Patient satisfaction with clinical pharmacy services and the affecting factors: a literature review

Yuliandani Yuliandani1, Sofa Dewi Alfian1,2, Irma Melyani Puspitasari1,2

1 Department of Pharmacology and Clinical Pharmacy, Faculty of Pharmacy, Universitas Padjadjaran, Sumedang, Indonesia
2 Center of Excellence in Higher Education for Pharmaceutical Care Innovation, Universitas Padjadjaran, Sumedang, Indonesia

Corresponding author: Irma Melyani Puspitasari (irma.melyani@unpad.ac.id)

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Abstract

Service quality is measured to assess the consistency of medical services provided to fulfill patient expectations. This article provides an overview of patient satisfaction with clinical pharmacy services and the influencing factors. A literature search from MEDLINE and EBSCO databases was performed with the keywords “patient satisfaction”, “pharmacy service”, “hospital pharmacy service”, and “clinical pharmacy service”. The inclusion criteria for articles are original articles, full papers, articles in English, and published in 2011–2021. A total of 25 articles from 1,118 articles discussed patient satisfaction with clinical pharmacy services such as counseling, drug therapy monitoring, patient support programs, and pharmaceutical care. Generally, patients are satisfied with clinical pharmacy services such as counseling, drug therapy monitoring, patient support programs, and pharmaceutical care. The most influencing factors with clinical pharmacy services are the quality, convenience, ease of information, and confidence in pharmacist competence. Pharmacists should equip themselves with the appropriate knowledge and competencies in clinical pharmacy services for benefits their patients.

Keywords

counseling, drug therapy monitoring, pharmaceutical care, patient support program

Introduction

Patient satisfaction measures the consistency of health services provided to fulfill patient expectations (Kabba et al. 2021) and it is beneficial for assessing communication patterns (Schoenfelder et al. 2011). This assessment will affect the service program to improve the health system. Previous studies showed that satisfied patients are expected to cooperate with health care practitioners, participate in their health care, adhere to medication regimens, and have better health outcomes (Malewski et al. 2015).

In experiencing health care, patients need professional health assistance that is easily accessible. Therefore, pharmacists are one health care professionals selected to accompany patients during the treatment period (Miller and Goodman 2016). They can conduct activities related to public health promotion to build patient trust as a form of pharmacist concern for well-being (Hillier-Brown et al. 2017). Pharmacists can provide clinical services in carrying out their practice of providing services to patients (Malewski et al. 2015).

Clinical pharmacy service provides rational drug therapy that is safe, precise, and cost-effective (Ansari 2017). Patients will get satisfaction based on how well pharmaceutical service practices meet their expectations and needs (Chou et al. 2019). The evaluation used to monitor the quality is
to assess patient satisfaction with the care services received by patients (Garattini and Padula 2018). Therefore, pharmacists should know the right time to discuss with patients because they are responsible for fulfilling needs and answering questions (Al-Arifi 2012). They also equipped with motivation and good technical training will increase the effectiveness of quality health care (Kabba et al. 2021).

Previous studies explained that patient satisfaction impacts pharmaceutical services, including patient compliance to the treatment provided, improving treatment outcomes and patient loyalty to healthcare providers (Kabba et al. 2021). A review article in 2019 discussed patient satisfaction with pharmacy services (Gulcan and Aransiola 2019). It showed that the determinants were regulated through the services provided by pharmacists. However, the article did not discuss the types of clinical pharmacy services and the influencing factors. Therefore, this paper will give an overview of patient satisfaction with clinical pharmacy services and the influencing factors.

Methods

Data search

The literature search on the MEDLINE and EBSCO databases was conducted in May–June 2021. The keywords used included “patient satisfaction”, “pharmacy service”, “hospital pharmacy service”, and “clinical pharmacy service”. The literature search report of flow diagram followed to the the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

Study selection

The inclusion criteria for articles are original articles, full papers, article in English, and published in 2011–2021. Articles excluded have criteria that do not discuss clinical pharmacy service and do not contain the desired keywords.

