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*The Indonesian Journal of Health Promotion***Research / Review Articles****Open Access****Factors Affecting the Pattern of Health Service Receipt in Patients with Diabetes Mellitus at the Pangirkiran Health Center, Padang Lawas Utara Regency****Enta Marlina Harahap<sup>1</sup>, Haslinah Ahmad<sup>2</sup>, Anto J. Hadi<sup>3\*</sup>**<sup>1</sup>Student of Public Health Study Program, Master's Program, Faculty of Health, Aafa Royhan University, Padangsidempuan, North Sumatra, Indonesia, | [dianaellidianasiregar@gmail.com](mailto:dianaellidianasiregar@gmail.com)<sup>2</sup>Department of Public Health, Faculty of Health, Aafa Royhan University, Padangsidempuan, North Sumatra, Indonesia | [haslinahahmad75@gmail.com](mailto:haslinahahmad75@gmail.com)<sup>3</sup>Department of Public Health, Faculty of Health, Aafa Royhan University, Padangsidempuan, North Sumatra, Indonesia | [antoarunraja@gmail.com](mailto:antoarunraja@gmail.com)\*Corresponding Author: [antoarunraja@gmail.com](mailto:antoarunraja@gmail.com)**ABSTRACT****Background:** Diabetes Mellitus (DM) is a global health problem, with an increasing prevalence rate. In Padang Lawas Utara Regency, especially at the Pangirkiran Health Center, DM sufferers face various obstacles in receiving optimal health services.**Objective:** The study aims to analyze the factors that affect the pattern of receiving health services for people with diabetes mellitus.**Methods:** This type of quantitative research with a cross sectional study design was conducted at the Pangirkiran Health Center, Padang Lawas Utara Regency. The population and sample were all 136 patients with diabetes mellite with an exhaustive sampling technique. Data collection using a research questionnaire. The data was processed and analyzed using chi-square tests and logistic regression as well as the presentation of data with tables accompanied by explanations.**Results:** The results of the study prove that knowledge ( $p=0.007$ ) and socio-cultural ( $p=0.008$ ) have a significant effect on the pattern of receiving health services for people with diabetes mellitus. The most influential variable is Exp knowledge ( $B$ )=4.942.**Conclusion:** The conclusion was obtained that knowledge factors about diabetes mellitus and socio-culture play a significant role in determining the pattern of health service receipt. Therefore, it is important for the Pangirkiran Health Center to improve health education programs, improve access to services, and involve families in the process of managing diabetes mellitus. This research is expected to provide policy recommendations to improve the quality of health services for people with diabetes mellitus in the region.**Keywords:** Diabetes Mellitus; Knowledge; Socio-Culture; Health Service Receipt Patterns

## INTRODUCTION

Diabetes Mellitus (DM) is one of the chronic diseases that has a significant impact on the health of individuals and society. Diabetes Mellitus (DM) is a chronic metabolic disease characterized by high blood sugar levels due to the body's inability to produce or use insulin effectively (1). This disease has become a significant health problem around the world, including in Indonesia (2). According to data from the Ministry of Health of the Republic of Indonesia, the number of DM sufferers in Indonesia continues to increase every year, which requires more attention in handling efforts (3). According to the International Diabetes Federation (IDF), the prevalence of diabetes in 2019 was recorded at 9% in women and 9.65% in men. In general, cases of diabetes mellitus are expected to continue to increase as the population ages. In the age of 65-79 years, the prevalence of diabetes is predicted to increase from 19.9% to 111.2 million people. This projection shows that the number of people with diabetes will continue to increase until it reaches 578 million people in 2030 and around 700 million people in 2045 (4).

The prevalence of diabetes mellitus in Indonesia continues to increase, along with lifestyle changes and unhealthy diets and has been diagnosed reaching 1.5%, while when added to symptomatic patients, the prevalence is 2.1%. The highest prevalence of diagnosed Diabetes Mellitus in all age groups was found in DKI Jakarta (2.6%), followed by D.I. Yogyakarta (2.4%), North Sulawesi (2.3%), East Kalimantan (2.3%), and East Java (2.0%). Meanwhile, the prevalence of diagnosed Diabetes Mellitus plus symptomatic patients in the population aged  $\geq 15$  years is also highest in DKI Jakarta, which is 3.4% (5). In 2019, the health profile of North Sumatra Province recorded a prevalence of 249,519 people with Diabetes Mellitus (DM). Of these, as many as 144,421 people (67%) of them received health services in accordance with standards and as many as 104,998 people did not check themselves at health services (6). In Padang Lawas Utara Regency, especially at the Pangirkiran Health Center, the prevalence of DM sufferers also shows a fairly high number. The number of people with diabetes based on the latest data as of August 2023 is 136 people (7).

