dong Yuan 2005 [1276]: 128). This text, later cited by Zhu Zhenheng, highlighted the herb's pharmacological qualities in elevating the *yang* energy within the female body (Dan Xi 2008: 121). Furthermore, "Shennong Bencao Jingshu" 神農本草經疏 ("Shennong's Classic of *Materia Medica*"), a 17th-century Chinese medical text written by Mou Xiyong 繆希雍, underscores the significance of *Cyperus rotundus*, identifying it by its traditional Chinese name. The text elaborates on its therapeutic qualities in replenishing *qi* and *xue* (blood), aiming to restore balance after excessive bleeding (Xiyong 1997 [1624]: 172). From these records, it can be suggested that the application of *Cyperus rotundus* in relieving menstrual ailments has deep roots in the annals of Chinese medical practices.

As Trota does not cite any sources when referring to her use of *Cyperus longus*, it prompts an investigation into the herb's other applications and its role in the broader context of global medicinal practices during the medieval period. The examination shows three primary uses: firstly, it was employed to address the loosening of teeth (Trotula 2001 [c. 12th century]: 145); secondly, it was combined with other herbs to manage the pain of the womb (ibid.: 157); thirdly, it served as an aid to enhance the color and texture of hair (ibid.: 171). These applications are juxtaposed with medieval Islamic medical texts; parallels concerning women's health and beauty emerge. For instance, Ibn Sina, widely known as Avicenna, a leading phy-

Fig. 3 Cyperus longus.

Fig. 4 Cyperus rotundus.

sician of the medieval Islamic world, whose treatise "The Canon of Medicine" noted the utility of the *Cyperus genus*[2] in both cosmetology – for hair and skin coloring – and therapeutic drug-treatments (1973 [1025]: 90f.). It can be suggested that the use of the *Cyperus genus* in treating or supporting women's health was widely acknowledged in the medieval Mediterranean region.

With respect to the use of *Cyperus* in treating menstrual disorders as found in the gynecological texts of both Trota and Tan Yunxian, this study posits that there may have been potential intellectual exchanges in herbal knowledge, particularly in the area of gynecology. Both regional medical traditions identified analogous therapeutic attributes of the *Cyperus genus* in the treatment of menstrual disorders. For example, medicinal interactions between the Middle East and medieval China also warrant attention, as underscored by the earliest Islamic references to *Cyperus rotundus* in Ibn Sina's "Canon of Medicine". Ibn Sina made a distinct connection of this herb to traditional Chinese medical practices, stating that "the Chinese are proud of their art, considering how long they have known that which we have only recently discovered" (ibid.: 17). Here, the term 'art' as employed by Ibn Sina pertains to the practice of medicine, a nomenclature consistent with its usage since the era of Galen. This provides fundamental evidence to posit that there was substantive medicinal dialogue between the Middle East and China.

In order to validate the interplay between medieval Islamic medical writings and traditional Chinese texts concerning the *Cyperus genus*, I examined a historical text documenting potential medical exchanges during the Middle Ages. In the records of the renowned book cataloguer and seller, Ibn al-Nadim (932–990), he cites a report by the Persian polymath and physician Muḥammad ibn Zakariyā al-Rāzī (Rhazes) about a Chinese student who studied with him for approximately a year and wanted to transcribe a copy of Galen's works:

> In five months of this time he learned Arabic, both spoken and written, becoming proficient in style, as well as expert and rapid in writing. When he desired to return to his country, he said to me a month in advance: "I am about to set forth and wish that you would dictate to me the sixteen books of Galen, so that I can write them down. (1970 [c. 10th century]: 31)

Based on this documentation, while we cannot confirm whether this record is authentic or not due to the lack of direct textual references in classical Chinese or Tibetan sources (Weil & Yoeli-Tlalim 2024: 664), I have found mentions of the *Cyperus* genus in Galen's work. His writings align with his humoral theory, suggesting that the root of *Cyperus* is particularly potent in medicine due to its warming and drying properties, with some considering it to have a second-degree heat and dryness (Galen 2011 [c. late 2nd century]: 36). This characteristic of *Cyperus* resonates with the foundational principles underlying Tan Yunxian's medical diagnostics. More specifically, the warm and dry qualities of *Cyperus* are believed to augment the *yang* energy and *xue* (blood). Its pronounced thermal attribute can be perceived as a facilitative property that boosts the *qi* and further strengthens the spleen's ability to regulate bleeding.

Furthermore, the research undertaken by Ronit Yoeli-Tlalim indicates that while traditional Chinese diagnostic methods diverge from the Graeco-Arab paradigms, a Tibetan diagnostic text titled "Medical Method of the Lunar King" exhibits profound parallels with Ibn Sina's "Canon of Medicine", not only in its content but also in textual structure (2019: 597). Therefore, it can be suggested that there exists a coherence among Tibetan medical doctrines, medieval Islamic medical principles and the theories articulated in Hippocrates and Galen's times. In addition, the research on medicinal exchanges during the medieval period cannot be separated from the investigation of the significance of the Mediterranean area. Its central location seemed to have been instrumental in promoting medical discourse, serving as a central hub for the communication of medicinal insights from different cultures throughout Eurasia.

