European Journal of Integrative Medicine 55 (2022) 102180

Contents lists available at ScienceDirect

European Journal of Integrative Medicine

journal homepage: www.sciencedirect.com/journal/european-journal-of-integrative-medicine

Review article

Descriptions of qi deficiency and qi stagnation in traditional East Asian medicine: A comparison of Asian and Western sources

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ARTICLE INFO

Keywords:
Acupuncture
Chinese medicine
Oriental medicine
Traditional East Asian medicine
Herbal medicine
Diagnosis
qi
qi deficiency
qi stagnation
Signs and symptoms

ABSTRACT

Introduction: In a previous study, evidence was found of the variability of signs/symptoms (s/s) of blood stasis syndrome among texts of Chinese and Asian origin and English language texts including evidence of the differences between non-Asian and Asian patients. In the current study the diagnostic patterns of qi deficiency (QD) and qi stagnation (QS) were examined to see if similar results could be found.

Methods: The study consisted of two phases – a search of libraries and a search of electronic databases, and searching for texts describing QD and QS s/s ensuring inclusion of Asian origin texts (principally Chinese) and Western origin texts. More commonly mentioned s/s were compared for each type of source and across all sources.

Results: Study one: From the 21 included QD texts, six s/s were generally agreed upon with three more commonly mentioned in Western origin texts, three more commonly mentioned in Chinese origin texts. From the 17 included QS texts, three s/s were more generally agreed upon with three more commonly mentioned in Western origin texts. Study two: Comparing s/s in 13 QD studies, five were mentioned by more than half the studies. Comparing six QS studies, six s/s were more generally agreed upon. In a comparison of s/s for QD mentioned by Western and Chinese origin texts and the Asian studies, three were mentioned by >50% sources, one more often by Chinese texts, three more often by Western texts and one more often by Asian studies. In a comparison of s/s for QS mentioned by Western and Chinese origin texts and the Asian studies, two were mentioned by >75%, two more often by Western texts and two more often by Asian studies.

Conclusion: English language texts and studies describing QD and QS s/s were examined. Evidence of agreement on a few s/s were identified. English origin texts showed differences in texts originating from Asia, which may support the hypothesis that QD and QS may manifest differently among Western and Asian patients.

1. Introduction

Traditional East Asian medicine (TEAM) is derived from early Chinese medical practices and has evolved over centuries in different countries along many trajectories, for example traditional Chinese medicine (TCM) in China, Kampo and Meridian Therapy in Japan, traditional Korean medicine (TKM) including Sasang in Korea [1,2]. As a result there are many different clinical practice systems, each with its own set of theories, diagnostic assessment methods, structure and logic for arriving at diagnostic conclusions and associated treatment methods [3]. The observation of patients to collect data coupled with the methods of classifying those data according to the theories of the system, lead to the identification of patterns of diagnosis (PI) which in turn indicate what treatment to deliver [3]. While the choice of theories, diagnostic assessment methods, interpretation of data, diagnostic conclusions and methods of treatment vary across systems in the field of TEAM, the different practice systems use many of the same terms and labels [1,3]. Often these terms and diagnostic labels have differences in their

List of abbreviations: s/s, signs and symptoms; QD, qi deficiency; QS, qi stagnation; BSS, blood stasis syndrome; TEAM, traditional East Asian medicine; TKM, traditional Korean medicine; TCM, traditional Chinese medicine; WHO, World Health Organization; ICD, International Classification of Disease.

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https://doi.org/10.1016/j.eujim.2022.102180
Received 11 April 2022; Received in revised form 15 August 2022; Accepted 17 August 2022
Available online 20 August 2022
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meanings and uses. In a previous publication we examined the term 'blood stasis' and its diagnostic pattern 'blood stasis syndrome' (BSS). We examined texts written in English that described the signs and symptoms (s/s) of BSS comparing those of Asian origin with those of Western origin and to instruments and studies that describe how to identify BSS [4]. We found differences in how BSS is identified within single and between different Asian countries, with additional differences between Asian (mostly Chinese) sources and Western English language sources [4]. While bio-cultural diversity in how a medical system is practiced is to be expected and is acknowledged in modern biomedicine [5–7], it has not been studied much in the field of TEAM practice systems. In a comparison of how the modern TEAM systems of TCM and Meridian Therapy use the concepts of 'heart pattern' and 'spirit,' significant differences were found that are due to historical, cultural and clinical factors [8]. Each system context is likely to have unique understandings in the country of origin [9,10]. For a term like 'qi', which is a key concept in TEAM [1], there is likely to be even more variation among Westerners, informed by their more limited exposure to and understanding of the term and subject to variation in translation of terms [1,8,11]. There is considerable variation in choice of English words when scholars have translated the term qi, [11] in part based on the different historical traditions, concepts and texts they were addressing [11] and in part on different cultural preconceptions. To explore the potential for different understandings between Chinese and Western sources we focus on the two basic qi diagnostic categories of 'qi deficiency' (QD) [qi xu 氣虛] and 'qi stagnation' (QS) [qi zhi 氣滯 or qi yu 氣鬱]. Both diagnostic concepts are used to refer to more general patterns and to system specific patterns. For example, Chiang and colleagues in a study of QD describe 'systemic qi deficiency' and 'viscera qi deficiency,[12], where systemic qi deficiency is simply called 'qi deficiency' an example of viscera qi deficiency is 'spleen qi deficiency.' The same holds for 'qi stagnation', as a systemic pattern and 'liver qi stagnation' as a viscera qi stagnation pattern. Despite the common overlap of systemic and visceral manifestations [12], for both QD and QS we will examine only the more systemic constructs since they are identified with s/s listed separately from the visceral manifestations [13–15]. The main purpose of this study is to explore the potential diversity of descriptions of qi related diagnostic patterns of QD and QS. This was achieved by examining the s/s for the diagnoses of QD and QS to assess similarities and differences within Asian publications, within English language publications and between Asian origin and English language origin publications.

