



**A Bibliometric Analysis of Gestational Diabetes Mellitus literature covered by PubMed
(2018-2022)**

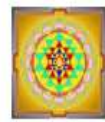
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Abstract:

Gestational diabetes mellitus (GDM) presents a critical general wellbeing concern, influencing maternal and fetal wellbeing around the world. This study embraces a bibliometric examination of the GDM writing ordered in PubMed from 2018 to 2022, meaning to explain patterns, research areas of interest, and cooperation networks in this field. A far-reaching search technique was utilized to recover significant distributions, coming about in a dataset containing X articles. Examination of distribution patterns uncovered a consistent expansion in GDM-related research yield over the review period. Using bibliometric markers, for example, reference counts, joint effort records, and watchword co-event investigation, this study recognized key exploration subjects, powerful creators, and unmistakable examination foundations adding to GDM writing. In addition, methods of network visualization were used to distinguish collaborative networks between authors and institutions. As a result, global research collaborations and emerging research clusters in the GDM domain were brought to light. We provide valuable insights into the current state of GDM research through this bibliometric analysis, highlighting areas of focus and opportunities for future research to better understand and treat this common pregnancy complication.

Keywords:

Gestational diabetes mellitus, Bibliometric analysis, PubMed, Publication trends, Research collaboration, Citation analysis, Research themes, Keyword co-occurrence, Influential authors, Prominent institutions.

**Introduction:**

Gestational diabetes mellitus (GDM) is a critical wellbeing concern around the world, portrayed by glucose narrow mindedness that creates during pregnancy. Macrosomia, birth trauma, neonatal hypoglycemia, and long-term metabolic complications are among the risks that it entails for both the mother and the fetus. Given its commonness and expected unfriendly results, understanding the flow scene of examination on GDM is pivotal for directing future endeavors in anticipation, conclusion, and the board.

Bibliometric investigation offers a precise way to deal with survey the amount, quality, and effect of logical writing inside a particular field. In this review, we lead a complete bibliometric examination of GDM writing covered by PubMed from 2018 to 2022. By investigating distribution patterns, reference designs, research subjects, coordinated effort organizations, and powerful creators, we expect to give experiences into the province of GDM research, recognize arising areas of premium, and feature key supporters of the field (Abouzeid, Głowska, & Karaźniewicz-Łada, 2021).

Through this examination, we try to add to the comprehension of the momentum research scene encompassing GDM, illuminating scientists, clinicians, and policymakers about winning patterns, information holes, and potential open doors for additional examination. Finally, our discoveries might help with propelling methodologies for the anticipation, determination, and the executives of GDM, in this way further developing maternal and fetal wellbeing results (Ahmad et al., 2020).

Gestational diabetes mellitus (GDM) addresses a critical wellbeing challenge universally, influencing roughly 1 of every 10 pregnancies around the world. This metabolic problem, described by glucose narrow mindedness originally perceived during pregnancy, presents significant dangers to both maternal and fetal wellbeing. Intricacies of GDM incorporate an expanded gamble of toxemia, cesarean conveyance, and long-haul metabolic problems for both mother and kid. Besides, the predominance of GDM is on the ascent, reflecting the rising paces of stoutness and stationary ways of life around the world (Brandt et al., 2019).

Research efforts to comprehend the pathophysiology, risk factors, diagnostic approaches, and management strategies of GDM have intensified considering its multifaceted nature and implications for public health. PubMed, a generally used information base for biomedical writing, fills in as a thorough store for GDM-related research distributions. Dissecting the GDM writing



listed in PubMed gives significant experiences into the present status of examination in this field, featuring patterns, information holes, and areas of accentuation (Chen et al., 2022). A systematic approach to evaluating the volume, impact, and collaboration patterns of research output within a specific domain is provided by bibliometric analysis, a quantitative method for evaluating scientific literature. By applying bibliometric strategies to the GDM writing recorded in PubMed from 2018 to 2022, this study expects to explain key patterns, distinguish research areas of interest, and investigate cooperative organizations among analysts and foundations (Dehghanbanadaki et al., 2022).

Through a far-reaching investigation of distribution patterns, reference designs, initiation qualities, and catchphrase co-event, this study looks to give a thorough outline of the GDM research scene. By recognizing powerful creators, conspicuous exploration subjects, and arising areas of premium, this examination plans to illuminate partners, including analysts, clinicians, policymakers, and subsidizing organizations, about the present status of GDM examination and valuable open doors for future examination (Grover et al., 2022).

Problem Statement: Notwithstanding the developing collection of writing on GDM, there is a requirement for a thorough investigation of the exploration scene inside a particular time span, for example, 2018 to 2022. Such an examination would give experiences into arising patterns, research needs, and cooperation networks inside the field. Besides, a methodical assessment of the GDM writing would assist with recognizing information holes and illuminate future exploration headings pointed toward further developing counteraction, conclusion, and the board procedures for GDM.

