

INPLASY PROTOCOL

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Chinese Knee Osteoarthritis population and Traditional Chinese Medicine Constitution: A Systematic Review and Meta-Analysis

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Review question / Objective: To investigate the susceptibility and distribution of the TCM constitution in the Chinese knee osteoarthritis population and to provide a reference for the prevention and treatment of knee osteoarthritis.

Condition being studied: As an age-related degenerative disease, knee osteoarthritis poses a serious threat to the physical and mental health of middle-aged and older adults. In the past 30 years, the number of people with knee osteoarthritis in China has increased to 10.81 million, and it is estimated that by 2040, the prevalence of knee osteoarthritis in Asia will reach 74%-80% over the age of 65[1]. Because of the long duration and high incidence of knee osteoarthritis, it is difficult to achieve good results in the short term, so early prevention of the disease is particularly important. The constitution theory of TCM is a discipline that explains the correlation between the constitution with health and disease and guides disease prevention, treatment, and health rehabilitation. Currently, there are many studies on the correlation between TCM constitution and disease, but the literature on the correlation between knee osteoarthritis and TCM physique is scattered, and there is a lack of systematic studies. Therefore, we conducted a systematic review and meta-analysis to provide strong evidence for the correlation between knee osteoarthritis and the TCM constitution.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 September 2022 and was last updated on 16 September 2022 (registration number INPLASY202290074).

INTRODUCTION

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METHODS

Search strategy: Relevant literature on TCM and knee osteoarthritis has been collected in the China National Knowledge Infrastructure (CNKI), WIP, Wanfang, Pubmed, EMBASE, and other databases. The language was limited to Chinese or English, and the search time was restricted from the establishment of the database to August 2022. The search terms in the Chinese database were "constitution" or "TCM constitution" combined with knee osteoarthritis, and the search terms in the English database were #1: Knee osteoarthritis OR Osteoarthritis of the knee; #2: constitution; #3: TCM OR Chinese medicine; #4: #1 AND #2 AND #3.

Participant or population: Patients were diagnosed with osteoarthritis of the knee. The distribution of TCM constitutions and the proportion of each constitution were reported.

Intervention: Patients were diagnosed with osteoarthritis of the knee. The distribution of TCM constitutions and the proportion of each constitution were reported.

Comparator: The constitution distribution of knee osteoarthritis population.

Study designs to be included: Cross-sectional study, case-control study, or cohort study.

Eligibility criteria: 1. Cross-sectional study, case-control study, or cohort study. 2. Patients were diagnosed with osteoarthritis of the knee. 3. The distribution of TCM constitutions and the proportion of each constitution were reported. 4. The criteria for determining the constitution type were the "Classification and Determination Criteria of TCM constitution" (ZYYXH-T157-2019), which was formulated and implemented by the Chinese Society of Traditional Chinese Medicine in 2019.

Information sources: Relevant literature on TCM and knee osteoarthritis has been collected in the China National Knowledge Infrastructure (CNKI), WIP, Wanfang, Pubmed, EMBASE, and other databases. The language was limited to Chinese or English, and the search time was restricted from the establishment of the database to August 2022.

Main outcome(s): The relationship between each constitution and knee osteoarthritis.

Quality assessment / Risk of bias analysis: Cross-sectional studies were conducted using the American Agency for Healthcare Quality and Research (AHRQ) recommended evaluation criteria, whose evaluation indicators include data sources, inclusion criteria, observation time, continuity of included subjects, etc., with a score of 11 out of 11, 0-3 being low quality, 4-7 being moderate quality, and 8-11 being high quality; Case-control studies were evaluated with reference to Newcastle-Ottawa scale (NOS) recommended evaluation criteria, evaluation indexes including exposure factors, population selection, comparability between groups,

out of 9 points, with less than 6 points as low quality and more than 6 points as high-quality studies.

Strategy of data synthesis: RevMan 5.3 software was used for the analysis of the correlation between knee osteoarthritis and TCM constitution. First, the heterogeneity of the data of each study was tested, and if $P > 0.1$ and $I^2 < 50\%$ was considered homogeneous and a fixed-effect model was selected for analysis; if $P < 0.1$ and $I^2 > 50\%$, heterogeneity was considered and a random-effect model was selected. The effect size of each study was described by the ratio (OR) and its 95% confidence interval (95% CI), and potential publication bias was detected by funnel plots. $P < 0.05$ was considered a statistically significant difference. Rstudio was used to analyze the distribution of each body mass, first, all data were log-transformed and the transformed data were analyzed, and the effect size of each study was described by the odd ratio (OR) and its 95% confidence interval (95% CI). $P < 0.05$ was considered statistically significant.

Subgroup analysis: In the distribution of each body type in males, the top three body types were Yang deficiency 19%, 95% [15.0,23.0], Phlegm-damp 18%, 95% [13.0,24.0], and balanced 13%, 95% [5.0,27.0], while in the distribution of each body type in females, the top three body types were Yang deficiency 24%, 95% [20.0,30.0], Phlegm-damp 16%, 95% [13.0,20.0], Blood stasis 16%, 95% [13.0,20.0], and blood stasis 13%, 95% [10.0,18.0], and there was no statistical difference between the distribution of men and women.

Sensitivity analysis: Sensitivity analysis was conducted according to the excluded relevant literature.

Language restriction: English or Chinese.

Country(ies) involved: China.

Keywords: Traditional Chinese medicine constitution; Knee osteoarthritis; Meta analysis; Yang deficiency constitution.

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