

DETERMINING FACTORS OF PATIENT SATISFACTION WITH PHARMACEUTICAL SERVICES: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Good pharmaceutical service quality can be seen through the level of patient satisfaction. Patient satisfaction is a feeling that arises from the performance of healthcare services obtained after patients compare them with their expectations and their needs are met. Pharmaceutical services still have shortcomings and require continuous improvement to enhance trust and minimize patient disappointment. **Objective:** The purpose of this systematic review was to identify and gather evidence related to the factors that determine patient satisfaction. **Methods:** This systematic review follows the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). Information collection was conducted through searches on PubMed, Scopus, and Google Scholar from 2018 to 2023, considering eligibility and inclusion criteria. **Results:** Eight studies have been identified that provide various determining factors of satisfaction, including 10 factors based on patient characteristics: age, gender, education, job, salary, race, marital status, religion, disease status, and visit. Additionally, there were eight determining factors based on pharmaceutical service providers: location, facilities, medication, pharmacy services, working time, waiting time, assurance, and additional non-paid services. **Conclusion:** The study identified and collected evidence related to the determining factors of patient satisfaction from 2018 to 2023, along with the reasons from each article. The determinants of satisfaction based on these factors can be considered by pharmacists when determining errors that need to be corrected and services that need improvement.

Keywords: Determinant; Patient Satisfaction; Patient Characteristic; Pharmaceutical Service; PRISMA

INTRODUCTION

Pharmaceutical care is a direct and responsible service to patients related to pharmaceutical preparations aimed at achieving definite results to improve patient's quality of life^[1]. The quality of good pharmaceutical services can be measured through patient satisfaction levels.

Patient satisfaction is a feeling that emerges as a result of healthcare service performance received after patients compare the extent to which their expectations and needs are met. Pharmaceutical services play a significant role in the healthcare industry, where a substantial portion of healthcare facility resources are deployed^[2]. Pharmaceutical

service standards are established to improve the quality of pharmacy services, ensure and guarantee legal certainty for pharmacy staff, and protect patients. The public from irrational drug use for patient safety. By measuring patient satisfaction, pharmaceutical service providers can gain insights from various factors. Satisfaction level measurement data enables pharmaceutical service providers to identify service factors that need improvement. This provides an opportunity for policymakers to understand patient needs, which ultimately can help design strategic plans to improve the quality and effectiveness of pharmaceutical services.

Previous similar studies on the research topic have shown that there were many factors influencing patient satisfaction. Some researchers found that demographic characteristics, age, health status, and race consistently had a statistically significant effect on satisfaction scores^[13]. Among the institutional characteristics, hospital size consistently has a significant impact on patient satisfaction scores. Some studies suggested that patients with better health tend to be more satisfied with their medical care, but the cause and effect of this relationship have not been determined^[14]. Some researchers believe that age and illness are important factors affecting patient satisfaction, and elderly patients tend to be satisfied with the medical process. In contrast, severe patients tend to be dissatisfied with the medical process^[15].

The very fact that we have many opposing opinions, satisfied authors or not, shows by itself that the measurement of satisfaction is too complex, and regardless of whatever result is concluded, we will still encounter dissatisfaction^[16]. Through the literature review, it could be found that the factors affecting patient satisfaction mainly come from two aspects. One was the individual factors of patients, including

gender, income, health status, medical insurance, marital status, family size, etc. The second was the factors from the hospital, including medical conditions, fees, institutional level, and environmental facilities^[17].

Various aspects of satisfaction studies can be used to measure satisfaction from the patient's perspective. Older patients and those with higher education tend to have lower satisfaction rates^[3]. Wait times and counseling that do not meet expectations are reasons why some patients assess service quality as poor^[4]. Other articles mention that medication labeling systems in pharmacy services should be included as they can help improve compliance^[5]. These factors can then be considered by service providers in decision-making to enhance the quality of service. One of the indicators in measuring patient satisfaction is service quality, which considers aspects such as tangible (available facilities and infrastructure), reliability (service provider dependability), responsiveness (service provider's responsiveness in meeting patient needs), assurance (guaranteed pharmaceutical products provided), and empathy (service provider's concern regarding patient conditions)^[6]. Therefore, to improve the quality of pharmaceutical services, periodic assessments are needed that include the relationship between patient-reported experiences and various aspects of available pharmaceutical services.

