

GLOBAL RESEARCH TRENDS ON FACTORS AFFECTING PATIENT SATISFACTION LEVELS IN HOSPITAL INPATIENT WARDS: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

Research on patient satisfaction in hospital inpatient rooms is one of the main focuses in efforts to improve the quality of health services. Understanding the factors that influence patient satisfaction is crucial for policy makers and healthcare practitioners. Although various studies have been conducted, the global map of this research trend is still not clearly depicted. This study aims to fill this gap by conducting a *bibliometric* analysis of the literature related to patient satisfaction in hospitals, using a visualization approach to provide deeper insights into the dynamics of research in this area. The method used involved data collection of scholarly articles from 2014 to 2024 using *Google Scholar's Publish or Perish* application. A total of 50 articles were selected based on relevance to keywords such as *Patient Satisfaction, Inpatient Room, Satisfaction Factors, Hospital, and Health Services*. This data was then analyzed using *VOSviewer* to visualize the relationship between various elements in the literature through *network visualization, overlay visualization, and density visualization*. This approach mapped research trends, identified key clusters, and showed collaboration patterns and dominant topics. The results show that *service quality* and *patient satisfaction* are the main focus in the literature. Research clusters showed significant attention to basic aspects of healthcare such as hospital care and facilities, while demographic aspects and specific determinants were less explored. Citation analysis showed that articles providing comprehensive reviews or practical models received more attention. In addition, the *density* visualization revealed the dominance of quality of care aspects, but also showed the potential for further research on topics such as technological innovation and the impact of health policy. The conclusions of this study show that although much *research* has been conducted, there are still significant *research gaps* that can be further explored. This study maps global trends in patient satisfaction studies, and provides guidance for researchers to focus on less explored areas, thereby contributing to the improvement of healthcare quality in hospitals.

Keywords: Patient Satisfaction, Service Quality, Hospital, Bibliometric Analysis.

INTRODUCTION

The existence of health services is very important in the development of the country in order to realize a healthy society. Various health services, both primary, secondary, and tertiary, both government and private, were established to facilitate the community in accessing health services. In order to become the health service of choice and gain community loyalty, it is important for every health service to improve service quality (Mufrizal, 2021).

The quality of health services is a form of consumer assessment of the level of service received with the expected level of service. If the service received or felt is as expected, then the quality of service is perceived as good and satisfying (Kotler, 2019).

Consumer satisfaction is a feeling of pleasure or disappointment that arises after comparing the perception or impression of the performance or results of a product and expectations. Patient satisfaction is related to the quality of hospital services. By knowing the level of patient satisfaction, hospital management can improve service quality (Maulana, 2016).

Patient satisfaction in hospital inpatient wards is a critical aspect in the assessment of healthcare quality. Patients' experience in interacting with the healthcare system not only affects their perception of the services received, but also has a direct impact on their overall health outcomes. Patient satisfaction not only reflects the level of quality of services provided, but is also a key indicator in evaluating the effectiveness and efficiency of a country's health system.

In recent decades, the scientific literature has intensively

examined factors that contribute to patient satisfaction in various contexts, including hospitals. These studies have not only focused on the quality of hospital services and facilities, but have also covered aspects such as patient-physician interactions, the use of technology in healthcare, and the impact of public policies on patient experience.

However, while there has been significant research, there have not been many studies that comprehensively describe global trends in patient satisfaction research in inpatient settings. This study aims to fill this gap by conducting a bibliometric analysis, which will not only map research trends in the past decade, but will also identify key clusters and potential *research gaps* that can be further explored.

With an in-depth understanding of the factors that influence patient satisfaction, it is hoped that this study can contribute to the development of more patient-oriented health policies and improve the quality of health services globally.

As such, this study aims to provide a comprehensive insight into the dynamics of current research in the field of patient satisfaction in hospital inpatient wards, as well as provide a foundation for further research that can bring about positive changes in healthcare.

OVERVIEW

Accurate patient satisfaction levels are needed in efforts to improve the quality of healthcare services. As healthcare becomes an increasingly competitive market, studying patient experience can certainly help practitioners to better encompass the patient's perspective in service delivery

and improve patient satisfaction. Patient satisfaction is good for the hospital. With satisfied patients, patients become loyal to the hospital. The service expected by the patient is not as expected, it can cause a decrease in the quality of hospital quality and can reduce the minimum service standard of satisfaction (Yanto & Rejeki, 2017).

Measuring the quality and satisfaction of healthcare services is an indispensable element for adequate resource management and allows focusing on the preferences of its users, giving them the opportunity to build customized healthcare services, more in line with their needs and expectations (Abrantes, 2012).

Therefore, patient satisfaction is emerging as a variable to promote the quality of healthcare organizations, allowing the assessment and identification of the most relevant dimensions of patients and their level of satisfaction. Patient satisfaction helps measure the quality of healthcare services, thus becoming an important and frequently used indicator. It affects clinical outcomes, medical malpractice claims, and timely, efficient, and patient-centered healthcare delivery (Prakash B, 2010).

