Bibliometric and visual analysis of global research: Hospital inpatient satisfaction

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INTRODUCTION

A widely accepted indicator of the quality of healthcare services is the assessment of patient satisfaction with the services offered by the healthcare system (Hasen & Negeso, 2021). Patient satisfaction is a top priority for hospitals as it is necessary to improve patient care quality. An essential component of building a long-term relationship with patients is by listening to them. Through patient feedback, the level of patient satisfaction can be measured and indicate the level of success of the healthcare services provided. Hospitals that have provided highly adequate care and services to patients have a good reputation, which will affect the volume and revenue of the hospital. There are three main stakeholders in inpatient care: patients, healthcare providers, and hospitals. Patients must be content with their hospital care and experience since research indicates that happy patients are more likely to follow self-care guidelines and produce better clinical results, so it must be continuously monitored and frequently measured (Vaz, 2018).

Patient satisfaction is defined as "the degree of match between what patients expected and their actual experience of healthcare received." Patient satisfaction is also a feeling of pleasure or positivity generated by an individual towards a product or service that meets their expectations" (Vaz, 2018). Patient satisfaction can be influenced by nurses who are caring and provide nursing care to patients in the hospital (Maay et al., 2019). Higher levels of patient happiness, superior results, and more cost-effective care are all related to patient-centered care. The aim of patient rights advocacy, on the other hand, is to make sure that patients receive proper care, which raises the standard of medical care (Asadi Abu Kheili et al., 2022).

The public's perception of the healthcare system provides valuable insights into the system's performance and directions for future improvements (Dong et al., 2019). Hospitals that provide satisfying care and services for patients will affect the hospital's reputation. A good...
reputation will affect the volume and revenue of the hospital because more patients will come (Vaz, 2018).

A key indicator and the main way to evaluate the efficacy of healthcare delivery is patient happiness. Healthcare organizations must prioritize patient satisfaction to maintain and gain market share in the current competitive climate. We cannot compete successfully if we are unaware of our talents and flaws. Data from patient satisfaction studies can be used to guide decisions and evaluate the effectiveness of staff members and medical specialists (Vaz, 2018).

Surveys of patient satisfaction can be used as a teaching tool. They also serve to hold medical professionals and other staff members accountable. Doctors and other staff members may be expected to show that they have an appropriate degree of patient satisfaction as a performance assessment. The quality of healthcare services can be demonstrated to national and international accrediting organizations using data on patient satisfaction (Vaz, 2018).

The healthcare sector has evolved into a very difficult service sector. A once-honored profession is no longer regarded in that way. A key factor in assessing care is patient happiness. By clearly defining and comprehending patient happiness, businesses may create an evaluation method that will give them adequate measurements of the factors that influence patient satisfaction. Even if most patients are content with the service overall, they might not always be pleased with every part of the care they receive. Management ought to be able to determine how much care is required to achieve high patient satisfaction levels and encourage repeat business (Vaz, 2018).

A significant sign of the caliber of physiotherapy services is patient satisfaction. However, in Libya, there is a scarcity of research on patient satisfaction (Jahan et al., 2021). One goal of healthcare delivery is for patients to be satisfied with the treatments they get. Nevertheless, patient satisfaction with services at community healthcare centers in India is still mostly unknown (Kaur et al., 2020).

Comparing the contribution of scholars, journals, institutes, and countries over time is information provided by bibliometric analysis. The literature system and characteristics as the object of research are analyzed quantitatively and qualitatively in bibliometric analysis. Bibliometric analysis can use science mapping techniques to see how an area of study is structured intellectually. Different analysis techniques are components of bibliometric analysis and depend on various types of information used in the analysis. Relationships between keywords, countries, research institutions, and authors often emerge in bibliometric network analysis. The total number of documents, citations, co-authorship links, bibliographic coupling links, co-citation links, and jointly appearing keywords are all considered bibliometric markers. In many academic disciplines, bibliometric indicators are used to assess the importance and quality of research dynamics, including the most prominent nations, organizations, journals, papers, and authors (Subekti et al., 2022).

Bibliometric analysis examines empirical data from published literature to investigate publication patterns in a discipline. When a researcher uses bibliometrics to analyze the body of literature in their field, they can identify major themes. Exploring the evolution, growth, and excellence of many fields of research in the academic world also often use bibliometric investigation (Subekti et al., 2022).

