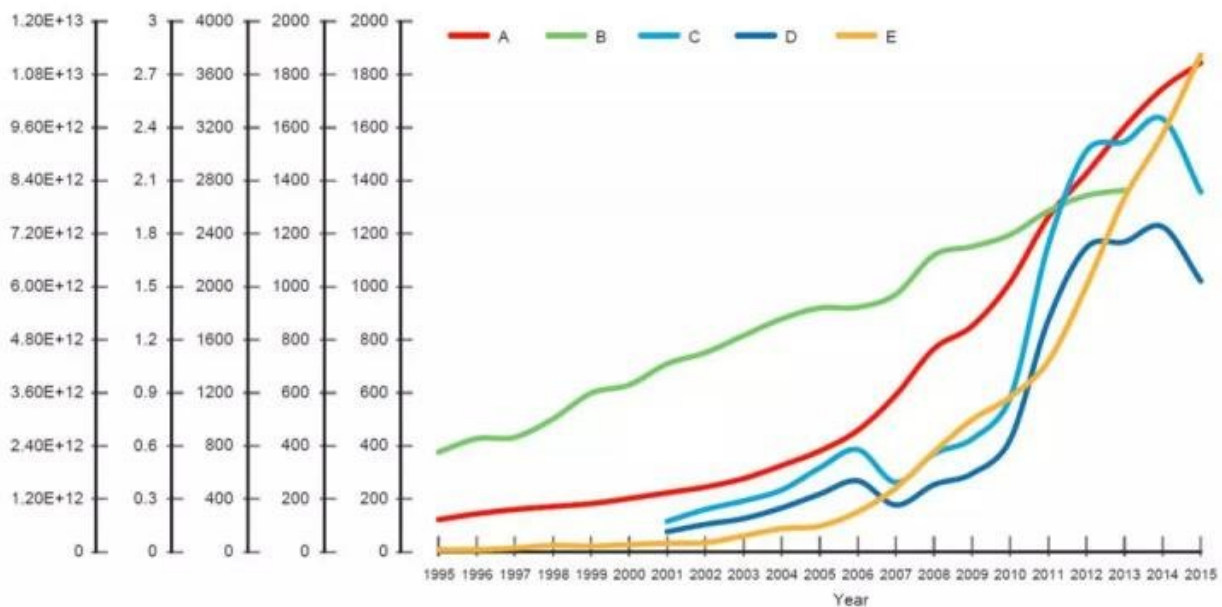


China has seen remarkable progress in diabetes research over the past two decades

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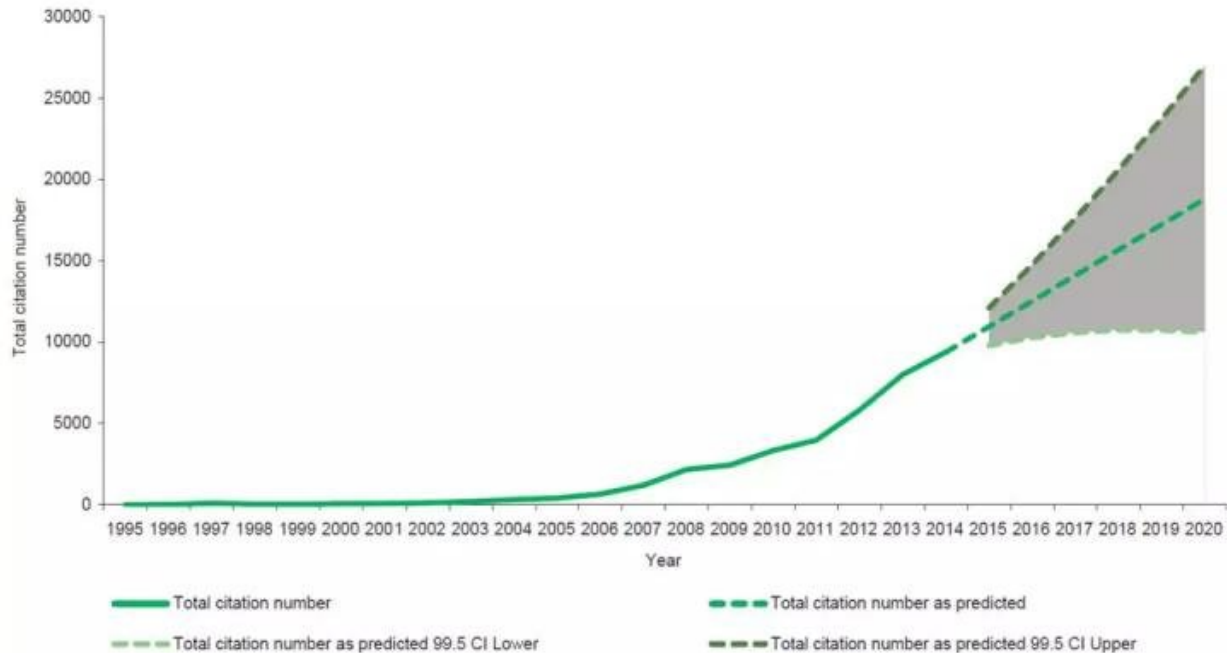
The growing trend of Gross Domestic Product (GDP) [A], Research and development expenditure (percent of GDP) [B], National Natural Science Foundation of China (NSFC) fund [C], NSFC fund for life sciences and health sciences [D] and publication number of diabetes research from China [E] between 1995 and 2015 Credit: ©Science China Press