2. Methods

We adopted the same methodology that was used for a blood stasis review [4]. We compared the s/s listed for QD and QS first among texts published in English and second among scientific studies published in English, including diagnostic instruments, that described s/s for each.

2.1. Textual study

To find textbooks we hand-searched only for texts in English in personal and colleague collections and acupuncture school libraries. Texts describing the s/s QD or QS from both China and the West were identified and collated. Searching continued until at least two texts were found in each of the following five categories for each condition:

1- Sources written by Chinese authors (including texts translated to English from Chinese)
2- World Health Organization (WHO) related publications, usually authored by or led by Chinese experts
3- Sources based on extensive Chinese text scholarship and translation
4- Sources written by Western TEAM practitioners, often after studying in China
5- On-line TEAM educational sources that describe s/s of diagnostic patterns and are available for free to students and practitioners

A search was conducted for any texts describing s/s of QD and QS written by other Asian authors, e.g. Japanese. Knowing in advance that there was limited access to this last class of texts they are included in the initial tables but then not considered further for more in depth comparisons since there were too few for comparison. Tables of all s/s of QD and QS were constructed to examine the range of s/s and distribution by source type. Formal statistical analyses were not performed, descriptive analyses of the findings were made instead.

2.2. Electronic database searching

Currently there is no established search strategy for locating literature regarding QD or QS specific instruments or studies. Instruments are scientific tools used to identify the diagnostic patterns of QD or QS, while studies are scientific publications that include descriptions of the s/s of QD or QS. The search for studies or instruments describing either the QD or QS patterns was performed using two methods, following the strategy employed for BSS [4]. First files in the possession of the authors (SB, TA) were examined to identify any studies that describe QD or QS s/s. To augment this a second search for these pattern descriptions in Korean Medicine, TCM, Kampo or TEAM was performed by searching the electronic databases PubMed and Embase. The search strategy of Pubmed database was as follows: ("pattern identification"[Text Word] OR "syndrome differentiation"[Text Word] OR "pattern diagnosis"[Text Word] OR "patternization"[Text Word]) AND ("reliability"[Text Word] OR "validity"[Text Word] OR "questionnaire"[Text Word] OR "instrument"[Text Word]) AND ("medicine, korean traditional"[MeSH Terms] OR "medicine, chinese traditional"[MeSH Terms] OR "medicine, kampo"[MeSH Major Topic] OR "medicine, east asian traditional"[MeSH Major Topic]). The search strategy for Embase was: ('korean medicine'/exp OR 'chinese medicine'/exp OR 'kampo medicine'/exp OR 'traditional medicine'/exp) AND ('pattern identification':ab,ti OR 'syndrome differentiation':ab,ti OR 'pattern diagnosis':ab,ti OR patternization:ab,ti) AND (reliability:ab,ti OR validity:ab,ti OR questionnaire:ab,ti OR instrument:ab,ti)

Duplicates were excluded as were non-qi deficiency and non-qi stagnation related papers, papers that described visceral related QD or QS patterns or papers that did not include descriptions of the s/s for either.

Only studies or instruments that describe the s/s of QD or QS were included in the review. Descriptive data were extracted and analyzed narratively. Tables of all s/s of QD and QS were constructed to examine the range of s/s. For both searches the frequency of listing of the more common s/s comparing those of Western origin and Chinese origin textual sources and those of Asian scientific study sources was also examined.

3. Results

3.1. Textual sources

Qi deficiency: 53 English language texts were hand searched and examined in order to find at least two sources that gave s/s of QD in each of the 5 categories. Out of 53 English language texts that were hand searched, 21 texts were found that gave descriptions of the s/s of QD – see supplementary file Table A. These were distributed among the categories as follows:

1 Sources written by Chinese authors [16–19]
2 World Health Organization (WHO) related publications [13,14,20]
3 Sources based on extensive Chinese text scholarship and translation [15,21]
4 Sources written by Western TEAM practitioners [22–30]

5 On-line educational sources [31,32]
6 Sources written by Japanese practitioners [33]

The four texts written by Chinese authors were published between 1987 and 2004[16–19]. The WHO publications included the 2007 glossary [13], with explanations [20] and descriptions within proposed ICD codes[14]. The two scholarly translations were co-authored by the same translator (Wiseman) 12 years apart [15,21]. The 1985 text is a translation of a Chinese text published in 1975. Of the eight Western TEAM practitioner texts, two were written by the same author (Maciocia) 16 years apart [25,26], five by authors known to have knowledge of Chinese language [24-26,29,30]. The on-line educational sources appear to be readily available for free to any TEAM students or practitioners [31,32]. The Japanese text was published in 2005 [33].

