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Financial Stress and Mental Health – A Bibliometric Analysis

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Abstract

The proposition has been put forward that financial stress plays a role as an economic factor influencing the occurrence of depression. Few studies have been conducted on the intersection of financial stress and mental health, and currently, there has not been any effort to map the existing literature in this area. As a result, through integrating the knowledge framework, the researcher aims to pinpoint the advancements in research within the field. A bibliometric analysis of financial stress and mental health was conducted, utilizing a set of data containing 1,019 documents. This sample was derived from a methodical scientific search conducted on the Scopus database, covering the period from 1980 to 2023. This study employed the Bibliometrix R Package and VosViewer software to facilitate the analysis. The present study offers crucial insights into financial stress and mental health dynamics. The conceptual framework progresses from psychological factors, and determinants while extending into social dimensions such as unemployment, debt, inequality, health, and education. By unveiling the societal and intellectual framework within the discipline, the study informs upcoming researchers about emerging themes, diverse contexts, and opportunities for collaborations in this significant area of study. It not only underscores the predominant issues within this domain but also guides future research by pointing toward potential areas of exploration.

Keywords: Bibliometrics, Depression, Finance, Financial Stress, Mental Health.

Introduction

Financial stress is frequently defined through indicators of perceived economic pressure, as noted by various researchers (1, 2). Numerous studies consistently demonstrate a negative correlation between mental health outcomes and financial strain (1,3,4). Financial stress is linked to increased depressive symptoms and is closely linked with poorer mental health in the general public. The threat of despondency was found to be statistically higher for individuals experiencing financial toxicity compared to other income-related measures (5). Financial stress has a clear negative impact on mental health, often leading to increased anxiety and depression, and a decline in overall well-being (6). Financial strain, characterized by the perception that one's income is insufficient to cover both essential and discretionary expenses, has been linked to notable psychological effects, such as increased anxiety, depression, and lowered self-esteem (7). Mental health professionals increasingly recognize the relatedness between financial circumstances and mental well-being (8, 9). Notably, in 2020, global working hours saw an 8.8% decline due to the COVID-19 pandemic, equivalent to a loss of 255 million full-time job positions in contrast to the 4th quarter of 2019 (10). The stress process model explains that stressors compromise mental health by depleting protective psychological and social resources (11). As per a recent survey by the Kaiser Family Foundation, medical or dental debt affects 4 out of 10 individuals nationwide, illustrating the widespread prevalence of healthcare-related debt within American households (12). Research indicates that the hostile impacts of work instability on mental well-being are exacerbated by financial insecurity (13). Economic hardship not only acts as a stressor for individuals but also significantly jeopardizes their livelihood and basic needs. Poverty, defined as an inadequacy of resources to meet basic needs within a societal context (14), is associated with a depression risk twice as high for adults living in poverty compared to those who do not (15). It is important to remember, nevertheless, that not everyone who is impoverished suffers from depression, and not everyone who has outstanding credit card debt that is not related to a mortgage suffers from anguish (16). Savings serve as a financial buffer against unfavorable

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medical conditions and subjective well-being (17). Maintaining financial control is positively linked to physical health, emotional well-being, and social welfare outcomes (18). Controlling finance is rooted in financial literacy, linked with a reduced likelihood of death, higher subsequent psychological well-being, and positive financial habits, which decrease noncompliance with health routines due to financial constraints (18).This article aims to review the prevailing literature on the relationship between financial stress and mental health, employing mapping visualization and content analysis to identify gaps and potential future research areas. Understanding the connection between financial strain and depression is imperative for policymakers, providing valuable insights into the benefits of interventions targeting improved financial conditions and poverty reduction for mental well-being. This understanding also contributes to identifying economic factors influencing mood disorders, supporting more informed policy decisions.

Financial Stress and Mental Health

Numerous studies have explored the repercussions of the Great Recession, with a limited focus on its impact on adult mental health. Recent research indicates that economic challenges experienced more recently have a more pronounced effect on depressive symptoms than those encountered in the distant past (3). According to the WHO survey, over 322 million individuals, constituting roughly 4.4% of the global community, grappled with depressive disorders in 2015 (19). Proximal factors such as unemployment, limited education, low socioeconomic status, low salary, and absence of a relationship, along with distant factors like inequality of income and neighborhood structural attributes, have emerged as major determinants of depression (20). Mental Illness problems, such as depression, represent a significant financial burden on individuals, families managing mental illnesses, and society at large (21). During the last twenty years, research has increasingly focused on the link between individual or household financial stressors and prevalent mental disorders like depression and anxiety (22). The various studies consistently demonstrate a positive correlation between depression and several financial stress markers, including stress associated with debt, financial trouble, and challenges (23). A diverse range of psychological stressors and mental health diagnoses impact work hours, wages, employment, participation in the labor market, absenteeism, foreclosures, as well as other economic stress (24). An increasing body of evidence indicates that loans and debt are positively correlated with psychological distress and heightening levels of anxiety, distress, and depression in individuals (25). Financial adversity can result in deteriorating physical and mental health, while those already dealing with illness may face income loss and fall into a cycle of debt.

Theoretical Framework

Social Stress Theory is predominantly used for understanding the social stressors affect the psychological well-being of individuals (26). The social stress model has been a leading framework in scrutinizing the connection between social factors and mental health (27). Mental health is often regarded as the most apparent and direct health outcome affected by social stress, with most studies within this framework concentrating on mental health implications (28). The stressors arising from one's social and economic circumstances can significantly influence mental health outcomes. The theory suggests that a person's well-being is heavily influenced by their surroundings. This includes elements like their economic standing, the support they receive from others, and the quality of their relationships, all of which can play a major role in how much stress they experience and their overall mental health (29). Individuals with lower socioeconomic status are more likely to face financial challenges, such as unstable income or limited resources. These prolonged financial pressures can lead to chronic stress, making individuals more susceptible to mental health issues like anxiety and depression. The theory emphasizes how systemic inequalities, including wage disparities, unemployment, and limited opportunities for upward mobility, contribute to financial strain. According to social stress theory, problems like joblessness, poverty, and lack of financial stability can seriously harm someone's mental health (7). Unemployment and poverty often result in heightened financial stress, which can create a perceived inability to meet financial obligations and negatively impact both career progression and overall well-being (7). Nevertheless, financial stress tends to compound

over time, adding to other stressors like family or workplace demands which in turn completely affect an individual's peace of mind.

