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Analysis Factor Influence with Waiting Time for Elective Surgery in General Surgical Outpatient Clinic

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ABSTRACT

Waiting time for elective surgery is an important indicator for assessing the quality of healthcare since waiting times are one aspect of quality according to patient dimensions as well as describing how access to health services. The waiting time for elective surgery is influence by demand and supply. This study aims to analyze the factors that influence the waiting time of patients undergoing elective surgery in general surgical polyclinic of Dr. H. Moch. Ansari Saleh district hospital. This research is a quantitative analytic research using cross-sectional study approach, chi-square dan binary regression logistic. The population of this research using sampling technique with systemic random sampling method. The median waiting time for elective surgery was 3.14 weeks. Chi-square test was significant which includes age category and specific investigations. However, multiple logistic regression showed specific investigations (OR) of 3,170 (95% CI 95% 1,807-5,267) were significantly likely to wait longer than those who with no specific investigations.

***Keywords**: elective surgery, general surgery, waiting time*

INTRODUCTION

The existence of long waiting lists and high waiting times has been an issue in many countries,[1] which is become a problem for many year,[2] and still are an important health policy concern in many advanced industrial countries,[3] especially in many publicly funded healthcare systems [4, 5] as in the OECD countries (Organisation for Economic Co-operation and Development).[4, 5, 6] Waiting times have also been shown to be a key determinant of satisfaction with public services and a key indicator of public sector inefficiency.[7] Citizen discontent about waiting times has forced governments to learn more about the waiting list phenomenon and take steps to change policy.[8] Waiting time for elective surgery is a key problem in the current medical world, [9] because of waiting time remains an important indicator for quality health services.[10]

In many countries, patients have long to wait for elective surgery.[11] Patients with publicly funded healthcare systems have to wait weeks or months for elective surgery.[12, 13] Waiting times are more than a statistic. Delayed surgery and cancellation of surgery must have a negative impact on health, independence, family life, mobility, ability to work, socialize and prolong the periode of pain.[14] Waiting lists for elective surgery also often affects quality of life.[15]

Waiting times for elective surgery influence by demand and supply.[16] The factors that may affect the elective surgery waiting time from the demand side are: a) patient factors (age, gender, status, ethnicity, address, duration of complaint since first felt, logistics arrangement); b) disease factors (diagnosis, comorbidities, necessary specific investigations, surgical procedures, special interventions before surgery). While the supply side is a factor of the hospital (consultation

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from other departments, number of emergency operations performed on the same day, available human resources, availability of the operating room, capacity or number of beds). As well as external factors such as ease of access to health services, the existence of health insurance and or health insurance, and distance to the residence.[16, 17, 18, 19]

Theoretically, waiting time balances supply and demand. However, it was found that waiting times were strongly influenced by non-clinical factors.[20] Waiting times can be decreased by decreasing patient waiting for time-based on their characteristics, including age, sex, length of stay, number of co-morbidities, practices, and providers.[19]

Based on secondary data year 2014-2016, the number of patient visit of general surgical outpatient clinic Dr. H. Moch.Ansari Saleh District Hospital, there is an increasing visit in 2014 (27.44%), 2015 (-5.34%), and 2016 (22.37%), and 44.07% in 2014, 2015 (22.78%) and 2016 (22.06%). From the total operations, elective surgery are the largest operations (66.85% , to operation 33.15%), where elective surgery for general surgery is the largest proportion (32.45%) of the overall elective surgery, the average of elective surgery at the Central Surgical Installation per day of as many as nine patients, with surgical elective surgery of 2-3 patients. The average waiting time for elective surgery of the general surgical outpatient clinic is 16.53 days (2.36 weeks).

This research aims to analyze the factors that influence the waiting time of patients undergoing elective surgery in general surgical outpatient clinic Dr. H. Moch. Ansari Saleh District Hospital.

MATERIALS AND METHOD

This research design is a quantitative using cross sectional approach. The population of this study was all general surgical patients who came from general surgical outpatient clinic and underwent elective surgery in Dr. H. Moch. Ansari Saleh Hospital Banjarmasin. The samples used in this study were all general surgical patients from general surgical outpatient clinic who underwent elective surgical surgery and were treated in a surgical treatment room (Kumala) from 2 January to 31 October 2017. Sampling technique using systematic random sampling method.