Article extraction

The extracted data are references containing the main author’s name and year of publication, country, participants, the number of participants, place of service, type of clinical pharmacy service, study design, satisfaction measurement instrument, factors influencing patient satisfaction, results, and funding sources.

Results and discussion

Fig. 1 shows the PRISMA flow diagram of article selection process. The selection was made based on predetermined keywords resulting in a total of 1,118 articles, where 441 were sourced from MEDLINE, and 677 were from EBSCO database. The initial selection process was followed by

Figure 1. PRISMA flow diagram of the literature search.
removing duplicate articles until 1,094 articles were obtained. Furthermore, a second selection was carried out by excluding 1,069 articles unrelated to the inclusion and exclusion criteria. Therefore, 25 articles were obtained about patient satisfaction with clinical pharmacy services.

Table 1 shows 25 articles on patient satisfaction with clinical pharmacy services. The studies were conducted worldwide with the number of participants more than 41,000 participants at hospitals, primary health care services, pharmacies, and community pharmacies. The service type of clinical pharmacy includes patient counseling, drug therapy monitoring, patient support program, and pharmaceutical care services. Most studies were conducted with cross-sectional design through self-reported questionnaires or interviews. Different types self-reported questionnaire such as modified questionnaire from previous studies, Medication Adherence Scale-8 (MMAS-8) questionnaire, Diabetes Medication Satisfaction (DiabMedSat) questionnaire, The Leeds Satisfaction Questionnaire (LSQ), Patient Satisfaction Feedback (PSF) questionnaire, The Consumer Assessment of Health Plans Survey (CAHPS), and The Pesquisa Nacional sobre Acesso, Utilização e Promoção do Uso Racional de Medicamentos – Serviços (PNAUM – National Survey on Access, Use and Promotion of Rational Use of Medicines – Services), were used to assess patients satisfaction related to pharmacy facility, clinical pharmacy services, role of pharmacist, communication, and pharmaceutical care services.

Table 2 presents 9 articles on patient satisfaction with counseling services. Generally, the patients showed high satisfaction with clinical pharmacy services. Patient satisfaction with counseling in Saudi Arabia was reported to have different levels. According to the study conducted by Al-Arifi. (2012), most patients were very satisfied with the performance and professionalism of pharmacists with satisfaction indicators such as the role in counseling, patient compliance, and providing appropriate drug information. The higher the frequency of counseling the greater the satisfaction rating. However, there are several barriers counseling moments as include lack of privacy and an inadequate number of qualified pharmacists (Al-Arifi 2012).

Another study from Saudi Arabia reported that the level of low patient satisfaction with score was 2.97 ± 0.65 out of 5 scale (Alotaibi et al. 2021). The influencing factors were pharmacy facilities, pharmacy services, and counseling. Most of the patient’s reported that they were not satisfied with history taking practice by the pharmacists (Score: 3.17 ± 1.60), provision of instructions for side effects or interactions (Score: 3.08 ± 1.64), and dissemination of information on storage conditions (score: 3.11 ± 1.63). Other causes are to

