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# COMPARATIVE ANALYSIS OF ABILITY AND WILLINGNESS TO PAY THE COMMUNITY WITH UNIT COST (Case Study of Inpatient Mental Hospital in Maluku Province)

Muhamamd Al Fajrin, Darmawansyah, Muhammad Syafar, Muhammad Alwy Arifin, Amran Razak, Lalu Muhammad Saleh

**Abstract--** Rational tariff determination is done by calculating unit costs and also considers the ability and willingness to pay the community. This study aims to determine the comparison of tariffs that are calculated based on the level of ability and willingness to pay the community with unit costs. This research is quantitative research with a descriptive survey. The population in this study were all general patients undergoing inpatient treatment at the Maluku Province Special Hospital in 2019 as many as 512 people. The sample in this study was general patients undergoing inpatient care. The number of samples obtained by using accidental sampling technique was 45 people. The results of the study showed that the tariff based on unit cost was IDR. 497,732, above ATP IDR. 453,667, and WTP IDR. 429,444, for Class 1 tariffs based on unit costs of IDR. 260,571, - above ATP IDR.234,818, and WTP IDR.204,545, for class 2 tariffs based on unit costs of IDR. 186,675, - above ATP IDR. 182,100 and WTP IDR.160,500 and class 3 tariffs IDR.138,093, and still above the ATP IDR. 134,040 and WTP IDR. 134,000. Hospitals can make rational tariff revisions taking into account unit costs and ability and willingness to pay.

**Keywords:** ATP, WTP, Unit cost, Inpatient, and Hospital

## I. INTRODUCTION

Health Law No. 36/2009 states that health financing aims to provide sustainable health financing in sufficient quantities, fairly allocated, and utilized. Health financing is the number of funds allocated to organize and/or utilize various health efforts needed by individuals, families, groups, and communities [1].

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Hospital services are now socio-economic health services, which means social businesses that are endeavored to obtain financial surpluses by professional management by taking into account the people's ability and willingness to pay and economic principles [2]. Limited health financing coupled with the cost of producing health services in hospitals continues to increase, which will affect government hospital rates [3].

The ability to pay and willingness to pay are two factors that play a role in service utilization which in turn also affects equity. The ability to pay can be measured by the approach of calculating family income, family assets, or household expenses. The willingness to pay can be done in two ways, the first is to measure the actual ability means to measure the amount of expenditure someone has paid for health services and the normative ability can be done by asking how many individuals are willing to issue health services [4].

With the introduction of tariffs that take into account the ability and willingness to pay the public as users of services, the problem of affordable tariffs is still not finished because of the uncertain nature of the needs of each individual. If you pay attention to the number of patients who do not pay at government hospitals is indeed relatively small, but that does not mean the community can automatically reach the services provided [5].

Maluku Special Region Hospital is the only mental health facility in Maluku Province that provides services related to mental health problems, and related services, namely psychometrics, neurology clinics, medical rehabilitation clinics, dental clinics, general clinics, internal medicine clinics, laboratories, and other supporting services. Tariffs imposed at the Maluku Provincial Special Hospital based on Perda No 1 of 2019 concerning amendments to regional regulation No. 13 of 2013 concerning public service fees. Determination of rates in the Maluku Province Special Hospital is not determined based on the ability and willingness to pay for patients and has not been calculated based on unit costs or real costs incurred by the hospital [6].

Inpatient selection at the Maluku Provincial Special Hospital because BPJS Health does not apply to the inpatient class of this hospital. BPJS Health only bears actions according to the specificity of the hospice related to psychiatric while in the inpatient class the patient is still given payment according to the applicable tariff. Based on the data above, it is necessary to analyze the ability and willingness to pay for patients or the public who use health services so that later it can be seen that the corresponding costs are then compared with unit costs and ultimately as one of the references to policymakers regarding the determination of tariffs and a reference for budget planning in the hospital, especially in the inpatient unit. By knowing the ability and willingness to pay the community, the hospital can estimate how much the tariff does not cause harm to the hospital, but also does not burden the public health service users.

