The Effect of Pharmacist Intervention on Knowledge, Satisfaction Level, and Outcome of Self-Medication Therapy for Common Cold Patients at Kasih Agape Pharmacy

Pengaruh Intervensi Apoteker terhadap Pengetahuan, Tingkat Kepuasan dan *Outcome* Terapi Pasien Swamedikasi *Commond Cold* di Apotek Kasih Agape

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Abstract

Self-medication for minor illnesses such as the common cold is generally done by the community. In situations like this, the role of pharmacists is very important in providing education to improve patient safety. This study aims to analyze the effect of pharmacist intervention (pretest-posttest) on the level of knowledge and outcome of self-medication therapy for common cold patients at Kasih Agape Pharmacy Medan. This study used a quasi-experimental design with a one-group pretest-posttest design approach on the knowledge and outcome indicators, while the patient satisfaction indicator used a descriptive quantitative research design. The sample consisted of 50 patients who were in the intervention group (pretest-posttest), randomly selected using a purposive sampling technique. The intervention was given in the form of pharmacist education and counseling. Data were collected using a questionnaire that had been tested for validity and reliability. The results of the analysis showed that there was a significant increase in the level of knowledge ($p < 0.05$) and outcome of therapy ($p < 0.05$) in the intervention group compared to the pretest and posttest. These results can also be seen as increasing patient knowledge, and the outcome of therapy can have an impact on increasing patient satisfaction. This study shows that pharmacist intervention can effectively improve the quality of self-medication for the common cold in patients. This study emphasizes the importance of the active role of pharmacists in providing education to support safe, rational drug use and improve therapeutic outcomes.

Keywords: Pharmacist Intervention, Self-Medication, Common Cold, Patient Knowledge, Therapy Outcome.

Abstrak

Swamedikasi pada penyakit ringan seperti *Common Cold* umumnya dilakukan masyarakat. Disituasi seperti ini peran apoteker sangat penting dalam memberikan edukasi untuk meningkatkan keamanan pada pasien. Penelitian ini bertujuan untuk menganalisis pengaruh intervensi apoteker (*pretest-posttest*) terhadap tingkat pengetahuan dan *outcome* terapi pasien swamedikasi *common cold* di Apotek Kasih Agape Medan. Penelitian ini menggunakan desain *quasi experiment* dengan pendekatan one-group pretest-posttest design pada indikator pengetahuan dan outcome terapi sedangkan pada indikator kepuasan pasien menggunakan desain penelitian kuantitatif deskriptif. Sampel terdiri dari 50 pasien yang menjadi kelompok intervensi (pretest-posttest), dipilih secara acak dengan teknik purposive sampling. Intervensi diberikan berupa edukasi dan konseling apoteker. Data dikumpulkan menggunakan kuesioner yang telah diuji validitas dan reliabilitasnya. Hasil analisis menunjukkan bahwa terdapat peningkatan secara signifikan pada tingkat pengetahuan (p<0,05) dan outcome terapi (p<0,05) pada kelompok intervensi dibandingkan antara pretest dan posttest. Hasil ini juga dapat dilihat bahwa dengan meningkatnya pengetahuan pasien dan outcome terapi dapat berdampak pada meningkatnya kepuasan pasien. Penelitian ini menunjukkan bahwa intervensi apoteker secara efektif dapat meningkatkan kualitas swamedikasi common cold pada pasien. Penelitian ini menekankan pentingnya

peran aktif apoteker dalam memberikan edukasi guna mendukung penggunaan obat yang aman, rasional dan peningkatan hasil terapi.

Kata Kunci: Intervensi Apoteker, Swamedikasi, Commond Cold, Pengetahuan Pasien, Outcome Terapi.

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Introduction

In order to have a productive social and economic life, people must be in good health, which includes mental, spiritual, and social well-being. People in poor nations like Indonesia choose to treat their health issues by self-medicating. The use of pharmaceuticals for therapeutic purposes without a prescription or professional guidance is known as self-medication. Because self-medication is convenient, time-efficient, and economical, many people opt for it as an alternate form of treatment [1,2].