Although satisfaction is an important aspect of quality, the relationship between these two concepts is not linear. On the one hand, the results of satisfaction studies can be ambiguous and may not always be impartial. Given that patients evaluate the performance of physicians, most of whom lack the necessary abilities, the results could be based on affinity and not on the technical skills of health professionals. On the other hand, providers may have to face a trade-off between providing satisfaction to their patients or better treatment outcomes (Ferreira D, 2018).

Patient satisfaction is an emerging concept in assessing the quality of health services. Several factors affect patient satisfaction according to Adhikari, namely socio-demographic factors (age, gender,

education, occupation, and religion) (Adhikari, 2021). Several factors affect patient satisfaction, namely, not in accordance with expectations and reality, services during the process of enjoying services are not satisfactory, personnel behavior is not satisfactory, the atmosphere and environmental conditions are not supportive, the cost is too high, because the distance is too far, advertising promotions do not match reality. (Nursalam, 2016).

Another factor that can affect patient satisfaction according to Hartia (2023) is service quality, the results of the study show that there is an influence between physical evidence (tangible), reliability, empathy, responsiveness, and assurance on patient satisfaction. However, in Maulina's research (2019), tangible, reliability, and assurance factors have no relationship with the satisfaction of Cibungbulang Health Center inpatients, but the responsiveness factor and empathy factor have a relationship with patient satisfaction.

Since everyone has their own perception, satisfaction is only a relative concept, which is influenced by individual expectations and evaluations of Healthcare service attributes. Patient satisfaction is complex to assess, given its multidimensionality. Satisfaction consists of various aspects that may not be related to the actual quality of patient care (Sofaer S et al, 2005).

Patient satisfaction makes it possible to measure the consistency between patient preferences, expectations and the healthcare services provided. Knowledge of information about the possibility of increasing patient satisfaction and, thus, improving the quality of healthcare services allows creating a competitive advantage for Healthcare facilities (Gavurova B et al, 2020).

As patient satisfaction increases, trust is also built between patients and medical staff which helps build loyalty bonds gradually and increases medical staff satisfaction with their work. Thus,

patient satisfaction becomes an important part of a complex healthcare quality system (Riklikiene O, et al, 2020 & Jakubowska A et al, 2021).

Patient satisfaction is the result of a complex set of factors, including the coordination of various aspects of services, such as medicine, nursing, services from different parts of the organization, and so on, while it is necessary to fully respect the rights of patients in all aspects and create optimal conditions for the improvement of healthcare services (Farzianpour F et al, 2015).

patient satisfaction as a cognitive response influenced by various factors. They consider the determination of factors affecting patient satisfaction as an indirect way to achieve true patient satisfaction. The authors emphasize that in addition to the determination of factors affecting patient satisfaction, understanding patients' expectations and needs is also an important fact as it makes it possible to measure deviations of the real situation from the expected state. Their knowledge will enable healthcare facilities to effectively eliminate the causes of dissatisfaction and, thus, gradually improve the level of healthcare provision (Farzianpour F et al, 2015).

Service quality is said to be good, if the hospital or employees have implemented or implemented the service quality assessment indicators appropriately. Employees perform services in a timely manner, according to nursing care / procedures, complete and appropriate infrastructure, and employees in providing communication health services must be friendly, smiling and polite in providing services (Selviana, 2016).

According to Arveo (2021) Low patient satisfaction has an impact on the number of visits to health facilities. This is evident in the low patient visits in inpatient care, which can be assessed based on the indicator of the bed utilization rate or Bed Occupancy Rate (BOR) in the inpatient room.

To increase patient satisfaction, the hospital should pay attention to services in the form of improving services to patients in providing maximum service and giving trust to patients. Good quality nursing services can increase patient revisits. (Hasniar, p.2021).

Patient satisfaction will be created when what is obtained is greater than expected. Good nursing service quality means that patients get fast service, proper diagnosis and therapy, sufficient hospitality, fast administrative services and affordable costs (Ulumiyah, 2018).

When a satisfaction is created for the patient, it will indirectly have a positive impact on the health service company by creating customer loyalty to the hospital concerned because it is very important to maintain a quality health service. Likewise, if the quality of service has a negative impact, it will affect the image of the hospital so that it becomes a decrease in patient visits which causes a lack of loyalty from patients (Suharmiati, 2017).

RESEARCH METHODOLOGY

The research method used in this study consists of several systematic stages to explore global research trends related to factors affecting patient satisfaction levels in hospital inpatient rooms. This study uses a *bibliometric* approach that aims to analyze scientific literature within a certain time span, namely from 2014 to 2024, focusing on the main keywords such as *Patient Satisfaction*, *Inpatient Room*, *Satisfaction Factors*, *Hospital*, *Health Services*, and *Medical Service Quality*.

The initial stage of this research began with the collection of scientific article data using the *Publish or Perish (PoP)* application. This application was chosen for its ability to extract data from *Google Scholar*, an extensive and credible academic search engine. Using predetermined keywords, articles were searched from 2014 to 2024. From the search results, 50 articles were selected

that were most relevant and appropriate to the research topic. The selection of these articles was based on the relevance of the discussion in accordance with the research objectives, as well as the relationship between one article and another in the context of a study on patient satisfaction in hospital inpatient rooms.

