

# Responsive Caregiving for Children: A Bibliometrics Study and Visualization Analysis via CiteSpace

Haiyan Yu<sup>1,\*</sup>, Ruiling Wang<sup>2</sup>

1. Department of Child Welfare, Woosuk University, Jeonju 565701, Korea

2. Department of Obstetrics Medical Center, Weifang People's Hospital, Weifang 261044, China

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**Abstract:** Objective To comprehensively and systematically sort out the research status, hotspots, and development trends of the research on responsive caregiving for children abroad, to provide a reference for the development of research in this field in China. Method Using the Web of Science (WoS) as a data source, we retrieved the academic literature in the field of responsive caregiving for children abroad including from 2014 to 2023, and applied CiteSpace software to draw visual maps and analyse them. Results A total of 278 valid documents were included, and the field has shown an overall steady upward trend in the number of publications over the past ten years. The hotter keywords in this research area are mothers, attachment, and behavior. Conclusion The research in the field of responsive caregiving for children abroad has been deepening, with nurturing care, and early childhood development as the main research directions.

**Keywords:** Responsive Caregiving; Responsive Parenting; Visualization Analysis; CiteSpace

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## 1. Introduction

The five basic frameworks of child health, adequate nutrition, safety and security, responsive caregiving, and early learning opportunities constitute the early childhood development parenting care system, which aims to ensure children's health and maximize their potential. Among them, responsive care means that caregivers fully recognize the signals of needs given by children and respond to them in a timely and correct manner, which is an important part of the early childhood development parenting care system. Responsive care is crucial to the early development and growth of infants and toddlers, and a high level of responsive care can reduce the risk of developmental delays, stimulate the development of infants and toddlers' brains, and promote their cognitive, linguistic, motor, learning, and social-emotional development<sup>[1]</sup>. Currently, foreign countries have implemented some intervention models to improve the quality of responsive care for families, such as the formulation of legal policies, the establishment of early childhood development work models, responsive feeding training, etc[2,3]. However, because China has not yet established a unified, standardized parenting care system, there is still a gap between the support of responsive care services and some developed countries, and parents who lack responsive care skills may face the risk of not being able to scientific and healthy parenting. By means of CiteSpace, our study focused on the network of co-occurring keywords and cluster analysis; countries and institutions; and the burst of keywords and explored the hot spots and trends of responsive caregiving, to provide reference for further research by Chinese scholars.

## 2. Method

### 2.1 Data Collection and Search Strategy

In our study, all the documents were retrieved and downloaded from the Social Sciences Citation Index(SSCI, 1965-present) of the WoS Core Collection (WoSCC) database, and the time range was distributed from January 2014 to December 2023. The specific search formula was: ((TS=(responsive caregiving)) OR TS=(responsive parenting)) OR TS=(caregiving responsiveness). A total of 519 publications were retrieved, of which 241 invalid records including proceedings paper, editorial material, correction, meeting abstract, letter, early access, retracted publication, and non-English works of literature were excluded. Ultimately, 278 valid documents were obtained as the final dataset and exported in the form of "full record and cited references" for further analysis. Afterward, the plain text files were renamed for further analysis as CiteSpace software can only recognize files named with the specified name of "download\*.txt".

## 2.2 Visualization and Analysis

The dataset was visualized and analyzed with the latest version of CiteSpace (6.2.R7). It supports several types of studies, including co-word analysis, document co-citation analysis, author and journal co-citation analysis, etc. Relevant visual maps were drawn and interpreted.

## 3. Results

### 3.1 Analysis of annual publication volume

Plotting the number of publications in the last 10 years of research on responsive care for children as a line graph. As shown in Figure 1, the field of responsive caregiving has shown an overall steady growth in the last 10 years, indicating that this field is currently receiving great attention from researchers.

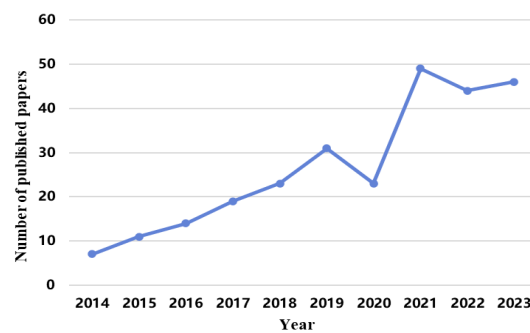


Fig. 1 The distribution of the 278 records from 2014 to 2023

### 3.2 Analysis of issuing countries and issuing institutions

As can be seen from Table 1, the top 10 countries with the highest number of publications in this field are the United States (173 articles), England (35 articles), Canada (30 articles), Netherlands (24 articles), Australia (18 articles), Brazil (16 articles), India (12 articles), South Africa (12 articles), Italy (11 articles), and Pakistan (10 articles). Developed countries in Europe and the United States have more research in the field of responsive care for children and have more institutional partnerships.

