

# Risk Factors for the Utilization of Inpatient Health Services Among Social Security Agency for Health Participants at Liwuto Community Health Center, Baubau, Makasar Island

Factores de riesgo para la utilización de servicios de salud hospitalarios entre los afiliados a la Agencia de Seguridad Social para la salud en Liwuto, Baubau, Isla Makasar

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## SUMMARY

**Background:** The utilization of inpatient health services by BPJS (Social Security Agency for Health) participants at Liwuto Community Health Center (Puskesmas), Makasar Island, Baubau City, remains suboptimal. Several factors, ifactors social, economic, geographical, and psychological factors, are believed to influence community decisions regarding the use of these services. **Objective:** This study aims to analyze the risk factors that influence the utilization of inpatient services by BPJS participants at Liwuto Community Health Center, Makasar Island, Baubau

**City. Methods:** This study employs quantitative case-control research design. The case group consisted of BPJS patients who utilized inpatient health services at the Liwuto Community Health Center between 2023 and 2024. The control group comprised BPJS patients who did not utilize inpatient services during the same period. A total of 106 participants were selected using purposive sampling. Data were analyzed using the Chi-Square test and multivariate logistic regression to determine the relationships and influence between variables. **Results:** The analysis revealed significant associations between inpatient service utilization and several variables: knowledge ( $p = 0.007$ ;  $OR = 5.417$ ), staff attitude ( $p = 0.010$ ;  $OR = 3.699$ ), household income ( $p = 0.0001$ ;  $OR = 3.304$ ), travel distance ( $p = 0.001$ ;  $OR = 7.870$ ), availability of healthcare personnel ( $p = 0.120$ ;  $OR = 0.543$ ), and family support ( $p = 0.019$ ;  $OR = 0.391$ ). Multivariate analysis identified family support as the most dominant factor ( $p = 0.033$ ;  $OR = 9.907$ ). The Nagelkerke R-squared, also known as the adjusted R-squared for logistic regression, value of 61.2 % indicates the extent to which the independent variables explain the variance in inpatient service utilization. **Conclusion:** Knowledge, staff attitude,

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*family income, travel distance, availability of health personnel, and family support are significant risk factors influencing the utilization of inpatient services by BPJS participants. Among these, family support emerges as the most influential factor.*

**Keywords:** Utilization, inpatient services, BPJS participants, community health center (Puskesmas).

*riesgo significativos que influyen en la utilización de los servicios hospitalarios por parte de los afiliados al BPJS. Entre ellos, el apoyo familiar se perfila como el factor más influyente.*

**Palabras clave:** Utilización, servicios hospitalarios, afiliados al BPJS, centro de salud comunitario (Puskesmas).

## RESUMEN

**Antecedente:** La utilización de los servicios de salud hospitalarios por parte de los afiliados al BPJS (Agencia de Seguridad Social para la Salud) en el Centro de Salud Comunitario (Puskesmas) de Liwuto, en la isla de Makasar, ciudad de Baubau, sigue siendo insuficiente. Se cree que varios factores, como los sociales, económicos, la distancia geográfica y los psicológicos, influyen en las decisiones de la comunidad con respecto al uso de estos servicios.

**Objetivo:** Este estudio tiene como objetivo analizar los factores de riesgo que influyen en la utilización de los servicios hospitalarios por parte de los afiliados al BPJS en el Centro de salud Comunitario de Liwuto, isla de Makasar, ciudad de Baubau. **Métodos:** Este estudio emplea un diseño de investigación cuantitativo de casos y controles. El grupo de casos estaba formado por pacientes del BPJS que utilizaron los servicios de salud hospitalarios en el Centro de salud comunitario de Liwuto entre 2023 y 2024. El grupo de control estaba formado por pacientes del BPJS que no utilizaron los servicios hospitalarios durante el mismo periodo. Se seleccionó un total de 106 participantes mediante un muestreo intencional. Los datos se analizaron utilizando la prueba de Chi-Cuadrado y la regresión logística multivariante para determinar las relaciones y la influencia entre las variables. **Resultados:** El análisis reveló asociaciones significativas entre la utilización de los servicios hospitalarios y varias variables: conocimientos ( $p = 0,007$ ;  $OR = 5,417$ ), actitud del personal ( $p = 0,010$ ;  $OR = 3,699$ ), los ingresos familiares ( $p = 0,0001$ ;  $OR = 3,304$ ), la distancia de desplazamiento ( $p = 0,001$ ;  $OR = 7,870$ ), la disponibilidad de personal sanitario ( $p = 0,120$ ;  $OR = 0,543$ ) y el apoyo familiar ( $p = 0,019$ ;  $OR = 0,391$ ). El análisis multivariante identificó el apoyo familiar como el factor más dominante ( $p = 0,033$ ;  $OR = 9,907$ ). El valor  $R$  cuadrado de Nagelkerke del 61,2 % indica el grado en que las variables independientes explican la varianza en la utilización de los servicios de hospitalización. **Conclusión:** El conocimiento, la actitud del personal, los ingresos familiares, la distancia de desplazamiento, la disponibilidad de personal sanitario y el apoyo familiar son factores de