Looking back to Trota and Tan Yunxian's treatments for menstrual disorders, their innovative approaches to harnessing the therapeutic properties of plants not only exemplify the depth and breadth of herbal medicine during their respective cultures, but also underscore the potential for a confluence of medical traditions. In a pa-

rallel vein, medical scholarly research in 2021 has recognized the pharmacological efficacy of *Cyperus rotundus*, particularly the therapeutic potential of its rhizomes in addressing blood disorders, leprosy, inflammatory diseases, and menstrual irregularities (Babiaka *et al.* 2021: 15060). Drawing from two medieval female healers' insights, one can appreciate the universality of medical challenges across different cultures and the potential of shared solutions. Their writings intrigue us to reexamine ancient texts and gynecological practices, bridging historical knowledge with contemporary medical research, in the quest for effective treatments for women.

Conclusion

From a cross-cultural comparison between two medieval female healers' herbal remedies for menstrual disorders, it can be argued that a plant can serve not merely as a pharmacological agent bridging the epistemological divides between Western and Eastern medicinal paradigms, but also as an insightful lens into a specific historical period. In light of this, this study concludes by calling for further research to address the gaps in our understanding of women's health within the context of medical history.

First, it is essential to uncover the interconnections of classical medical theories across regions by examining specific lexical terms, cases, and treatments. This study has established a parallel theoretical framework that identifies interconnections between Trota and Tan Yunxian's prescribed remedies and medical recipes for treating irregular menstruation. While current scholarly research has examined the interrelationship between ancient Greek and medieval Islamic medical doctrines (Fancy 2018: 129–140), there exist more systematic medical principles from Asian regions such as Mongol medicine, Hinduism and Tibetan Buddhism that warrant further analysis.

Second, it is necessary to examine women's mental conditions related to the menstrual cycle, menopause and even what a woman's mental condition sacrifices for the family. While female doctors' concerns for female mental health, such as Tan Yunxian's attention to her patients' family burdens, have been documented in medical records, conceptions about menstruation, menopause, and women's emotional turbulence were often misinterpreted as hysteria or madness. These misconceptions continued to dominate various social discourses and medical narratives. Hereby, it is worth undertaking both historical and scientific research on the misunderstanding of women's psychological conditions and further providing biologically evidenced details to reclarify such descriptive norms that have often been applied to women. Throughout Tan Yunxian's case records, we can observe the extent to which patriarchal society and masculine discourse oppressed women, forcing them into the dilemma of finding a suitable doctor. Therefore, we must conduct more comprehensive research that integrates historical, social, and scientific perspectives to better address women's emotional wellbeing during the menstrual cycle, menopause, and other related experiences.

Last, it is necessary to conduct an examination of herbs that address women's health challenges while adopting a global ethnobotanical perspective. To understand the historical and current utilization of plant-based remedies worldwide, it is essential to assess their effectiveness and modes of operation by examining historical medical texts. Notably, throughout both the male-authored and female-authored parts of the "Trotula Ensemble", the prescription of *Artemisia genus* (i.e. wormwood and mugwort) to counteract excessive menstruation aligns with its use in various Asian and Islamic remedies aimed at improving women's health. This herb is now renowned for containing the biochemically authenticated compound *qing hao su* (*artemisinin*), which was identified in Li Shizhen's 16th-century seminal medical work titled "Compendium of Materia Medica" as an effective treatment for infectious diseases (Hsu 2012: 83–130). However, for several centuries after the 16th century, the herb's medicinal attributes were largely overlooked by both the Western and Eastern scientific communities. It was only in the late 20th century that the esteemed Chinese chemist and Nobel laureate, Tu Youyou, championed its anti-malarial function (2011: 1220–1217). In the wake of her groundbreaking discovery, the World Health Organization has acclaimed *qing hao* 青蒿, heralding it as pivotal in global anti-malarial strategies. Building on the insights from Tu Youyou´s relentless quest for an effective herbal compound,

we could learn that sometimes the past contains a wealth of knowledge that has the power to transform the present.

Notes

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2 English translation did not pinpoint a specific root.

Figures

Fig. 1 Map of the Ming Dynasty Territory with Specific Cities, Annotated (by the author of this text). By Říše Ming.png: Michal Klajbanderivative work: Jann - This file was derived from: Říše Ming.png: CC BY-SA 3.0 cz, https://commons.wikimedia.org/w/index.php?curid=34923107.
Fig. 2 The Diagrams of the Humours Based on Hippocrates' Theory. By KVDP - Own work, Public Domain. URL: https://commons.wikimedia.org/w/index.php?curid=12119550.
Fig. 3 Cyperus longus. By Stefan.lefnaer, Own work, CC BY-SA 4.0. URL: https://commons.wikimedia.org/w/index.php?curid=73944035.
Fig. 4 Cyperus rotundus. By © 2009 Jee & Rani Nature Photography (License: CC BY-SA 4.0), CC BY-SA 4.0. URL: https://commons.wikimedia.org/w/index.php?curid=10058205.

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