Bibliometric Analysis

A bibliometric analysis utilizes statistical and mathematical techniques to scrutinize trends in previously published literature (30). Within bibliometrics, quantitative analysis and statistical tracking facilitate the examination of publications, including journal articles, alongside their citation frequencies (31). Bibliometric studies in various research spheres analyze and publish maps of literature (32). In order to better understand the fragmented work, this study uses bibliometric analysis tools to evaluate important trends in its conceptual, intellectual, and social structure. The primary objective of this article is to explore the literature showing the connection between financial stress and mental health. These include examining recent trends in publications, such as journals, disciplines, timeframes, authors, institutions, and affiliated countries, identifying prominent studies and influential research themes in the field, uncovering the intellectual framework within the research community, and highlighting potential avenues for future research while addressing existing gaps in the literature.

Methodology

Analysis for this study commences by identifying the database, with the subsequent step involving the collection of data built upon the defined search strategy. Figure 1 illustrates the pathway followed in the article selection process for the bibliometric analysis.

Selection of Database

A crucial prerequisite for conducting bibliometric analysis is a well-organized description of indexed articles within the database. Data extraction is performed from the Scopus database to achieve this required standard and consider the extensive coverage of articles, classification of journals, and compatibility with the VosViewer and Bibliometrix software in R-studio. Recognized as a premier global database for published articles and citations, Scopus encompasses publications from high-impact journals, making it particularly well-suited for bibliometric analyses.

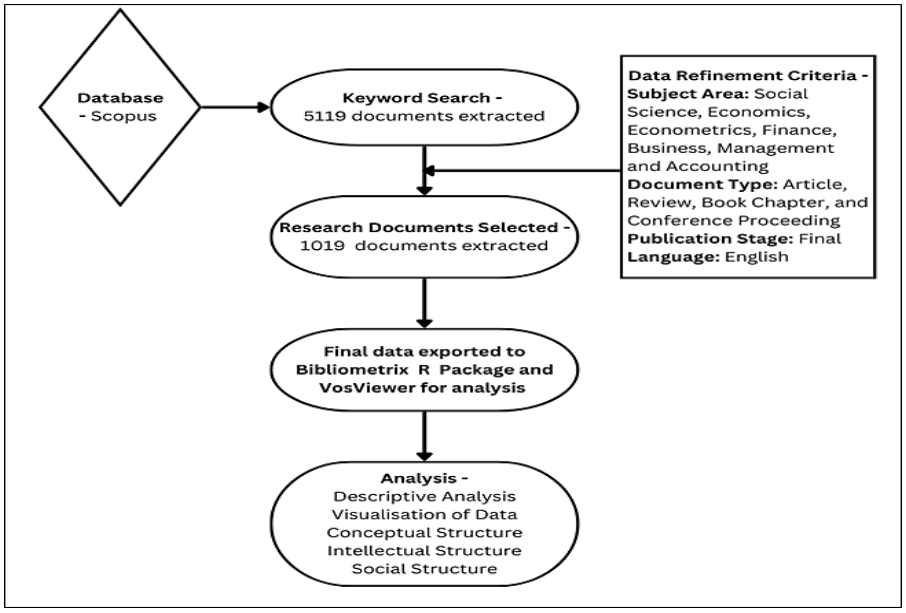

Figure 1: Flowchart Depicting Articles Selection for Bibliometrics Analysis

Data Preparation for Analysis

The inclusion and exclusion criteria were applied to warrant the analysis focusing on relevant articles and eliminating those that are not necessary. The search criteria of keywords were "financial stress", "financial distress", "financial hardship" and "mental health". The initial search yielded a total of 5119 documents. The subject area is diminished to “social science,” “economics, econometrics, and finance” and “business, management, and accounting.” Only articles in English, reviews, book chapters, and conference proceedings have been embraced. The article which is in the final stage has been considered for analysis. Further, the article encompassed a period covering all years till November 2023 considered for analysis. After the application of inclusion and

exclusion criteria, the final account of documents available for bibliometric analysis was 1019.

Bibliometric Tool Selection

The bibliometrics analysis tool employs quantitative analysis of a substantial volume of literature to offer an extensive perspective on specific research areas (33). Numerous software tools such as CiteSpace, Publish or Perish, BibExcel, and Histcite have been historically employed for bibliometric studies, and VOSviewer, Gephi, and Pajek for data visualization (34). Bibliometrix R-package, designed in R was used in this research alongside VOSviewer (35). This R-package facilitates an extensive bibliometric analysis, encompassing analysis of data and visualization. It is known for its easy-to-use interface and accessible even to non-coders. Furthermore, the VOSviewer software, developed by the Netherlands' Leiden University, is applied for constructing and visualizing co-authorship, co-occurrence, collaboration, and co-citation analyses (36).

Results

Descriptive Analysis

The descriptive analysis section discusses the various elements that underwent examination.

Data Set

The bibliometric dataset comprises 1,019 documents chosen via a structured search query within the Scopus database. A snapshot of this data is shown in Table 1, which shows a notable expansion in this research topic. These documents were released across 586 sources, boasting a mean citation score of 14.34 and an annual growth percentage of 11.67%.

Table 1: Data Set Summary

Description	Results
Documents	1019
Sources (Journals, Books, etc)	586
Keywords Plus (ID)	677
Author's Keywords (DE)	2569
Timespan	1980:2023
Average citations per doc	14.34
Authors	3065
Authors of single-authored docs	131
Single-authored docs	139
Co-Authors per Doc	3.35
International co-authorships %	20.41
Annual Growth Rate %	11.67