**Table 1.** List of patient satisfaction articles on clinical pharmacy services.

| No | Authors, Country, Year | Participant | Number of participants | Service Place | Service Type | Study design | Instrument |
|----|------------------------|-------------|------------------------|---------------|-------------|--------------|------------|
| 1  | Alotaibi NH et al., Saudi Arabia, 2021 | Outpatient pharmacies of various public hospitals | n = 746 | Hospitals | Counseling | Cross-sectional study | A 23-items questionnaire that measure patient satisfaction related to pharmacy facilities and pharmacy services with 5-items Likert scale. |
| 2  | Al-Arifi MN, Saudi Arabia, 2012 | Patients attending community pharmacies. | n = 1,699 | Community pharmacies | Counseling | Cross-sectional study | The questionnaire composed of 8 items about patients’ views and satisfaction with the pharmacists’ role in the current community pharmacy practice |
| 3  | Alkhoshaiban A, Saudi Arabia, 2019 | Type II diabetic patients. | n = 102 | Hospitals | Counseling | The comparative study used Longitudinal method | Medication Adherence Scale-8 (MMAS-8) and Diabetes Medication Satisfaction (DiabMedSat) questionnaires |
| 4  | Hale A et al., Australia 2015 | Patients scheduled for elective surgery | n = 200 | A tertiary hospital | Counseling | Cross-sectional study | Surveys containing 12 and 25 questions with a Likert scale responses that investigate patient satisfaction and views of collaborative doctor pharmacist prescribing. |
| 5  | Iancu ME, et al. Romania, 2014 | Patients, relatives and caregivers who obtained counselling by pharmacists. | n = 3,303 | Pharmacies | Counseling | Prospective survey design | A 16 items questionnaire regarding the counseling provided by the pharmacist during the visit. |
| 6  | Munro L, et al., Canada, 2020 | Patients at the oncology clinic | n = 35 | Hospital | Counseling | Cross-sectional study | Surveys and patient interviews with a total 20 items questions on their perceptions of the importance of the clinical pharmacy services and their satisfaction with the services provided. |
| 7  | Hall JI, et al., Canada, 2016 | Rheumatology clinic patients | n = 62 | Hospital | Counseling | Cross-sectional study | The Leeds Satisfaction Questionnaire (LSQ) with a 5 points of Likert scale to measure patient satisfaction. |
| 8  | Fesaharaki E, Iran, 2019 | Patients who waiting for their medicine | n = 326 | Pharmacies | Counseling | Cross-sectional study | A 16-items questionnaire with a 5-item Likert scale that ask the patient about the nonverbal communication of the pharmacist and their satisfaction. |
| 9  | Alshayban DM, et al., Saudi Arabia 2020 | Chronic and acute disease patients | n = 531 | Hospitals | Counseling | Cross-sectional study | Arabic version of Patient Satisfaction Feedback (PSF) questionnaire that measured satisfaction as well as willingness to pay for a pharmacist counseling session. |
| 10 | Martin and Faber, United States of America 2016 | Patients receiving Hepatitis C Virus (HCV) treatment | n = 64 | Hospital | Drug therapy monitoring | Cross-sectional study | A patient satisfaction survey consists of 26 questions that assess the patient satisfaction with the health care provider(s) including clinical pharmacist during the management of HCV therapy. |
limited number of pharmacists and pharmacy staff in the hospitals, increased workload, lack of continuous education for pharmacy service providers as well as lower standards of pharmacy services and less attention of regional health departments on pharmacy standards and practice (Alotaibi et al. 2021).

In addition, the study conducted by Alkhoshilban A et al. (2019) on 102 patients with type II diabetes showed that the intervention program has improved medication adherence, satisfaction, and HbA1c level among patients with type II diabetes. Medication adherence, satisfaction, and HbA1c level were all associated with gender. The improvement
in medication adherence, satisfaction, and HbA1c level demonstrates the pharmacist’s critical role in the patient’s overall health management (Alkhoshaiban et al. 2019).

The study conducted by Hale A et al. (2016) in Australia on 200 patients scheduled for surgery reported that most of the patients had a high satisfaction with pharmacist prescriber consultations. This is because more than 97% patients were satisfied with counseling services in consultations with pharmacists. These are all key components in forming an effective partnership with a patient and adherence with treatment plans. (Hale et al. 2016).