In the period of 1995 to 2015, China saw remarkable progress in diabetes research, according to a study recently published by *Science China Life Sciences*.

During the past two decades, as China experienced unprecedented economic growth, non-communicable diseases such as [diabetes](#) reached epidemic proportions, potentially owing to the combination of increased life expectancy and unhealthy lifestyles. The prevalence of diabetes has increased dramatically from 0.67 percent in 1980 to 2.51 percent in 1994 and to 10.9 percent in 2013; China now has the largest [number of diabetes patients](#) worldwide. This number continues to grow and puts ongoing strains on medical resources. Therefore, there is an urgent need to stop the [diabetes epidemic](#) and slow down the progression of diabetic complications.

A research group led by Jianping Weng at the Third Affiliated Hospital of Sun Yat-sen University in Guangzhou reviewed all [diabetes research](#) studies conducted in China between 1995 and 2015, and scrutinized the publication number, publication influence, progress, and unmet demands of diabetes research in China.

According to the bibliometric analysis in the study, diabetes research in China has progressed remarkably over the past two decades. Consistent with the rapid growth in China's gross domestic product (GDP), scientific research funds have surged during the same period. The increase in the investment in science has contributed to the tremendous growth in the number of diabetes publications (Figure 1). The progress can not only be identified in quantity, but in publication influence when analyzing by journal distribution, by citation number and by publications cited by the guidelines. The total citation number and citation number per publication of diabetes publications has been on the rise in the past two decades; moreover, this trend is predicted to persist at least until 2020 (Figure 2 and 3).



The growing trend of total citation numbers of diabetes publications from China between 1995 and 2014, along with prediction until 2020. Credit: ©Science China Press