## INTRODUCTION

The National Health Insurance Program (*Program Jaminan Kesehatan Nasional*, abbreviated as JKN), administered by BPJS Kesehatan (Social Security Agency for Health), is a government-led initiative to provide universal health coverage for all Indonesians and promote a healthier, more productive population (1).

Participation in the JKN-KIS (Kartu Indonesia Sehat) program has steadily increased. According to the National Social Security Council, 248 771 083 people were registered in 2022. This number rose to 273 525 350 by June 2024, 97.13 % of Indonesia's estimated 281 million population (Bappenas, or the Ministry of National Development Planning of Indonesia, is the central government institution responsible for formulating national development planning and budgeting) (2). In Baubau City, the JKN coverage reached 100 %, covering around 161 000 residents based on 2023 population data (3).

The World Health Organization (WHO) highlights healthcare utilization as a key public health goal. In 2014, WHO reported that 38.4 million people in Asia lacked adequate access to health services (4). Utilization remains low in rural areas of developing countries, at less than 50 %, compared to urban populations (5).

In Indonesia, healthcare utilization remains limited. Of 274 839 survey respondents, only 7 300 had been hospitalized in the past year. Among these, 53.36 % lived in urban areas and 46.64 % in rural ones. Notably, 89.94 % of BPJS participants who had inpatient care reported being satisfied (1).

Community Health Centers (*Puskesmas*) are Indonesia's primary health service providers. The government's policy to expand these facilities ensures fair access to care.

Community Health Centers Liwuto is the only health center on Makasar Island, Baubau City. It is an inpatient facility health care center that serves both BPJS PBI (Contribution Assistance Recipients) and Non-PBI members (6), (Puskesmas Liwuto Profile, 2021) and (7,8).

Several studies have examined what influences healthcare use, such as illness severity, access, insurance status, and perceived service quality (9). Galanis et al. (10), found in Greece that health knowledge affects service use. Hamada et al. (11) showed in Japan that lower family income limits access to care. Similarly, Nurul Qalbi et al. (12) as shown in Indonesia, the attitudes of healthcare workers also affect service utilization.

Given these findings and the declining trend in inpatient service use at Community Health Center Liwuto, this study aims to explore the contributing risk factors.

## MATERIALS AND METHODS

### Study design and population

This study used an observational analytic design with a case-control approach. It was conducted at Community Health Center Liwuto, Makasar Island, Baubau City, from February to March 2025. The study population consisted of patients who used or did not use inpatient services at Community Health Center Liwuto between 2023 and 2024. Those who used inpatient care were assigned to the case group, while those who did not were assigned to the control group. A purposive sampling method was applied, and the sample size was calculated using the unmatched case-control formula by Lemeshow (1990). The final sample consisted of 106 respondents, divided equally between the case group (53 respondents) and the control group (53 respondents), resulting in a 1:1 ratio.

### Data analysis

The data were analyzed using descriptive and inferential statistics. Univariate analysis described respondent characteristics. Bivariate analysis employed the Chi-square test to assess

relationships between variables, with results interpreted through the Odds Ratio (OR). Multivariate analysis used Logistic Regression to identify the most influential risk factors.

### Ethical approval

This research received ethical clearance from the Ethics Committee of the Faculty of Public Health, Hasanuddin University. Approval Number: 140/UN4.14.1/TP.01.02/2025. Validity Period: January 24, 2025 – January 24, 2026

## RESULTS

Table 1 presents the distribution of respondent characteristics, revealing several key demographic trends. Regarding age, most respondents in both the control and case groups fall into the adult category, accounting for 49.1 % and 50.9 %, respectively. Gender distribution shows a predominance of female respondents in both groups, with women comprising 88.7 % of the control group and 66.0 % of the case group. Regarding occupation, most individuals in the control group are housewives, representing 79.2 % of that cohort, while the case group primarily comprises respondents categorized under “other occupations” at 41.5 %. Educational background also shows distinct patterns, with the majority of respondents in both groups having attained higher levels of education, 84.9 % in the control group and 58.5 % in the case group having completed senior high school or pursued tertiary education.