The common cold, one of the most common illnesses in tropical nations like Indonesia, and mild ailments like the flu, headaches, stomachaches, and backaches are typically treated with self-medication [3]. Depending on the patient's immune system, the common cold symptoms can differ significantly from person to person. According to Halim's 2021 study, fever, productive cough, and runny nose are the main signs of the common cold. Mistakes in identifying symptoms, choosing drugs, and using them in excess of the recommended dosage can all lead to problems with self-medication practices [4]. It may be inferred from Anaba (2021) research findings that patients' understanding of self-medication is classified as moderate (41.8%). Patients' use of drugs for self-medication is both rational (59.4%) and irrational (40.6%). Inappropriate drug dosage (34.5%) is the most frequent cause of irrational drug usage. Additionally, it is seen that 18.7% of patients have inappropriate drug and indication selections, with errors typically made under a doctor's supervision and when the chosen drug indication does not correspond with the patient's complaint [5].

Pharmacists perform pharmaceutical procedures in a pharmacy, which is a center for pharmaceutical services. There is a significant demand for pharmacies based on the public's opinion of their pharmaceutical services. In addition to producing and compounding pharmaceuticals, pharmacies must offer other services. One of the needs of the community nowadays is the screening of patient problems. Pharmacists play a crucial role by providing information and support to self-medicating patients. There are several misconceptions about the use of medication, especially the initial usage of antibiotics, especially when self-medication is used to treat the common cold [6,7].

The purpose of this study is to assess the quality of pharmacists' self-medication services, pinpoint areas in need of improvement, and guarantee that patients receive the best treatment possible. By offering comprehensive data on the relationship between pharmacist engagement and self-medication behaviors, this study's focus on patient happiness will contribute to the enhancement of pharmaceutical services' overall quality. The availability of pharmaceutical services as a type of pharmacist intervention will improve patient understanding, in addition to patient happiness. Patients will take more accurate self-medication measures if they have a better level of understanding. According to the findings of Wang(2023) study, which involved 50 participants and was carried out using observational methods and prospective pre-test and post-test data collection, pharmaceutical services can improve students' knowledge about the use of special formulation drugs in the Lampung region by offering community counseling [8].

The aforementioned description piques the researcher's interest in carrying out additional research to examine and assess the effects of pharmacist intervention on boosting therapy outcomes, patient satisfaction,

and patient knowledge for patients at Kasih Agape Pharmacy in Medan City who self-medicate for common colds. In line with earlier studies, the researcher wishes to investigate further if pharmacist intervention affects the knowledge, contentment, and treatment outcomes of patients at Kasih Agape Pharmacy who self-medicate for common colds.

Experimental Section

This study employs a descriptive quantitative design to gauge patient satisfaction and a quasi-experimental design with a one-group pretest-posttest design type to gauge the impact of treatment on knowledge variables and therapeutic outcomes. One group receives a pre-test, treatment, and post-test in a one-group pretest-posttest design. The purpose of this study is to assess how pharmacist involvement affects patient knowledge, satisfaction, and treatment results for Apotek Kasih Agap patients who self-medicate for the common cold (flu and cough) [9].

Location and Time of the Research

This research was conducted at Apotek Kasih Agape in Medan City from March to April 2025.

Population

The population used in this study is patients self-medicating for the common cold at Apotek Kasih Agape during March-April 2025.

Sample

The samples used in this investigation were chosen at random after meeting the inclusion and exclusion requirements. Purposive sampling, a sampling determination technique based on specific considerations, will be used for the sampling procedure. In order to create a sample that satisfies the inclusion requirements and generates experimental research pertinent to directing intervention or therapy, this sampling methodology is employed based on the one-group pretest-posttest design research method. 50 patients who self-medicate for the common cold at Apotek Kasih Agape and will receive therapy (intervention) make up the sample in this study, which was chosen based on inclusion criteria [10].

Research Procedure

Before deciding on the number of research samples, the researcher drafted a letter of authorization to Apotek Agape in Medan City and looked for three validators to verify the questionnaire that would be given to the study sample. Data was gathered via sending questionnaires to participants, and SPSS version 25 was used to process the results.

Data Collection

The survey method, a major data-gathering strategy that necessitates communication between the researcher and the respondents, was employed in this study.

Variable of Research

Patient knowledge, patient satisfaction, and the results of treatment for common cold patients who visit Apotek Kasih Agape are the study's dependent variables. The pharmacists' intervention at Apotek Kasih Agape is the study's independent variable.

