**Materials and Methods**

This meta-analysis was written in accordance with the PRISMA checklist [13]. We created an Open Science Framework (osf.io) account to make this meta-analysis publicly available.

*Literature Search and Inclusion Criteria*

Eligible articles were retrieved from PubMed, Web of Science, Embase and CNKI by using the following key words: “tumor necrosis factor-α”, “TNF-α”, “polymorphism”, “variant”, “variation”, “mutation”, “SNP”, “psoriasis” and “psoriatic”. Additionally, we also checked the reference lists of all retrieved articles.

Inclusion criteria for this meta-analysis were as follows: (1) genetic association study about TNF-α polymorphisms and psoriasis in human beings; (2) providing distributions of genotypes in cases and controls; (3) available full text in English or native language of the authors (Chinese). We excluded studies when more than one of the following conditions was met: (1) studies that were not about TNF-α polymorphisms and psoriasis; (2) reviews or comments; (3) case reports or case series. If we found repeated publications by the same authors, only the most comprehensive study was included for this meta-analysis.

*Data Extraction and Quality Assessment*

The following information was extracted by two authors: the last name of the first author and publication year, country of the principal investigator and ethnicity of study participants, type of disease, total sample size of each study and the distribution of TNF-α polymorphisms in cases and controls. We also calculated the probability value (*p* value) of Hardy-Weinberg equilibrium.

The Newcastle-Ottawa scale was used to evaluate the methodology quality of eligible studies [14]. The score of this scale ranged between 0 and 9, if a study scored 7 or more, we thought that the quality of this study was acceptable.

Data extraction and quality assessment were conducted by two authors independently. We wrote to the corresponding authors for extra information when we thought that important information was missed.

*Statistical Analyses*

Review Manager version 5.3.3 was used in this meta-analysis for statistical analyses. We used the *Z* test to assess whether TNF-α polymorphisms were significantly associated with psoriasis, with the statistical significance *p* level set at 0.05. *I*2 statistics were used to evaluate between-study heterogeneities. Random-effect models (DerSimonian-Laird method) were used if *I*2 exceeded 50%. Otherwise, meta-analyses were conducted with fixed-effect models (Mantel-Haenszel method). We also conducted subgroup analyses by ethnicity of participants and type of disease. We tested the robustness of synthetic results in sensitivity analyses. We evaluated publication biases by funnel plots.