In Romania, Iancu ME et al. (2014) study also showed a high level of patient satisfaction. The majority of respondents (47.65%) estimated that they spent 5–10 minutes with the pharmacist. 95.85% of patients said the pharmacist provided them with all of the information they required, and 76.51 percent of participants said they were very satisfied with the pharmacist interview (5 on a 1–5 scale). The pharmacist provided the majority of the respondents with all of the information they need, and the interview with the pharmacist left them extremely satisfied. The counseling activities are carried out by pharmacists in a very professional manner, in accordance with patient feedback during counseling. Patients received advice on drug administration information such as the route of administration, how to take the drug with food, the dose used, and the length of treatment. (Iancu et al. 2014). Study conducted in Canada in 2021 on 35 patients experiencing anticancer therapy showed very high patient satisfaction with counseling services, where the average satisfaction score was 5.90–6.70 out of 7 possibilities (Munro et al. 2021). Patient satisfaction is based on indicators of comfort during counseling, ease of delivery of treatment information, and good communication between patients and pharmacists (Munro et al. 2021). The pharmacist provided the majority of respondents with all of the information they required, and the interview left them extremely satisfied with their relationships with oncology pharmacists: the feeling of being supported by the pharmacist may not only improve emotional well-being but also improve the quality of care received if patients communicate with pharmacists about emerging issues and adhere to recommended pharmaceutical treatments (Munro et al. 2021). In addition, previous study conducted on 62 female patients in a rheumatology clinic showed high patient satisfaction with indicators of providing information, service techniques, ethical competence, and good communication by pharmacists to patients (Hall et al. 2017). In Iran, study conducted on 326 patients showed high patient satisfaction (Fesharaki F, 2019). This satisfaction is influenced by the component of verbal communication by pharmacists while providing counseling, with indicators of the tone of voice and body language, waiting time for counseling, and the atmosphere of the pharmacy (Fesharaki F, 2019). Furthermore, non-verbal communication such as maintaining eye contact, showing

### Table 2. Patient satisfaction with counseling services.

| Authors          | Country     | Participants | Factors that affect satisfaction                                                                 | Result                                                                 | Funding       |
|------------------|-------------|--------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------|
| Alotaibi NH et al. 2021 | Saudi Arabia | 746 patients | Quality of pharmacy services, pharmacy facilities and counseling compliance and providing drug information | Approximately one-half of the patients were not satisfied with outpatient pharmacy services. The overall satisfaction score was 2.97 ± 0.65 out of 5 scale. | Not applicable |
| Al-Arif MN, 2012 | Saudi Arabia | 1,699 patients | The role of pharmacists in counseling patient compliance and providing drug information         | The patients showed better satisfaction, perception and appreciation of the pharmacists’ role in the health care team. | Not applicable |
| Alkhoshaiban A et al. 2019 | Saudi Arabia | 102 type II diabetic patients (T2DM) | Treatment adherence and satisfaction of elderly patients, the impact of adherence to HbA1c level among elderly patients with T2DM. | The intervention program has improved medication adherence, satisfaction, and HbA1c level among elderly patients with T2DM. | Not applicable |
| Alshayban DM et al. 2020 | Saudi Arabia | 531 patients with chronic and acute disease | Quality of service, duration of counseling, pharmacist knowledge | Most patients (43.9%) were satisfied with pharmacist counseling and average satisfaction rating was 7.87 ± 1.99/10. | Not applicable |
| Hale A et al. 2015 | Australia | 200 patients | Consultation satisfaction from doctor collaboration and patient satisfaction with prescribing pharmacists | Most of the patients had a high satisfaction with pharmacist prescriber consultations. | Not applicable |
| Iancu ME et al. 2014 | Romania | Patients, relatives and caregivers who obtained counseling by pharmacists. | Patient education and counseling satisfaction, counseling on expired drug information | A great proportion of the respondents received all the information they needed from the pharmacist and were satisfied in the highest degree by the interview with the pharmacist. | Not applicable |
| Munro L et al. 2020 | Canada | 35 patients at the oncology clinic at a scheduled elective surgery | Convenience and easiness, medication information, communication between patients and clinical pharmacists | Patients are very satisfied with the average satisfaction score from 5.97 to 6.70, out of 7 possibilities. | Not applicable |
| Hall JJ et al. 2016 | Canada | 62 patients at a rheumatology clinic | General satisfaction, providing information, empathy for patients, Service techniques as well as competencies, ethics, and communication | Patient satisfaction in the collaborative care group was consistently higher across all dimensions. | Not applicable |
| Fesharaki F, 2019 | Iran | 326 patients | Counseling using nonverbal communication (pharmacist tone of voice, body language), waiting time, Pharmacy atmosphere | In community pharmacies, nonverbal communication are significantly related to patient satisfaction. | Not applicable |
interest in providing information about drugs, and maintaining expression when interacting with patients should also be mastered. Counseling with verbal and non-verbal communication positively increases patient satisfaction since they feel happier while conversing with the pharmacists (Fesharaki 2019).