There was a large variation of terminology and descriptions found, which makes classification of all s/s somewhat difficult. The total number of different s/s was more than 55. In order to simplify this, similar descriptions were grouped under broad headings, supplementary file Table A. Table 1 describes by broad categories six s/s that are agreed upon by more than half of the 21 texts*: fatigue/tiredness/lack of strength* (21); *weak/empty pulse* (19); *sweating issues e.g. spontaneous/exertional* (19); *pale tongue* (15); *weak voice/reluctance to talk* (14); *shortness of breath* (12). Table 1 also compares the more commonly mentioned s/s of QD among Western origin texts and Chinese origin texts: *dizziness, lassitude* and *listlessness* are more common to Chinese origin while *diminished appetite, pale face, loose stools* and *lethargy* are more common to Western origin sources.

Qi stagnation: Of the 53 English language texts that were screened, 17 texts were found that gave descriptions of the s/s of QS – see supplementary file Table B. These were distributed among five categories as follows:

1- Sources written by Chinese authors [17–19]
2- World Health Organization (WHO) related publications [13,14,20]
3- Sources based on extensive Chinese text scholarship and translation [15,21]
4- Sources written by Western TEAM practitioners [22-27,30]
5- On-line educational sources [32,34]

Of these 17 texts all but one was an on-line source [34] are included in the QD discussion above.

As with QD a lot of variation of terminology and descriptions was found, simplifying the more than 50 s/s in a similar manner to give the results in supplementary file Table B. Table 2 describes by broad categories three s/s that are agreed upon by more than half of the 17 texts: *feelings of distension* (13); *emotional issues* (11). *pain of non-fixed location* (11); Table 2 also compares the more commonly mentioned s/s of QS among Western origin texts and Chinese origin texts: *pain of non-fixed location, wiry/tight pulse* and *purplish tongue* were more common in Western origin sources.

3.2. Scientific studies

Hand searching found 12 QD related papers and six QS related papers. The electronic search found an additional QD paper. Thus the final included totals were 13 QD papers [35–47] and six QS papers [35,39,41,45,48,49], Fig. 1.

Supplementary file Table C describes the findings of the 13 QD instruments/studies, supplementary file Table D the findings of the six QS instruments/studies. All instruments were by Chinese, Korean or Japanese authors. There was a lot of variation in terminology between the various instruments/studies, the information was simplified in a similar way as before. Among the 13 QD studies the following were listed by more than 50% of studies: *fatigue/tiredness/lack strength* (13), *weak/empty pulse* (9), *sweating problems* (9), *enlarged tongue* (8), and *weak voice/reluctance to speak* (7) [supplementary file Table C]. Among the 6 QS studies 50% or more mention the following: *feelings of distention* (5), *belching* (5), *emotional distress (including fright and irritability)* (4), *wiry/tight pulse* (3), *feeling foreign body stuck in the throat* (3), and *pain/discomfort in chest region* (3) [supplementary file Table D].

Table 3 compares the more commonly mentioned s/s for QD in the Asian instruments/studies with Western origin and Chinese origin texts. *Fatigue* was mentioned by ≥75% of each of the three source types, with *weak pulse, sweating issues* and *weak voice* mentioned by 50-74% of them, and *shortness of breath, pale tongue* mentioned by 35-49% of them. *Pale face, diminished appetite* and *loose stools* were more often mentioned by Western origin texts than Asian instruments/studies, *dizziness* more often by Chinese origin texts than Asian instruments/studies and *enlarged tongue* more often by Asian instruments/studies than either Western or Chinese origin texts.

Table 4 compares the more commonly mentioned s/s for QS in the Asian instruments/studies with Western origin and Chinese origin texts. No s/s are mentioned by ≥75% of each of the three source types with

Table 1
Commonly listed signs and symptoms qi deficiency with comparison of Chinese origin and Western origin texts.

Sign/symptom	No. times mentioned	Chinese origin [1-5, 9-11,18]	Western origin [6-8, 12-17,19, 20]	Japanese origin [21,22]
Fatigue/tiredness/ lack strength	21 (100%)	9 (100%)	11 (100%)	1
Weak/empty pulse	19 (90%)	9 (100%) c	9 (82%)	1
Sweating issues (spontaneous/ exertional)	19 (90%)	8 (89%)	10 (91%)	1
Pale tongue	15 (71%)	6 (67%)	8 (73%)	1
Weak voice/ reluctance to talk	14 (67%)	5 (56%)	9 (82%) w	0
Shortness of breath	12 (57%)	6 (67%) c	5 (46%)	1
Diminished appetite	7 (33%)	1 (11%)	6 (55%) ww	0
Pale face	6 (29%)	0	6 (55%) ww	0
Dizziness	6 (29%)	4 (44%) cc	2 (18%)	0
Lassitude	6 (29%)	5 (56%) cc	0	1
Loose stools	5 (24%)	0	5 (46%) ww	0
Listlessness	4 (19%)	3 (33%) cc	0	1
Lethargy	3 (14%)	0	3 (27%) ww	0

c = mentioned more often (> 10% + < 2 X) in Chinese origin texts.
cc = mentioned significantly (≥ 2 X) more often in Chinese origin texts.
w = mentioned more often (> 10% + < 2 X) in Western origin texts.
ww = mentioned significantly (≥ 2 X) more often in Western origin texts.