Research Instrument

A questionnaire is the type of research tool used in this study. A questionnaire is a method of gathering data in which patients are given a series of questions with the hope of collecting answers. The research variables in this study were measured using a 5-point Likert scale. An individual's or a group's attitudes, views, and perceptions of social phenomena are measured using the Likert scale [11].

Validity and Reliability Testing

The IBM SPSS 25 computer program and the product-moment correlation approach were used to perform the validity test for this investigation. If the correlation probability value (sig., 2-tailed) is less than or

equal to the significance level (α) of 0.05, the instrument is deemed legitimate [12]. Cronbach's alpha is the reliability test used in this investigation. A dependability metric called Cronbach's Alpha has a range of 0 to 1. The Cronbach's Alpha dependability rating must be at least 0.60 [13,14].

Results and Discussion

Expert Validation Test

The questionnaire instrument used to measure the three primary variables in this study—patient knowledge, patient satisfaction, and therapy outcomes was subjected to expert validation testing. Three qualified validators carried out the validation process, and the Content Validity Index (CVI) approach was used to examine the evaluation outcomes. According to the results, every question item had an Item-CVI (I-CVI) value of 1.00, indicating that every validator agreed that each item is pertinent to the construct being measured (value 1). A Universal Agreement (UA) rating of 1.00 for every item showed that there were no disparities in validators' perceptions. Additionally, the scale's overall validity in measuring each construct is demonstrated by the Scale-CVI Average (S-CVI/Ave) value, which likewise reached 1.00. This number meets both the minimum requirement of I-CVI ≥ 0.78 for three validators and the minimum barrier of 0.90 suggested by instrument validation experts like Polit & Beck (2006) [15]. This study has certain limitations that should be acknowledged. Firstly, the research was conducted in a single community pharmacy with a relatively small sample size (n=50), which may limit the generalizability of the findings to broader populations or different healthcare settings. Additionally, the short follow-up period did not allow for long-term assessment of patient knowledge retention or sustainability of therapy outcomes. Future multi-center studies with larger, more diverse samples and extended observation periods are recommended to validate and expand upon these findings.

Validity and Reliability Testing

The validity and reliability tests are the two primary parts of the data feasibility test in this study, which aims to guarantee that the instruments utilized can measure accurately and consistently. All indicators in the questionnaire are valid, according to the results of the validity test, which was carried out using the product-moment correlation method between the indicator scores on each item and the total score on the relevant variable. The calculated r value for each indicator was higher than the table r value (0.3061), and all significance values were below 0.05. Cronbach's Alpha was used for the reliability test; an instrument is considered dependable if its reliability value is greater than 0.6. The reliability of this research instrument was demonstrated by the reliability test results, which showed that the variables Patient Knowledge, Patient Satisfaction, and Therapy Outcome had Cronbach's Alpha values greater than 0.6. The highest value was 0.962 for Patient Satisfaction, followed by 0.839 for Therapy Outcome and 0.675 for Patient Knowledge.

However, despite the intervention, the prevalence of irrational drug use remains notable. As observed by Anaba et al. (2021), approximately 40.6% of patients still engaged in irrational self-medication practices, with inappropriate dosing being the most frequent issue (34.5%). This persistent problem can be attributed to multiple factors, including the time constraints faced by pharmacists during patient consultations and the complexity of pharmaceutical information, which can overwhelm patients within a single educational session. Thus, while interventions improved general knowledge, there remains a gap in deep comprehension of dosing regimens and medication indications, particularly among patients with lower health literacy or limited consultation time.

Furthermore, this study revealed a marked improvement in therapy outcomes post-intervention, including symptom reduction, improved quality of life, and therapy satisfaction. These outcomes are consistent with the Health Belief Model, which posits that a patient's perception of the benefits of taking appropriate action (such as proper medication use) directly influences health behavior change. By enhancing patients' perceived self-efficacy and clarifying the benefits of rational drug use, pharmacist interventions act as critical "cues to action," facilitating better adherence and more effective self-management of minor illnesses.