Puskesmas as primary health facilities have an important role in providing basic health services, including the prevention, diagnosis, and management of diabetes (8). However, even though health care facilities are available, many DM sufferers do not make optimal use of the services (9). This raises questions about what factors affect the pattern of receiving health services by DM sufferers in the region. Some factors that can affect the pattern of receiving health services in people with DM include the level of knowledge about the disease, attitudes and perceptions of available health services, as well as socio-economic factors such as accessibility to health facilities and financial ability to pay for treatment (10). In addition, family factors and social support can also play an important role in decision-making to obtain the necessary health care (11–14).

Although health services have been provided at the Pangirkiran Health Center, there are still many DM sufferers who do not routinely carry out examinations or follow disease management programs regularly. This indicates that there is a gap between the available services and the level of acceptance or use of services by DM sufferers. Therefore, it is important to understand more deeply about the factors that affect this pattern of receiving health services, so that the right solution can be formulated in improving the quality of services and compliance of DM patients in undergoing the necessary health care. This study aims to analyze the factors that affect the pattern of receiving health services for people with diabetes mellitus.

## METHOD

This study uses a quantitative type with a cross sectional approach to study. This research was carried out in the working area of the Pangirkiran Health Center, Padang Lawas Utara Regency. The population and sample in this study are all people with diabetes mellitus who came to check their health at the Pangirkiran Health Center as many as 136 patients and recorded in 2023, as well as sampling in total. Secondary data sources were obtained from the Padang Lawas Utara Regional Health Office and other sources related to this study. Meanwhile, primary data was obtained through filling out questionnaires by respondents independently. The instrument used in this study was in the form of a questionnaire consisting of questionnaires containing questions about respondent characteristics, knowledge, socio-culture, and health services in people with diabetes mellitus. The data analysis technique uses a descriptive quantitative analysis approach using chi-square test and logistic regression.

## RESULTS

**Table 1.** Characteristics of Diabetes Mellitus Patients at the Pangirkiran Health Center  
Padang Lawas Utara Regency

Age Group (Years)	n	Percentage
Adult	44	32.4
Elderly	92	67.6

Education	n	Percentage
Low	2	1.5
intermediate	78	57.4
High	56	41.1
Gender	n	Percentage
Man	67	49.3
Woman	69	50.7
Job Type	n	Percentage
Farmer	99	72.8
Merchant	7	5.1
Taking Care of the Household	24	17.6
Civil Servants	6	4.4
Suku	n	Percentage
Batak Angkola	121	89.0
Batak Toba	12	8.8
Melayu	3	2.2
Religion	n	Percentage
Islam	126	92.6
Kristen	10	7.4
Total	136	100

Table 1 shows that based on data from the Pangirkiran Health Center in Padang Lawas Utara Regency, the characteristics of people with Diabetes Mellitus (DM) show that the majority of patients are elderly (67.6%) compared to adults (32.4%). In terms of education, most have a secondary education level (57.4%), followed by higher education (41.1%) and low education (1.5%). There was a balance in the number between male and female patients, which was 49.3% and 50.7%, respectively. Most of the sufferers work as farmers (72.8%), followed by those who take care of households (17.6%), traders (5.1%), and civil servants (4.4%). Judging from the tribe, the majority came from the Batak Angkola tribe (89.0%), followed by the Toba Batak (8.8%) and Malays (2.2%). Meanwhile, most of the DM sufferers are Muslim (92.6%), and the rest are Christians (7.4%). The total number of patients recorded is 136 people, indicating a variety of characteristics that can be the basis for more appropriate health care planning in this region.

**Table 2.** The Influence of Knowledge and Socio-Culture on the Pattern of Health Service Receipt in Patients with Diabetes Mellitus at the Pangirkiran Health Center Padang Lawas Utara Regency

Variable	Patterns of Health Service Acceptance				Sum	X <sup>2</sup> (p)
	Less		Good			
	n	Percent	n	Percent		
<b>Knowledge</b>						
Less	10	27.8	26	72.2	36	9.017
Good	8	8.0	92	92.0	100	(0.003)
<b>Sum</b>	<b>18</b>	<b>13.2</b>	<b>33</b>	<b>86.8</b>	<b>136</b>	
<b>Socio-Cultural</b>						
Less	10	27,0	27	73,0	37	8,419
Good	13	8,1	91	91,9	99	(0,004)

<b>Sum</b>	<b>18</b>	<b>13,2</b>	<b>93</b>	<b>86,8</b>	<b>136</b>
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Table 2 shows that based on data from the Pangirkiran Health Center, Padang Lawas Utara Regency, the influence of knowledge and socio-culture on the pattern of receiving health services in patients with Diabetes Mellitus shows significant differences. In the knowledge variable, of the 36 respondents with a low level of knowledge, as many as 27.8% had a poor pattern of receiving health services, while 72.2% showed good acceptance. On the other hand, out of 100 respondents with a good level of knowledge, only 8% had a poor pattern of health service acceptance, and 92% showed good acceptance, with an  $X^2$  value of 9.017 and a significance value (p) of 0.003. For socio-cultural variables, of the 37 respondents with low sociocultural levels, 27% had a lack of acceptance patterns, while 73% showed good acceptance. Among the 99 respondents with good sociocultural levels, 8.1% had a poor acceptance pattern, and 91.9% showed good acceptance, with an  $X^2$  value of 8.419 and a significance (p) of 0.004. The total number of respondents was 136 people, indicating that there was a significant influence of both variables on the pattern of receiving health services in patients with DM.