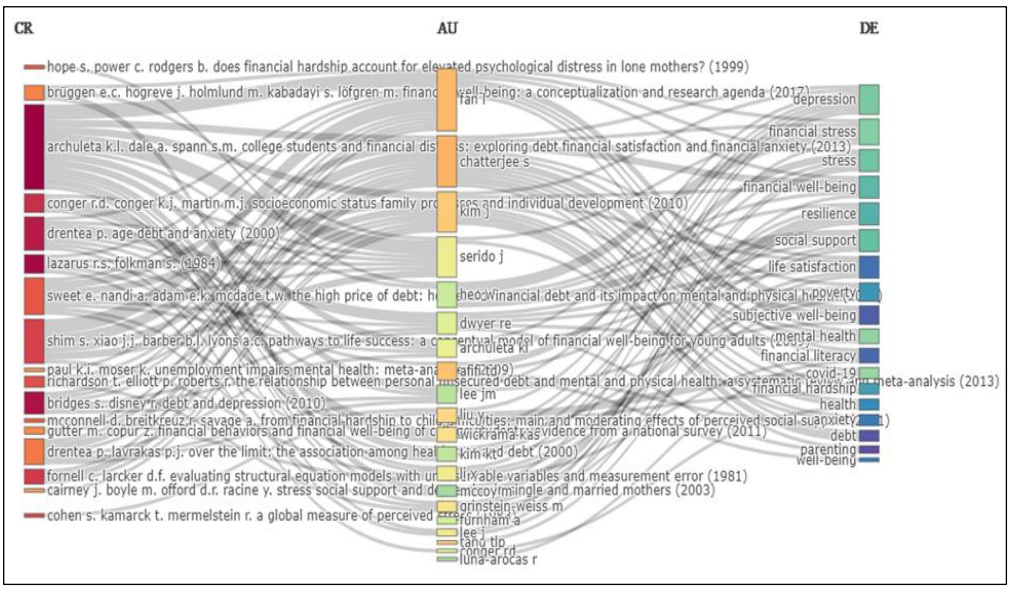

Figure 2: Three-Field Plot

Three Field Plots

Three-section diagrams using Sankey Plots show the relationships between three fields, as shown in Figure 2. Research suggests that the magnitude of each section corresponds to the value of the related node (37). On the left side, sources are presented, authors occupy the middle row, and the chosen keywords for analysis are positioned on the right side of the Sankey Plot. Key terms such as depression, financial well-being, financial stress, resilience, and social support are visually represented with their sources and recognized authors across the ten categories. Notably, "financial stress" is a focal point covered by all ten esteemed publications, underscoring its pivotal role in "mental health." The influential publications and authors delve into significant subtopics like "financial well-being," "financial literacy," "financial hardship," and "social anxiety."

Sources

The scientific productivity within the area of subject matter from 1980 to 2022 depicted an increasing trend, as illustrated in Figure 3. Notably, there was a significant surge in output post-2009, likely attributed to studies exploring the connection between financial hardship and mental wellness in the aftermath of the global financial crisis. The mean number of cited articles per year experienced a peak during the early 1990s and 2000s, as shown in Figure 4.

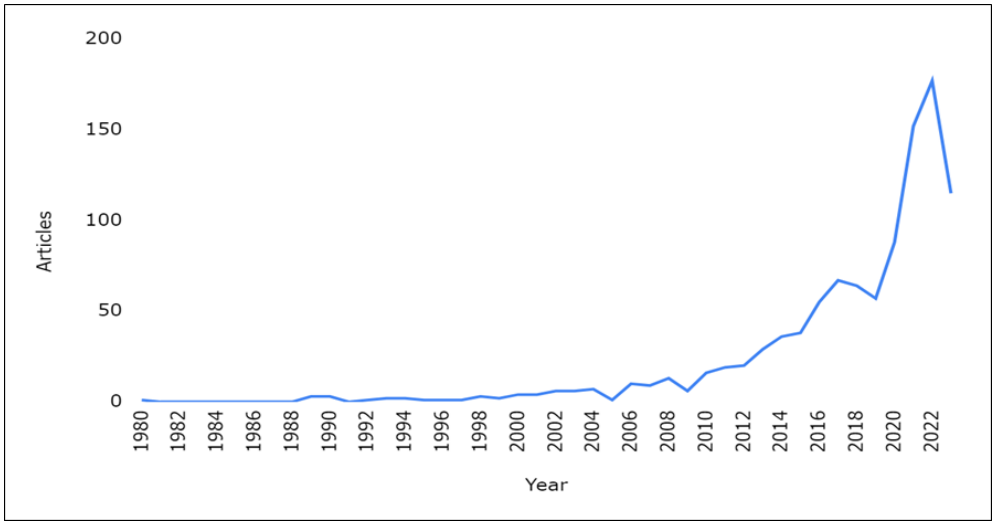

Figure 3: Scientific Production Yearly

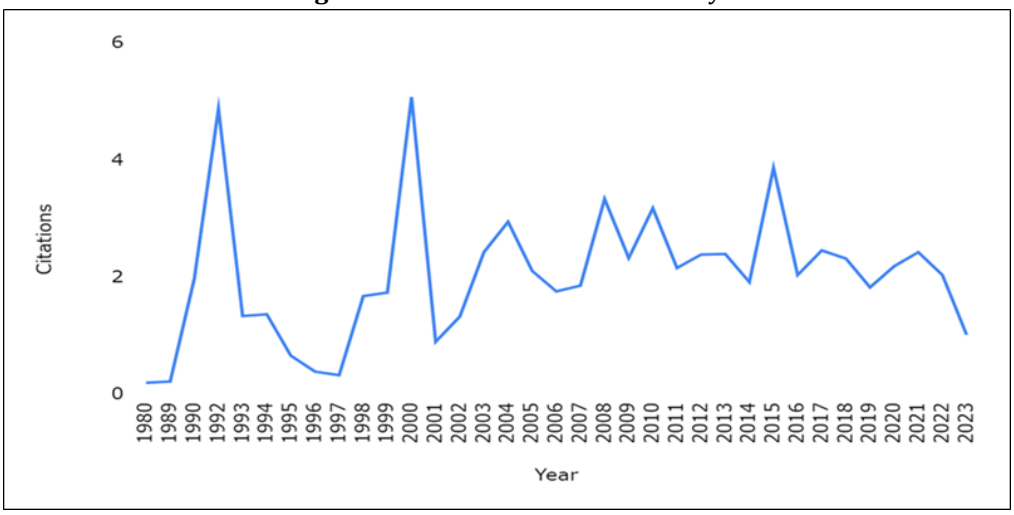

Figure 4: Per Year Average Article Citations

Most documents were found to be older than 23 years, indicating a sustained interest in the subject over time. Despite this, the topic has yet to reach maturity, as evidenced by the continuous rise in publications. Examining the different phases in the growth of literature, the concept of financial stress and its connection to mental health is in the development phase, with a consistent increase in publication count observed until 2022 (38). Figure 5 illustrates the 10 journals with the highest count of citations, indicating the field's journal quality. The Journal of Family and Economic Issues stands

out with the highest number of citations, closely followed by the Journal of Personality and Social Psychology, as depicted in Figure 5. A detailed examination of these journals discloses a concentration of literature on financial stress and mental health within psychology, economics, behavior, family studies, and finance.