Table 2
Commonly listed signs and symptoms qi stagnation with comparison of Chinese origin and Western origin texts.

Sign/symptom	No. times mentioned	Chinese origin [1-5,8-10]	Western origin [6,7,11-17]
Feelings of distension	13 (81%)	7 (88%) c	6 (67%)
Emotional issues (including *irritability)	11 (65%)	4 (50%)	7 (78%) w
Pain of non-fixed location	11 (65%)	3 (38%)	8 (89%) ww
Wiry/tight pulse	8 (47%)	0	8 (89%) ww
* Irritability	6 (35%)	2 (25%)	4 (44%) w
Purplish tongue	5 (29%)	0	5 (56%) ww

c = mentioned more often (> 10% + < 2 X) in Chinese origin texts.
w = mentioned more often (> 10% + < 2 X) in Western origin texts.
ww = mentioned significantly (≥ 2 X) more often in Western origin texts.

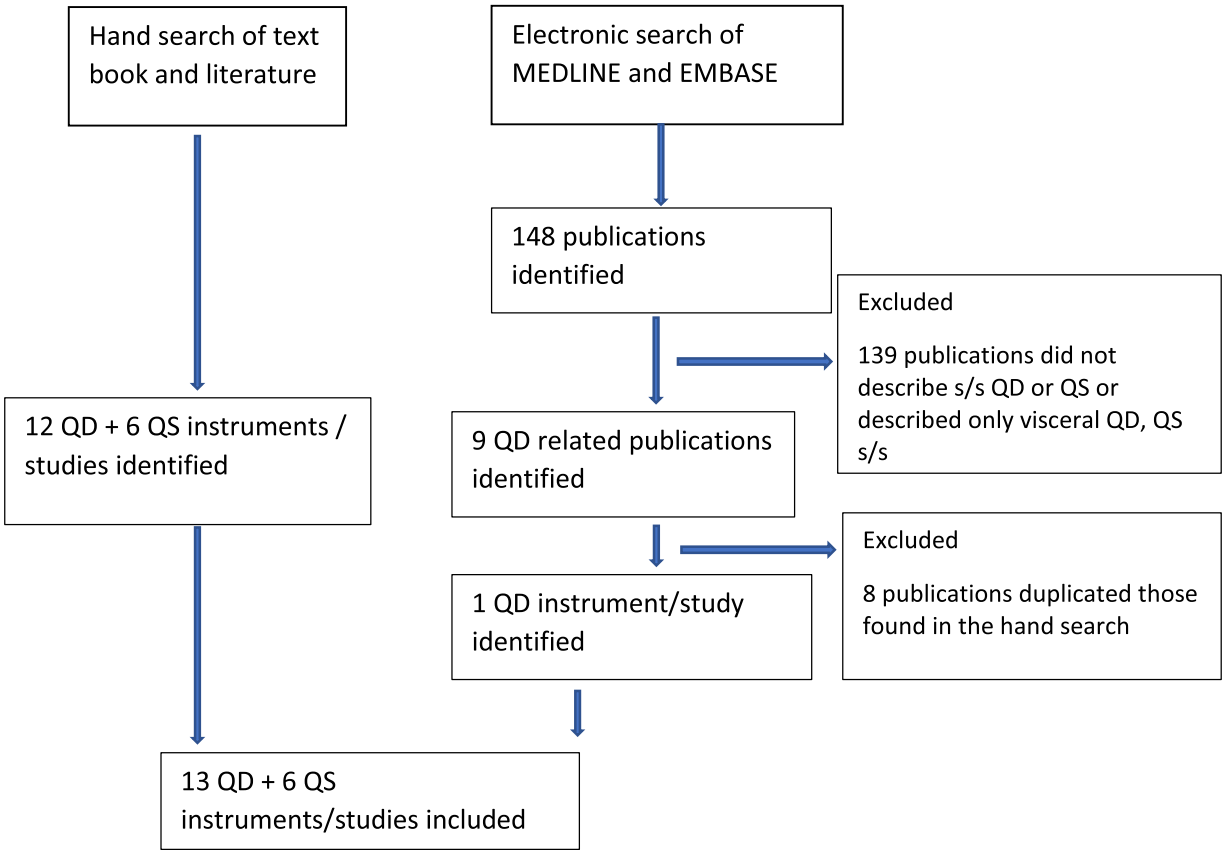

Fig. 1. results of search for qi deficiency (QD) and qi stagnation (QS) instruments.