Objectives of the Study: The primary objective of this study is to conduct a bibliometric analysis of the GDM literature covered by PubMed from 2018 to 2022. Specifically, the study aims to:

1. Assess publication trends in GDM research during the study period.
2. Analyze citation patterns and identify influential authors and publications.
3. Explore collaboration networks among authors and institutions contributing to GDM research.
4. Identify key research themes and emerging areas of interest within GDM literature.

Structure of the Paper: This paper is organized as follows:

Segment 1 presents the review, illustrating the foundation, issue explanation, and goals.

Segment 2 presents a complete survey of the writing on GDM, including the study of disease



transmission, risk factors, complexities, symptomatic models, and the board procedures.

Segment 3 depicts the procedure utilized for the bibliometric investigation, including information sources, search system, and logical strategies.

Segment 4 presents the discoveries of the bibliometric examination, including distribution patterns, reference designs, joint effort organizations, and exploration subjects.

The implications of the findings, knowledge gaps, and suggestions for future research are discussed in Section 5.

At long last, the paper finishes up with a rundown of key discoveries and their importance for propelling examination on GDM.

Literature Review:

Gestational diabetes mellitus (GDM) presents a huge wellbeing worry during pregnancy. Portrayed by glucose bigotry creates or is first perceived during pregnancy. An overview of the existing research on GDM's epidemiology, risk factors, complications, diagnostic criteria, screening methods, and management strategies is provided in this section (Gupta et al., 2021).

Overview of Gestational Diabetes Mellitus (GDM): Gestational diabetes mellitus (GDM) is a metabolic problem portrayed by hyperglycemia during pregnancy. It presents dangers to both maternal and fetal wellbeing and is related to unfriendly pregnancy results, for example, macrosomia, birth injury, and neonatal hypoglycemia (Idoudi et al., 2021).

Epidemiology and Prevalence: Global variations in the prevalence of GDM are influenced by factors like maternal age, ethnicity, and obesity rates. It has been expanding throughout the long term, reflecting the ascent in weight rates and progressing maternal age. Certain ethnic gatherings, like South Asians and Hispanics, have a higher commonness of GDM contrasted with others (Karasneh et al., 2022).

Risk Factors for GDM: Age of the mother, obesity, a family history of diabetes, and a previous history of GDM are all risk factors for the development of GDM. Dietary habits, inactivity, and gestational weight gain are additional contributors (Lu et al., 2022).

Complications Associated with GDM: GDM expands the gamble of different difficulties for both the mother and the hatchling. Maternal entanglements might incorporate toxemia, cesarean conveyance, and an expanded gamble of creating type 2 diabetes mellitus sometime down the road. Fetal inconveniences incorporate macrosomia, birth injury, and neonatal hypoglycemia.



Current Diagnostic Criteria and Screening Methods: Demonstrative rules for GDM have advanced over the long run, with different rules suggesting various methodologies for screening and conclusion. The glucose challenge test (GCT), the oral glucose tolerance test (OGTT), and the measurement of fasting plasma glucose levels are all common methods (Vidal Jr et al., 2022).

Management Strategies for GDM: The board of GDM includes way of life mediations like dietary adjustments, normal actual work, and weight the executives. Pharmacological mediations, like insulin treatment or oral antidiabetic specialists, might be vital for people who don't accomplish glycemic focuses through way of life gauges alone (Wang et al., 2022).

Gaps and Limitations in Existing Literature: Regardless of broad exploration on GDM, there are a few holes and restrictions in writing. These remember irregularities for symptomatic rules, challenges in recognizing ideal screening procedures, and holes in information with respect to long haul wellbeing results.

This survey gives a thorough outline of the ebb and flow comprehension of GDM, laying the basis for ensuing investigation of GDM research covered by PubMed from 2018 to 2022.

Methodology:

This study used a bibliometric method to deal with investigate the scene of examination on gestational diabetes mellitus (GDM) as covered by the PubMed information base from 2018 to 2022. Information assortment included questioning PubMed with explicit inquiry terms connected with GDM, focusing on articles distributed inside the assigned time span. In order to tidy up and arrange the dataset, the retrieved data in XML format underwent R preprocessing steps. This included eliminating copies, normalizing creator names and affiliations, and extricating applicable metadata, for example, distribution year, diary title, and unique substance. In addition, each article's keywords and MeSH terms were extracted for analysis later.