After the articles were collected, the data from the search results in *PoP* were then analyzed based on several criteria. The first criterion is the year of publication, which aims to see the publication trend within the specified time span. Second, the country of publication, which is useful for knowing the contribution of each country in this study. Third, the *publisher* or publisher that plays a role in the dissemination of the article. Fourth, the most citations, to identify articles or studies that have a major influence in this field. Fifth, the type of article, which helps in understanding the form and format of the research used (for example, *review* article, original research article, or conference paper).

The data that has been analyzed with these criteria is then reprocessed using the *VOSviewer* application. This application is used to map and visualize the *bibliometric* network of the collected articles. This process involves determining the minimum *occurrence* of 4 times and the number of *terms* used as many as 17, which are important parameters in identifying the main keywords that appear frequently and are closely related among the articles. *VOSviewer* allows visualization in three main forms: *Network Visualization*, *Overlay Visualization*, and *Density Visualization*.

a. *Network Visualization*: This method is used to display relationships between different elements in scientific literature, such as authors, articles, or keywords. This visualization helps in identifying interrelated networks or groups in

the study of patient satisfaction in hospital inpatient rooms.

b. *Overlay Visualization*: At this stage, the research explores how various elements in the scientific literature have evolved over time. This provides a dynamic view of how research trends change and evolve over time, and helps in identifying up-and-coming areas in the field.

c. *Density Visualization*: This visualization gives an idea of the density or intensity of the relationships between the various elements under study. It helps in identifying the most dense and perhaps most important topics or areas of research in the existing literature.

d. Overall, this approach allowed us to understand global trends in research on factors affecting patient satisfaction in inpatient settings, identify important contributions from different countries and institutions, and illustrate networks of collaboration among researchers and key topics in this field. The results of this analysis provide deep insights into future research directions and areas that require further attention in order to improve healthcare quality and patient satisfaction.

RESULTS AND DISCUSSION

The results and discussion of this study will outline the key findings identified through a *bibliometric* analysis of the scientific literature related to factors affecting patient satisfaction levels in hospital inpatient settings. Using data collected from relevant articles spanning 2014 to 2024, the results provide a comprehensive overview of global research trends, publication patterns, and contributions from different countries and institutions. The discussion will focus on keyword network mapping, citation analysis, and visualization of the relationships between the elements found, which is expected to provide valuable insights in

understanding the dynamics of research in this field and its implications for improving healthcare quality.

Discussion and Analysis of Publication Trends by Year of Publication

Based on data taken from bibliometric research, the trend of publications related to factors affecting patient satisfaction in hospital inpatient rooms during the period 2014 to 2024 shows interesting fluctuations.

At the beginning of the period, the number of publications was fairly stable with a slight increase from 2014 (3 articles) to 2015 (6 articles). This trend continued in the following years with the number of publications remaining in the range of 5 to 6 articles per year until 2019. However, in 2020, there was a significant decrease in the number of publications to 3 articles, which may be

due to the impact of the COVID-19 pandemic, where research in various fields experienced a decrease in activity. After that, there was a sharp spike in 2021, where the number of publications reached the highest number in the analyzed time span, at 12 articles. This significant increase may reflect greater attention to healthcare quality and patient satisfaction in inpatient settings amid the pandemic and healthcare recovery.

However, after the spike in 2021, there was a drastic drop in 2022 and 2023, recording only 1 article each. This decline could be due to a shift in research focus or other external factors diverting attention away from this topic. In 2024, there was a slight increase with 2 articles identified, which may indicate the beginning of a recovery in publication trends in this area.

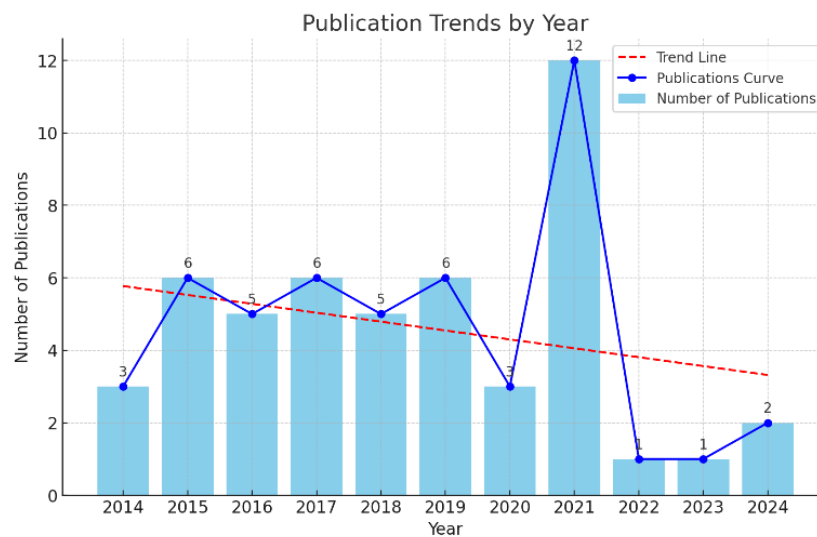


Figure 1. Related Publication Trends from Google Schollar databases using PoP application

Based on the analysis of publication trends from 2014 to 2024, there are significant fluctuations in the number of articles published related to research on factors affecting patient satisfaction in hospital inpatient rooms. In the early period (2014-2019), the number of publications was relatively stable with an average of 4 to 6 articles per year. However, there was a fairly

sharp decline in 2020, with only 3 articles published, which was likely influenced by various external factors such as the global pandemic that occurred at that time.