**Patient satisfaction with drug therapy monitoring services**

Table 3 displays eight articles on patient satisfaction with drug therapy monitoring services in clinical pharmacy. Generally, 7 articles showed high satisfaction, but one article showed low patient satisfaction with clinical pharmacy services.

Patient satisfaction with drug therapy monitoring services in the United States is reported to have different levels. According to Martin and Faber (2016), 64 patients with Hepatitis C Virus (HCV) treatment had high satisfaction with drug therapy monitoring services by pharmacists. The clinical pharmacist-run HCV treatment program provides services to improve medication access, education about medications and adherence, and ADR management. Patients rate their overall satisfaction with the services provided in the “great” category (Martin and Faber 2016). This contrasts with the findings of Reich et al. (2018) study, that found that poor communication between prescribers and patients was the cause of low patient satisfaction (Reich et al. 2018).

According to Beyene et al. (2021) study in New Zealand, patients under warfarin drug therapy monitoring registered with the Community pharmacist-led Anticoagulant Management Service (CPAMS) were very satisfied with the drug delivery management services provided with the mean overall satisfaction score was 94.5% ± 13.1 (range 3%–100%). Furthermore, patient satisfaction was identified from factor analysis of patient-centered communication, pharmacist competence, patient-pharmacist relationship, confidence in CPAMS, and pharmacist environment. This study also stated that the increasing age and the more frequent visits to the pharmacy are positively related to patient satisfaction (Beyene et al. 2021).

Study of satisfaction with drug therapy monitoring services in South Africa on 300 patients with antiretroviral drug therapy monitoring for four months or more showed a high satisfaction level but patients expressed some dissatisfaction with certain dimensions of the quality of care, including an inability to talk to health workers about their treatment and problems, time spent in queues waiting to be examined and facility cleanliness (Bezuidenhout et al. 2014). In Canada, 107 out of 112 patients receiving chemotherapy were very satisfied with the monitoring regimen of chemotherapy drug therapy. This is influenced by satisfaction and follow-up care in chemotherapy patients. Satisfaction levels were very high in questions that evaluated the information provided by the pharmacist. A pharmacist led proactive follow-up program is an effective method for clinical pharmacy services (Crespo and Tyszka 2017).

Based on another study, patients in Taiwan with a history of more than one disease and monitored for therapy with more than one prescription had high satisfaction, as evidenced by a high level of confidence in pharmacists. Patient trust is positively related to patient satisfaction and cooperation between patients and clinical pharmacists. Thus, pharmacists should spend more time on each patient for can provide detailed information (Chou et al. 2019).

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**Table 3.** Patient satisfaction with drug therapy monitoring services.