## II. MATERIALS AND METHODS

This type of research is quantitative research with descriptive surveys to analyze the level of ability to pay and willingness to pay inpatients in Maluku Province Special Hospital. The population in this study were all general patients undergoing inpatient treatment at the Maluku Provincial Special Hospital is 512 people. The sample in this study was general patients undergoing inpatient care. the number of samples obtained by using accidental sampling technique was 45 people. Data collection was obtained through interviews using a data processing questionnaire carried out by computerization using the SPSS program. Data is presented in the form of narration, frequency distribution tables accompanied by interpretation.

## III. RESULTS

Based on table 1, it is known that the distribution of household expenditure for food shows that the highest expenditure is in the range of IDR. 10.000.001-20.000.000 as many as 28 respondents (62.2%) and the lowest is expenditure

in the range of >IDR. 20.000.000, as many as 3 respondents (6.7%). As for the percentage of household expenditure for food according to the largest care class in the range between IDR. 10.000.001-20.000.000 is VIP as many as 6 respondents (66.7%), Class 1 as many as 8 respondents (72.7), class 2 as many as 6 respondents (60%) and class 3 as many as 8 respondents (53.3%).

Based on household expenditure for non-food items, it can be seen that the highest expenditure is in the range of IDR. 1.000.000 - 5.000.000 as many as 27 respondents (60%) and the lowest is in the expenditure range >IDR. 10.000.000 as many as 3 respondents (6.7%). While the percentage of household expenditure for non-food according to the VIP class of care is greatest at IDR. 5.000.001 - 10.000.000 as many as 5 Respondents 55.6%, while in Class 1 the largest percentage of household expenditure for non-food is in the range of IDR. 5.000.001 - 10.000.000 , - as many as 6 respondents (54.4%). In class 2 and class 3, the largest percentage of non-food expenditure was in the range of IDR. 1.000.000 - 5.000.000, as many as 7 respondents (70.0%) and as many as 14 respondents (93.3%)

The magnitude of the costs incurred by respondents for non-essential expenditure shows that the highest expenditure is in the range of IDR. 1.000.000-5.000.000 as many as 33 respondents (73.3%) While the percentage of expenditure for Non-essential according to VIP treatment classes, the highest is in the range of IDR. 1.000.000 – 5.000.000 as many as 6 respondents (66.7%) and the lowest non-essential expenditures are in the range of <IDR. 10.000.000 as many as 1 respondent (11.1%), the highest Class 1 non-essential expenditures are in the range of IDR. 1.000.000 – 5.000.000 as many as 9 respondents (81.8%) and the lowest non-essential expenditures were in the range of <IDR. 10.000.000 as many as 1 respondent (9.1%) and IDR. 5.000.001-10.000.000 as many as 1 respondent (9.1%). In class 2 and class 3 the highest expenditure is in the range of IDR. 1.000.000 – 5.000.000, each of 8 respondents (80%) and 10 respondents (66.7%).

**Table 1. Distribution of Respondents Based on Expenditures and Nursing Class in Maluku Province Special Hospital in 2020**

Expenditure Category	Class treatment								Total	
	VIP		Class 1		Class 2		Class 3		n	%
	n	%	n	%	n	%	n	%		
<b>Food Expenditures (IDR)</b>										
<10.000	1	11,1	3	27,3	3	30,0	7	46,7	14	31,1
10.001 - 20.000	6	66,7	8	72,7	6	60,0	8	53,3	28	62,2
> 20.000	2	22,2	0	0	1	10,0	0	0	3	6,7
<b>Non-Food Expenditures (IDR)</b>										
1.000 - 5.000	1	11,1	5	45,5	7	70,0	14	93,3	27	60,0
5.001 - 10.000	5	55,6	6	54,4	3	30,0	1	6,7	15	33,3
> 10.000	3	33,3	0	0	0	0	0	0	3	6,7
<b>Non-Essential Expenditures (IDR)</b>										
<1.000	1	11,1	1	9,1	2	20,0	5	33,3	9	20,0
1.000 - 5.000	6	66,7	9	81,8	8	80,0	10	66,7	33	73,3
5.001 - 10.000	2	22,2	1	9,1	0	0	0	0	3	6,7

Source: Primary Data, 2020

The calculation of respondents' ability to pay in this study was used to calculate the ability level of general patients to pay rates in the inpatient room of the Maluku Province Special Hospital by using ATP 5% of household expenses for food (Table 2).