In 2021, there was a very significant surge in the number of publications, peaking with 12 articles. This may reflect increased attention and research efforts in response to the

conditions and challenges faced by health systems around the world. However, this trend again decreased drastically in the following years, with only 1 article published in 2022 and 2023. A slight increase again occurred in 2024, with 2 articles published.

The graph presented above clearly illustrates these fluctuations, showing that while there was increased interest at one point, interest in this topic experienced a fairly sharp decline after 2021. This indicates the need for further research to understand what influences this inconsistency in publication trends, as well as the potential to identify future untapped research opportunities.

Overall, despite fluctuations, the publication trends suggest an increased research interest in the area of patient satisfaction in inpatient settings, especially in years that marked significant changes in the global

healthcare system. The decline in publications in recent years may warrant further attention to see if this is a long-term shift or just a temporary phenomenon.

Discussion and Analysis of Publication Trends by Country

Based on publication distribution data by country, there are several countries that dominate the number of studies related to factors affecting patient satisfaction in hospital inpatient rooms. India emerged as the country with the highest number of publications, totaling 7 articles. This suggests that the topic of patient satisfaction in hospital inpatient settings is an important issue in India, most likely related to efforts to improve the health system in a country with a large population and complex health challenges.

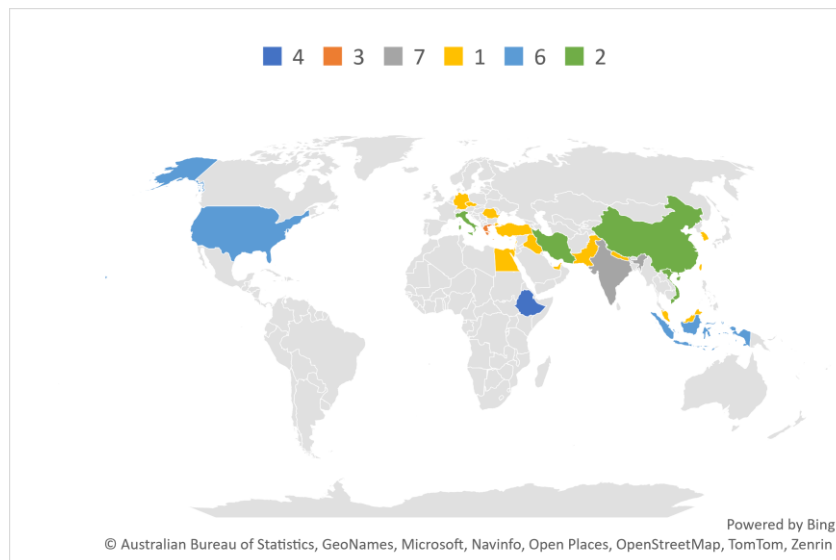


Figure 2. Distribution Of Countries That Publish Related Research

In the next position, Indonesia and the United States (USA) have 6 publications each. This indicates that this topic is also of significant interest in both countries, with the USA having one of the most advanced health systems and diverse health research, and Indonesia perhaps focusing more on improving the

quality of healthcare amid systemic challenges.

Ethiopia also stands out with 4 publications, indicating a growing attention to healthcare quality and patient satisfaction in the country, especially in the context of developing countries. Next, Greece has 3

publications, followed by several other countries such as Italy, Pakistan, China, Iran, and Vietnam which have 2 publications each.

Interestingly, there are many countries with only one publication, such as Pakistan (also listed with 2 publications in a different row, possibly due to duplication errors), South Korea, Egypt, Romania, Iraq, Czech Republic, Germany, Israel, United Arab Emirates, Taiwan, Lebanon, Malaysia and Nepal. This shows that although research on patient satisfaction is a global topic, the intensity and focus of research can vary greatly from country to country. Some countries may have a stronger research infrastructure or a more pressing need to understand and improve patient satisfaction, which drives more research in this area.

Overall, this distribution of publications suggests that the issue of patient satisfaction in hospital inpatient settings is a global concern, but with varying intensity based on local needs, research infrastructure and health

priorities in each country. Countries with higher publication counts tend to have complex health systems and ongoing efforts to improve healthcare quality, while countries with lower publication counts may face limitations in terms of research resources or a different focus in their health priorities.

Discussion and Analysis of Publication Trends by Publisher

Based on the analysis of publication distribution by *publisher*, there is a clear trend that several large and well-known *publishers* dominate the publication of articles related to research on factors affecting patient satisfaction in hospital inpatient rooms. From the available data, *Emerald.com* is the top *publisher* with a total of 8 publications, followed by *Wiley Online Library* with 7 articles. These two *publishers* are widely recognized publication platforms in the academic world, especially in the fields of social and health sciences, which explains the high concentration of publications here.