### Bivariate Analysis

The bivariate analysis on the factors influencing the utilization of inpatient healthcare services by BPJS participants at Community Health Center Liwuto, Makasar Island, Baubau city is presented in Table 2. The Chi-Square test shows significant associations between several variables and the utilization of inpatient services by BPJS participants at the Community Health Center Liwuto. Family income is significantly related ( $p < 0.0001$ ; OR = 3.304; 95 % CI =

## RISK FACTORS FOR THE UTILIZATION OF INPATIENT HEALTH SERVICES

Table 1. Frequency Distribution of Respondent Characteristics.

Characteristic	Control Group (Did Not Utilize)		Case Group (Utilized)	
	n (53)	%	n (53)	%
<b>Age</b>				
Adolescents	2	3.8	10	18.9
Adults	26	49.1	27	50.9
Pre-Elderly	18	34.0	14	26.4
Elderly	7	13.2	2	3.8
<b>Gender</b>				
Male	6	11.3	18	34.0
Female	47	88.7	35	66.0
<b>Education</b>				
Low (Elementary, Junior High School)	8	15.1	22	41.5
High (Senior High School, Higher Education)	45	84.9	31	58.5
<b>Occupation</b>				
Fisherman	4	7.5	8	15.1
Civil Servant	2	3.8	1	1.9
Teacher	2	3.8	0	0
Housewife	42	79.2	19	35.8
Entrepreneur	0	0	3	5.7
Others	3	5.6	22	41.5

Source: Primary Data, 2025

2.349-4.648), indicating that those with higher income are 3.3 times more likely not to use inpatient services. Knowledge also plays a role ( $p = 0.007$ ; OR = 5.417; 95 % CI = 1.44-20.326), with lower knowledge increasing the likelihood of non-utilization by over five times.

Negative attitudes are associated with a significant link ( $p = 0.010$ ; OR = 3.699; 95 % CI = 1.325-10.330), making individuals nearly four times more likely to avoid inpatient care. Travel distance is also significant ( $p = 0.001$ ; OR = 7.870; 95 % CI = 2.145-28.879), with those living farther away being eight times more likely not to use the services.

In contrast, the availability of health workers is not significantly associated ( $p = 0.120$ ; OR = 0.543; 95 % CI = 0.251-1.175). Family support, however, is a significant protective factor ( $p = 0.019$ ; OR = 0.391; 95 % CI = 0.177-0.862), indicating that individuals with strong family support are less likely to utilize inpatient care.

### Multivariate Analysis

Table 3 shows that, based on multivariate analysis, the variable of family support is the most dominant factor influencing the utilization of inpatient health services by BPJS participants at the Liwuto Community Health Center, Makasar Island, Baubau City, with a  $p$ -value of 0.033 and an odds ratio (OR) of 9.907. This suggests that respondents lacking family support are 9.907 times more likely not to utilize BPJS inpatient services at the health center. The Nagelkerke R Square value of 61.2 % indicates that the independent variables included in the model explain 61.2 % of the variation in the dependent variable.

### DISCUSSION

According to Lawrence Green's theory, health-related behavior is influenced by three

Table 2. Bivariate Analysis of Factors Influencing the Utilization of Inpatient Healthcare Services by BPJS Participants at Community Health Center Liwuto, Makasar Island, Baubau City

Variables	Utilization of Services				Total %	n	p-value	OR* 95 % CI**
	Not Utilized		Utilized (%)					
	%	n	%	n				
<b>Income</b>								3.304
Low	0	0	56.6	30	28.3	30	0.0001	(2.349-
High	100	53	43.4	23	71.7	76		4.648)
<b>Knowledge</b>								5.417
Poor	24.5	13	5.7	3	15.1	16	0.007	(1.4-
Good	75.5	40	94.3	50	84.9	90		20.326)
<b>Attitude</b>								3.699
Negative	32.1	17	11.3	6	17	18	0.010	(1.325-
Positive	67.9	36	88.7	47	83	88		10.330)
<b>Distance to Facility</b>								7.870
Far	32.1	17	5.7	3	18.9	20	0.001	(2.145-
Near	67.9	36	94.3	50	81.1	86		28.879)
<b>Availability of Health Workers</b>								
Inadequate	39.6	21	54.7	29	47.2	50	0.120	0.543
Adequate	60.4	32	45.3	24	52.8	56		(0.251-
								1.175)
<b>Family Support</b>								0.391
Poor	32.1	17	54.7	29	43.4	48	0.019	(0.177-
Good	67.9	36	45.3	24	56.6	60		0.862)

Source: Primary Data, 2025, \*OR: Odds Ratio, \*\*CI: Confidence Interval.