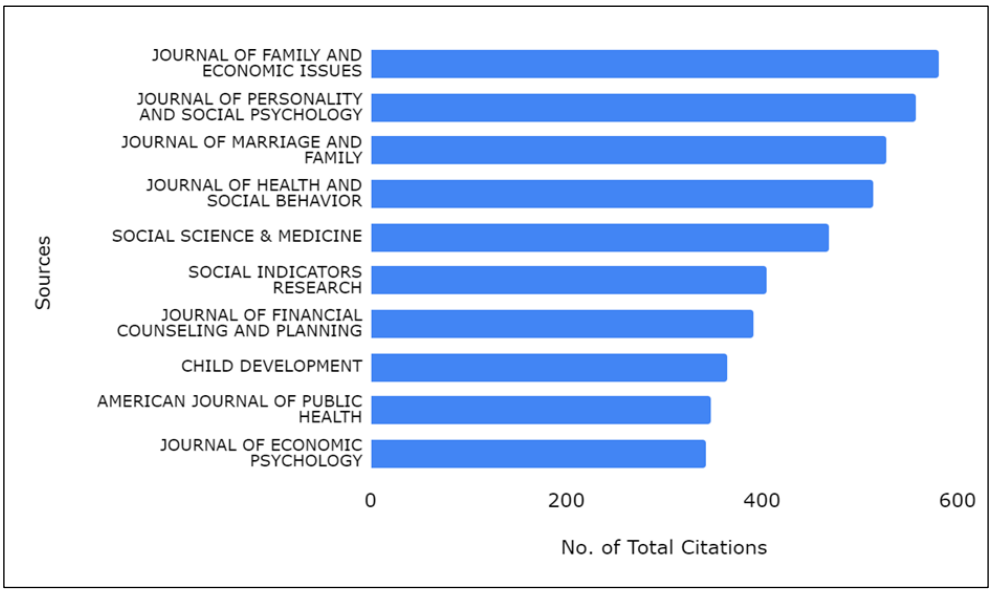

Figure 5: Most Cited Journals

Source dynamics for the top 5 journals are depicted in Figure 6, the Journal of Family and Economic Issues exhibited a notable surge in publications from 2010 onwards, followed by the Journal of Child and Family Studies and the Journal of Financial Planning and Counselling. All the journals witness a significant increase in publications, underscoring the emergence of an interdisciplinary research domain.

Authors: The field's most prolific authors, as indicated in Figure 7, include Chatterjee S., Fan L., Afifi T.D., Kim J., and Tang T.L.P., with Chatterjee S. and Fan L. contributing the most articles. However, in terms of influence, Afifi T.D. and Tang T.L.P. emerge as the most impactful authors, as determined by the authors' h-index analysis, as shown in Figure 8. Their work is considered groundbreaking and holds significance for future research endeavors.