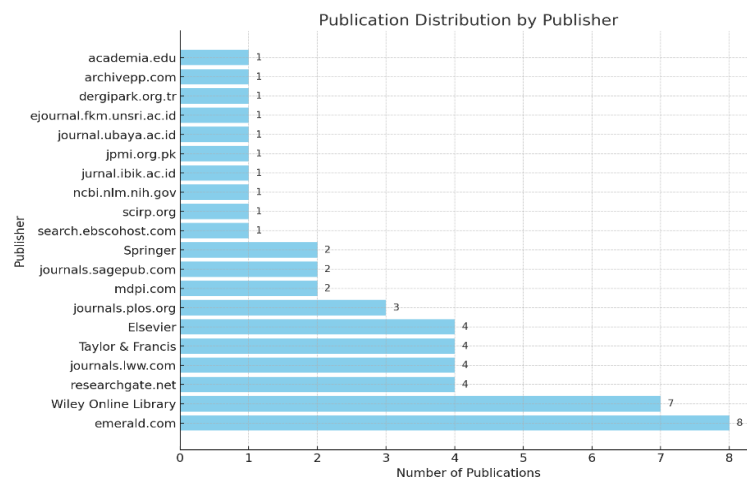


Figure 3. Distribution Of Publishers That Publish Related Research

Elsevier, *Taylor & Francis*, *journals.lww.com*, and *researchgate.net* also showed an important role with 4 publications each. This suggests that researchers tend to choose *publishers* with a good reputation and wide access in the academic

community to publish their research results, which is likely due to factors such as greater audience reach, higher citation rates, and more rigorous *peer review* quality.

In addition, there were a number of other *publishers* that only

published one or two articles each. This indicates a variation in the selection of *publishers* by researchers, which could be due to several factors such as *publisher* specialization, personal preference, or the availability of relevant journals at any given time. *Publishers* such as *Springer* and *MDPI* also showed a significant contribution with 2 articles each, although not as large as the *publishers* previously mentioned.

This distribution of publications reflects that while there are a few *publishers* that dominate, there is also a fairly wide spread of publications across other *publishers*. This suggests that research on patient satisfaction in hospital inpatient settings is a topic of broad interest and is published across a variety of platforms, both general and more specific. This variation could also indicate that researchers are seeking different channels to disseminate their findings, depending on the intended audience and the specific focus of each journal.

Thus, it can be concluded that the choice of *publisher* by researchers in this field is not only influenced by reputation and reach, but also by the relevance of the topic to the specialization of the available journals. This is important to consider in the context of knowledge dissemination and the academic impact of the research.

Discussion and Analysis of Publication Trends by Citation

Analysis of publication trends based on citations shows that there are several articles that have a significant impact in research related to patient satisfaction in hospitals. Articles with the highest number of citations, such as "Determinants of patient satisfaction: a systematic review" published in 2017 with 901 citations, emphasize the importance of systematic reviews in mapping the key factors that influence patient satisfaction. This article, being the most cited, shows that researchers often refer to this work to gain a more comprehensive understanding of the determinants of patient satisfaction

Table 1. Publication Trends by Citation

Citation	Author's	Title	Years	Publisher	Country
901	E Batbaatar, J Dorjdagva...	Determinants of patient satisfaction: a systematic review	2017	journals.sagepub.com	Italy
269	A Shabbir, SA Malik, SA Malik	Measuring patients' healthcare service quality perceptions, satisfaction, and loyalty in public and private sector hospitals in Pakistan	2016	emerald.com	Pakistan
218	TJ Vogus, LE McClelland	When the customer is the patient: Lessons from healthcare research on patient satisfaction and service quality ratings	2016	Elsevier	USA

217	HS Al-Neyadi, Abdallah, M Malik	S	Measuring patient's satisfaction of healthcare services in the UAE hospitals: Using SERVQUAL	20 18	Taylor & Francis	UAE
186	SA Javed, S Liu, Mahmoudi...	A	Patients' satisfaction and public and private sectors' health care service quality in Pakistan: Application of gray decision analysis approaches	20 19	Wiley Online Library	China
185	N Asamrew, Endris...	AA	Level of patient satisfaction with inpatient services and its determinants: a study of a specialized hospital in Ethiopia	20 20	Wiley Online Library	Ethiopia
150	K Ganasegeran, Perianayagam...	W	Patient satisfaction in Malaysia's busiest outpatient medical center	20 15	Wiley Online Library	Malaysia
133	RK Naik Jandavath, Byram	A	Healthcare service quality effect on patient satisfaction and behavioral intentions in corporate hospitals in India	20 16	emerald.com	India
115	V Kamra, H Singh, Kumar De	K	Factors affecting patient satisfaction: an exploratory study for quality management in the health-care sector	20 16	Taylor & Francis	India
109	A Hussain, MS Sial, Usman, J Hwang...	SM	What factors affect patient satisfaction in public sector hospitals: Evidence from an emerging economy	20 19	mdpi.com	Pakistan

Other articles with significant number of citations such as "Measuring patients' healthcare service quality perceptions, satisfaction, and loyalty in public

and private sector hospitals in Pakistan" and "When the customer is the patient: Lessons from healthcare research on patient satisfaction and service quality ratings," with 269 and

218 citations respectively, suggest that aspects of healthcare service quality and patients' perceptions of it are a major focus of research. These articles tend to attract attention as they not only discuss general factors, but also provide insights into practical applications in various contexts, such as in public and private hospitals.