Despite numerous studies addressing patient satisfaction with pharmaceutical services, patients consistently express dissatisfaction with the services received. This demonstrates that pharmaceutical service delivery continues to have deficiencies and requires continuous improvement to enhance patient trust and minimize patient disappointment. The objective of this Systematic Review is to identify and compile evidence regarding

determinant factors of patient satisfaction from 2018 to 2023 and to examine the rationale provided in each article, thereby developing an improved patient satisfaction measurement system.

METHODS

1. Study design

This systematic review follows the guidelines outlined in the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement*^[7]. The search was conducted in three electronic databases (PubMed, Scopus, and Google Scholar) using terms identified from titles, abstracts, keywords, or medical subject headings. References from all included articles were reviewed to eliminate duplicates. The key terms used for the search are listed in Table 1.

Table 1. Article Search Keywords

No.	Database	Keywords
1	PubMed	“Patient” AND “Satisfaction” AND “Pharmaceutical Services” OR “Pharmacy Service”
2	Scopus	“Patient” AND “Satisfaction” AND “Pharmaceutical Services” OR “Pharmacy Services”
3	Google Scholar	“Patient Satisfaction” AND “Pharmaceutical Services”

2. Eligibility criteria

Articles employing the Cross-Sectional Study method were considered in this systematic review. Articles were included if they met the following criteria: (1) the presence of a relationship between patient satisfaction and pharmaceutical services; (2) a comprehensive evaluation of pharmaceutical services in relation to patient satisfaction; (3) factors contributing to patient satisfaction with pharmaceutical services. Other research articles not considered in this systematic review include books, conference proceedings, theses and

dissertations, letters, and reports from governmental or organizational bodies.

3. Data extraction

Data were extracted by considering the following criteria: (1) articles published between 2018 and 2023, (2) the research objectives and aims, (3) research instruments in the form of questionnaires, and (4) articles in English and Indonesian, including those from different countries.

4. Quality assessment

The quality assessment in this systematic review was conducted using the evaluation tool provided by the Joanna Briggs Institute (JBI), as detailed in Table 2. The quality assessment included an analysis of various aspects such as research methodology, clarity of research questions, participant selection, study design, data analysis, and interpretation and conclusions of results. This evaluation process aimed to ensure that the research methodologies employed in the included articles met the quality standards set by JBI. As a result, the research findings are reliable, credible, and relevant for clinical practice.

5. Data analysis

The characteristics of the included articles have been described, and the collected results vary; therefore, the data are synthesized descriptively. Articles were grouped based on the determinants of patient satisfaction, followed by an analysis of potential reasons contributing to the significant influence of pharmaceutical services received. The strengths and weaknesses of patient satisfaction measurement methods were included in the analysis as one of the determining factors of patient satisfaction with pharmaceutical services.

RESULTS

1. Study selection

The initial search yielded 684 articles (415 articles from PubMed, 201 articles from Scopus, and 68 articles from Google Scholar). Subsequently, 580 duplicate articles were removed by evaluating titles and abstracts to determine their relevance to this systematic review. Most articles did not meet the inclusion criteria, leaving 15 articles screened for eligibility and further reviewed in full. Ultimately, the systematic review included eight articles (Figure 1). For the eight included articles, JBI scores ranged from 5 (63%) to 8 (100%) out of a possible eight evaluation aspects, with an average score of 6.75 (84% on a 100% scale) (Table 2).

2. Study characteristic

The identification of 8 articles based on quality assessment with a cross-sectional study design related to patient satisfaction with pharmaceutical services was determined. The articles included were published between 2018 and 2023. One article from 2018 was conducted in Pakistan with 1,088 respondents; one article from 2020 in Malaysia with 400 respondents; one article from 2021 in Indonesia with 314 respondents; two articles from 2022 in Ethiopia with 401 respondents and Saudi Arabia with 317 respondents; and three articles from 2023, each conducted in Palestine with 90 respondents, Nigeria with 351 respondents, and Jordan with 1,333 respondents. Each country was represented by a single article, with data collection in each study consistent with the data extraction process in this systematic review, utilizing a questionnaire as the instrument (Table 3) [3,4,6,8,9,10,11,12].