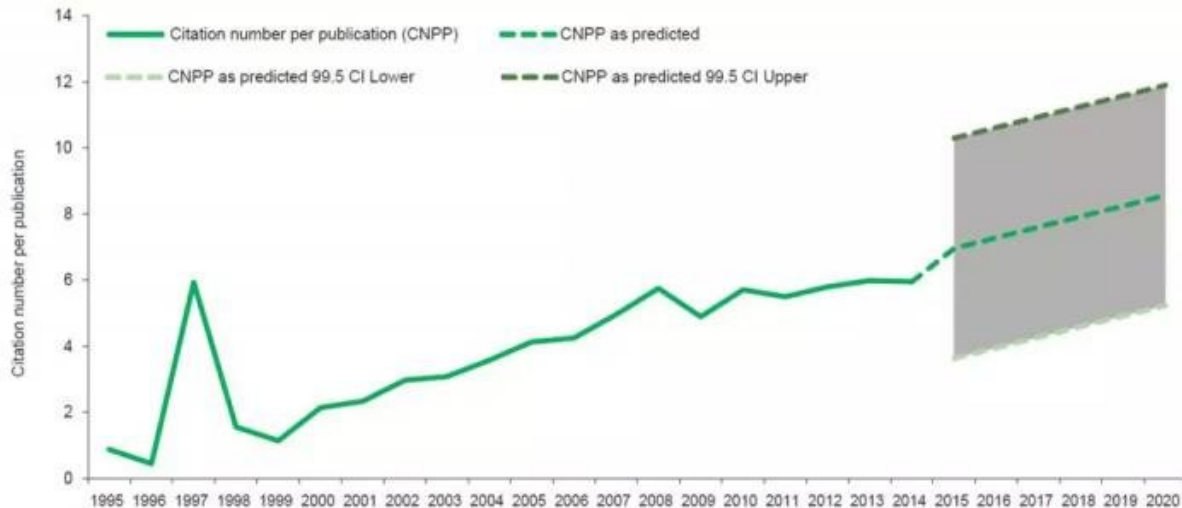
The deep review of this study highlights important findings of clinical research, basic research and traditional Chinese medicine (TCM). A total of 3,524 papers are identified as clinical research papers, most of which are on type 2 diabetes mellitus (T2DM). These papers have clarified our understanding of the epidemiological pattern, time trends, and glycemic control rate in T2DM patients in China. Innovative studies, such as those on the prevention of T2DM with lifestyle interventions, those on the treatment of T2DM with short-term intensive insulin therapy and those exploring the potential future role of gut microbial markers and miRNAs in T2DM pathology and diagnosis, have established milestones in both diabetes research and clinical practice. A total of 4,628 basic studies are identified, which outstrips the number for clinical research, indicating that more basic research studies in this field

were conducted in China. Among [basic research](#) papers, 3/4 are related to pharmacology and therapeutics. Metabolism, genetics/genomes/proteomics/metabolomics, and complications are the three other areas of focus. A total of 374 papers are associated with traditional Chinese medicine (TCM), among which 332 are related to herbal medicine while 15 are regarding acupuncture. More than 200 herbs or compound formulae (Fufang) were studied. Berberine, Astragali radix (Huang qi), and Lycium bararu (Gou qi) are the three most commonly studied herbs. The citation metrics of TCM are slightly superior to those of all papers in the field of diabetes, suggesting that TCM studies attract more attention than the average in the field of diabetes.

However, according to the authors, these advancements have not curtailed the fast-rising diabetes epidemic in China. Furthermore, the goals of halting the rise of the diabetes epidemic and developing a cure for diabetes seem unlikely in the near future. Therefore, the authors addressed opportunities to strengthen research, including new drug development, high quality studies on health economics, and healthcare quality improvement studies. The enhancement of applied [clinical research](#), such as lifestyle interventions and prevention and treatment of complications, conducted throughout the different stages of the disease (diabetes susceptibility, pre-diabetes, diabetes, and diabetic complication), is of great significance. As the era of artificial intelligence is approaching by leaps and bounds, a new perspective of thinking on diabetes is to be summoned for China when it comes to tackling such a huge number of patients, especially thus far there has been no sign for the tipping point of diabetes epidemic.

"Scientific advancements can invigorate the clinical practice, double the efficiency, and lead to the implementation of related policies that impact the entire country." said Professor Jianping Weng, the corresponding author of the study and past president of the Chinese Diabetes Society.

"This study was conducted with the aim of gaining new insights regarding current scenario and future scope for researchers, healthcare providers in the field of diabetes, and the respective policy makers."



The growing trend of citation number per publication (CNPP) of diabetes publications from China between 1995 and 2014, along with prediction until 2020. Credit: ©Science China Press

More information: Zekai Wu et al, A thorough analysis of diabetes research in China from 1995 to 2015: current scenario and future scope, *Science China Life Sciences* (2018). [DOI: 10.1007/s11427-018-9377-y](https://doi.org/10.1007/s11427-018-9377-y)

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