Overall, the distribution of citations indicates that publications that provide broad and comprehensive overviews, or that offer models and frameworks that can be practically applied, tend to receive more attention among academics. This reflects the scientific community's need for strong theoretical guidance as well as concrete application examples that can be replicated or adapted to other contexts. Articles that

successfully combine these two elements usually become important reference points in the development of further studies on patient satisfaction.

Discussion and Analysis of Publication Trends by Article Type

Based on the available data, the distribution of publications by article type shows that the majority of published *research* is in the form of research articles, with a total of 47 articles. Meanwhile, there were only 3 articles published in the form of literature reviews. This indicates that empirical research or direct studies conducted in the field are more dominant in this topic, compared to studies that are compilations or analysis of existing literature.

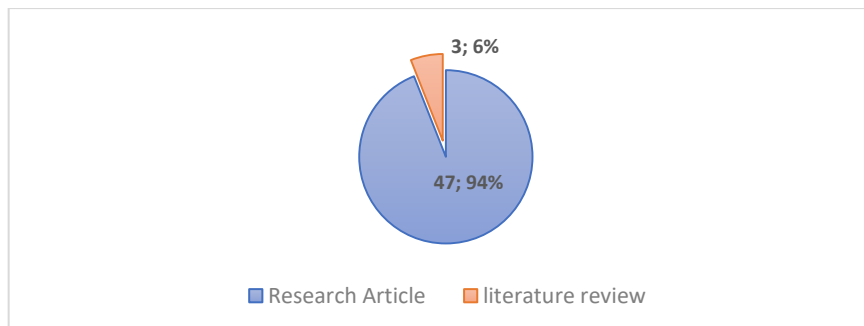


Figure 4. Distribution Of Countries That Publish Related Research

The predominance of *research articles* suggests that researchers are more focused on collecting and analyzing primary data to explore factors that influence patient satisfaction in hospital inpatient settings. This may also reflect the need to provide concrete, reliable evidence for healthcare practitioners and policy makers.

On the other hand, the relatively small number of *literature reviews* suggests that there is greater room for the development of comprehensive literature reviews in

this area. *Literature reviews* usually serve to synthesize the findings from various studies and provide a holistic view of a particular topic. The shortfall in the number of *literature reviews* may indicate that a more thorough and integrative review of existing research is still needed to more fully map the development and trends of research in this area.

Overall, this trend emphasizes the importance of empirical research in understanding patient satisfaction in hospitals, while opening up opportunities for an

increased number of *literature reviews* that can provide more comprehensive guidance for future research. The figure above clearly illustrates the comparison between the number of *research articles* and *literature reviews*, showing the significant dominance of research articles in the literature on this topic.

Discussion and Analysis of Publication Trends Based on Network Visualization

From the network visualization using VOSviewer, it can be seen how the keywords that frequently appear in publications related to patient satisfaction in hospitals are divided into three main clusters. This visualization illustrates the relationships and interrelationships between the various concepts discussed in the literature, which then form interconnected clusters.

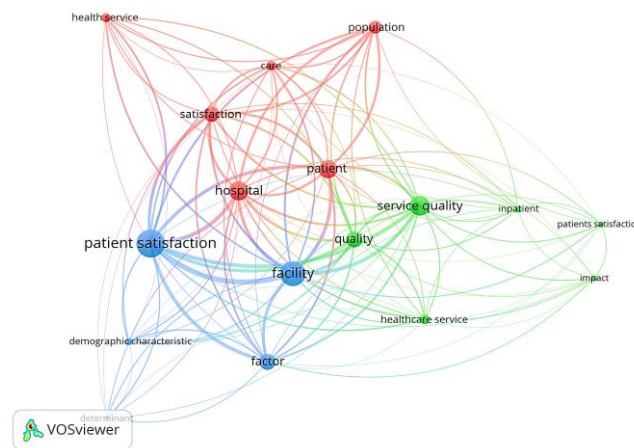


Figure 5. Network Visualization Overview Publications

Cluster 1 (red) contains six items, including keywords such as *care*, *health service*, *hospital*, *patient*, *population*, and *satisfaction*. This cluster seems to focus on basic aspects of healthcare and patient satisfaction, which include quality of care, healthcare services, and patient population satisfaction in hospitals. This suggests that research in this cluster tends to address the fundamental elements that influence patient experience in healthcare facilities.

Cluster 2 (green) also consists of six items, namely *healthcare service*, *impact*, *inpatient*, *patients satisfaction*, *quality*, and *service quality*. This cluster tends to focus on the relationship between

healthcare quality and its impact on patient satisfaction, especially in the inpatient setting. Research in this cluster is more specific about how service quality in hospitals directly affects patient perceptions and satisfaction.

Cluster 3 (blue) with five items, including the keywords *demographic characteristics*, *determinants*, *facilities*, *factors*, and *patient satisfaction*. This cluster highlights demographic factors and other determinants that affect patient satisfaction, as well as how facilities and other related factors contribute to the overall patient experience.