Table 3
Comparison of signs and symptoms qi deficiency in English language texts with instruments/studies from Asia.

Sign/symptom	Asian studies (13)	Western origin texts (11)	Chinese origin texts (9)
Fatigue/tiredness/lack strength	13 (100%)	11 (100%)	9 (100%)
Weak/empty pulse	9 (69%)	9 (82%) w	9 (100%) c
Sweating issues (spontaneous/exertional)	9 (69%)	10 (91%) w	8 (89%) c
Weak voice/reluctance to talk	7 (54%)	9 (91%) w	5 (56%)
Enlarged tongue	8 (62%) a + b	1 (9%)	0
Shortness of breath	5 (39%)	5 (46%)	6 (67%) c
Pale face	3 (21%) b	6 (55%) ww	0
Diminished appetite	2 (14%)	6 (55%) ww	1 (11%)
Pale tongue	5 (39%)	8 (73%) w	6 (67%) c
Loose stools	1 (7%)	5 (46%) ww	0
Dizziness	3 (21%)	2 (18%)	4 (44%) cc

a = mentioned significantly (≥ 2 X) more often in Asian instruments than in Western origin texts.
b = mentioned significantly (≥ 2 X) more often in Asian instruments than in Chinese origin English language texts.
w = mentioned more often (> 10% + < 2 X) in Western origin texts than Asian instruments.
ww = mentioned significantly (≥ 2 X) more often in Western origin texts than Asian instruments.
c = mentioned more often (> 10% + < 2 X) in Chinese origin English language texts than Asian instruments.
cc = mentioned significantly (≥ 2 X) more often in Chinese origin English language texts than Asian instruments.

Table 4
Comparison of signs and symptoms qi stagnation in English language texts with instruments/studies from Asia.

Sign/symptom	Asian studies (6)	Western origin texts (9)	Chinese origin texts (8)
Feelings of distension	5 (83%) a	6 (67%)	7 (88%)
Belching	5 (83%) aa + bb	1 (11%)	0
Emotional issues (including *)	4 (67%) b	7 (78%) w	4 (50%)
* Irritability	1 (17%)	4 (44%) ww	2 (25%)
Wiry/tight pulse	3 (50%) bb	8 (89%) w	0
Feeling foreign bodies in throat	3 (50%) aa + bb	0	1 (13%)
Pain/discomfort in chest region	3 (50%) aa	2 (22%)	4 (50%)
Purplish tongue	0	5 (56%) ww	0
Pain of non-fixed location	0	8 (89%) ww	3 (38%) cc

a = mentioned more often (> 10% + < 2 X) in Asian instruments than in Western origin texts.
aa = mentioned significantly (≥ 2 X) more often in Asian instruments than in Western origin texts.
b = mentioned more often (> 10% + < 2 X) in Asian instruments than in Chinese origin English language texts.
bb = mentioned significantly (≥ 2 X) more often in Asian instruments than in Chinese origin English language texts.
w = mentioned more often (> 10% + < 2 X) in Western origin texts than Asian instruments.
ww = mentioned significantly (≥ 2 X) more often in Western origin texts than Asian instruments.
cc = mentioned significantly (≥ 2 X) more often in Chinese origin English language texts than Asian instruments.

feelings of distension and *emotional distress* mentioned by 50-74% by each of them. *Belching* and *feeling of foreign body stuck in the throat* were mentioned more often by the Asian instruments/studies than either textual source. *Pain in the chest* was more often mentioned in the Asian instruments/studies than Western origin texts and *wiry/tight pulse* more often than the Chinese origin texts. *Irritability, purplish tongue* and *pain of non-fixed location* were mentioned more often by Western origin texts and *pain of non-fixed location* more often by Chinese origin texts than Asian instruments/studies.

Table 5 examines the relative frequency of the s/s of QD and QS among the three source types. Four QD s/s were mentioned by ≥50% of each (*fatigue, weak pulse, sweating problems, weak voice*), an additional two by ≥ 35% each (*shortness breath, pale tongue*), while six (*pale face, diminished appetite, loose stools, enlarged tongue, pale tongue, dizziness*) were more commonly mentioned in one or two of the source types. Two QS s/s are mentioned by ≥50% of each (*feeling of distension, emotional issues*), while six (*purplish tongue, tight/wiry pulse, belching, feeling something stuck in throat, pain in non-fixed location, pain in chest*) were more commonly mentioned in one or two of the source types.

