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The Influence of A Pharmacist Services on Compliance Rate of Cancer Patients Treatment at Arifin Achmad Hospital, Riau Province, Indonesia

Ni Nyoman Sri Mas Hartini[1], Zihan Asri Ananda[1], Ida Lisni[1]

Faculty of Pharmacy Bhakti Kencana University, Bandung, Indonesia[1]

Abstract— Background: Oral chemotherapy is an alternative treatment that has high side effects that can affect cancer patient adherence and quality of life. Pharmacists have a potential role in increasing knowledge and understanding of treatment so as to increase patient adherence. **Objectives**: The purpose of this study was to determine the effect of pharmacist services on the level of treatment adherence of outpatient cancer patients at Arifin Achmad Hospital, Riau Province, Indonesia. **Methodology**: This research was an analytical descriptive study. The analysis was carried out qualitatively and quantitatively from the data questionnaire. The questionnaire was designed to measure the level of satisfaction of pharmacist services and MMAS-8 to measure the level of medication adherence. **Result**: The study showed that the majority of patients who received oral chemotherapy had high adherence (59.09%). The majority of patients' reasons for non-adherencewere forgetting to take medication. The average level of patient satisfaction on pharmacist services was 86.59%. **Conclusion**: The study found that there was a correlation between the level of satisfaction and the level of adherence on the empathy dimension (p=0.011). These dimensions need to be continuously improved in order to improve oral chemotherapy adherence.

Keywords: Adherence, Cancer, Role of Pharmacist, Satisfaction, Oral Chemotherapy.

Introduction:

Cancer is the third leading cause of death in Indonesia after heart and stroke[22].A total of 348,809 new cancer cases in Indonesia and estimateddeathsreached 207,210 peoplebased on Globocan 2018 data. The most common typesof cancer arebreast cancer (42.1/100 thousand population), cervical cancer (23.4/100 thousand population), lungscancer(12.4/100 thousand population), and colorectal cancer (12,000,000 people). 1/100 thousand population)[21].In low- and middle-incomecountries, population growth, aging and lifestylearefactorsthat trigger the increase in cancer morbidity and mortality[5].The clinical and economicburdenof cancer is estimated at 4% of the globalgross domesticproduct (GDP)[13]. The highclinical and economicburdengreatlyaffects the levelof patient compliance in treatment.

Adherence is defined as the extent to which patients followrecommendationsduringprescribedtreatment. Non-adherence to treatment is a complex and multidimensionalhealth problem. It is suspectedthatduringtreatment the patient willintentionally or unintentionallycommit non-compliance[45]. Adherence to treatment is important in improving the quality and survivalof patients [49].Oneof the causesof non-adherence to treatment is the emergenceofdisturbingsideeffects. Oral chemotherapy has sideeffects and hightoxicitythatcanaffectadherence[28].Patient adherence to histreatment is thought to be low, reachingonly 50-70%. Thereare 5 factorsthataffectadherence, including: social and economicfactors, healthcare team, therapy, diseaseconditions, and patient'shimself[45].

Patients should be providedwith information and understandingof the consequencesof non-adherencethatcanlead to decreasedsurvival, relapse rates and increasedhealthcarecosts.Planned patient

education is needed to assist patient in managing the complexityoftherapy and other risk factors[30]. Ensuring adherence during the treatment of cancer patients is an unmet challenge for medical personnel[41].Thereare studies showingthat the roleofpharmacists in the healthcare team is still small[8].The pharmacist profession understands aspectsofsafety, efficacy, and pharmacoeconomics in patient care so that the activeroleofpharmacists is expected to improve the qualityoflifeof patients.Thisstudywasconducted to determine the levelof patient satisfactionwithpharmaceutical services, especiallypharmacists, the levelof patient compliance in oral chemotherapytreatment. and the effectofsatisfactionlevel on medicationadherence.Sampling usingaccidental sampling method. The instrument used in this research is a questionnairethat has beentested for validity and reliability. The levelofsatisfactionwasmeasuredusing a satisfactionquestionnaire.

Methodology:

This research is an analytical descriptive study. The subjects of the study were cancer patients who received advanced oral chemotherapy treatment and pharmacists at the outpatient unit of Arifin Achmad Hospital, Riau Province, Indonesia. The number of research subjects was determined based on Isaac and Michael's table with a degree of tolerance of 5%, namely as many as 132 patients[43],[3].Sampling using accidental sampling method. The instrument used in this research is a questionnaire that has been tested for validity and reliability. The level of satisfaction was measured using a satisfaction questionnaire.Patient compliance was measured using The 8-item Morisky Medication Adherence Scale (MMAS-8).Data on the role of pharmacists are obtained from interviews with pharmacists in outpatient service units who have been carrying out their profession for at least 1 year.The data obtained were analyzed qualitatively and quantitatively through describe, categorizing, connecting, descriptive and spearman rank correlation[43].The significance of the research results is based on the results of statistical analysis of data using SPSP.