Patient satisfaction also showed a significant increase post-intervention, with 76% of respondents expressing high satisfaction levels. This aligns with the findings of Pietrusiewicz et al. (2021), who reported that pharmacist education not only improved clinical outcomes but also reduced patient anxiety, thereby enhancing the overall perception of service quality. Patients who feel adequately informed and supported are

more likely to trust pharmacists' recommendations, leading to higher satisfaction and better engagement in self-care practices.

Analysis of Respondent

Identity: The identity of the respondents based on gender through these results can be seen in Table 1.

Table 1. Respondent characteristics

Characterictisc	Sample	Presentation (%)
Gender		
Male	14	28
Femele	36	72
Age		
20 – 35	21	42
35 – 55	22	44
55 – 70	7	14
Education		
Junior High School/ Senior High School	17	34
Diploma	8	16
Bachelor's Degree	21	42
Master's Degree	3	6
Doctoral Degree	1	2

Table 1 shows that 36 respondents, or 72% of the total, are female, while 14 respondents, or 28% of the total, are male. In terms of age, it is evident that the majority of respondents are between the ages of 35 and 55 (22, or 44%) and between the ages of 20 and 35 (21, or 42%). According to a 2016 study by Mardliyah, people of working age typically have high levels of mobility and activity burdens, which lead them to select quick fixes for minor health issues, like self-medication. [16]. Based on education, these findings show that most survey participants have a high level of education, with 42% having completed a bachelor's degree. A total of 66% of respondents had a high level of education when diploma (D3), master's (S2), and doctorate (S3) degrees are included. Conversely, 34% of respondents had a secondary education, meaning they had completed junior high school, senior high school, or vocational school. According to research done in 2020 by Yusuf et al., self-medication habit is strongly influenced by educational attainment. [17].

Patient Knowledge Level

This study involved 50 common cold patients who were recruited at Apotek Kasih Agape in Medan City who met the inclusion criteria. The distribution of respondents' knowledge levels can be seen in Figure 1 and Table 2.
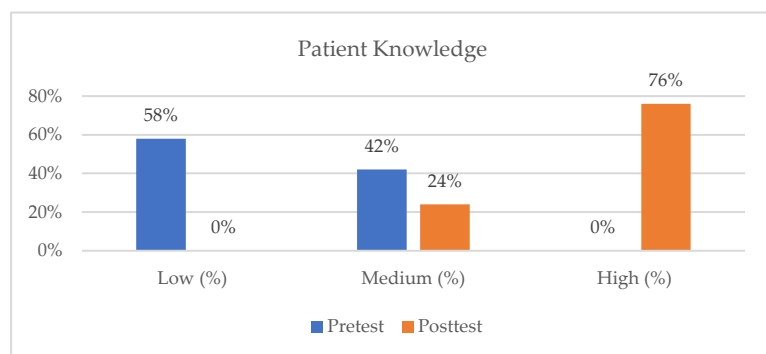

Figure .1: Frequency distribution graph of patient knowledge levels

The analysis conducted includes the frequency distribution of patient knowledge, normality test, hypothesis test using the Paired Sample t-Test as seen in Table 3, and the standard effect test in Table 4, along with the discussion.

Table 2: Frequency distribution of patient knowledge level

Knowledge Level	Low	Medium	High
Intervention pretest	29 (58%)	21 (42%)	0 (0%)
Intervention Posttest	0 (05)	12 (24%)	38 (76%)

Table 3. Paired Samples Correlations

Knowledge Level	N	Correlation	Sig. (2-tailed)
Pretest Knowledge and Posttest Knowledge	50	242	.000

Table 4. Mean Paired Sample t-Test Knowledge

	Paired Samples Correlations		
	N	Correlation	Sig. (2-failed)
Pretest Knowledge and Posttest Knowledge	50	242	.000

Frequency distribution and statistical testing were used to examine whether the pharmacist's intervention had a significant impact on patients' understanding of self-medication for the common cold at Apotek Kasih Agape Medan. The frequency distribution's findings indicate that most patients' knowledge levels rose as a result of the pharmacist's instruction and guidance. A normality test utilizing the Kolmogorov-Smirnov test was performed to verify the validity of the findings, and the results indicated that the patients' knowledge level data were normally distributed ($p > 0.05$) [18]. A hypothesis test was performed using a paired sample t-test to assess the difference in patients' knowledge levels between the pretest and posttest, with data that satisfied the assumption of normalcy.[19]. With a p-value < 0.05, the paired sample t-test findings demonstrated a substantial increase in patients' knowledge about self-medication for the common cold. To determine the extent of the impact of knowledge level changes, a standard effect test was also performed. The results showed that the pharmacist's involvement had a considerable impact on the improvement of patient knowledge, as indicated by the standard effect value. Overall, the study's findings show that pharmacist interventions at Apotek Kasih Agape Medan, such as education and counseling, can successfully raise patients' awareness of self-medication for the common cold. It is anticipated that patients will utilize medications more sensibly and safely as a result of this increased knowledge [20].