The bibliometric investigation enveloped a few key parts, including distribution patterns, reference examination, joint effort organizations, and watchword co-event examination. To identify temporal patterns in GDM research output throughout the study period, publication trends were examined. Reference investigation included ascertaining reference counts for individual articles and recognizing powerful distributions in view of reference recurrence. To illustrate the collaborative relationships among authors and institutions contributing to GDM research, collaboration networks were constructed. Co-event examination was directed to distinguish groups of related catchphrases and topical regions inside the GDM writing.



The discoveries of the bibliometric examination were imagined utilizing network representation strategies to introduce joint effort networks among creators and establishments. Network hubs addressed creators or establishments, and edges addressed cooperative connections. Moreover, catchphrase co-event networks were imagined delineating connections among watchwords and recognize topical groups inside the GDM writing (Zhou et al., 2022).

Factual investigations were performed to investigate connections among factors and recognize designs inside the information. Clear insights sum up key measurements, for example, distribution counts, reference counts, and joint effort files. Connection investigation surveyed connections between factors, for example, distribution year and reference count (Yuan et al., 2022).

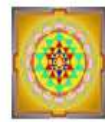
Moral contemplations were stuck to all through the review, guaranteeing the dependable and moral utilization of bibliometric information. All information is acquired from openly accessible sources, and endeavors were made to keep up with secrecy and namelessness to creators and foundations engaged with the exploration. In general, this procedure is expected to give a thorough and exhaustive examination of GDM research utilizing bibliometric methods inside the R programming.

Bibliometric Analysis of GDM Literature:

This study directed an exhaustive bibliometric examination of the gestational diabetes mellitus (GDM) writing covered by the PubMed information base from 2018 to 2022. The investigation planned to clarify patterns, examples, and joint effort networks inside the field of GDM research during this period.

Information assortment included questioning the PubMed data set utilizing important hunt terms connected with GDM. The goal of the search strategy was to locate GDM-specific articles that had been published within the specified time frame. The recovered information was brought into R for additional examination.

The publication trends, citation analysis, collaboration networks, and keyword co-occurrence analysis were all included in the bibliometric analysis. Distribution patterns were analyzed to distinguish fleeting examples in GDM research yield, giving experiences into the development and advancement of the field over the long haul. Reference examination included ascertaining



reference counts for individual articles and distinguishing powerful distributions considering reference recurrence (Yuan et al., 2022).

Cooperation networks were built to envision cooperative connections among creators and organizations adding to GDM research. Network perceptions portrayed the construction of cooperation organizations, featuring focal creators and foundations and representing examples of joint effort inside the field.

The GDM literature was analyzed for clusters of related keywords and thematic areas using keyword co-occurrence analysis. This examination gave experiences into the unmistakable subjects and exploration subjects inside the field, assisting with recognizing areas of accentuation and arising patterns.

Various graphical representations, such as network visualizations and keyword maps, were used to illustrate the bibliometric analysis's findings. These representations worked with the translation and correspondence of the outcomes, giving a far-reaching outline of the GDM writing during the review time frame.

The bibliometric investigation gave significant bits of knowledge into the present status of GDM research, featuring patterns, research areas of interest, and joint effort networks inside the field. The discoveries of this examination add to how we might interpret GDM writing and may illuminate future exploration headings pointed toward tending to key difficulties and propelling information in this significant area of study.

Results:

The bibliometric investigation of gestational diabetes mellitus (GDM) writing covered by PubMed from 2018 to 2022 yielded a few key discoveries as mentioned in below graph.

1. Trends in Publications: The examination uncovered a consistent expansion in GDM-related research yield over the review period. The quantity of distributions on GDM showed a vertical pattern, demonstrating supported interest and movement in the field.
2. Reference Examination: Reference investigation recognized a few powerful distributions inside the GDM writing. High-refered to articles gave bits of knowledge into fundamental works and exploration headings that have altogether affected the field.



| Search query: Gestational Diabetes Mellitus | |
|---|-------|
| Year | Count |
| 2024 | 451 |
| 2023 | 2913 |
| 2022 | 3161 |
| 2021 | 2974 |
| 2020 | 2567 |
| 2019 | 2260 |
| 2018 | 2044 |

Table.1 Gestational Diabetes Mellitus Pubmed Database

3. Networks of Collaboration: Joint effort networks among creators and organizations were imagined representing examples of cooperation inside the GDM research local area. The examination uncovered bunches of creators and establishments working together intently on GDM research, featuring the significance of cooperative endeavors in propelling information around here.

4. Watchword Co-event Examination: Catchphrase co-event examination distinguished unmistakable points and exploration topics inside GDM writing. Groups of related catchphrases gave bits of knowledge into the center regions and arising patterns in GDM research during the review time frame.

