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Commentary

A Decade of Discovery: Exploring the Latest Frontiers in Fecal Microbiota Transplantation Studies

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DESCRIPTION

Fecal Microbiota Transplantation (FMT) refers to the transfer of functional Gastrointestinal (GI) communities from healthy individuals into the intestines of patients in order to restore the GI balance or rebuild the GI in order to investigate the link between GI and disease. Even the history of FMT may be found in ancient China. Bibliometrics is a quantitative approach that uses mathematical and statistical techniques to evaluate the characteristics of publications. It has found success in methodology research, scientific disciplines, science policy, and other fields. It also allows researchers to outline a complex graph of the knowledge structure and the development of particular knowledge.

By using bibliometrics important literature, foundational works in a subject, discover past and present study themes, and forecast future development patterns can be assessed. The use of bibliometric techniques has helped researchers produce a number of worthwhile findings. Studies on historical citation networks, cluster analyses of frequent terms, and projected development directions are less prevalent. FMT-related literature from 2012 to 2021 were selected for this analysis in order to examine the current state and future directions of FMT research. By utilising bibliometrics, highly cited publications, current hotspots, and future trends in FMT research were identified, which served as a resource for interested academics.

Bibliometric analysis is widely used in many different research fields because it has several unique advantages, including the ability to pinpoint the traits of papers in particular research areas, visualise the network of author, country, and institution collaboration, and display citations and seminal works. FMT for Clostridioides Difficile Infection (CDI) therapy has been used in certain countries as a treatment approach that has been included in the recommendations, and there is a tendency for the clinical indications it can treat to grow even further. Worldwide research articles were analyzed in FMT from 2012 to 2021 to determine the state and trends of FMT research in order to better understand the field as a whole. The majority of nations had taken part in FMT research, with the US and China having the highest Np, TC, and H-indices and being at the epicentre of international cooperation. This demonstrated their significant contributions to FMT research, which were connected to their keen interest in and support for the microflora projects. The hotspots are located using common keywords, and the major research materials are found beneath the hot subjects using cluster analysis. The primary status and hotspots in FMT were revealed through common keywords and cluster analysis, which largely focused on the cause and management of FMT. Several research have looked at the therapeutic effects of FMT, which may accomplish therapeutic goals through realising novel GM-host interactions, although the precise source of interactions is yet unknown. Particularly, the GM primarily mediates the therapeutic action of FMT. Many studies demonstrate that GM, metabolism, and immunity interact with one another. GM dysbiosis can cause chronic inflammation and have an impact on the immunological and metabolic functions of the host. The development of host immunity depends on GM and its metabolites, and host immunity has an impact on GM as well.

Multiomics analysis, the current study emphasis, can explain how the GM-metabolome-immune network interacts. By exposing LPS and its metabolites, such as short-chain fatty acids, the normal GM preserves the integrity of the gut's barrier and the harmony of local immune responses. By monitoring oxidative stress levels in faeces to look for proinflammatory components, oxidative stress may be better understood and treated. Reactive oxygen species also play a significant role in the induction of programmed cell death and many illnesses.

The research also contains a number of shortcomings. Initially, data has been obtained from the SCI-Expanded of the WoSCC database, even if the included publications fully depict the current situation. Second, bibliometric analyses of recently released, excellent papers will be disregarded. Because it takes time for citations to build up, inherent biases like bibliometrics against freshly released publications may prevent certain important studies from being included in these analyses. Finally, neither a country's low publishing rate nor the quality of its scientific

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research should be inferred from the number of citations for a certain article or the advancement of a particular area. There could be differences between bibliometric analyses and actual studies as a result.

CONCLUSION

One of the research's key advantages is that it helped in producing a diversified top-cited composition of corresponding authors, journals, papers, nations, and institutions by integrating all publications produced within the FMT study region. Also, utilising keyword analysis, research hotspots and trends related to FMT are examined and forecast, offering study recommendations for future research. Additional improvements to FMT techniques, like capsule preparations and frozen faecal bacteria, can lower costs by lowering the number and frequency of donor screening, ease patient discomfort during surgery, and boost patient and the medical staff acceptance, all of which have promising application prospects. To determine the optimum FMT indications, maintenance strategies, and transplantation paths, high-quality evidence-based medical research and well-designed randomized controlled clinical trials are required. Further in-depth study is still required as the safety evaluation of FMT is still in its infancy and there is no agreement in place. Future research on FMT is projected to expand quickly and find previously unanticipated uses as a result of the intense focus of scientists and the development of technology. As a result, faecal treatment will continue to evolve beyond "whole faecal" transplants.

This study used bibliometrics and graphical analysis to show the state and trends of FMT research worldwide. By describing current research hotspots and predicting future development trajectories, it aids researchers in related fields in understanding the growth and evolution of FMT and serves as a reference for the usage of FMT in new disciplines.