From the network shown, it can be seen that keywords such as

patient satisfaction, quality, and service quality have close relationships with various other keywords across the clusters, indicating that these concepts are central to discussions about patient satisfaction in hospitals. The relationships between clusters indicate a complex interplay between the various aspects that influence patient satisfaction, ranging from service quality to patient demographic characteristics.

From this analysis, some research *gaps* that can be identified include:

- a. Further Research on Demographic Factors: While *Cluster 3* highlights the importance of demographic characteristics in determining patient satisfaction, more in-depth research into how these factors interact with other healthcare services is limited. This points to the need for more studies that explore how different subgroups of patients (for example, by age, gender, or socio-economic condition) have different experiences and expectations of healthcare services.
- b. Lack of Focus on the Influence of New Technologies and Innovations: Existing clusters tend to focus on traditional elements of patient satisfaction and service quality. There is a lack of research assessing the impact of new technological innovations, such as telemedicine, hospital information systems, or digital services, on patient satisfaction. Given the rapid development of technology in healthcare, this is an important area to explore.
- c. Expanding Research on Service Quality in a Global Context: Most of the studies analyzed may have focused on local or

national contexts. There is a need for more extensive comparative studies that examine how healthcare quality and patient satisfaction differ between countries, especially in developing countries that may face unique challenges.

- d. Research on the Impact of Health Policies: While quality of care and patient satisfaction are major concerns, there is little research that specifically assesses the impact of specific health policies on patient satisfaction. This is an important area, especially in light of the various health reforms taking place in many countries.

By understanding these *gaps*, researchers can direct their efforts to less explored areas, thereby making a more significant contribution in enriching the literature on patient satisfaction and healthcare quality in hospitals. This visualization helps in identifying the areas that are the main focus of research and that require more attention in the future. Overall, this visualization provides a clear picture of how the various elements that contribute to patient satisfaction in hospitals are interrelated with each other. Researchers can use these insights to better understand which areas are most discussed, as well as identify gaps that may exist for further research. The visualization also helps in identifying interconnected research clusters and key trends in the existing literature.

Discussion and Analysis of Publication Trends Based on Overlay Visualization

From the *overlay* visualization using VOSviewer, we can see how various keywords related to patient satisfaction in hospitals evolved over time. The colors in this visualization

indicate the chronology of the keywords' appearance in the literature, with blue representing an

earlier period (around 2018), while yellow indicates a more recent period (around 2019 to 2020).

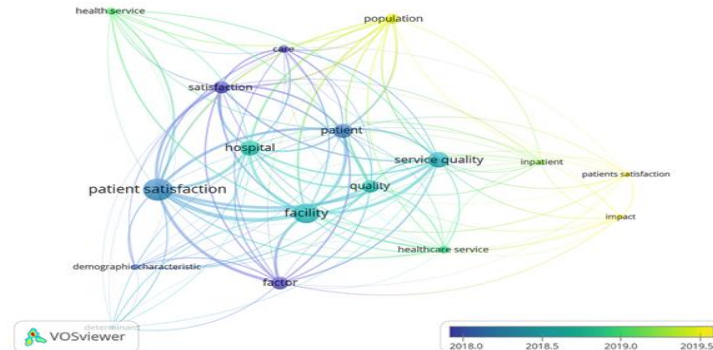


Figure 6. Overlay Visualization Overview Publications

- Cluster 1 (in red in the previous *network* visualization) seems to include keywords such as *care*, *health service*, and *hospital* that appear more frequently in the early period of the study, around 2018. This suggests that research in this period tends to focus on fundamental aspects of healthcare that include care and hospital services.
- Cluster 2 (green in the *network* visualization) includes keywords such as *service quality*, *patient satisfaction*, and *impact* that appeared in the more recent period, especially closer to 2019. This indicates that research interest in recent years has shifted towards how service quality impacts patient satisfaction, as well as the evaluation of inpatient services.
- Cluster 3 (blue in the *network* visualization) focuses on keywords such as *demographic characteristics*, *facilities*, and *factors*, which tend to be scattered among the various time periods, but are seen more in the middle period (2018-2019). This suggests that demographic aspects and other factors affecting patient

satisfaction have become a more stable focus over time, although perhaps not as much as overall service quality.

From this *overlay visualization* analysis, it can be concluded that the trend in research related to patient satisfaction has evolved from an initial focus on basic hospital and care services, towards a more in-depth analysis of service quality and its impact on patient satisfaction. This move indicates a shift in attention from a general understanding of healthcare services towards a more specific evaluation of how those services affect patient experiences and perceptions.

However, some *research gaps* can be identified:

- Research on Innovation and New Technology: It is noticeable that most of the new buzzwords appear to be related to service quality, but there are still few studies that incorporate technological innovations or new methods in improving patient satisfaction.
- Influence of Specific Demographic Characteristics: Although demographic-related keywords appeared in several clusters, research linking

demographic characteristics to specific patient experiences still needs to be further developed.

- c. Lack of Longitudinal Research: More recent research tends to focus on current evaluations without much focus on long-term change or the impact of ongoing improvements in the healthcare system.