3. Determinants of Satisfaction Based on Patient Characteristics

Identification of all articles, a total of 8 articles, revealed evidence of a detailed relationship between demographic and psychological factors of patients across 10 determinants of satisfaction, including age, gender, education, job, salary, race, marital status, religion, disease status, and visit [3,4,6,8,9,10,11,12]. The identified determinants were found to be related to patient satisfaction with pharmaceutical services.

A. Age

Age is a determinant of satisfaction related to patient satisfaction with pharmaceutical services. The articles provide evidence that age is a factor present in all identified articles [3,4,6,8,9,10,11,12]. The total number of articles suggests that individuals around the age of ± 35 tend to pay more attention to their health and expect services that meet their needs regarding medication due to more chronic diseases compared to younger generations. Therefore, older individuals generally report higher satisfaction with pharmaceutical services.

B. Gender

Gender is a determinant of satisfaction related to patient satisfaction with pharmaceutical services. Studies provide evidence that gender is a factor present in the eight identified articles, showing that females are the predominant gender in participating and reporting higher satisfaction with pharmaceutical services [3,4,6,8,9,10,11,12]. This is also influenced by the types of diseases included in the articles and the population density of the areas where the pharmacies are located.

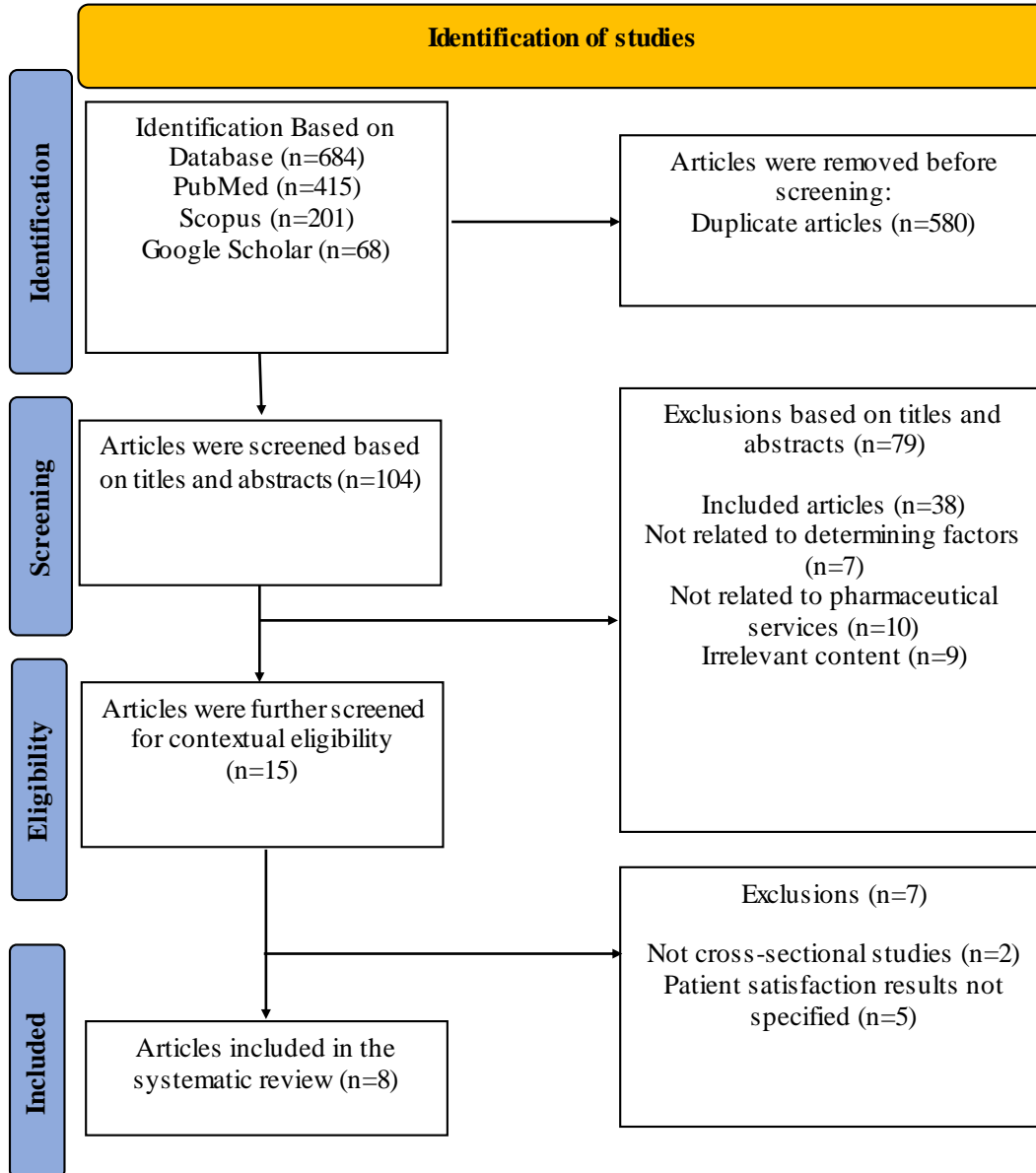


Figure 1. PRISMA Diagram