Table 3. Results of Multivariate Analysis on Factors Influencing the Utilization of Inpatient Health Services by BPJS Participants at Liwuto Community Health Center, Makasar Island, Baubau City.

Variables in the Equation		B	Sig	Exp(B)	95 % CI for EXP(B)*		Negalkerke R Square
					Lower	Upper	
Step 1a	Income	-23.682	0.997	0.000	0.000	-	0.612
	Knowledge	0.238	0.836	1.269	0.134	12.050	-
	Attitude	0.91	0.946	1.095	0.079	15.155	-
	Distance to Facility	0.895	0.496	2.446	0.187	32.066	-
	Family Support	2.2293	0.033	9.907	1.204	81.500	-
	Constant	19.910	0.998	4.436	-	4.436	-

Source: Primary Data, 2025, \*CI: Confidence Interval.

key factors: (a) Predisposing Factors: these include health knowledge and perceived benefits of healthcare services; (b) Enabling Factors include family income, distance to healthcare

facilities, and availability of transportation; (c) Reinforcing Factors: these include attitudes and behaviors of healthcare providers, as well as family support (13).



In relation to Family Income, this study reveals a significant correlation between family income and the utilization of inpatient services by BPJS participants at Liwoto Community Health Center, Makasar Island, Baubau City. Income influences a household's ability to meet healthcare needs (14). In effect, Fadhilah et al. (15) found that higher income is associated with greater healthcare utilization ( $p = 0.0001$ ). Low-income families often prioritize daily essentials and face additional transportation costs, which discourages them from seeking care. This issue is also highlighted by Cinaroglu and Çaliskan (16), who emphasize that the burden of accessing healthcare services often falls disproportionately on the poor.

While BPJS provides substantial support for low-income groups to access appropriate healthcare, many still choose not to utilize services at public health centers, such as the Community Health Center. This study found that family income is a risk factor in determining whether BPJS participants utilize inpatient services at Liwoto Community Health Center (17).

Although BPJS covers healthcare costs, many people still avoid using services at public health centers, such as community health centers. This study confirms that family income is a risk factor for inpatient service utilization at Liwoto. Higher-income families prefer private facilities offering more comfort and speed, while lower-income groups rely on BPJS services at the Community Health Center as their most accessible option.

The study found a significant relationship between knowledge and the utilization of inpatient healthcare services by BPJS participants at the Liwoto Community Health Center (Puskesmas), Makasar Island, Baubau City. Knowledge is a critical factor influencing behavior. Individuals with a higher level of understanding and awareness regarding the importance of accessing healthcare facilities are more likely to seek medical help when needed. Karman (18) in a study conducted among coastal communities in Bungin Permai Village revealed that inadequate knowledge contributed to the underutilization of available healthcare services, primarily due to a lack of awareness among families regarding the benefits of these services.

The present findings suggest that knowledge plays a role as a risk factor in the utilization of

inpatient services among BPJS participants at the Liwoto Community Health Center. Participants with limited knowledge tend to be less informed about the benefits, procedures, and their rights as BPJS members, particularly concerning inpatient care. This lack of awareness often results in missed opportunities to access healthcare services that are either free or affordable. Thus, insufficient knowledge becomes a barrier to effective decision-making in accessing available healthcare services, including inpatient care covered under BPJS.

When analyzing the attitude of healthcare workers, a significant relationship was revealed between the attitude of healthcare workers and the utilization of inpatient healthcare services by BPJS participants at the Liwoto Community Health Center. The attitude of healthcare workers plays a crucial role in shaping the patient's experience through the quality of their interactions with patients. This includes listening attentively, building trust, demonstrating empathy, maintaining confidentiality, showing respect, and responding attentively to patient needs. Effective communication, which involves understanding and responding to patients' views, emotions, and expectations, is essential in healthcare service delivery (19). These findings are consistent with Nurul Qalbi et al. (12), who in a study conducted at the Tamalanrea Community Health Center, found a significant correlation between healthcare workers' attitudes and healthcare utilization.

Negative attitudes, such as a lack of courtesy, failure to actively listen to patients, or rushing through consultations, may make patients feel ignored or undervalued. This perception can significantly diminish trust and satisfaction with healthcare services. In contrast, healthcare providers who exhibit empathy, patience, and clear communication foster greater patient satisfaction and confidence, encouraging repeat visits and positive word-of-mouth referrals. Therefore, improving healthcare workers' interpersonal communication skills, service ethics, and empathetic practices is essential to maximizing the utilization of health services, particularly among BPJS members.

