

# INPLASY PROTOCOL

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submission:** Formal screening  
of search results against  
eligibility criteria.

**Conflicts of interest:**  
None declared.

## Prevalence and Distribution of Osteopenia in Chinese Population: A System Review and Meta-Analysis

Wang, YP<sup>1</sup>; Zhang, YZ<sup>2</sup>.

**Review question / Objective:** What is the Prevalence and Distribution of Osteopenia in Chinese Population.

**Condition being studied:** The number of patients with osteoporosis ranks first in the world in China and as a precursor state of osteoporosis, the number and incidence of osteopenia are much higher than that of osteoporosis. This Meta-analysis was conducted to evaluate the incidence and distribution of osteopenia in adults in mainland of China over 10 years to provides reference for the early prevention of osteoporosis and policymaking.

**Information sources:** In this study, the following databases were searched: (1)English database: Web of science (Via Ovid), Pubmed (Via Ovid), EMBASE (Via Ovid), Medline (Via Ovid)(2)Chinese database:CNKI (Via Ovid), Chinese Wanfang database (Via Ovid), VIP database (Via Ovid), Search terms: 'osteoporosis', 'OP' 'osteopenia', 'low bone mass', 'low bone mineral density', 'bone', 'prevalence', 'cross-sectional', 'epidemiology', 'China', and 'Chinese' were used as our search strategies. The language was restricted to Chineses and English, with the year of publications from 2010 to 2021.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 02 December 2021 and was last updated on 02 December 2021 (registration number INPLASY2021120009).

### INTRODUCTION

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## METHODS

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**Participant or population:** Inclusion Criteria1. Test method: Dual-energy Xray absorptiometry was adopted(DXA).2. Period: The year of the studies published was restricted from January 2010 to April 2021.3. Research method: Cross-sectional study, baseline investigation or prospective study were included in this study.4. Information: Studies directly or indirectly provided information about the sample size or incidence of osteopenia with or without age specific estimates were included.2.3 Exclusion criteria1.The subjects that specifically group (including specific profession or Postmenopausal women) were excluded. 2. Republished literature. 3.The studies failing to meet the inclusion criteria were excluded. 4. Reviews, commentaries, and case reports were also excluded.

**Intervention:** Osteopenia.

**Comparator:** Non osteopenia.

**Study designs to be included:** Cross-sectional study, baseline investigation or prospective study were included in this study.

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**Main outcome(s):** Overall incidence of osteopenia.

**Quality assessment / Risk of bias analysis:** The quality of each included study was assessed with the Quality assessment criteria of literatures proposed by Khambalia and Seen (28), including 5 criteria with score 1~5. Briefly, the 5 criterion are as follows: National epidemiological investigation report with a large sample size ( $\geq 10000$ ) and a random pattern sampling (1 score); Provincial epidemiological reports with a large sample size ( $\geq 1000$ ) and a random pattern sampling (2 score); Epidemiological reports randomly sampled but investigated in a

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limited number of specific units (e.g., 2 or 3 county-level cities or institutes) (3 score); Reports that are not sampling in a random pattern, but with a large sample size ( $\geq 1000$ ) (4 score); Reports that are not sampled in a random pattern with a small sample size ( $< 1000$ ) (5 score).

**Strategy of data synthesis:** The original study rates were first subjected to Log-transformed, Logit-transformed, arcsine square root-transformed, Freeman-Tukey Double arcsine transformed, then normal tests were carried out respectively. After the normal test, the original rate or converted rate most consistent with the normal distribution was selected for Meta-analysis (38). Heterogeneity test of each outcome was conducted by chi-square test, if  $I^2 < 50\%$ , the fixed effect model was adopted for a Meta-analysis, otherwise, the random effects model was performed.

**Subgroup analysis:** Years of publishing; Region; Men and women.

**Sensitivity analysis:** We explored the source of heterogeneity through the Meta-regression analysis.

**Language:** Chinese and English.

**Country(ies) involved:** China.

**Keywords:** Osteopenia, Meta-analysis, Prevalence, China, Osteoporosis.

**Contributions of each author:**

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