Table 2. Result of Joanna Briggs Institute Critical Appraisal Checklist for Analytical Cross-Sectional Studies

Question	(Pristiyantoro dan Kurniasih Dinar. 2021)	(Ismail, Aniza. et. al. 2020)	(Aziz, Muhammad Majid. et. al. 2018)	(Molla, Mulugeta. et. al. 2022)	(Al Zabadi, Hamzeh. et. al. 2023)	(Lucca, Jisha M. et. al. 2022)	(Ahmad, Dalhatu Muhammad. et.al. 2023)	(Amara, Noor. et. al. 2023)
Were the criteria for inclusion in the sample clearly defined?	Yes	✓	✓	✓	✓	✓	✓	✓
	No							
	Unclear							
	Not applicable							
Were the study subjects and the setting described in detail?	Yes	✓	✓	✓	✓	✓	✓	✓
	No							
	Unclear							
	Not applicable							
Was the exposure measured in a valid and reliable way?	Yes		✓	✓		✓	✓	✓
	No	✓			✓			
	Unclear							
	Not applicable							
Were objective, standard criteria used for measurement of the condition?	Yes	✓	✓		✓	✓		✓
	No			✓		✓	✓	
	Unclear							
	Not applicable							
Were confounding factors identified?	Yes	✓	✓	✓	✓	✓		✓
	No						✓	
	Unclear							
	Not applicable							
Were strategies to deal with confounding factors stated?	Yes	✓	✓	✓		✓		✓
	No				✓	✓	✓	
	Unclear							
	Not applicable							
Were the outcomes	Yes		✓	✓	✓	✓	✓	✓

Question	(Pristiyantoro dan Kurniasih Dinar. 2021)	(Ismail, Aniza. et. al. 2020)	(Aziz, Muhammad Majid. et. al. 2018)	(Molla, Mulugeta. et. al. 2022)	(Al Zabadi, Hamzeh. et. al. 2023)	(Lucca, Jisha M. et. al. 2022)	(Ahmad, Dalhatu Muhammad. et.al. 2023)	(Amara, Noor. et. al. 2023)
measured in a valid and reliable way?	No	✓						
	Unclear							
	Not applicable							
Was appropriate statistical analysis used?	Yes	✓	✓	✓	✓	✓	✓	✓
	No							
	Unclear							
Score	6/8	8/8	7/8	6/8	7/8	7/8	5/8	8/8