**Table 2. Distribution of Paying Ability (ATP 1) of Respondents Based on 5% Non-Food Expenditures for each Class of Care in Maluku Province Special Hospital in 2020**

Class treatment	(ATP 1) 5% Non-Food Expenditures	
	Mean (IDR)	n
VIP	453,667	9
Class 1	234,818	11
Class 2	182,100	10
Class 3	134,040	14
<b>Total</b>	<b>1,004,625</b>	<b>45</b>

Source: Primary Data, 2020

Based on table 2 shows the ability to pay by using 5% multiplied by non-food expenditure - each respondent can pay for VIP treatment classes an average of IDR. 453,667, -, in Class 1 an average of IDR. 243,818, -, Class 2 an average of IDR. 182,100, and Class 3 of IDR.134,040 with a total of 14 patient respondents.

**Table 3. Distribution of Actual and Normative Willingness to pay (WTP) of Respondents by Class of Care at the Maluku Provincial Special Hospital in 2020**

Class treatment	WTP Actual		WTP Normative	
	Mean (IDR)	n	Mean (IDR)	n
VIP	760,000	9	429,444	9
Class 1	286,363	11	204,545	11
Class 2	215,500	10	160,500	10
Class 3	182,000	14	134,000	14
<b>Total</b>	<b>1,443,863</b>	<b>45</b>	<b>928,489</b>	<b>45</b>

Source: Primary Data, 2020

Table 3 shows that the actual WTP of respondents in the VIP Class averaged IDR. 760,000, in Class 1 the average was IDR. 286,363, Class 2 an average of IDR. 215,500, and Class 3 an average of IDR. 182,000. While the average willingness to pay normatively related to the assessment of respondents in the VIP class was IDR. 429,444, - class 1 was IDR. 204,545, - class 2 was IDR. 160,500, - and grade 3 was IDR. 134,000.

**Table 4. Unit Cost Distribution based on Class of Care in the Maluku Provincial Special Hospital in 2020**

Class treatment	Unit Cost
VIP	497,732
Class 1	260,571
Class 2	186,675
Class 3	138,093

Source: Primary Data, 2020

Table 4 shows the results of the study. Unit costs for inpatient VIP were IDR. 497,732, -, for inpatient class 1 IDR. 260,571, -, for inpatient class 2 IDR. 186,675 and for class 3 hospitalizations IDR. 138,093

**Table 5. Results Comparison of ability and willingness to pay with unit costs Based on the Class of Care in the Maluku Province Special Hospital in 2020**

Class treatment	Ability to pay (IDR)	Willingness to Pay (IDR)	Unit Cost IDR / (day)
VIP	453,667	429,444	497,732
Class 1	234,818	204,545	260,571
Class 2	182,100	160,500	186,675
Class 3	134,040	134,000	138,093

Source: Primary Data, 2020

Based on table 5 shows the VIP Class based on unit costs of IDR. 497,732, above ATP IDR. 453,667, and WTP IDR. 429,444, for Class 1 rates based on unit costs of IDR. 260,571, - above IDR IDR.234,818, and WTP IDR. 204,545, for Class 2 rates based on unit costs of IDR. 186,675, - above ATP IDR. 182,100 and WTP IDR. 160,500 and Class 3 rates IDR. 138,093, and still above the ATP IDR. 134,040 and WTP IDR. 134,000.

#### IV. DISCUSSION

The ability to pay for health or known as Ability to Pay (ATP) is a cost that can be allocated by someone to finance-related health services [7]. In this study, ATP is calculated based on the formula of 5% times the total non-food expenditure. Large ability to pay will have the perception that in higher class care, they will get better health services and this is of course

offset by their high ability to pay, and vice versa, respondents who have less ability to pay will have Class care according to the ability they have, ie most respondents choose Class 3.

High income is directly proportional to the higher expectations for getting services by the costs incurred to obtain these services. The results of this study are in line with research conducted by Mudayana which states that family income affects the ability of patients to pay for health services that have been provided, if the patient's income is still lacking then they assume that they are unable to pay for health services [8].

Expenditures for eating in this study consisted of respondents' expenditure in one year in the form of grains, tubers, fish, vegetables, beans, fruits, kitchen spices, and other consumption which was counted in rupiah. The results of this study also indicate that the type of food expenditure is the highest type of expenditure compared to other expenses. This is very reasonable because spending on food is a basic requirement that must be met for human survival.