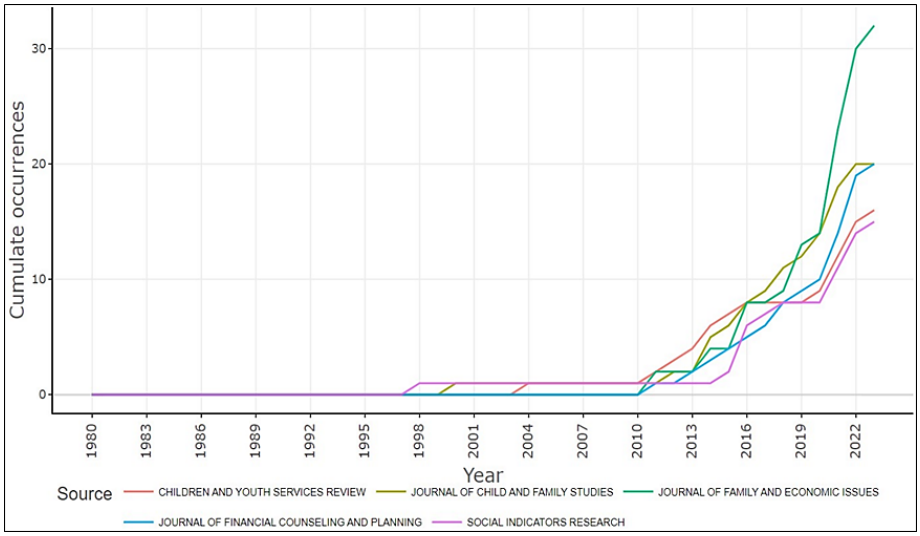

Figure 6: Source Dynamics

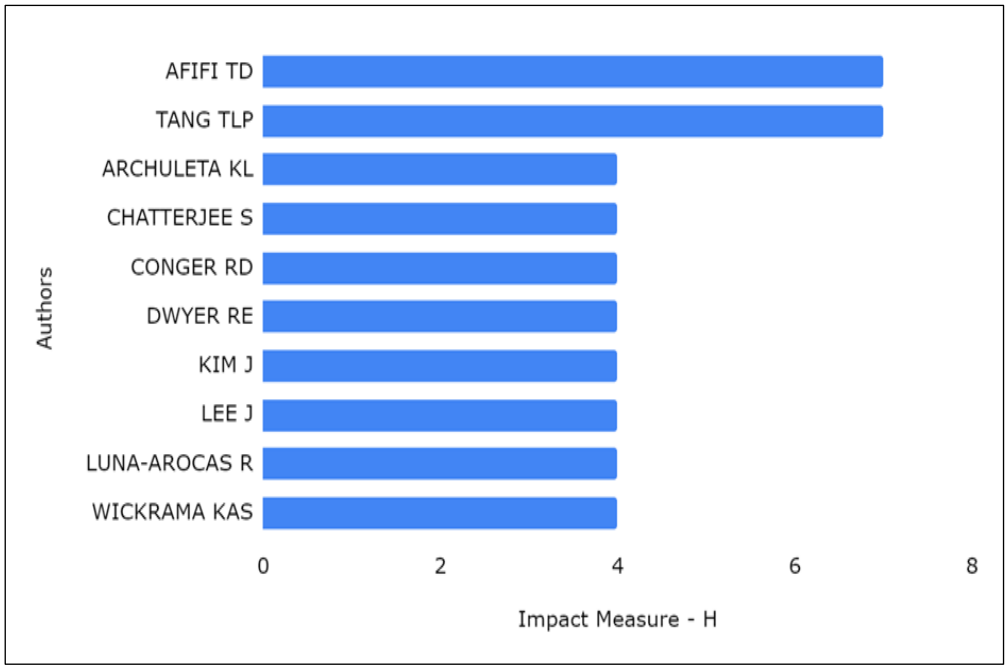

Figure 7: Most Relevant Authors

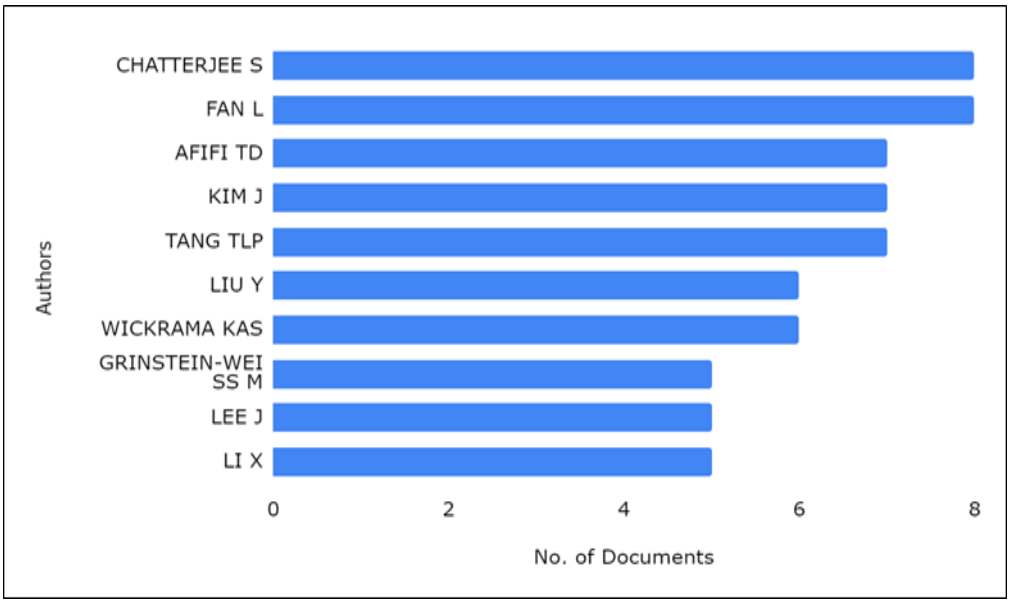

Figure 8: Impact of Authors

Country-wise Contributions: Figure 9 and Table 2, depicting the contributions of various nations to the field, highlight that developed economies have played a predominant role in the literature within this domain. The United States emerged as the primary contributor, significantly surpassing other countries, with Australia following at a considerable distance. The volume of publications also correlates with the citation counts garnered by the articles. Approximately 60% of all the citations in the field were attributed to the United States, underscoring this region's concentration of research activities. While China demonstrates a notable increase in article production, India and Malaysia occupy the latter part of the table with a moderate score in relevant output, suggesting a gradual progression of developing countries toward generating superior research in the area. Additionally, Table 2 bibliometric data reveals that the US surpassed the remaining of the globe regarding citations received, followed by Australia, the United Kingdom, Canada, and Finland. However, these countries receive relatively fewer citations compared to the United States.

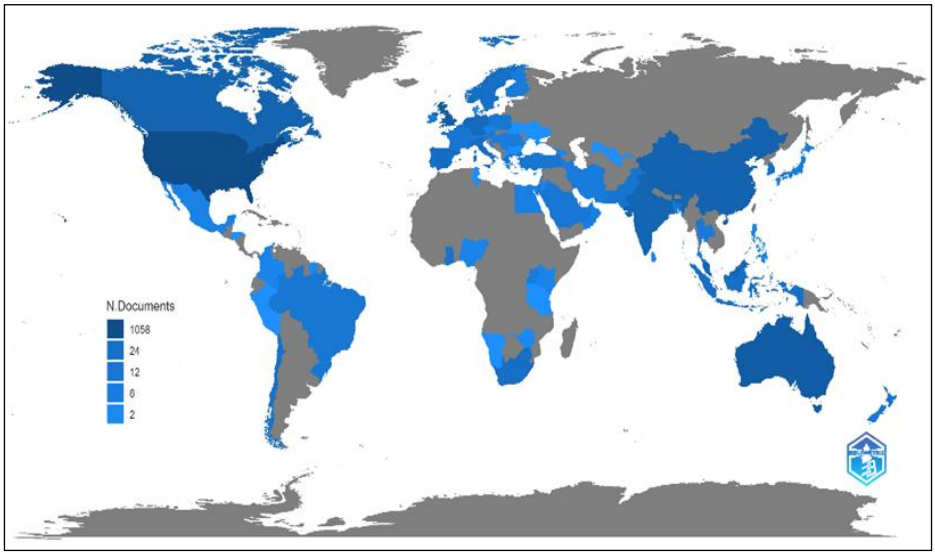

Figure 9: Scientific Production of Nations

Table 2: Country's Scientific Production and Citations

Nation's Scientific Production		**Most Cited Countries**	
Country	**Frequency**	**Country**	**Total Citation**
United States	1058	United States	6273
Australia	200	Australia	1052
United Kingdom	177	United Kingdom	730
China	99	Canada	530
Canada	90	Finland	365
India	76	China	278
Malaysia	71	Germany	264
Netherlands	51	Netherlands	187
Germany	42	Norway	183
Norway	30	Sweden	159

Documents: Figure 10 displays the field's top ten most cited documents, each accumulating over 100 citations. Leading the list are Pescosolido and Martin with over 350 citations, and Brüggen *et al.*, with around 280 citations (39, 40). The former delves into stigma-related issues, while the latter focuses on individuals' financial well-being. These highly cited papers can be regarded as crucial references within the field.

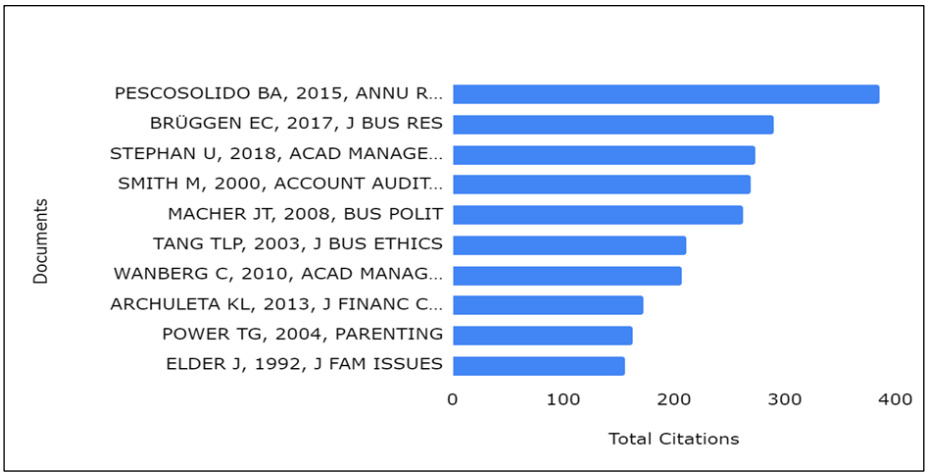

Figure 10: Most Cited Documents

Keywords: An evaluation of keyword continuousness in the articles revealed that "mental health" appeared 33 times, making it the most frequently used keyword. It was followed by "COVID-19," "finance," "financial crisis," "Australia," "United States," and "unemployment." The word cloud depicted in Figure 11 visually represents the frequency of words in the document, with the size of each one indicating its occurrence. Additionally, social factors such as socioeconomic conditions, socioeconomic impact, socioeconomic status, social impact, social policy, and social behavior are also highlighted in the analysis.