Table 3. Characteristics of Articles Based on Determinants of Satisfaction

Article	Title	Service Provider	Determining Factors
Ismail, Aniza. et. al, 2020	Factors Associated With Patient Satisfaction Towards Pharmacy Services Among Outpatients Attending Public Health Clinics: Questionnaire Development And Its Application	Health Clinics	1) Age 2) Gender 3) Race 4) Education 5) Job 6) Salary 7) Visit 8) Pharmacists Knowledge 9) Medication 10) Pharmacists Competence 11) Location
Aziz, Muhammad Majid. et. al, 2018	Patient Satisfaction with Community Pharmacies Services: A Cross -Sectional Survey from Punjab; Pakistan	Pharmacy and Hospital	1) Age 2) Gender 3) Education 4) Salary 5) Disease Status 6) Lokasi dan Staff 7) Medication 8) Practice 9) Additional Non-

Article	Title	Service Provider	Determining Factors Paid Services
Pristiyantoro and Kurniasih Dinar, 2021	BPJS Patient Satisfaction Level with Pharmaceutical Services at Kimia Farma Pharmacy Access UI, Depok City	Pharmacy	1) Age 2) Gender 3) Education 4) Job 5) Salary 6) Location and Facilities 7) Reliability 8) Responsiveness 9) Assurance 10) Empaty
Molla, Mulugeta. et. al, 2022	Patients' Satisfaction With Outpatient Pharmacy Services And Associated Factors In Debre Tabor Comprehensive Specialized Hospital, North west Ethiopia: A Cross-Sectional Study	Hospital	1) Age 2) Gender 3) Location 4) Marital Status 5) Religion 6) Education 7) Job 8) Experience 9) Pharmacy Service 10) Pharmacists Approach 11) Medication
Lucca, Jisha M. et. al, 2022	Patient Satisfaction with Pharmaceutical Care Services for Chronic Diseases and Their Medication Adherence During COVID-19 in Saudi Arabia	Pharmacy and Hospital	1) Age 2) Gender 3) Job 4) Location 5) Disease Status 6) Duration of Illness 7) Medication

Article	Title	Service Provider	Determining Factors
Hamzeh AlZabadi. et. al, 2023	Outpatients Satisfaction And Perceptions Toward Pharmaceutical Services In Public And Private Hospitals In Palestine: A Cross-Sectional Study	Public and Private Hospital	8) Health Level 9) Pharmacy Service
Ahmad, Dalhatu Muhammad. et. al, 2023	HIV Patients' Satisfaction with Pharmaceutical Care at a Nigerian Tertiary Healthcare Facility During the Covid-19 Pandemic	Tertiary Healthcare Facilities	1) Age 2) Gender 3) Marital Status 4) Religion 5) Education 6) Disease Status 7) Medication 8) Pharmacy Service
Amara, Noor. et. al, 2023	Patient Satisfaction with Pharmaceutical Services in Jordan: A Cross-Sectional Study	Health Centers, Pharmacy, and Hospital	1) Age 2) Gender 3) Education 4) Job 5) Salary 6) Marital Status 7) Assurance 8) Visit 9) Medication

Based on the article identification, women are more aware of the diseases they experience compared to men, with an increased sense of empathy as the performance of pharmaceutical service providers meets their expectations.

C. Education

Education is a determinant of satisfaction related to patient satisfaction with pharmaceutical services. The articles provide evidence that education is a factor present in 7 out of the 8 articles^[3,4,6,8,10,11,12]. The identified articles show that the majority of respondents were patients with a high school education level. Other articles explain that the higher the level of education attained by an individual, the easier it is to process the information received, leading to higher expectations for pharmaceutical services and causing greater dissatisfaction if the services do not meet those expectations.

D. Job

The characteristics of a job patient can vary significantly between healthcare facilities, depending on the location of the facility. Therefore, the type of job can provide insights into the epidemiology of disease in the area, leading to different management approaches in each pharmaceutical service. Job is related as an important determinant of satisfaction in patient satisfaction with pharmaceutical services. The articles provide evidence that job is a factor present in 6 out of the 8 identified articles^[3,6,8,9,10,12].

E. Salary

Based on the articles identified with the determinant of salary, 5 articles that included this factor found that most of the participating patients reported salary below the standard desired by the researchers^[3,4,6,10,12]. This determinant

influences patient satisfaction, especially when patients make payments through an out-of-pocket system.