In comparison to other bibliometric software tools, VOS viewer is frequently used in bibliometric mapping investigations across a variety of research disciplines. It compresses a large amount of data into a single graphic image based on the similarity-technique visualization of VOS with VOS viewer analysis so that the standard text mining map is made up of related phrases forming clusters or themes. (Subekti et al., 2022). Researchers can find themes or clusters of nations, organizations, and keywords used in the titles and abstracts of published articles thanks to citation links, bibliographic coupling, and co-occurrence analysis. These themes use one color to indicate the proximity of specific keywords, authors, journals, organizations, or nations across numerous research streams, enabling academics to look at the core research topic from various perspectives. For the visualization analysis of publications in the co-occurrence analysis, this study employed VOS viewer. VOS viewer’s primary focus is on the bibliometric maps’ graphical depiction. A piece of software called VOS viewer is used to create and display bibliometric networks. Large bibliometric maps can be displayed using VOS viewer’s functionality in an understandable manner (van Eck & Waltman, 2017).

This study intends to assess the growth of inpatient satisfaction research that has been published globally between 2017 and 2022. Researchers also want to understand the scope of research related to inpatient satisfaction in hospitals.

**METHODS**

Research Specifications: This is a quantitative study that analyzes bibliographic data using the VOS viewer program.

Research Materials: The bibliographic data for the study on Inpatient Patient Satisfaction in Hospitals from 2017 to 2022 was obtained from Scopus (www.scopus.com).

Data Collection Technique: The researcher used data from international publications obtained from Scopus. Data was collected through a search using the keywords: "REF (patient AND satisfaction AND inpatient AND in hospital) AND PUBYEAR > 2016 AND (LIMIT-TO (SUBJAREA, "MEDI") OR LIMIT-TO (SUBJAREA, "NURS") OR LIMIT-TO (SUBJAREA, "HEAL")) AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (DOCTYPE, "ar")] AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRTCTYPE, "j")]."

Data Processing Technique: Data was exported from Scopus and processed using the VOS viewer program.

Data Analysis: Data obtained through the Scopus search was analyzed using four steps: the search stage, filtering stage, bibliometric attribute checking, and bibliometric analysis.

**RESULT AND DISCUSSION**

In the Scopus search, using the keywords "REF (patient AND satisfaction AND inpatient AND in hospital) AND PUBYEAR > 2016 AND (LIMIT-TO (SUBJAREA, "MEDI") OR LIMIT-TO (SUBJAREA, "NURS") OR LIMIT-TO (SUBJAREA, "HEAL")) AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (DOCTYPE, "ar") ] AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRTCTYPE, "j")], 137 publications related to Inpatient Satisfaction in Hospitals were obtained. Based on the quantity of documents produced annually, authors, references, journal sources, university affiliations, document types, subject areas, and nations undertaking the study, data analysis and categorization were carried out.
Figure 1 illustrates the number of publications published each year, starting from 2017 to 2022. The year 2018 had the least number of publications about Inpatient Satisfaction in Hospitals through Scopus, with only 9 publications. Meanwhile, the year 2021 had the highest number of publications, with 40 publications.

Figure 2. Document by subject area

The research documents related to inpatient satisfaction in hospitals had the most discussion about Medicine, with a total of 106 documents. The second most discussed topic was Nursing with 45 documents, and the third most discussed topic was Social Sciences with a total of 26 documents.

Figure 3. Publication by source

Figure 3 shows the seven most prolific publication sources through Scopus from 2017 to 2022. The journal Patient Preference and Adherence published 12 publications, making it the most prolific journal in publishing research related to Inpatient Satisfaction in Hospitals over six years. The second most prolific source is BMC Health Services Research, publishing 6 journals. International Journal of Environmental Research and Public Health published 5 journals. Journal Of Patient Experience and Indian Journal of Public Health Research and Development each published 4 journals. Meanwhile, BMC Nursing and Annals of Tropical Medicine and Public Health each published 2 journals during those six years.

Figure 4. Publication by country

Figure 4 shows the countries that have published publications related to inpatient satisfaction in hospitals via Scopus from 2017 to 2022. The United States is the country that has published the most publications during those 6 years, with 29 publications. Next is China, with 26 publications. Then Iran with 12 publications and Indonesia with 11 publications, followed by Ethiopia with 10 publications, and finally Australia with 6 publications.