4. Discussion

This study found a wide range of s/s described for QD and QS among the three source types, texts of Chinese origin, texts of Western origin and scientific studies. For QD, of the almost 40 s/s in supplementary file Table A, three were agreed upon by 75% or more of the 21 texts: *fatigue/tiredness/lack of strength; sweating issues e.g. spontaneous/exertional; weak/empty pulse*, two agreed on by 50-74% of the texts: *weak voice/reluctance to talk; pale tongue* (supplementary file Table A and Table 1). For QS of the more than 30 s/s listed, one was mentioned by more than 75% of the 17 texts: *feelings of distension*; with two by 50-74% of them: *pain of non-fixed location; emotional issues* (supplementary file Tables B and Table 2). For QD more than 75% of both Chinese origin and Western origin texts agreed on three s/s:: *fatigue/tiredness/lack of strength; sweating issues e.g. spontaneous/exertional; weak/empty pulse.* Four s/s were more commonly seen in Western origin texts: *diminished appetite, pale face, loose stools* and *lethargy*, with three more in Chinese origin texts: *dizziness, lassitude* and *listlessness* Table 1. For QS no s/s was listed by more than 75% of both Western origin and Chinese origin texts, while three s/s were listed more often by Western origin compared to Chinese origin texts: *pain of non-fixed location, wiry/tight pulse* and *purplish tongue*, Table 2. Among the 13 QD scientific studies one s/s was listed in greater than 75% of the studies: *fatigue/tiredness/lack strength*, with four listed by 50-74% of them: *weak/empty pulse, sweating problems, enlarged tongue*, and *weak voice/reluctance to speak*, supplementary file Table C and Table 3. Among the six QS studies, two s/s were listed by greater than 75% of them: *feelings of distention, belching*, with three listed by 50-74% of them: *emotional distress (including fright and irritability), wiry/tight pulse, feeling foreign body stuck in the throat, pain/discomfort in chest region* supplementary file Table D and Table 4.

Tables 3-5 present summaries of the findings in a comparison across the three source types, Tables 3 and 4 compare Western origin and Chinese origin texts to Asian instruments studies for QD and QS, Table 5 examines what is common across the three source types for QD and QS. For QD we see that >75% of the three source types agreed on 1 s/s (*fatigue*), with 3 more s/s agreed on by >50% of them (*weak pulse, sweating issues, weak voice*). There were two s/s more commonly mentioned in Western origin texts (*diminished appetite, loose stools*) and one each in Chinese origin texts (*dizziness*) and Asian studies (*enlarged tongue*) with two more often mentioned by two of the three sources (*pale face, pale tongue*) (Tables 3 and 5). For the s/s of QS there was less agreement, there were no s/s agreed on by >75% of the three source types with 2 by ≥50% of them (*feelings of distension, emotional distress*). There was one s/s mentioned more often by Western origin texts (*purplish tongue*) and three more often by Chinese origin texts and Asian studies (*belching, feeling foreign body in throat, pain/discomfort in chest*) (Tables 4 and 5).

Table 5
More commonly mentioned QD and QS signs/symptoms among three source types.

qi deficiency	Chinese origin texts	Western origin texts	Asian origin instruments/ studies
Generally agreed upon by (≥ 50%) by each source type	***Fatigue/tiredness/lack strength; Weak/empty pulse; Sweating issues (spontaneous/exertional); Weak voice/reluctance to talk***		
Listed by >35% of each source type	Shortness of breath Pale tongue		
Listed by ≥40% or more of one source but ≤21% by other two	Dizziness	Pale face; Diminished appetite; Loose stools	Enlarged tongue
Listed more commonly by two source types (>25% more) than the third	Pale tongue	Pale tongue Pale face	Pale face
qi stagnation	**Chinese origin texts**	**Western origin texts**	**Asian origin instruments/ studies**
Generally agreed upon (≥ 50%) by each source type	***Feelings of distension, Emotional issues***		
Listed by >50% of one source but ≤38% by other two		Purplish tongue; Pain non-fixed location	Belching, Feeling foreign bodies in the throat
Listed more at least 2X more often by two source types than the third	Pain/ discomfort in chest	Wiry/tight pulse; Pain non-fixed location	Wiry/tight pulse; Pain/discomfort in chest pain non-fixed location

4.1. Implications

The focus on comparison of three types of publications allowed a contrast of different backgrounds and influences in how the terms 'qi deficiency' and 'qi stagnation' have been understood. Textual sources written by Chinese authors, directly translated from Chinese sources or extensively based on Chinese sources bring into play Chinese understanding of the terms and how clinical experience through application of these diagnosis-treatments are perceived and used in Chinese patients. Textual sources of Western origin, based on compilation and partial translations bring into play Western understanding of the terms, translation issues [1,8,50,51] and how clinical experience through application of these diagnosis-treatments are perceived and used in Western patients. Publications in the peer-reviewed journals can provide more objective descriptions of the s/s of QD and QS, which bring into play attempts at development of standards (Asian influences and international influences) because these publications have been produced from the scientific researches and have been evaluated by peer-experts. Thus the contrasting of these three sets of sources juxtapose different conceptual and clinical understanding of QD and QS. This is important because studies have not yet been done to examine whether these TEAM based diagnostic constructs might manifest differently in the countries of origin and recipient countries such as Western countries. Based on our comparison we see evidence that while some s/s of QD and QS are commonly mentioned across some sources (Table 5) many s/s that are mentioned are not common across the three source types.