F. Race

The articles show that race does not demonstrate a significant relationship with patient satisfaction. This is evidenced by only one article discussing race, in which the indigenous population of the healthcare facility area comprised the majority of participants^[3].

G. Marital Status

The determinant based on marital status did not provide significant evidence regarding patient satisfaction. Among the 4 articles that included marital status as a determinant, the results indicated that married patients were the most frequent participants compared to those who were unmarried^[8,10,11,12].

H. Religion

The determinant based on religion did not provide significant evidence regarding patient satisfaction. Two articles included results indicating that the patient's religion was the majority religion in the area of the healthcare facility^[8,11].

I. Disease Status

The severity of the disease suffered by the patient is related to patient satisfaction. The results of the article identification that included this determinant explain that patients with higher disease severity are more likely to report dissatisfaction with the pharmaceutical services received, as every individual seeking treatment expects to recover more quickly^[4,9,11].

J. Visit

The number of patient visits shows a significant relationship with patient satisfaction. The articles provide evidence

that frequent patient visits can increase satisfaction. This is because patients feel comfortable, and the services provided meet their expectations before each visit^[3]. However, another article explains that patient visits for treatment may decrease satisfaction, as patients with chronic conditions are required to visit healthcare facilities regularly. This lowers their expectations for recovery and leads them to believe that the staff is not providing optimal service^[12].

4. Determinants of Satisfaction Based on Pharmaceutical Service Providers

Identification of all articles, a total of 8 articles, revealed evidence of a detailed relationship between pharmaceutical service providers and patient satisfaction across 8 determinants of satisfaction, including location, facilities, medication, pharmacy services, working time, waiting time, assurance, and additional non-paid services^[3,4,6,8,9,10,11,12]. The identified determinants were found to be related to patient satisfaction with pharmaceutical services.

A. Location

The location of pharmaceutical service providers to the patient's residence is a significant determinant of patient satisfaction. Articles indicate that a closer location enhances patient health awareness^[3,4,6,9,10]. This correlation is directly proportional, as shorter distances between the patient's residence and the service provider result in higher patient satisfaction with pharmaceutical services.

B. Facilities

The availability of infrastructure and facilities is another critical determinant of patient satisfaction with pharmaceutical services. Evidence from the articles shows that, in addition to seeking recovery, patients

also require comfort during their treatment. Thus, the availability of adequate facilities at service providers can enhance patient satisfaction. The articles collectively demonstrate that the facility determinant was included in all questionnaires^[3,4,6,8,9,10,11,12]. The most frequent complaints that negatively impacted patient satisfaction included the insufficient number of seats in waiting areas. Additionally, informational materials such as leaflets or brochures providing health insights were necessary for patients to remain comfortable while waiting for services. Conversely, the highest patient satisfaction levels were associated with the cleanliness of pharmacies. This indicates a fundamental requirement for pharmacies as pharmaceutical service providers to maintain a clean and healthy environment.

C. Medication

Medication is a primary reason for patients to visit pharmacies aside from receiving pharmaceutical services. The determinant of medication has a significant impact on patient satisfaction. Articles provide evidence that proper medication, aligned with the patient's condition, and the availability of required medications enhance patient satisfaction with pharmaceutical services^[4,8,9,10,12]. Patients tend to feel disappointed when medications are unavailable, reducing satisfaction levels and diminishing trust in the service provider. This underscores the necessity for pharmaceutical service providers to ensure the availability of medications that meet patient needs.

D. Pharmacy Services

The determinant factor that significantly influences patient satisfaction with pharmaceutical services is the quality of pharmacy services. Articles provide evidence that a higher level of pharmacists'

knowledge is associated with greater patient satisfaction with pharmaceutical services^[3]. Patients expect pharmacists to be reliable in addressing their health issues and to have the capability to communicate thoroughly when providing medication information^[6,8,12]. The hurried manner of pharmacists in serving patients often leads to lower patient satisfaction with pharmaceutical services^[11].