Result

Patient Characteristics

A total of 132 subjects were grouped based on their characteristics. Characteristics of patients who became indicators in this study were diagnosis, gender, age, and last education. The results of the statistical analysis of the frequency for patient characteristics can be seen inTable 1.

Table 1. Distribution of Patien Characteristics

Characteristics	Diagnosis						Total Subject (N=132)	
	Leukemia (N=30)		Lung Cancer (N=6)		Breast Cancer (N=96)			
	N	%	N	%	N	%	N	%
Gender								
Male	10	7,6	6	4,5	2	1,5	18	13,6
Female	20	15,1	-	-	94	71,3	114	86,4
Total	**30**	**22,7**	**6**	**4,5**	**96**	**72,8**	**132**	**100,0**
Age (years old)								
1-4	4	3,0	-	-	-	-	4	3,0
5-14	2	1,5	-	-	-	-	2	1,5
15-24	2	1,5	-	-	-	-	2	1,5
25-44	8	6,1	-	-	36	27,3	44	33,4
45-65	10	7,6	6	4,5	58	44,0	74	56,1
≥ 65	4	3,0	-	-	2	1,5	6	4,5

Total	**30**	**22,7**	**6**	**4,5**	**96**	**72,8**	**132**	**100,0**
Education								
College	10	7,6	6	4,5	58	44,0	74	56,1
Senior High School	14	10,6	-	-	34	25,8	48	36,4
Junior High School	0	0,0	-	-	-	-	-	-
Elementary	2	1,5	-	-	4	3,0	6	4,5
Others	4	3,0	-	-	-	-	4	3,0
Total	**30**	**22,7**	**6**	**4,5**	**96**	**72,8**	**132**	**100,0**

The data obtained show that women dominate cancer cases. The most common type of cancer in the first place is breast cancer. This is in line with data from the Indonesian Ministry of Health which states that breast cancer is a type of cancer that is often found in Indonesia with a prevalence of 42.1/100 thousand population[21],[22].Globocan 2020 data also states that the type of cancer that is often found in women is breast cancer[48].

Most cancer patients are in the age range of 25-65 years. This can be explained that the process of transformation from normal cells to cancer involves many factors that run from time to time. Factors that play a role in this transformation process include the accumulation of DNA damage and mutations, impaired DNA repair and cell growth regulation systems. Getting older also triggers a decrease in the immune system that supports mutations[47].

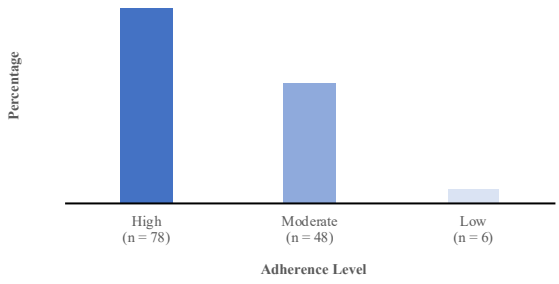
The majority of Patien have a minimum education level equivalent to senior high school.Education level has a strong influence on behavior and attitudes in receiving information.Muhtar et al (2021) in their research stated that the higher the level of education taken, the easier it is for a person to receive information to increase his knowledge, including knowledge about health.

Treatment Adherence Level

The level of adherence to treatment of cancer patients receiving oral chemotherapy can be measured based on the score of Morisky Medication Adherence Scale 8 (MMAS-8).The classification of the compliance level scale consists of: High compliance (score = 8); Moderate compliance (score=6 – 8); and low adherence (score= <6).

The results of measuring the level of adherence of respondents using the MMAS-8 questionnaire obtained distribution results as shown inFigure 1.

Figure 1. Level of Adherence



The results showed that the majority of respondents (59.09%) had a high level of adherence. Patients with low adherence levels may be at risk for non-adherence.Research data on patients' non-adherence in Table 2 showed that the majority of patients' reasons for non-adherencewere forgetting to take

medication.This is in line with the research results of Muluneh et al. (2016), which states that 30% of patients forget to take their medication.This is understandable because the control of outpatient drug consumption is completely under the control of the patient at home.The team of health professionals cannot carry out direct supervision of patients[14],[42].Other reasons for non-adherence are difficulty remembering the schedule for taking medication, already feeling well or suffering from pain, and difficulty understanding the importance of taking medication according to instructions.

Table 2. Frequency of patient non-adherence based on MMAS-8

No	Questions	Total Patien N (%)
1.	Sometimes forget to take OCM?	24 (18,18)
2.	Over past 2 weeks, any days OCM not taken?	8 (6,06)
3.	Ever cut back or stopped OCM without telling the doctor because you felt worse when taking it?	2 (1,52)
4.	When traveling, do you forget to bring OCM?	8 (6,06)
5.	Did you take your OCM yesterday?	16 (12,12)
6.	When you feel cancer is under control, do you stop taking OCM?	6 (4,55)
7.	Do you feel hassled about sticking to cancer plan?	6 (4,55)
8.	How often do you have difficulty remembering to take OCM?	4 (3,03): Once in a while 2 (1,52): Usually

Non-adherence can result in ineffective treatment, poor quality of life, development of other diseases, increased treatment costs and side effects such as diarrhea, fatigue, rash and mucositis[9].The results of the study by Streicher &Daulange (2018), showed that some patients were unable to self-manage their care at home, thus contributing to poor adherence. Complex management instructions result in a low understanding of chemotherapy regimens which is one of the causes of treatment non-adherence. Providing education by health professionals to patients in managing their oral chemotherapy can have an optimal impact on adherence.Some research mentions that pharmacist oncology is a key component in the management of oral chemotherapy.Pharmacists have a greater role in providing education to patients to improve understanding and adherence to oral chemotherapy[18],[42],[50].