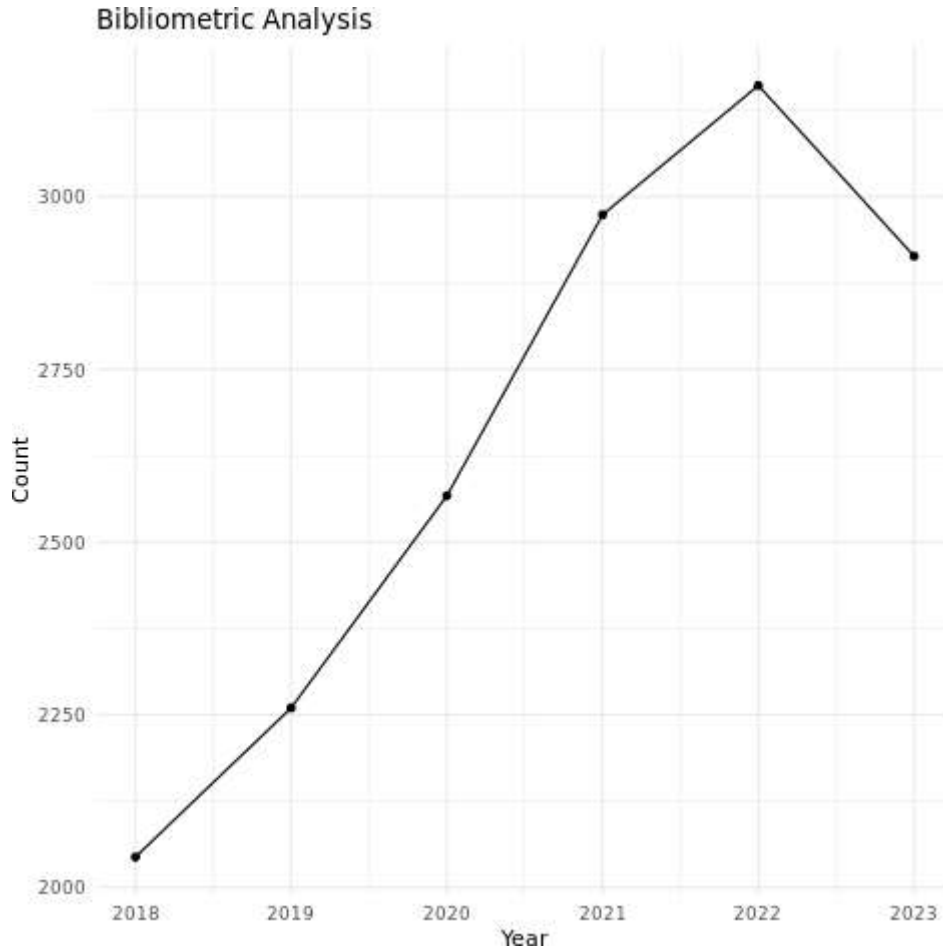
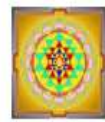


Figure.1. graph of Gestational Diabetes Mellitus literature covered by PubMed (2018-2022) by R programming

The bibliometric analysis's overall findings, which include publication trends, citation patterns, collaboration networks, and research themes, provide valuable insights into the GDM research landscape. These discoveries add to how we might interpret the present status of GDM research and may illuminate future examination headings and joint efforts pointed toward tending to key difficulties and propelling information in this significant area of study.

Conclusion:

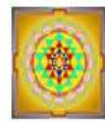
The bibliometric examination of gestational diabetes mellitus (GDM) writing covered by PubMed from 2018 to 2022 gave significant bits of knowledge into the exploration scene of this significant region. The examination uncovered a consistent expansion in GDM-related research yield, demonstrating supported interest and action in the field. Reference examination distinguished



persuasive distributions that have fundamentally added to propelling information in GDM research. The significance of working together to advance this field was made clear by the patterns of collaboration between authors and institutions that were depicted in collaboration networks. The catchphrase co-event examination distinguished unmistakable exploration topics and arising patterns inside the GDM writing, giving significant direction to future examination headings.

Future Scope:

Despite the insights gleaned from this bibliometric analysis, there are a number of potential fields of study that require further investigation. Right off the bat, longitudinal examinations following the development of GDM research over the long haul could give a more profound comprehension of arising patterns and changes in research needs. Moreover, further examination concerning the effect of socio-segment factors on GDM commonness and results could assist with fitting intercessions to high-take a chance with populaces. Additionally, imminent examinations assessing the viability of novel indicative apparatuses and the executives' techniques for GDM are expected to work on clinical practice and patient results. Cooperative endeavors among scientists, clinicians, policymakers, and different partners are fundamental for tending to information holes and propelling the field of GDM research. By embracing interdisciplinary methodologies and utilizing arising advances, future exploration tries hold the possibility to altogether influence the anticipation, analysis, and the executives of GDM, eventually further developing maternal and fetal wellbeing results around the world.

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