E. Working Time

The working time determinant factor has a significant relationship with patient satisfaction. Articles indicate that the presence of pharmacists in the workplace and their direct service delivery can enhance patient satisfaction with pharmaceutical services^[8]. Other articles explain that patients receiving pharmaceutical services during morning shifts tend to be more satisfied compared to those receiving services during night shifts. This is attributed to the imbalance in pharmacists' working hours, where more pharmacists are available during morning shifts^[10].

F. Waiting Time

The waiting time determinant factor is also significantly related to patient satisfaction. Articles reveal that dispensing medications and counseling provided by pharmacists are key factors in waiting time. When conducted quickly and accurately, these factors can improve patient satisfaction. Patients require an information system connected to mobile devices so they can track their service schedules without prolonged waiting or unnecessary visits to pharmaceutical service providers. A limited number of pharmacists can exacerbate waiting time issues, making it a factor that negatively impacts patient satisfaction with pharmaceutical services^[4,6,10,11].

G. Assurance

The assurance determinant factor is significantly associated with patient satisfaction. Articles show that patients without health insurance tend to report lower satisfaction compared to those with health insurance^[12]. Medication unavailability is another assurance-related issue that healthcare providers have yet to resolve, contributing to decreased patient satisfaction^[6]. On the other hand, providing services with fairness and politeness to all patients is a guaranteed factor that can enhance patient satisfaction^[8].

H. Additional Non-Paid Services

The additional non-paid services determinant factor significantly impacts patient satisfaction. Articles suggest that additional free services such as on-call services, telepharmacy, and home delivery can increase patient satisfaction. This aligns with the waiting time determinant factor, as patients desire a mobile-connected system that allows them to schedule their services without visiting the facility beforehand^[4]. However, accessing such services can be challenging for patients living in areas with poor network connectivity or far from service providers. These issues can reduce patient satisfaction due to signal difficulties and delivery delays^[9].

DISCUSSION

This systematic review found that the determinants of patient satisfaction with pharmaceutical services vary widely across studies. Researchers have categorized the factors influencing satisfaction into two main determinants: the first based on patient characteristics and the second based on pharmaceutical service providers. The most significant factors based on patient characteristics that influence pharmaceutical services include age, gender, education, job, salary, race, marital status, religion, disease

status, and visit. On the other hand, all aspects of pharmaceutical service providers have a significant influence on patient satisfaction. Additionally, healthcare providers should consider patients' expectations before delivering services to make patients feel valued, which in turn can enhance their satisfaction and trust in the treatment of their illnesses.

All articles provide evidence that patients are generally satisfied with the pharmaceutical services they receive. However, the articles also present evidence of dissatisfaction as expressed through questionnaires. Therefore, all pharmaceutical service providers must consider the reasons behind patient dissatisfaction to improve service quality and demonstrate the professionalism of pharmacists or pharmacy staff.

Based on the articles identified, patients' choice of a pharmacy or other pharmaceutical service provider often considers geographical proximity, as greater distances can lead to higher costs. Additionally, the comfort level of the pharmacy environment significantly influences the selection of treatment locations. High-quality and trustworthy pharmacists are key factors determining patients' choice of pharmaceutical service providers. Pharmacists should take on a more proactive and consultative role to meet the pharmaceutical needs of patients with chronic conditions and understand their expectations of pharmacists.

Articles on patient satisfaction with pharmaceutical services should be conducted routinely to ensure the delivery of high-quality services and maintain patients' trust in healthcare professionals, as opposed to alternative healers or magical practices promising instant recovery.

CONCLUSION

The articles were identified and gathered evidence related to the determining factors of patient satisfaction, resulting in the identification of satisfaction determinants based on patient characteristics, including age, gender, education, job, salary, race, marital status, religion, disease status, and visit frequency. Meanwhile, satisfaction determinants based on pharmaceutical service providers include location, facilities, medication, pharmacy services, working time, waiting time, assurance, and additional non-paid services. These factors can serve as considerations for pharmacists in identifying areas for improvement and determining which aspects of service should be enhanced.

CONFLICT OF INTEREST

The author declares no conflicts of interest in this manuscript.

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