Figure 5. Publication by author

Figure 5 shows the authors of journals about inpatient satisfaction in hospitals from 2017 to 2022. The most productive author is Liu.Y with 4 publications. The other five authors had an average of 2 publications during that period.
During the period from 2017 to 2022, the institution that published the most publications was the Chinese Academy of Medical Sciences & Peking Union Medical College with 5 publications. Kerman University of Medical Sciences had 4 publications, while four other institutions had an average of 3 publications throughout the year.

Based on the analysis of frequently used terms in abstracts of articles on Inpatient Patient Satisfaction in Hospitals (1089 keywords), there are 103 terms that have strong correlations, with the analysis using a minimum occurrence of 5 terms. There are five clusters, with cluster 1 having 31 items, cluster 2 having 28, cluster 3 having 27 things, cluster 4 having 16 items, and cluster 5 having just one item. The most used term is “human” with 116 occurrences, followed by “adult” with 94 occurrences, and “article” with 92 occurrences.

Based on the analysis of keywords used, cluster 1 is about “health personnel”, cluster 2 is about “hospital patient surveys”, cluster 3 is about “patient satisfaction”, cluster 4 is about “health care quality”, and cluster 5 is about “data” (table 1).

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Color</th>
<th>Keywords</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red</td>
<td>Attitude of health personnel, care behaviour, doctor nurse relation, empathy, employee, health care personnel, health personnel attitude, hospital, hospitals, human experiment, humans, interview, job satisfaction, leadership, nurse, nurses, nursing, nursing staff, nursing staff hospital, patient care, perception, physician, psychology, qualitative research, quality improvement, standards, systematic review, total quality management, trust, university hospital, wellbeing</td>
<td>Health Personnel</td>
</tr>
<tr>
<td>2</td>
<td>Green</td>
<td>China, demography, expectation, factor analysis, health care, health care cost, health insurance, health services, hospital patient, inpatients, manager, outpatient, outpatients, patient, personal satisfaction, psychometrics, psychometry, questionnaire, reliability, reproducibility, reproducibility of results, satisfaction, self-concept, structural equation modelling, surveys and questionnaires, tertiary care centre, tertiary care centres, validity</td>
<td>Hospital patient surveys</td>
</tr>
<tr>
<td>3</td>
<td>Blue</td>
<td>Adult, article, attention, child, clinical article, controlled study, cross-sectional study, data analysis, data analysis software, education, Ethiopia, female, gender, hospitalization, human, human tissue, length of stay, major clinical study, male, multicentre study, outcome assessment, patient satisfaction, physiotherapy, quality of nursing care, resident, structured questionnaire, teaching hospital</td>
<td>Patient satisfaction</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
<td>Adolescent, aged, aged 80 and over, communication, cross-sectional studies, health care delivery, health care quality, hospitals, public, middle aged, nursing care, organization and management, public hospital, quality of care, quality of health care, very elderly, young adult</td>
<td>Health care quality</td>
</tr>
</tbody>
</table>

Table 1. Terms in Hospital inpatient Satisfaction Research Abstracts

Source: VOS viewer

**Figure 6. Publication by affiliation**

**Figure 7. Network visualization of hospital inpatient satisfaction**

**Figure 8. Overlay Visualization of patient satisfaction in hospital**

**Figure 9. Density Visualization of patient satisfaction in hospital**
Satisfaction in Hospitals, while the green color indicates that the term has not been widely studied or used in research journals. Future researchers can examine previous research to identify areas that have received less attention and to identify potential study subjects in the future. To see the novelty in the literature, the yellow color has been extensively discussed.