Outcome Therapy

The therapy outcomes of patients self-medicating for the common cold at Apotek Kasih Agape Medan were analyzed to assess the extent to which pharmacist intervention plays a role in accelerating recovery and symptom improvement. The therapy outcome graph on symptom improvement can be seen in Figure 2.
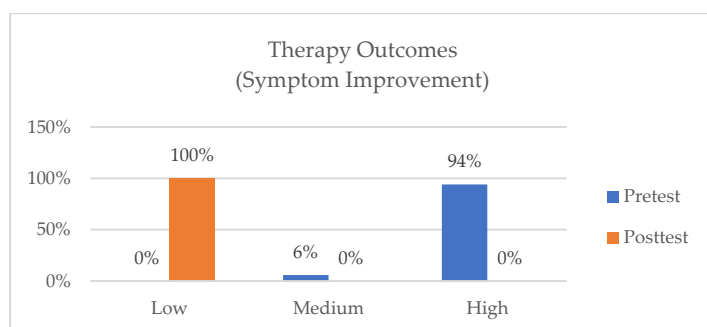

Figure 2. Therapy outcomes (Symptom Improvement)

Table 5 shows the frequency distribution of therapy outcomes on symptom improvement, Table 6 shows the frequency distribution of therapy outcomes on symptom frequency, Table 7 shows the frequency distribution of therapy outcomes on quality of life, Table 8 shows the frequency distribution of therapy

outcomes on therapy satisfaction, Table 9 shows the results of the Paired Sample t-Test on therapy outcomes, and Table 10 shows the Mean Paired Sample t-Test on therapy outcomes. Therapy results are divided into multiple levels in this analysis, from no change to a notable reduction in symptoms.

Table 5. Frequency distribution of therapy outcomes on symptom improvement

Group	Mild	Moderate	Severe
Intervention pretest	0 (0%)	3 (6%)	47 (94%)
Intervention Posttest	50 (100%)	0 (0%)	0 (0%)

Table 6. Distribution of therapy outcome frequencies on symptom frequencies

Group	Rarely	Sometimes	Often
Intervention pretest	0 (0%)	3 (6%)	47 (94%)
Intervention Posttest	50 (100%)	0 (0%)	0 (0%)

Table 7. Frequency distribution of therapy outcomes on quality of life

Group	Disagree	Neutral	Agree
Intervention pretest	0 (0%)	3 (6%)	47 (94%)
Intervention Posttest	50 (100%)	0 (0%)	0 (0%)

Table 8. Frequency distribution of therapy outcomes on therapy satisfaction

Group	Not Satisfied	Neutral	Satisfied
Intervention pretest	0 (0%)	3 (6%)	47 (94%)
Intervention Posttest	50 (100%)	0 (0%)	0 (0%)

Table 9. Paired Sample t-Test Outcome Therapy

Group	N	Correlation	Sig. (2 -failed)
Pretest_Outcome and Posttest_Outcome therapy	50	-3.78	.000

Table 10. Mean Paired Sample t-Test Outcome

Group	N	Correlation	Sig. (2 -failed)
Pretest_Outcome and Posttest_Outcome	50	-3.78	.000

After obtaining instruction and counseling from pharmacists, almost 70% of patients reported better therapeutic outcomes, according to the frequency distribution data. The Kolmogorov-Smirnov test was then used to perform a normality test in order to verify the validity of the data, and the results showed that the therapy outcome data were normally distributed ($p > 0.05$) [21,22]. A paired sample t-test was used to examine the differences in therapy results between the pretest and posttest, assuming that the data are normally distributed. The pharmacist's intervention effectively enhanced the patients' therapy outcomes, as evidenced by the paired sample t-test findings, which revealed a significant difference between the pretest and posttest results ($p < 0.05$). A standard effect size test was also performed to determine the extent of the impact of therapy outcome changes [18].