Level of Patient Satisfaction with Pharmacy Services

Measuring the level of patient satisfaction with pharmaceutical services provided by pharmacists in this study used a questionnaire with 5 dimensions of satisfaction, namely tangible, assurance, empathy, reliability, and responsiveness.Each dimension of satisfaction consists of several questions. The tangible dimension relates to physical facilities, equipment, and materials used in service facilities.The assurance dimension is the pharmacist's ability to build patient trust.The empathy dimension is the pharmacist's ability to foster, pay attention, and facilitate access to help meet patient needs.The reliability dimension is the pharmacist's ability to provide accurate, promised services with full responsibility.The responsiveness dimension is the pharmacist's ability to help and provide services to patients quickly.The results of measuring the level of patient satisfaction with pharmaceutical services managed by pharmacists can be seen in Table 3.

Table 3. Level of Patient Satisfaction with Pharmacy Services

No.	Dimensions	%	Category
1.	Tangible	87,01	Very satisfied
2.	Assurance	88,96	Very satisfied
3.	Empathy	83,06	Very satisfied
4.	Reliability	82,52	Very satisfied
5.	Responsiveness	91,40	Very satisfied
	Average	86,59	Very satisfied

Research data shows that respondents are very satisfied with pharmaceutical services on all dimensions of measurement. However, the limited time for patient interaction with pharmacists and the absence of a discussion service facility regarding treatment by telephone are the things that respondents complain about.Pharmacists also do not provide explanations about the side effects of drugs and how to handle them. Consistent efforts and new innovations from the pharmacist's role need to be developed in the oral chemotherapy management program[18].Information regarding drug side effects and how to handle them can be conveyed in the form of direct interaction between pharmacists and patients, both in the counseling room and by telephone[27],[50].Consultation services for medical problems can also use a smartphone application led directly by a pharmacist[12]. The formation of a team of pharmacists who specifically run clinical pharmacy services for treating cancer patients will optimize the role of pharmacists[50].

Relationship between Satisfaction Level and Treatment Adherence Level

The results of the measurement of satisfaction and medication adherence were then tested for the relationship between the two parameters using Spearman rank correlation analysis.The results of statistical analysis can be seen in Table 4.

Table 4. Spearman Rank Correlation Analysis Test Results

No.	Dimensions	P value
1.	Tangible	0,313
2.	Assurance	0,217
3.	Empathy	0,011
4.	Reliability	0,134
5.	Responsiveness	0,093

The test results show that there is a significant relationship between compliance and patient satisfaction on the empathy dimension with a P value of 0.011. This can be interpreted that statistically empathy from pharmacists affects the level of patient medication adherence. Patients can become more obedient when they feel cared for, feel safe, comfortable and confident in expressing their thoughts and treatment problems to health professionals, one of which is a pharmacist[24].

Dimensions of empathy must continue to be nurtured / built properly. Efforts that can be made by pharmacists is to develop patient treatment management programs. This program can be carried out directly to patients or their families through special oncology counseling or by telephone and/or home pharmacy care can also be done.Education is intended to increase knowledge and understanding of patients about treatment which in turn is expected to improve medication adherence.

This study also explores the perspectives of two pharmacists who provide services about their role in improving patient medication adherence. They said that their roles so far have been in prescription

review, PIO and counselling.One of the important factors of oral chemotherapy management to improve medication adherence is monitoring/evaluation/education [44]. Counseling is one of ways to provide education to improve medication adherence.Pharmacists have an important role in the therapeutic treatment of cancer patients, such as the safety and rationality of drug use, as well as increasing patient survival[17],[27],[42],[50]. Pharmaceutical care programs that focus on patient education regarding oral antineoplastic agents can improve patient compliance and satisfaction [38].

3. Conclusion

The majority of cancer patients who received oral chemotherapy had high adherence (59.09%). The average level of patient satisfaction with pharmaceutical services is also high at 86.59%.There is a significant relationship between patients satisfaction on the empathy dimension and adherence level (p=0.011).The majority of non-compliance is caused by patients forgetting to take their cancer medication, difficulty remembering the schedule for taking medication, and lack of understanding of the importance of taking medication according to instructions.Pharmacists still need to provide education to patients on continued therapy.The role of pharmacists in monitoring and evaluating treatment can be realized through telephone services or home pharmacy care. Pharmacists' competence can be improved through training and active involvement in the oncology care team in health care facilities.

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