The longitudinal trend of prevalence of cerebral palsy among Chinese children and adolescents from 1988 to 2020: a systematic review and meta-analysis

Yang, S¹; Xia, J²; Gao, J³; Wang, L⁴.

Review question / Objective: All potential studies related to the prevalence of CP published from inception until September 2020 were identified from three English databases and four Chinese databases. Pooled prevalence was calculated to estimate the prevalence of CP with a random-effects meta-analysis model. Two-dimensional line chart and continuous fractional polynomial regression model was used to estimate the trend of CP prevalence over time. Subgroup analysis and meta-regression were conducted to address heterogeneity. Funnel plots and Egger's test was used to explore the potential publication bias in this meta-analysis.

Condition being studied: We have a strong team, senior statisticians and advanced laboratories, as well as national project support. In addition, our team has published many systematic reviews in international journals.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 October 2020 and was last updated on 24 October 2020 (registration number INPLASY2020100095).
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**METHODS**

**Search strategy:** Three English databases
(PubMed, Embase, Web of Science) and
four Chinese databases (China National
Knowledge Infrastructure (CNKI), Wanfang,
Weipu and China Biology Medicine disc
(CBMdisc)) were searched by 1st Sept.
2020 to identify all potential studies related
to the prevalence of CP published from
inception until 1st Sept, 2020. The following
searching terms were used: Cerebral palsy,
Mixed Cerebral Palsy, Athetoid Cerebral
Palsy, Spastic Diplegia, prevalence,
morbidity, epidemiology, China, Chinese,
children, and adolescent.

**Participant or population:** Chinese children
and adolescents.

**Intervention:** No applicable.

**Comparator:** No applicable.

**Study designs to be included:** Data from
cross-sectional studies or baseline
investigations from prospective studies and
randomized controlled trials (RCTs).

**Eligibility criteria:** This systematic review
was performed with a complete search
strategy and rigorous inclusion and
exclusion criteria, adhering to 2009
PRISMA. In comparison with previous
reviews, this research included with more
databases, a large sample size and national
representative, and also, we did a further
subgroup analysis on the heterogeneity.
The longitudinal trend of children CP in
China in the past 30 years was found.

**Information sources:** Three English
databases (PubMed, Embase, Web of
Science) and four Chinese databases
(China National Knowledge Infrastructure
(CNKI), Wanfang, Weipu and China Biology
Medicine disc (CBMdisc)).

**Main outcome(s):** Provide a comprehensive
update on the trend of prevalence of CP in
China, from 1988 to 2020, and to
systematically review Childhood CP by
areas, regions, age groups and birth
weights in China.

**Quality assessment / Risk of bias analysis:**
Two researchers assessed the quality of
each included study using the quality
assessment criteria for observational
studies recommended by the Agency of
Healthcare Research and Quality (AHRQ).
And we will do the risk of bias analysis by
Stata.

**Strategy of data synthesis:** Pooled
prevalence and 95% CI of Children CP were
calculated. Chi-squared-based Q test and
the I2 test were performed to evaluate the
heterogeneity of the studies. The random-
effects meta-analysis model were used
when the heterogeneity was statistically
significant (I2>50, P value<0.05).

**Subgroup analysis:** Subgroup information
for a number of cases and number of
population including gender (male, female),
age (0-1years old, 1-3 years old, 3-6years
old, 6-9years old, 9-12 years old, 12-15
years old, 15-18years old), geographic
location (East China, Central China, South
China, Southwest China, Northwest China,
North China, Northeast China), regions
(urban or rural), birthweight (under 2.5kg,
2.5-4kg, over 4kg ), gestation(under 37
weeks,37-42weeks, over 42weeks) and
classification of cerebral palsy are
collected.

**Sensibility analysis:** Sensitivity analysis was
conducted with the 48 studies that were
distributed on both sides of the pooled
prevalence.

**Country(ies) involved:** China.
Keywords: Cerebral palsy, Children, Prevalence, Meta-analysis, China.

Contributions of each author:
Author 1 - Shengyi Yang.
Author 2 - Jiayue Xia.
Author 3 - Jing Gao.
Author 4 - Lina Wang.