Figure 11: Word Cloud

Visualisation of Data

The exploration of financial stress and its connection to mental health has garnered increasing attention and research emphasis in recent years. This section provides an overview of the thematic evolution within this field. For quantitative assessment, data visualization employs network analysis which includes calculating the total number of link strengths, citation counts, relationships between various units, and clusters and occurrences (38). The process consists of creating multiple maps based on other units of analysis, such as documents, authors, and keywords, to extract networks comprising links and nodes. Statistical analysis is then applied to the generated maps, revealing diverse measures across the whole network (35). Three distinct knowledge structures, i.e., conceptual, intellectual, and social, are produced by the scientific mapping that uses network analysis (32).

Conceptual Structure

The conceptual framework uses a co-occurrence network or co-word analysis to illustrate the interaction between the trends, themes, and subjects in the research field. The bibliometric tool package employs multiple correspondence analysis (MCA) to derive this conceptual structure, enabling multivariate nominal data analysis using numbers and graphs (41). The generated keyword co-occurrence network is illustrated in Figure 12. The emergence of three clusters, designated by the colors red, blue, and green, signifies distinct thematic groupings. The proximity between nodes indicates their relatedness, with vertices representing words and the node size corresponding to their frequency of occurrence. Within this context, the green cluster predominantly centers around mental health, the blue cluster highlights financial stress, and the red cluster encompasses social issues like unemployment, health, debt, education, and inequality.

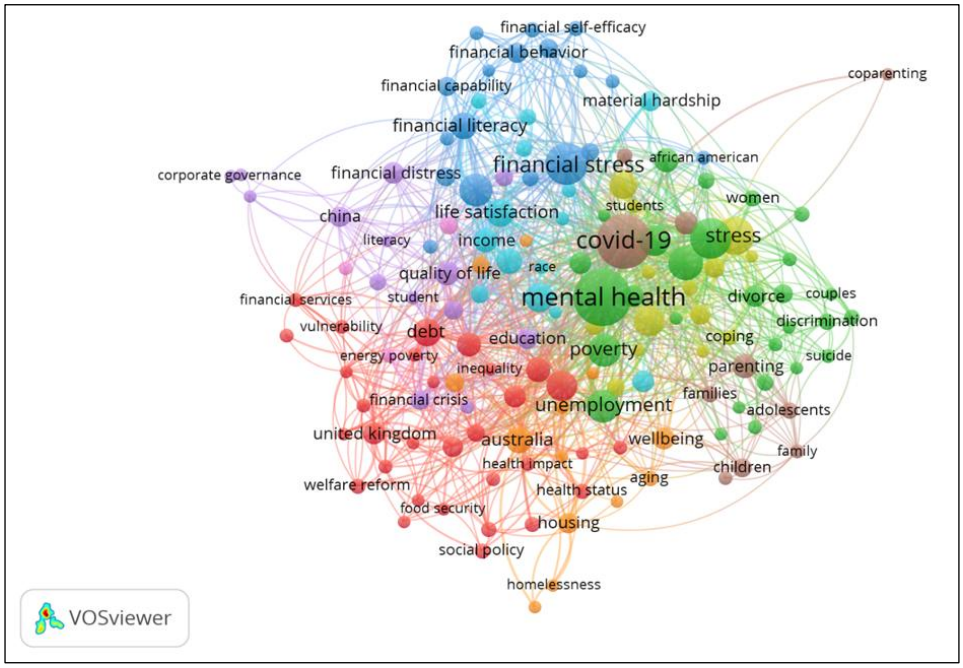

Figure 12: Keyword Co-occurrences

Thematic Map

Keyword clusters are identified through co-word analysis, revealing thematic patterns within the domain of research. On a 2-dimensional graph, these themes are then divided into 4 quadrants according to the defining dimensions of centrality and density. In Figure 13, the upper right quadrant features themes such as "mental health" and "finance," distinguished by outstanding centrality and density. These motor themes are core in the discipline, representing widely discussed and significant topics. "Poverty" is categorized as a basic topic in the lower right quadrant, signifying significant but less developed areas. The niche theme "sustainability," which is highlighted in the upper left quadrant, is marginally important due to its weak external linkages and well-developed internal structure. The lower left quadrant, featuring the "COVID-19" theme, is weakly developed and holds less significance. This quadrant signifies emerging and weakening connections (42).

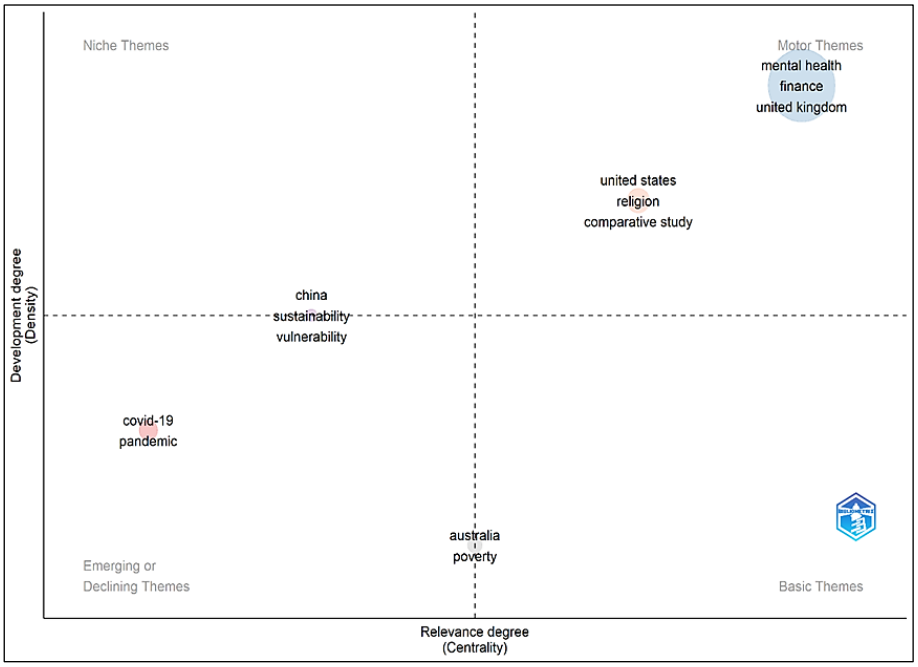

Figure 13: Theme's Map

Intellectual Structure

The intellectual structure assesses the synergy among authors and nations, offering insights into how various writers impact the scientific community. It explores the degree to which research groups and the research community collaborate, revealing the relationships they have with other institutions (43). Analyzing citations and co-citations in intellectual structure reveals multiple well-established perspectives and schools of thought.