The standard effect test results demonstrate that pharmacist intervention significantly improves therapy outcomes. The comparatively high standard effect value suggests that pharmacist intervention significantly affects patient therapy outcomes. Overall, the analysis's findings show that pharmacist intervention in the form of teaching and counselling can significantly improve therapy outcomes and hasten

symptom healing for patients at Apotek Kasih Agape Medan who self-medicate for the common cold. This emphasizes how crucial the pharmacist is to enhancing therapy results and giving patients safer, more sensible care. The results of the study demonstrate that pharmacist assistance considerably improves the course of treatment for individuals suffering from the common cold [23]. The most notable and robust results from the therapy serve as proof of this. The intervention group (pretest) had a mean Paired Sample t-Test score of 25.88, which was considerably higher than the intervention group (posttest) score of 30.24. The Paired Sample t-Test findings showed a p-value of 0.000. Symptom improvement, symptom duration, quality of life, and therapy satisfaction with relation to medication use are among the therapy outcomes in this study, as indicated by Cohen's (1988) D value of 2.041, which falls into the large effect group [24]. Pharmacists' instructions can boost patients' confidence in self-medication, help them comprehend how to take medications correctly, and help them identify negative effects. This has a direct effect on how quickly and well a patient recovering from a typical cold recovers [25].

Patient Satisfaction Level

Pharmacists' instructions can boost patients' confidence in self-medication, help them comprehend how to take medications correctly, and help them identify negative effects. This has a direct effect on how quickly and well a patient recovering from a typical cold recovers. The following provides a detailed explanation of the frequency distribution data of patient satisfaction in the intervention group (posttest).

Table 11. Frequency distribution of patient satisfaction

Group	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied
Intervention posttest	0 (0%)	0 (0%)	12 (24%)	38 (76%)

According to the frequency distribution of patient satisfaction, most patients are either happy or extremely satisfied with the pharmacist's counseling and education services. Patients' satisfaction surveys cover several topics, including how easy it is to contact the pharmacist, how well medication is explained, and how professional and kind the pharmacist is when they consult with them. [19]. More than 80% of patients rated their experience favorably, according to the frequency distribution of patient satisfaction findings. Most patients expressed high levels of satisfaction with the pharmacist's level of knowledge and handling. In particular, the pharmacist's communication about the medication's dosage and side effects, as well as their availability to offer additional guidance, were the factors that garnered the highest satisfaction ratings. Furthermore, the impact of pharmacist intervention on patient satisfaction levels was analyzed.

The findings of the investigation demonstrated that pharmacist involvement can greatly improve patients' satisfaction with self-medication for colds. Patients feel more comfortable using the drug and know how to effectively control their symptoms thanks to the pharmacist's instruction and counseling. The primary elements that improve patient happiness are the decrease in treatment-related ambiguity and the growth in understanding of their disease. Overall, this study demonstrates that pharmacist interventions greatly raise patient satisfaction with Apotek Kasih Agape Medan's self-medication services for the common cold in addition to improving patient understanding and therapeutic outcomes. This demonstrates how crucial pharmacists are to satisfying patient expectations and delivering high-quality services, both of which contribute to improved therapeutic outcomes [26].

Conclusion

This study demonstrates how pharmacist teaching and counseling at Apotek Kasih Agape Medan greatly enhances patient happiness, therapy results, and understanding regarding self-medication for the common cold. Following the pharmacists' intervention, patients' therapeutic outcomes improved and their knowledge levels significantly increased (p-value < 0.05), according to the statistical test results. The majority of patients expressed pleasure with the services they received, especially with regard to communication and medication usage instruction, and their satisfaction levels also demonstrated a notable increase. These findings demonstrate that pharmacists' proactive roles in education and counseling can improve the quality of self-medication, encourage the safe and responsible use of pharmaceuticals, and boost patient satisfaction and

therapy results. This study offers crucial proof of how well pharmacist interventions can raise the standard of patient self-medication services.

Conflict of Interest

The authors declare no conflicts of interest.

Acknowledgment

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