Expenditures for non-meals in this study consisted of respondents' expenditure for one year in the form of expenditures for payment of electricity, water, gas, clothing, durable materials, taxes, and education which were calculated in units of rupiah. The majority of respondents incur high costs for food so that costs incurred for non-food necessities are quite low when compared to costs for food needs and also non-food expenses such as Land and Building Tax (PBB) payments that are jointly paid. Non-food expenses are included in the category of clothing needs, which do not have to be always met.

In this study, the most non-eating expenses incurred by respondents were expenses for household needs such as electricity and water. Household needs are daily necessities while the least non-food expenses incurred by respondents are expenditures to buy durable goods such as kitchenware, jewelry, and vehicles. Because the purchase of durable goods can be done in my long term. This is in line with research conducted by Marzuki et al., 2019 [9] which shows spending on food is higher than non-food expenditure and non-essential expenditure.

In this study, non-essential expenses consist of expenses for parties and ceremonies (marriage, aqiqah, circumcision, birthdays, holiday celebrations, and the like), expenses for cigarettes, alcohol, and snacks, expenses for entertainment, recreation and others. Most respondents' expenditure on non-essential needs is expenditure on cigarettes. While the least non-essential expenditure of respondents is for parties and ceremonies (marriage, aqiqah celebrations, circumcisions, birthday celebrations) because the implementation is rarely done and usually only once a year. The results of this study are in line with research by Istiqamah, et al, 2019 [10] which shows the largest non-essential expenditure is in class 3 as much as 41.4%. Research conducted by Hardy stated that the greater the ability to pay respondents, the higher the class of carefully chosen and vice versa [11].

The ability to pay for patients is still higher than the prevailing regional regulations at the Maluku Special Region Hospital. The ability to pay for health or known as the ability to pay (ATP) is a fund that can be allocated by someone to pay for his health. Ideally, everyone must have the same ability to achieve optimal health conditions. This is in line with research conducted Annaafia et al., 2020 [2] known that 50% of respondents have high ability, 45% of respondents have medium ability, and 5% have low ability. The ability of households in Kaliwates Hospital inpatients is more for inpatient classes with a tariff of IDR. 225,000, - and there is one respondent with an ability below the hospital rate that is unable to pay the lowest tariff. most of the ability to pay for inpatients at Kaliwates General Hospital is very good because it is above the applicable rates. This study is not in line with what was done Wirajaya, 2019 [12] at the Puri Raharja General Hospital in Denpasar showing ATP IDR <1,000,000 by 55% are in class 1 and 2 and the smallest IDR. 4,000,001 to IDR. 5,000,000 by 1.5% who are in the VIP class.

Willingness to pay respondents are willing to pay for health services in hospitals above the applicable rate if services including completeness of facilities and infrastructure can be improved and health service improvement is maximized. Willingness to pay for high health services is usually driven by one's perception in choosing a class of care based on good quality of care. These patients will appreciate the quality of service more than the price they have to pay, while the quality of service takes precedence in taking advantage of opportunities for patients who have a high level of willingness to pay. The hospital needs to pay attention to their desires and complaints. In addition to increasing the willingness to pay patients, the hospital needs to increase public perception that inpatient care services, especially in the VIP class and class 1 is the best treatment room and they will get satisfactory services so that the sacrifice of patients in the form of paying rates will be by what they received.

Unit costs are obtained by dividing the total costs that have been calculated by taking into account fixed costs, fixed operational costs and non-permanent operations with the output in each inpatient class [13]. Unit costs obtained are higher than the rates applicable in special hospitals in Maluku province because the unit costs are calculated based on the real costs incurred by the hospital in the form of payment of water costs, medical consumables, telephone costs and non-medical consumables costs.

The calculation of unit costs is higher than the calculation by looking at the ability and willingness to pay the community so that there needs to be a comparison by looking at the ability and willingness to pay with unit costs aimed at obtaining a rational cost picture that can be accepted by the community by knowing the ability and willingness to pay the community, the hospital can estimate how much rational tariffs that do not cause harm to the hospital, but also does not burden the public health service users.

## V. CONCLUSIONS AND RECOMMENDATIONS

This study concludes that tariffs based on unit costs are higher than the ability and willingness to pay for the community, as well as the ability of the community to pay for Class care costs higher than their ability to pay. therefore, by comparing the ability and willingness of the community with unit costs, it is recommended that the hospital can consider a rational adjustment of the tariff.

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