**Table 3.** Multivariate Analysis of Factors Affecting Service Receipt Patterns for Diabetes Mellitus Patients at the Pangirkiran Health Center Padang Lawas Utara Regency

Variable	B	Sig	Exp (B)	OR	95% C For	
					Exp B	
					Lower	Upper
Knowledge	1.598	0.005	4.942	4.423	1.606	15.205
Socio-Cultural factors	1.420	0.162	4.139	4.213	0.565	30.310
Constant	-3.105	0.016	0.045			

Table 3 shows that based on a multivariate analysis of factors influencing the pattern of receiving health services for people with Diabetes Mellitus at the Pangirkiran Health Center, Padang Lawas Utara Regency, the knowledge and socio-cultural variables showed different influences. The knowledge variable had a regression coefficient (B) of 1.598 with a significance value (p) of 0.005, indicating that knowledge had a significant effect on the pattern of health service receipt. The Exp (B) value for knowledge is 4.942 with an Odds Ratio (OR) of 4.423 and a 95% confidence range between 1.606 to 15.205, indicating that respondents with good knowledge have a higher likelihood of receiving health services positively. Meanwhile, sociocultural factors have a regression coefficient (B) of 1.420 with a significance value (p) of 0.162, which means that this factor has no significant effect on health service receipts, although the Exp value (B) is 4.139 with an OR of 4.213 and a 95% confidence range between 0.565 to 30.310. A constant value of -3.105 with a significance of 0.016 indicates the basis of the overall likelihood of receiving health services.

## DISCUSSION

### The Effect of Knowledge on Health Service Receipt Patterns in People with Diabetes Mellitus

People with Diabetes Mellitus (DM) require continuous treatment and treatment to prevent serious complications, but the pattern of receiving health services in people with DM often varies and is not always optimal. One of the factors that influence this pattern of acceptance is the level of knowledge of patients about DM, including an understanding of the symptoms, risk of complications, and the importance of regular disease management. Good knowledge can encourage patients to be more active and obedient in undergoing regular check-ups and following medical advice (15), while lack of knowledge often leads to non-adherence to treatment (16). The results of the study showed that the level of knowledge of people with Diabetes Mellitus (DM) had a significant influence on the pattern of receiving health services. Patients with a higher level of knowledge tend to be more active in seeking and using health services provided by health centers or other health facilities. Good knowledge of DM, including an understanding of symptoms, risk of complications, and the importance of disease management, makes sufferers better understand the urgency of getting health services on a regular basis and in accordance with standards (17).

Specifically, patients who have adequate knowledge about DM show a more positive pattern of receiving health services. They tend to be more obedient in undergoing routine checkups, participating in disease management programs such as health education and treatment, and being more aware of the importance of complying with medical

advice to maintain blood sugar levels. This is in line with the findings of several previous studies that reveal that knowledge of a disease can motivate patients to be more involved in the treatment and treatment process (18). On the other hand, patients who have a low level of knowledge tend to be less active in using health services (19). They may not be fully aware of the importance of managing DM on an ongoing basis and often only seek treatment when symptoms are already severe. This can increase the risk of serious complications that could actually be prevented with regular check-ups and treatment (20). The results of this study show the importance of health education as an integral part of efforts to prevent and manage diabetes. Health education programs aimed at DM sufferers can increase their understanding of the disease, so it is expected to improve the pattern of receiving health services. Puskesmas and other health institutions can strengthen their role in providing information that is easy to understand for DM sufferers so that they are more motivated to use health services regularly. Overall, this study reinforces the assumption that increasing health knowledge has a positive impact on shaping health behaviors, especially in the context of receiving health services in people with diabetes. By improving the level of public knowledge, especially DM sufferers, it is hoped that an improvement in the quality of life of patients and a decrease in the risk of complications related to DM can be achieved (21).