4.2. Translational factors

Translation of terms may have played a role in the variation we found. For example in Table 1 lassitude, listlessness, lethargy, indifference, apathy are listed. While these have overlapping meanings there

are potentially important differences of meaning which may express different cultural emphases. Choice of English terms in translation represent complex personal and cultural processes. It is not likely that Western authors would use the term 'laziness' as a symptom for QD as it is less likely to be seen as a symptom or be culturally acceptable, five of the 13 Asian instrument/studies used the term (supplementary file Table C), while none of the 22 texts written in English for practitioners used this term, though they did use terms like lassitude, listlessness which are used in texts of Asian origin. These two terms can imply someone is lazy and may have been selected as translation from the original Asian sources as they may be judged more culturally acceptable terms.

4.3. History, education, cultural factors

No medical system is static, it must adapt to changing circumstances in different health care contexts and by incorporating new evidence so that it can be accepted. The practice of TEAM in different countries is subject to many factors which can significantly affect how its concepts are perceived and understood and thus how diagnoses are made and used [1]. In China, TCM is practiced by physicians and non-physicians and is considered part of the health care system, with both acupuncture and herbal medicine practiced in many hospitals across the country and many non-doctors working within mainstream healthcare facilities [1]. Following years of effort by the government in China to develop TCM to the standards of Western medicine and promote their combined practice [52,53], the 'integrated doctor' movement began in the early 1980s [53]. training medical doctors in TCM. This adds further research expertise and encouragement in the work towards integrating the medical systems. Research done by these dually trained doctors often seeks to integrate and combine findings from both medical systems, evidenced by the inclusion of blood laboratory test results in the BSS instrument of Li and colleagues [54]. This degree of integration of TEAM and biomedicine may be unique. In Korea, TKM, licensed as a parallel healthcare system, is practiced outside of mainstream medicine and thus while it performs scientific studies of TKM it is unlikely to incorporate medical test findings that are not part of a TKM practitioner's remit. In Japan, Kampo is practiced almost exclusively by medical doctors who practice Kampo alongside western medicine with national insurance reimbursement available for many prescriptions [55] Meridian Therapy on the other hand is practiced almost exclusively by non-physicians and without insurance reimbursement [1]. These competing trends lead to different outcomes in the understanding and use of diagnostic constructs. In many Western countries acupuncture is still seen as an alternative treatment often practiced by non-physicians using foreign and unacceptable concepts and diagnoses. Many acupuncture teaching institutions have focused on training students to be able to use the style of acupuncture they teach which often leaves graduates poorly qualified to work alongside or within mainstream healthcare. The dual pressure of perception and preparation can lead to different postures and manifestations of practice. Even when acupuncture is recognized and recommended in clinical practice guidelines as an effective treatment [56,57] national insurance reimbursement is not usually available which in addition limits implementation of the recommendations and/or separates practice outside of mainstream medical facilities. While more in depth studies are needed to explore the role of culture on the practice and understanding of TEAM medical systems in these different contexts, we would expect to see variation as the practice system is adapted to each [1]. Unschuld has demonstrated the role of culture and historical change in the history of TEAM in China [52]. Kleinman's work illustrates the role of culture in the modern period in Taiwan [58], Ohnuki-Tierney's [59] and Lock's [60] work demonstrate this in Japan. The penetration of TEAM practice systems into Western countries is matched by the penetration of Western medical practice systems into East Asian countries. This interpenetration occurs as part of a wider historical process with additional changes occurring as a result of the interplay of this 'mangle of practice' [53,61,62]. "Is inconsistency of practice and lack of systematization a sign of the inferiority of Asian medical systems? Is it a failure of contemporary practitioners to understand a more coherent ancient tradition, now shrouded by time? Or does the stunning array of modern and ancient theories and techniques available under the rubric of Chinese medicine allow creative freedom to the medical artisan, are they 'flexible tools in the hands of skilled practitioners'?" [63] Complex processes such as these are likely to lead to variations in practice [3]. We believe that this helps us understand the variations we have seen in the s/s of QD and QS. Does it make sense to attempt a trans-national standard for each TEAM practice system given the probable adaptation the medical systems make within each country and context? Should we expect or demand near unanimity of the descriptions of QD and QS criteria or should we expect and support local variations?

In China the emotions were closely linked with qi. In the premedical literature emotions were thought of as disordered movements of qi [11], in the early medical literature, emotions were each defined in terms of what kind of disordered movement of qi it is [11] in chapter 39 of the Neijing Suwen [64]. Scheid documents how as the concept of qi stagnation developed in China it has come to be associated with emotional problems [65]. In Japan while qi stagnation is one of the common disorders of qi that are associated with emotional problems, emotional problems appear not to be focused on stagnation of qi, rather any disorder of qi [66]. Since qi deficiency is a form of disorder of qi one would expect to see emotional problems feature in the s/s of qi deficiency. Among the 21 English language texts depression is mentioned by only two texts (<10%) (supplementary file Table A) and easily frightened or flustered by 3 of 13 studies (23%) (supplementary file Table C), while among the 17 English language texts emotional problems are listed among the s/s of qi stagnation by 11 texts (65%) (supplementary file Table B) and various emotional problems by four of six studies (67%) (supplementary file Table D). This suggests a stronger association of emotional problems with qi stagnation rather than qi deficiency. It also reveals a potential increase of this focus over time, as Scheid argued occurred with qi stagnation. It is likely this association will be emphasized differently in China, Japan and Western countries which will naturally lead to different patterns of sign and symptom clusters.