The top 10 institutions in terms of the number of articles published are the Pennsylvania Commonwealth System of Higher Education (22 articles), University System of Georgia (21 articles), Pennsylvania State University (18 articles), Harvard University (17 articles), Pennsylvania State University-University Park (16 articles), University of Georgia (15 articles), University of California System (14 articles), University of Toronto (14 articles), Penn State Health (14 articles), and University of London (11 articles). Research in the field of responsive caregiving for children abroad has shown a steady increase in the last 10 years.

Table 1 The top 10 countries and top 10 institutions of responsive caregiving.

Rank	Country	N (%)	Institution	N (%)
1	USA	173(62.23%)	Pennsylvania Commonwealth System of Higher Education (PCSHE)	22(7.91%)
2	England	35(12.60%)	University System of Georgia	21(7.55%)
3	Canada	30(10.79%)	Pennsylvania State University	18(6.47%)
4	Netherlands	24(8.63%)	Harvard University	17(6.12%)
5	Australia	18(6.47%)	Pennsylvania State University-University Park	16(5.76%)
6	Brazil	16(5.76%)	University of Georgia	15(5.40%)
7	India	12(4.32%)	University of California System	14(5.04%)
8	South Africa	12(4.32%)	University of Toronto	14(5.04%)
9	Italy	11(3.96%)	Penn State Health	14(5.04%)
10	Pakistan	10(3.60%)	University of London	11(3.96%)



and more attention is being paid to responsive caregiving. The United States is the country with the largest number of articles in this field, indicating that the United States places great emphasis on responsive caregiving.

In May 2018, the World Health Organization (WHO) outlined a Nurturing Care Framework (NCF) to improve childhood development, asserting that one of the best ways for a country to improve prosperity, economic growth, equal opportunities, and reduce social inequalities is simple: invest in early childhood development<sup>[5]</sup>. Consistent, sensitive caregiving across home and childcare contexts can support optimal development<sup>[6]</sup>. These authors suggested that responsive caregiving positively affected infant developmental outcomes such as cognition, language, and social-emotional traits<sup>[7]</sup>. Also, more responsive caregiving was related to smoother social and emotional development at 2 years of age<sup>[8]</sup>. In addition, although attention has gradually been paid to the impact of responsive caregiving for caregivers in poor areas on early childhood development outcomes, relatively few studies have been conducted. In the future, more attention should be paid to researching the current situation of responsive caregiving for children in LMICs, and we should actively draw on the advanced experiences of relevant countries to implement effective interventions to improve the level of responsive caregiving and parenting sensitivity of caregivers, so as to better promote early childhood development.

## References

- [1] Mermelshstine R, Barnes J. Maternal responsive–didactic caregiving in play interactions with 10-month-olds and cognitive development at 18 months[J]. *Infant and Child Development*, 2016, 25(3): 296-316.
- [2] Lucas JE, Richter LM, Daelmans B. Care for Child Development: an intervention in support of responsive caregiving and early child development[J]. *Child: Care, health and development*, 2018, 44(1): 41-49.
- [3] Britto PR, Lye SJ, Proulx K, et al. Nurturing care: promoting early childhood development[J]. *The Lancet*, 2017, 389(10064): 91-102.
- [4] Chen C, Dubin R, Kim MC. Emerging trends and new developments in regenerative medicine: a scientometric update (2000-2014) [J]. *Expert opinion on biological therapy*, 2014, 14(9): 1295-1317.
- [5] Pierce H. Nurturing care for early childhood development: Path to improving child outcomes in Africa[J]. *Population Research and Policy Review*, 2021, 40: 285-307.
- [6] Stacks AM, Halquist K, Barron CC, et al. University-Community Partnerships to Support Responsive Caregiving: The Hearts and Minds on Babies Implementation Story[J]. *Early Childhood Education Journal*, 2023: 1-12.
- [7] Yousafzai AK, Rasheed MA, Rizvi A, et al. Effect of integrated responsive stimulation and nutrition interventions in the Lady Health Worker programme in Pakistan on child development, growth, and health outcomes: a cluster-randomised factorial effectiveness trial[J]. *The Lancet*, 2014, 384(9950): 1282-1293.
- [8] Scherer E, Hagaman A, Chung E, et al. The relationship between responsive caregiving and child outcomes: evidence from direct observations of mother-child dyads in Pakistan[J]. *BMC public health*, 2019, 19(1): 1-10.