Knowledge is one of the most influential factors in the pattern of receiving health services in people with Diabetes Mellitus (DM) because adequate knowledge allows patients to understand their health conditions better. With a good understanding of DM, including its causes, symptoms, complications, and the importance of regular disease management, sufferers are more likely to make optimal use of health services. Good knowledge encourages more proactive behavior in seeking treatment, undergoing regular checkups, and participating in diabetes management programs offered by healthcare facilities. Conversely, sufferers who have low knowledge of DM may not be fully aware of the risk of complications or the importance of consistent treatment, so they tend to ignore recommended treatments. This can increase the risk of serious complications that could actually be prevented through proper management. Low knowledge also makes sufferers more susceptible to the influence of inaccurate information or alternative medicine practices that are not necessarily effective. Thus, the knowledge variable plays a key role in determining how well people with DM receive the available health services. Improved health education that is comprehensive and easy to understand for people with DM can help increase their level of knowledge. This, in turn, will shape a better pattern of healthcare reception, improve adherence to care, and ultimately improve the quality of life of people with DM.

### **The Influence of Socio-Cultural Factors on the Pattern of Health Service Receipt in Patients with Diabetes Mellitus**

The pattern of receiving health services in people with Diabetes Mellitus (DM) is influenced by various factors, one of which is socio-cultural factors. Values, beliefs, and health practices inherited in society often influence the perspective and behavior of people with diabetes in seeking and utilizing health services. For example, in some cultures, there is a tendency to trust traditional or alternative medicine more, which can hinder the receipt of modern health services such as routine check-ups in health facilities (22,23). In addition, support from family and community is also very decisive, because a supportive social environment tends to encourage patients to be more obedient to medical care (24,25). The results of this study show that sociocultural factors have a significant influence on the pattern of receiving health services in people with Diabetes Mellitus (DM). Various sociocultural elements, such as values, beliefs, norms, and traditional health practices, influence the perspective and behavior of people with diabetes in seeking and utilizing health services. Socio-cultural factors can be an obstacle or support for the receipt of health services provided by health facilities (26). Similarly, the research of Gaidhane et al. (2021), found that cultural beliefs, traditional practices, and social factors in India influence the perception and acceptance of diabetes care. Many patients tend to ignore the early signs of diabetes to interfere with daily activities and tend to combine traditional medicine with conventional treatments, which are sometimes risky (27). In addition, the Betancourt & Flynn (2019) study, observed that mistreatment in health care and cultural beliefs have an effect on medical treatment avoidance and HbA1c control in DM patients in Chile. Cultural and psychological factors that play a role in the management of diabetes have a significant influence on patient health outcomes (28). Some respondents in this study revealed that there is a belief in traditional or alternative medicine that is considered more "natural" and in accordance with the local culture. They tend to prioritize traditional medicine practices before switching to modern health services, such as examinations or treatment at health centers. In addition, there is also influence from the family or community that supports a non-medical approach as a healing effort. This condition reduces the pattern of receiving formal health services in people with DM, which has an impact on slow treatment and an increased risk of complications due to poorly managed diseases (29). In contrast, in DM patients who are in an environment with positive acceptance of modern health services, a better pattern of acceptance is found. Family support in encouraging routine check-ups and treatment at health facilities makes patients more compliant in undergoing treatment (30). This

shows that a social environment that encourages the use of modern health services can improve the pattern of receiving health services in people with diabetes.

The study also shows that economic factors, which are closely related to socio-cultural backgrounds, influence health service receipt patterns. Some of the DM patients in this study come from low-economic groups and have constraints in accessing transportation or medical expenses. In some cultures, reliance on home or traditional remedies can also be associated with economic limitations (31). These results reinforce the findings of previous studies that suggest that a sociocultural approach that pays attention to cultural aspects and local community values is important to improve health service acceptance. Health facilities, such as health centers, can consider a more inclusive communication approach and adapt health information to the socio-cultural background of patients (32). Health education and advocacy involving community leaders and local cultural leaders can also be an effective strategy to increase understanding and acceptance of health services. Overall, this study underlines that a deep understanding of the socio-culture of the community can help in designing health interventions that are more in line with the needs and beliefs of people with diabetes. Thus, the pattern of receiving health services can be improved, which can ultimately support the improvement of the quality of life of DM patients and reduce the risk of disease complications.

## CONCLUSION

The conclusion of this study proves that both knowledge and sociocultural factors have an influence on the pattern of receiving health services in people with Diabetes Mellitus (DM), with knowledge being the most influential variable. A good level of knowledge about DM encourages patients to be more proactive in seeking health services and complying with treatment, while socio-culture also influences their perspective and decision to use health facilities. People with a better understanding of DM tend to be more receptive to and follow medical advice, which is important to prevent complications and improve their quality of life.

## SUGGESTION

As a suggestion, further research could consider a more in-depth approach to the influence of sociocultural factors by involving qualitative methods, such as in-depth interviews, to understand the values, beliefs, and traditional practices that can influence the health behavior of people with diabetes. In addition, health education programs that are tailored to the socio-cultural characteristics of the local community are also suggested, so that health information can be more easily received and understood by people with DM, so that it can increase the effectiveness of receiving health services.

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