4.4. Implications for practice and research

The findings here suggest that while clinicians use these diagnostic patterns to help select treatments for patients, they, like BSS have not finished developing [4]. Greater efforts need to be made to examine the diversity of clinical practice among different countries, especially comparing Western and Asian countries. In recognition of the possible bio-cultural diversity we have exposed it may be necessary to develop different descriptions of QS and QD for different countries to account for this in support of clinical practice in each location and to target research more precisely for each. Standardization while necessary to assist teaching and practice and for scientific studies of PI becomes more complicated given these findings.

Of note, three of the five listed s/s for QS in the WHO ICD-11 descriptions (*intractable pain; sensation of obstruction in the throat; sensation of ear tube obstruction*) [14], are unique and not listed by any other 17 texts in supplementary file Table B and two by none of the Asian instruments/studies in supplementary file Table D. This raises questions about the accuracy and utility of these ICD-11 descriptions.

For laboratory research on conditions like QD and QS it is important that clear accepted criteria be first established, without it the research becomes questionable. For example in a study of QD in rats the researchers describe how they induced 'QD' by putting the rats on a lessened dietary intake for 20 days, likewise to induce blood deficiency (BD) in rats they let small quantities of blood eight times [67].Putting aside the potential challenges of doing PI diagnoses in animal models, the assumptions made by these researchers that these laboratory

conditions would induce the diagnoses of QD and BD are without clear foundation and lack meaningful support. Thus it becomes difficult to accept results of studies like this as relevant to an understanding of diagnoses like QD. The tension between the expected cultural variability in identifying, using and treating diagnostic patterns like QD and QS needs to be weighed against the needs of laboratory researchers that require nominally agreed upon criteria for identifying these patterns. It could be that two types of description need to be sought. One to support clinical practice and research and one to support laboratory research, especially in animal models. Developing predictive associations between results from laboratory research and clinical practice will need special attention.

4.5. Limitations

This literature review has several limitations. The search for texts describing s/s of QD or QS was limited to those that SB and TA could find through personal contacts, accessible libraries and was stopped once two texts in each of five areas had been identified. Further searching may have turned up texts making different descriptions which could have altered the conclusions. While possible we think this unlikely. The search was limited to English language publications, this may have created a limitation if texts in other European languages yielded different results. However, rather unlikely, it is also possible that such extended searching may have identified more variation in description of QD or QS s/s, reflecting further potential cultural variations. Differences between descriptions of QD and QS s/s in Chinese or Asian origin sources and Western origin sources could have arisen due to poor translation, mistranslation or misunderstanding of original sources. This is also a possibility, but one that is difficult to assess given that many Asians live and teach in English speaking countries, authoring texts used in those countries and many Westerners have done extensive studying in China also writing books upon returning to their own countries. Studies of BSS within China reveal a lot of variation in its descriptions and understanding [68,69] with differences of how BSS is perceived and understood in Korea [70] and China [71]. It is likely that similar studies in China and other Asian countries would reveal similar patterns of variation for QD and QS. As explained above, such variations may be part of how the TEAM system continues to adapt to different practice environments. This adaptability and consequent variability also raises questions about the ontological nature of the patterns of diagnosis [3]. Ultimately the objective descriptions fundamental in scientific dialogue may not be possible if the very nature of the descriptions in TEAM was to provide practical constructs in different cultural and social contexts that ultimately aid clinicians in their efforts to treat patients.

5. Conclusions

This study provides evidence that the signs and symptoms of QD and QS in English language publications are inconsistent. Those texts of Western origin were found to show differences to those of Chinese origin. QD and QS studies performed in Asia were also found to show differences in description of signs and symptoms for each and compared to the Western origin texts. Altogether these findings support the hypothesis that in the practice of TEAM in the West, QD and QS signs and symptoms may be different than those in practice in East Asia and that they are still developing constructs. Additional work needs to be done to confirm and explore these conclusions. Surveying practitioners in Asian and Western countries to explore how QD and QS are understood and identified is an important next step. If differences are clearly seen, then QD and QS instruments specific to Western clinical practice may need to be developed. Coupled with the earlier findings about BSS the findings here indicate that this this may be an issue for diagnoses across the range of TEAM practice systems.

Financial support

None of the authors received any funding for this study.

CRediT authorship contribution statement

Stephen Birch: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Visualization, Writing – original draft. **Terje Alraek:** Conceptualization, Data curation, Writing – review & editing, Formal analysis, Investigation, Methodology, Visualization, Writing – original draft. **Myeong Soo Lee:** Writing – review & editing, Formal analysis, Methodology, Visualization. **Tae-Hun Kim:** Writing – review & editing.

Declaration of Competing Interest

MSL, TA and THK are editorial board members of the European Journal of Integrative medicine.

Acknowledgments

The authors would like to thank the Korean Institute of Oriental Medicine, Daejeon, Korea and the international Pattern Identification Network Group (iPING) for the inspiration and encouragement to perform and complete this work.

Data availability

The authors can be contacted for details on the analysis if required.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.eujim.2022.102180.

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