| Authors               | Country          | Participants                                                                 | Factors that affect satisfaction                                                                 | Result                                                                                               | Funding                          |
|-----------------------|------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------|
| Martin MT and Faber DM, 2016 | United States of America | A total of 64 patients received Hepatitis C Virus (HCV) treatment           | HCV infection treatment as well as compliance education                                          | Patients expressed high levels of satisfaction with the clinical pharmacist who assisted them with HCV treatment. | Not Applicable                    |
| Reich CM et al. 2018 | United States of America | A total of 240 patients with psychiatric disorders                          | Satisfaction with antipsychotic drug monitoring                                                | Conversations between prescribers and psychiatric patients in which the prescriber controls the conversational floor are a symptom of low patients satisfaction. | Not Applicable                    |
| Crespo and Tyszka 2016 | Canada           | A total of 112 respondents were chemotherapy patients                        | Clinical pharmacy services and follow-up care for chemotherapy patients                        | 95.5% of respondents indicated that the time spent with the pharmacist at the first chemotherapy treatment was worthwhile (n=112). | Not Applicable                    |
| Beyene K et al. 2020 | New Zealand      | A total of 305 respondents who use Warfarin and are registered with the Community pharmacist-led Anticoagulation Management Service (CPAMS) | Patient satisfaction with CPAMS, communication, patient confidence in pharmacist competence, patient and pharmacist relationship | The mean overall satisfaction score was 94.5% ± 13.1 (range 3%–100%). | Not Applicable                    |
| Bezuidenhout et al. 2014 | South Africa    | A total of 300 patients used antiretrovirals                                 | Antiretroviral treatment (ART) management satisfaction                                         | The majority of patients (n = 297; 98%) were satisfied with the care they received at the ART locations. | Not Applicable                    |
| Chou YC et al. 2019 | Taiwan          | A total of 741 patients who received medical care                           | Patient confidence in doctors and pharmacists, patient satisfaction                            | Patient satisfaction and cooperation between patients and clinical pharmacists are both positively related to patient trust. | Taiwan National Science Council  |
| Sites BD et al. 2018 | Lebanon         | A total of 19,566 patients with musculoskeletal disease                     | Satisfaction with prescription opioids use                                                    | Patients who take prescribed opioids for musculoskeletal pain are satisfied with their treatment. | Not Applicable                    |
In addition, a study in Lebanon on musculoskeletal patients who received more than one prescription stated the patients were satisfied with drug therapy services. This is influenced by satisfaction with pharmacist care for patients with musculoskeletal conditions, those using prescription opioids (Sites et al. 2018).

**Patient satisfaction with patient support program services**

Table 4 shows 3 articles on patient satisfaction with the support programs. Generally, the patients receiving the support program felt comfortable and reported high satisfaction. According to Hatton et al. (2018) study in the United State, patients were satisfied with both Clinical Video Teleconferencing (CVT) and face-to-face consultations. The consultation through CVT did not differ from face-to-face consultations. Factors that affect satisfaction were patient convenience level, patient satisfaction with pharmacist communication, competence, and clinical skills by pharmacist (Hatton et al. 2018).

![Table 4. Patient satisfaction with patient support program services.](image)

| Authors         | Country           | Participants                                                                 | Factors that affect satisfaction                                                                 | Results                                                                 | Funding                      |
|-----------------|-------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------|
| Hatton J et al 2017 | United States of America | 57 patients who received care from the face-to-face or clinical video teleconferencing (CVT) pharmacy clinic. | Patient convenience level, patient satisfaction with communication made with the clinical pharmacist, competence and skills | Patients are satisfied with clinical pharmacists’ use of patient-centered communication via both CVT and face-to-face consultations. | Not Applicable               |
| Mooney EV et al. 2018 | United States of America | 161 patients received LAIA (Long-Acting Injectable Antipsychotics). | The level of privacy, the ease of making consultation appointments, convenience to pharmacy services, location convenience, the level of confidence in the pharmacist | Patients are satisfied with the LAIA services provided by pharmacists in community pharmacies. | Not applicable              |
| Bourdin A et al. 2020 | Switzerland       | 17 patients participated in F-PSP (The Fingolimod Patient Support Program). | The level of patient safety and medication compliance with the F-PSP (Fingolimod Patient Support Program) method | Patients satisfied with F-PSP (The Fingolimod Patient Support Program) | The development of the F-PSP is supported by an unlimited grant from Novartis Pharma Schweiz AG. |

**Patient satisfaction with pharmaceutical care services**

Table 5 shows seven articles that discuss patient satisfaction with pharmaceutical care services. While 6 of 7 articles show high patient satisfaction, 1 article shows low patient satisfaction. In the United Arab Emirates (UAE), a study conducted by El-Sharif et al. (2017) reported that 77.1% of patients were satisfied with pharmaceutical care services. This is influenced by several factors, such as experience, trust, courtesy, and confidence of pharmacists when providing pharmaceutical services. However, there are still many patients who are not aware of what information is expected and should be received regarding the drugs they receive from pharmacists. Therefore, pharmacists need to fully practice their role for the benefit of their patients (El-Sharif et al. 2017). Another study in the UAE was also conducted by Saad Ali et al., (2019) reported that 72.8% of patients were very satisfied with simple, understandable language used by the pharmacists. However, the patients were not satisfied with the privacy while pharmacists discussed with patients (Saad Ali et al. 2019).