### Table 2. A list of publications that are frequently cited

<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Source</th>
<th>Cited By</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Edvardsson et al., 2017)</td>
<td>Patient experiences of caring and person-centredness are associated with perceived nursing care quality</td>
<td>International Journal for Quality in Health Care 29(2), pp. 213-221</td>
<td>48</td>
</tr>
<tr>
<td>(Bachnick et al., 2018)</td>
<td>Patient-centred care, nurse work environment and implicit rationing of nursing care in Swiss acute care hospitals: A cross-sectional multi-center study</td>
<td>International Journal of Nursing Studies 81, pp. 98-106</td>
<td>34</td>
</tr>
<tr>
<td>(Mulugeta et al., 2019)</td>
<td>Patient satisfaction with nursing care in Ethiopia: A systematic review and meta-analysis</td>
<td>BMC Nursing 18(1), pp. 27</td>
<td>17</td>
</tr>
<tr>
<td>(Kaiser et al., 2018)</td>
<td>Linking interprofessional work to outcomes for employees: A meta-analysis</td>
<td>Research in Nursing and Health 41(3), pp. 265-280</td>
<td>17</td>
</tr>
<tr>
<td>(Hu et al., 2020)</td>
<td>Influence of patient and hospital characteristics on inpatient satisfaction in China's tertiary hospitals: A cross-sectional study</td>
<td>Health Expectations 23(1), pp. 115-124</td>
<td>16</td>
</tr>
<tr>
<td>(W. Chen et al., 2020)</td>
<td>Effect of trust in primary care physicians on patient satisfaction: A cross-sectional study among patients with hypertension in rural China</td>
<td>BMC Family Practice 21(1), pp. 196</td>
<td>15</td>
</tr>
<tr>
<td>(Krupchanka et al., 2017)</td>
<td>Satisfaction with psychiatric in-patient care as rated by patients at discharge from hospitals in 11 countries</td>
<td>Social Psychiatry and Epidemiology 52(8), pp. 899-1003</td>
<td>14</td>
</tr>
<tr>
<td>(Zimmerman et al., 2017)</td>
<td>A clinically useful self-report measure of psychiatric patients’ satisfaction with the initial evaluation</td>
<td>Psychiatry Research 252, pp. 38-44</td>
<td>13</td>
</tr>
<tr>
<td>(Kasa &amp; Gedamu, 2019)</td>
<td>Predictors of adult patient satisfaction with nursing care in public hospitals of Amhara region, Northwest Ethiopia</td>
<td>BMC Health Services Research 19(1), pp. 52</td>
<td>12</td>
</tr>
</tbody>
</table>

**Source:** VOS viewer

The Journal of Advanced Nursing, with the title "Patient experiences of caring and person-centredness are associated with perceived nursing care quality" by Edvardsson, Watt, and Pearce is the most cited with 91 citations. The next most cited is the International Journal for Quality in Health Care with the title "Consumer satisfaction with tertiary healthcare in China: Findings from the 2015 China national patient survey" by Sun et al., with 48 citations.

### LIMITATION OF THE STUDY

There are still certain limitations to this study. This hospital inpatient satisfaction research is only global in scope. Further studies need to be conducted on specific hospital units to be more specific.

### CONCLUSION AND SUGGESTION

Comparing the contribution of scholars, journals, institutes, and countries over time is information provided by bibliometric analysis. The literature system and characteristics as the object of research are analyzed quantitatively and qualitatively in bibliometric analysis. Bibliometric analysis can use science mapping techniques to see how an area of study is structured intellectually. Different analysis techniques are components of bibliometric analysis and depend on various types of information used in the analysis. Relationships between keywords, countries, research institutions, and authors often emerge in bibliometric network analysis. The total number of documents, citations, co-authorship links, bibliographic coupling links, co-citation links, and jointly appearing keywords are all considered bibliometric markers. In many
academic disciplines, bibliometric indicators are used to assess the importance and quality of research dynamics, including the most prominent nations, organizations, journals, papers, and authors.

This bibliometric analysis presents the state of research related to Inpatient Satisfaction in Hospitals from 2017 to 2022 from various perspectives and serves as a source and guide for scholars who will conduct further research. Health Personnel, Hospital Patient surveys, Patient Satisfaction, Health Care Quality, and Data are the themes that emerged in this bibliometric analysis.

Based on the results of the bibliometric analysis in this article, the scope of research related to Inpatient Satisfaction in Hospitals can be known. The author supports further research on Inpatient Satisfaction in Hospitals, especially on subjects that have not been explored. Researchers can create research topics related to Inpatient Satisfaction in Hospitals that have not been widely studied before. Researchers can also use the Scopus database to develop their research and search for references or citations to support their research.

ACKNOWLEDGEMENTS

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ETHICAL CONSIDERATIONS

Funding Statement

The authors did not get paid by any businesses for the work that was submitted.

Conflict of Interest Statement

According to the authors, there is no potential conflict of interest in the creation and publication of this work.

REFERENCES


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