Overall, this visualization provides insight into how research in this area has evolved and helps identify directions that can be further explored to improve our understanding of patient satisfaction in hospitals.

Discussion and Analysis of Publication Trends Based on Density Visualization

From the *density* visualization using VOSviewer, we can see how the density or intensity of the use of certain keywords in the literature related to patient satisfaction in hospitals. The colors in this visualization indicate how often certain keywords appear, with red indicating high frequency, and yellow and green indicating lower frequency. Areas of red or orange indicate the highest concentration of research, while areas of green to blue indicate lower density.

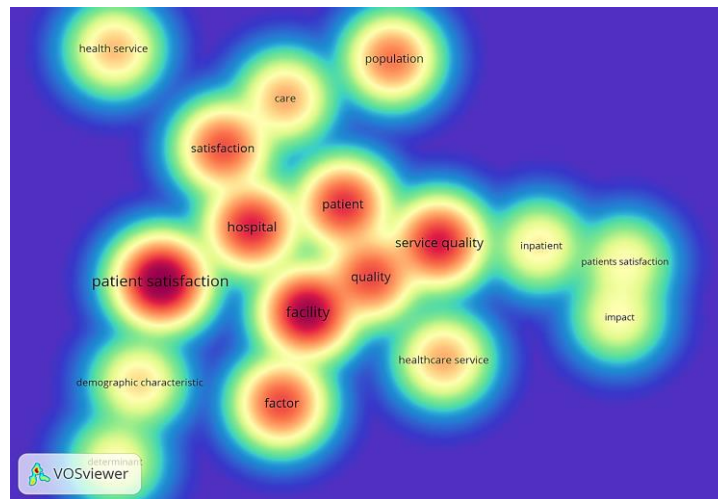


Figure 7. Density Visualization Overview Publications

Analysis Based on Density Visualization:

- a. High Density: Keywords such as *patient satisfaction*, *hospital*, *service quality*, *quality*, and *facility* occupy high-density areas, which are shown in bright red. This indicates that the research in this literature is heavily focused on these topics, signaling that these aspects are central in discussions about patient satisfaction in hospitals. *Patient satisfaction* and *service quality* in particular, are the main focus, reflecting
- b. Medium Density: Keywords such as *patient*, *inpatient*, *healthcare service*, and *satisfaction* occupy the medium density area (yellow to orange). This indicates that while these topics are also quite widely covered, their intensity is not as strong as those with the highest density. However, they remain important within the overall research framework, reflecting

the equal attention to aspects of patient service and experience.

- c. **Low Density:** Some keywords such as *demographic characteristic*, *determinant*, *population*, and *health service* are in the lower density area (green to blue). This indicates that although they are discussed in the literature, they are not the main focus of many studies. This may indicate that these topics are still under-explored or are just part of a broader discussion without taking center stage.

Research Gaps

From this *density* visualization, it can be concluded that:

- a. **Very High Focus on Service Quality and Patient Satisfaction:** Most studies have focused heavily on how hospital service quality affects patient satisfaction. This signifies that service quality is considered a critical factor in patient satisfaction, which has attracted great attention in the literature.
- b. **Lack of Research on Demographic Aspects and Specific Determinants:** Aspects such as *demographic characteristics* and *specific determinants* of patient satisfaction seem to have received less attention. Despite their importance, these topics do not seem to have been a major focus of research, indicating a *gap* in research that could be explored further.
- c. **Opportunities for Research on Specific Population and Health Service Contexts:** Topics such as *population* and *health services*, although discussed, had a lower density. This suggests that there is room for more focused research on how these factors

interact with patient satisfaction in more specific contexts.

Overall, this visualization provides a clear picture of areas that have been the main focus of research and areas that still require more attention. By understanding these density patterns, researchers can identify opportunities for further exploration in under-covered topics, thereby making a greater contribution to the hospital patient satisfaction literature.

CONCLUSIONS

The conclusion of the overall analysis conducted in this article shows a comprehensive overview of global research trends related to factors affecting patient satisfaction in hospital inpatient settings. Using a *bibliometric* approach, this study successfully identified publication trends based on year of publication, country of origin, article type, and number of citations, and provided in-depth insights through network and density visualization using *VOSviewer*.

The results of the analysis show that research on patient satisfaction is heavily focused on *service quality* and how this affects the patient experience in hospitals. Most publications centered on fundamental aspects such as *health services*, *hospital facilities*, and *care*, with significant attention to how these aspects contribute to *patient satisfaction*. In addition, research has also shown attention to demographic factors and other determinants that affect patient satisfaction, although these aspects are still relatively less explored than aspects of service quality.

Visualizations using *networks*, *overlays*, and *density* provide additional insights into how these topics are interrelated and evolving

over time. While there is strong interest in service quality and patient satisfaction, this analysis also reveals some important *research gaps*. For example, more in-depth research is needed to understand the role of demographic characteristics in patient satisfaction, the impact of technological innovations on patient experience, and the evaluation of specific health policies on patient satisfaction.

Overall, this study makes an important contribution in mapping research trends in the field of patient satisfaction in hospitals, as well as identifying areas that require further attention. By exploring these gaps, future research can be richer and more impactful, aiding in the improvement of healthcare quality and patient well-being globally.

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