In a study conducted by Abebe et al. (2016) in Ethiopia on 291 HIV/AIDS patients using a type 5 Likert scale instrument through interviews, patient satisfaction was reported to be relatively low with an average satisfaction level of 2.46 out of a 5-point Likert scale. Meanwhile, overall patient expectations for pharmaceutical services are very high. This is influenced by uncomfortable waiting rooms, private counseling rooms, and waiting times (Abebe et al. 2016).

The study conducted by Soeiro, O.M., et al. (2017) on 8,803 patients in five geopolitical regions of Brazil stated that 58.4% were satisfied with the services received. This is influenced by the patients’ comfort feeling when communicating with pharmacists (Soeiro et al. 2017).

Another study was also conducted by Minarikova, et al. (2016) in Slovakia, using a type 5 Likert scale instrument. A total of 2,844 patients reported that overall patients were very satisfied with pharmaceutical care services: interpersonal relationships (1.85±0.598; 86.7%
highly satisfied respondents) and general satisfaction (2.02±0.643; 71.3% highly satisfied respondents). Managing therapy received a lower score (2.24±0.704; 65.4% highly satisfied respondents). Prescription (70.4%) and over-the-counter drugs were the most common reasons for visiting a community pharmacy (70.4%) (Mináríková et al. 2016). Therefore, pharmacists need to improve their professional behavior in providing pharmaceutical care to patients.

**Conclusion**

In general, most patients are satisfied with clinical pharmacy services such as counseling, drug therapy monitoring, patient support programs, and pharmaceutical care. In addition, pharmaceutical service quality, convenience, information easiness, and patient confidence in pharmacist competence primarily influence patient satisfaction with clinical pharmacy services. Therefore, in the future, community pharmacists should equip themselves with the appropriate knowledge and competencies in clinical pharmacy services for benefit their patients.

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**Conflict of interest**

This study has no conflict of interest.

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**Table 5.** Patient satisfaction with pharmaceutical care services.

| Authors            | Country              | Number of samples | Factors that affect satisfaction                                                                 | Results                                                                                           | Funding                           |
|--------------------|----------------------|-------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------|
| El-Sharif SI et al. | United Arab Emirates | A total of 375 patients with medical and non-medical educational backgrounds | Satisfaction with pharmaceutical care services                                                   | 77.3% of patients are satisfied with the pharmacist's assistance.                                  | Not Applicable                    |
| Ali HS et al. 2019 | United Arab Emirates | A total of 216 respondents who came to pharmacy | The convenience of pharmacists in providing pharmaceutical care services | 39% patients were highly satisfied with the professional pharmacists’ counselling profile and 72.8% satisfied with the simple, understandable language used by the pharmacists. | Not Applicable                    |
| Soero OM et al. 2017| Brazil               | A total of 8,803 patients present in the five geopolitical regions of Brazil | Convenience, availability of pharmaceutical care services | 56.4% patients satisfied with the pharmaceutical care services | Department for Pharmaceutical Services and Strategic |
| Takaki H et al. 2015| Japan                | A total of 407 patients in Fukuoka Prefecture, Japan | Pharmaceutical care service information satisfaction | Patient satisfaction with pharmaceutical care was linked to pharmacist and patient views of information provision. | Not Applicable                    |
| Abebe TB et al. 2016| Ethiopia             | A total of 291 patients living with HIV/AIDS | The level of privacy, the ease of making consultation appointments, the convenience of pharmaceutical care services | Patient satisfaction is relatively low with an average satisfaction of 2.86, 2.88, and 2.99 from 5-point Likert-type scale | Not applicable                    |
| Minarikova et al. 2016 | Slovakia             | A total of 2844 respondents aged 40 years and over | Location of pharmacy services, patient experience with qualified pharmacists and staff convenience, health checks, and self-service areas. | The results show high patient satisfaction with pharmaceutical services, specifically interpersonal relationships. | Not Applicable                    |
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