Co-citation Analysis

The degree to which publications are closely related, as judged by the writers who cite them, is assessed through the strength of co-citations (44). Researchers say a higher citation count for a document implies greater quality and relevance in academic research (45). The connection between two papers is established when one document references another by including it in the reference section (32). Figure 14 depicts that Xiao JJ and Kim J emerge as influential authors in the green cluster, boasting the highest betweenness centrality values. Following closely are Grable JE, Archuleta KL and Drentea P all of whom have significantly contributed to financial well-being research. In the red cluster, Conger RD takes the lead, with Perlin LI, Kessler RC and Butterworth P making substantial benefactions to studying mental health concerns. Diener E and Tang T.P are leading the blue cluster and have focused their research on financial satisfaction.

Social Structure

Social Network Analysis (SNA) aids in understanding social structures comprehensively by examining graphs or networks. The SNA was employed to reveal the relationships within the academic discipline (38). Entities, for instance, institutions, authors, or media sources, are illustrated as nodes, and the interlinked nodes collectively depict the interconnections in the social network. The links connecting these domains signify the dynamics of the network.

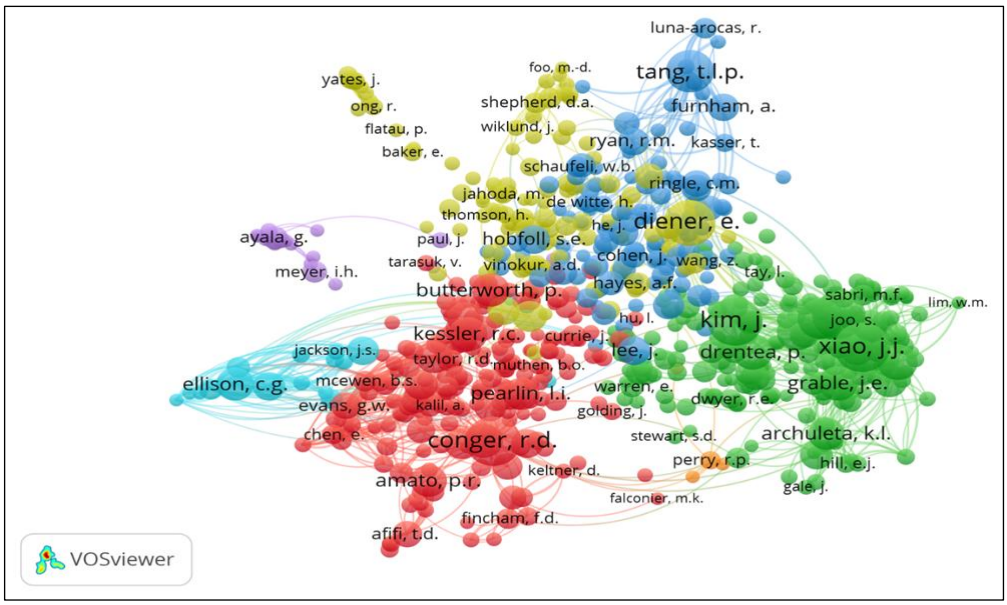

Figure 14: Co-citation Network

Country and Institutional Collaboration

From a geographical perspective, the forefront of academic research is held by the United States, engaging in collaborations with most emerging economies. Researchers in the United States were observed to have close partnerships with researchers in Canada, South Korea, South Africa, Israel, and Turkey. The UK leads in the second cluster, accompanied by Sweden, Norway, Pakistan, New Zealand, and Poland as shown in Figure 15. The third cluster, spearheaded by China and India, includes Bangladesh, Taiwan, and Croatia. The collaboration network among universities, as depicted in Figure 16, emphasizes the prominence of the cluster overseen by Kansas State University in cooperation with Texas Tech University and the University of Georgia.