There was a significant relationship between travel distance and the use of inpatient services

by BPJS participants at the Liwoto Community Health Center, Makasar Island, Baubau City. Households closer to the Community Health Center were 1.7 times more likely to use healthcare services than those farther away, highlighting travel distance as a key factor in service utilization (20). Fatimah (21), also found a strong association between access and healthcare use at Kagok Health Center ( $p = 0.0001$ ), showing that shorter distances and faster access increase the likelihood of visiting health facilities. On the other hand, limited transportation and long distances often discourage people from seeking care at the Community Health Center. This issue is more pronounced in areas like Makasar Island, where poor infrastructure, adverse weather conditions, and nighttime darkness make reaching health facilities difficult. Long distances also reduce motivation for inpatient care, as patients may hesitate to stay far from home and be separated from their families. Therefore, improving access through well-located health centers is essential for increasing BPJS inpatient service utilization.

In relation to the Availability of Healthcare Personnel, the present results indicate that there was no statistically significant relationship between the availability of healthcare personnel and the utilization of inpatient services by BPJS participants at the Liwoto Community Health Center. In this context, the availability of healthcare personnel refers to their physical presence at the Community Health Center during patient care (22). Zaini et al. (22) found a significant relationship between healthcare personnel availability and service utilization ( $p$ -value = 0.0001). However, despite the presence of staff, their occasional unavailability during critical times, often due to participation in training sessions, meetings, or other duties, highlights the need for a reassessment of staff responsibilities and strategic planning to mitigate such service disruptions.

In contrast, the current study suggests that the availability of healthcare personnel does not pose a significant barrier to inpatient service utilization by BPJS participants at the Liwoto Community Health Center. Statistically, the relationship was not significant, and qualitatively, it was observed that the existing number and presence

of healthcare personnel were generally sufficient to meet service demands. This suggests that the community considers the current staffing level adequate and does not perceive it as a significant barrier to accessing inpatient services. Thus, while the availability of healthcare personnel remains an important element in service delivery, it does not appear to be a critical limiting factor in the context of the Liwoto Community Health Center regarding BPJS inpatient service utilization.

There was a significant link between family support and the use of inpatient services by BPJS participants at the Community Health Center Liwoto, Makasar Island, Baubau City. This finding is consistent with Sulaiman (23), who reported a significant association between family support and healthcare services ( $p = 0.0001$ ). Similarly, Veni dan Mutia (24), a significant correlation was also found ( $p = 0.011$ ), as reported by Sainuddin et al. (25), who demonstrated a significant relationship between family support and healthcare service utilization ( $p = 0.021$ ).

Family support emerges as a risk factor in the utilization of inpatient services at the Liwoto Community Health Center, as families often play a crucial role in health-related decision-making. When individuals face health challenges, the decision to seek inpatient care is frequently made collectively, with the family acting as a source of information, emotional support, and even logistical and financial assistance. Moreover, family support is essential not only during the decision-making process but also in practical terms, such as arranging transportation to the health facility, providing companionship during hospitalization, and ensuring that the patient's needs are met throughout the care process. In other words, family support has a significant influence on both the continuity and quality of inpatient care, not only through emotional encouragement but also through hands-on involvement.

This study's multivariate analysis confirmed that family support is the most dominant factor influencing the use of BPJS inpatient services at the Community Health Center Liwoto. It acts not just as emotional support, but as a major practical enabler in accessing and continuing care. Compared to other factors, such as knowledge, staff attitude, income, or travel distance, the

presence or absence of family support has the strongest impact.

## CONCLUSION

Several factors significantly contribute to the utilization of healthcare services among BPJS participants. Predisposing factors, particularly the level of knowledge, have been identified as essential determinants influencing service usage. Enabling factors, including family income, travel distance to the health facility, and the availability of healthcare personnel, also play a crucial role in shaping health-seeking behavior. Furthermore, reinforcing factors such as the attitudes of healthcare staff and the level of family support are significantly associated with the decision to utilize inpatient healthcare services. Among all the variables examined, family support emerged as the most dominant factor influencing the utilization of inpatient services at the Liwoto Community Health Center in Makasar Island, Baubau City, highlighting the essential role of familial involvement in facilitating access to appropriate care.

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## Conflict of interest

The Author(s) declares that there is no conflict of interest.

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