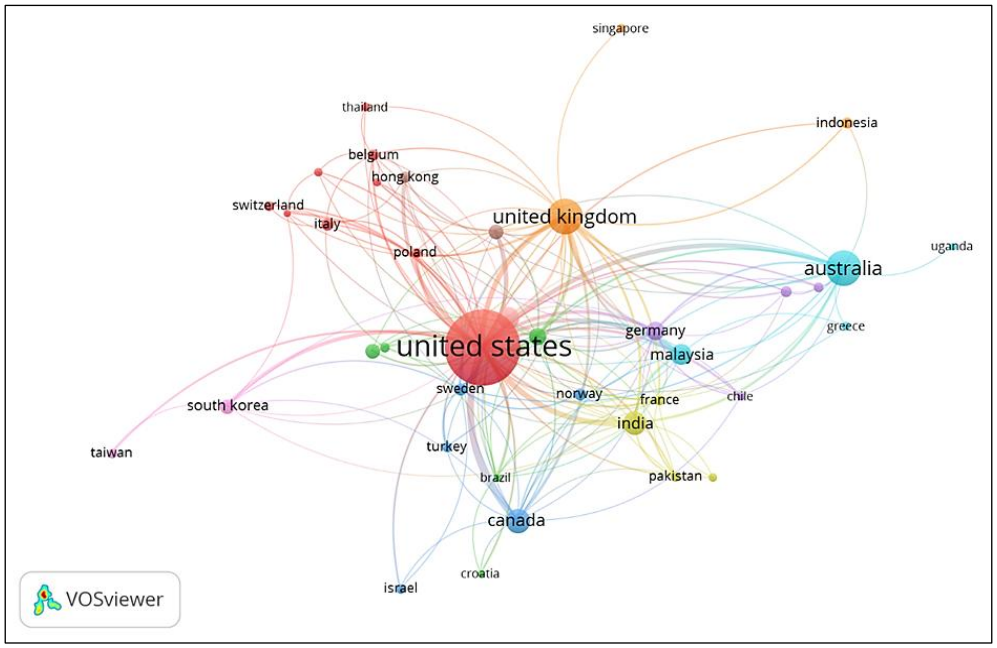

Figure 15: Country Collaboration

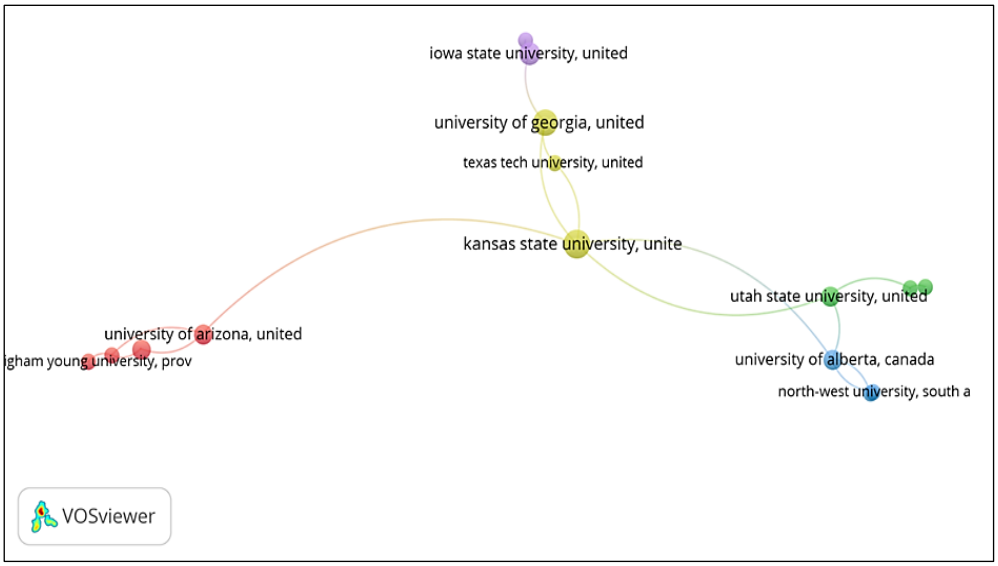

Figure 16: Institutional Collaboration

Discussion

The article here delineates the progression of the intersection between financial stress and mental health from 1980 to 2023, offering an exhaustive evaluation of its conceptual, intellectual, and social landscape. A key contribution of this study lies in integrating dispersed literature on the subject and elucidating noteworthy sources, authors, and publications. Utilizing the Bibliometric R-package and VosViewer for their adaptability and user-friendly features, the study leveraged the Scopus database to curate a dataset due to its structured format, high-quality research content, and compatibility with analytical tools. The dataset indicates a gradual rise in publications initially, followed by a surge during 2010–2012, coinciding with the repercussions of the 2008 global financial crisis. Predominantly, scholarly work in this domain originated from the USA and was succeeded by Australian and UK contributions, with collaborations expanding from an initial stage to a more extensive one in emerging economies. This includes fresh authors and countries that have broadened the societal fabric within the discipline. The conceptual framework reveals a progression from psychological variables, determinants, and measurements to encompass economic aspects like mental health and financial stress, extending further into social dimensions such as unemployment, debt, inequality, health, and education. Social Stress Theory underscores how

societal and structural factors, such as economic disparities and systemic inequalities, intensify financial stress for certain groups. This theory emphasizes that stressors stemming from an individual's socioeconomic status, such as financial difficulties, contribute to adverse mental health outcomes. Most publications emanated from psychology, finance, economics, and business, followed by family studies and social psychology. This indicates a move toward an interdisciplinary approach from a domain-specific one. As an outcome, the study seeks to provide a guide for scholars and practitioners to grasp current knowledge, fostering the exploration of research prospects by analyzing publication trends, authorship, citations, sources, countries, high-impact papers, influential authors, international cooperation among authors, and thematic evolution through bibliometric analysis.

Conclusion

This study's valuable introspection can assist policymakers in developing mental health awareness and financial education programs. Practitioners such as social advisors, financial planners, and healthcare professionals can better understand emerging issues, fostering improved comprehension within their respective domains. In essence, this paper culminates the furtherance of the field, promotes the construction of a base of knowledge, and finds unexplored dimensions of the connection between financial stress and financial behavior. It's anticipated to catalyze further research in financial stressors, anti-poverty measures, or economic inequality among diverse practitioners, researchers, and policymakers, drawing inspiration from existing literature. Combining the expertise of psychologists and financial professionals to create interventions could be beneficial in breaking the negative cycle of depression and financial stress. The current bibliometric study relies only on the Scopus database which is a major limitation, but future research could explore alternative databases like Web of Science, Google Scholar, etc. for data extraction or mix different databases to make more deeper analysis. Additionally, there is a limitation in using limited keywords in this study which could have possibly eliminated some precious papers, thus, modifying the keyword search to include additional terms could enhance the inclusivity of relevant publications in this field. Additionally, the search of documents included only particular subject areas, such as business, management, accounting, economics, econometrics and finance, and social science. Another major limitation of this study is the use of science mapping, which lacks comprehensive article selection, so supplementing it with manual selection based on abstracts and a thorough full-text review would further enhance reliability. This piece of the article focused only on the broader concept while the precise fact is yet to be discovered. A meta-analysis and literature review in the future could offer a deeper understanding of the research domain, providing additional insights into antecedents and outcomes. Performing an exhaustive analysis of content within this field of study may yield additional insights into the pertinent theories and frameworks. The emerging economies' incremental contribution compared to developed ones highlights a contextual discrepancy in the research area, signaling potential collaborations in the future. Encouraging more multidisciplinary research through intellectual and social collaborations is essential. The field may advance theoretically and practically by examining the groundbreaking work of academicians and practitioners. There is a need for more longitudinal research to elucidate the mechanisms and causal linkages between various financial strains and mental health conditions. The evolving focus of the field on economic and financial factors influencing mental health necessitates comprehensive attention to understanding the interplay of these variables. Social and psychosocial facets such as unemployment, debt, and poverty should be explored to strengthen the research field. Moreover, forthcoming research should examine the diversity or variability in the connection between mental disorders and financial stressors across diverse groups of people, particularly in low- and middle-income country contexts. Such research could offer more accurate data to craft specific interventions.

Abbreviation

WHO: World Health Organisation

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Author Contributions

SLP -Conceptualization, Methodology, Software, Investigation, Resources, Data curation, Draft preparation, and writing; VV – Reviewing and Editing, Proofreading, and Supervision.

Conflict of Interest

The authors declare that there is no conflict of interest.

Ethics Approval

Not Applicable.

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