FINDINGS

General surgical elective surgery at Dr. H. Moch. Ansari Saleh Hospital of Banjarmasin in 2017 is the highest of 721 (30.85%). The results of the univariate analysis showed that patients who underwent surgical elective surgery were most common in the < 40 years age range, requiring no specific investigations and being financed by insurance. The waiting time of elective surgery general surgical outpatient clinic averaged 3.14 weeks (± 1.94 weeks).

Table 1. The Influence of Variables Against Waiting Time

No.	Variable	Waiting Time				Total		Value	OR
		< 3 weeks		≥ 3 weeks					
		n	%	n	%	n	%		
1.	Age category								
	< 40 years	97	31,91	69	22,70	166	54.61	0,006	1.939
	≥ 40 years	58	19,08	80	26,31	138	45,39		
	Total	155	50,99	149	49,01	304	100,00		
2.	Specific investigations								
	No	107	35,20	79	25,98	186	60,52	0,006	1.975
	Yes	48	15,79	70	23,03	118	39,49		
3.	Method of payment								
	Out of own pocket	9	2,96	2	0,66	11	3,6	0,076	4.531
	Insurance	146	48,03	147	48,35	293	96,4		

Table 2. Multivariate Logistic Regression Analysis

No	Variabel	*p value*	*OR*	95% C.I.	
1.	Age category	0,000	3.085	1.807	5.267
2.	Specific investigations	0,000	3.170	1.835	5.474
	Constants	0,000	0,037		

Table 3. Waiting time based on diagnosis

No.	Diagnosis	Number of patient (person)	Waiting Time					
			Mean		< 3 weeks		≥ 3 weeks	
			Day	Week	n	%	n	%
1.	Hernia Inguinalis, ventralis	93	19,73	2,82	56	60,22	37	39,78
2.	Fibroadenoma mammae	69	21,51	3,07	37	53,62	32	46,38
3.	Cholelithiasis	10	25,70	3,67	2	20,00	8	80,00
4.	Tumor	93	19,91	2,84	51	55,43	41	44,57
5.	Struma nodosa	39	32,26	4,61	8	20,51	31	79,49

DISCUSSION

There can be an influence of the age category on the waiting time (P=0.006), with an odds ratio of 1.939 meaning that the age category > 40 years have a risk of 1.939 times experiencing the incidence of waiting time > 3 weeks than the < 40 years. Age category > 40 years including productive age group, potentially risk disease from work and body endurance. In addition, productive age category is the age that tends to use more health facilities.[22] Patients with an age category > 40 years should undergo regular screening of complete blood count, extensive blood chemistry profile, urinalysis, prothrombin time, partial thromboplastin time, electrocardiogram (ECG) and thorak photos. The consultation was made to the internal medicine clinic to be assessed for their health status and the feasibility of anesthesia. This process makes the waiting time of age category > 40 years to be longer.

There can be a specific investigations effect on the waiting time (p=0.006). The OR value was obtained at 1.975, meaning that the group of patients requiring a specific investigations had a risk of 1.975 times having a waiting time > 3 weeks compared to patients who did not require a specific investigations. This particular investigations will extend the waiting time because the patient takes more time to pass the related indicated tests.

There was no influence on the method of payment of the waiting time (p=0.076). The method of payment is not proven as a variable influence the waiting time of elective surgery in general surgical at Dr. H. Moch. Ansari Saleh Hospital of Banjarmasin. This is in line with research who found that insurance did not affect the waiting time.[21]

The increasing patient visits to government hospitals in Indonesia is dominated by patients with health insurance or government subsidy funds compared to patients with private sources of funds. Since the introduction of the National health insurance (Jaminan Kesehatan Nasional, JKN) policy program since the beginning of 2014 organized by BPJS (Badan Penyelenggara Jaminan Sosial, Social Insurance Administration Organization), it is certain that the number of patients coming to hospitals and other health facilities will increase considerably. This is because the lower middle-class people who previously delayed going to the hospital for cost reasons, are now more enthusiastic to go to the hospital for treatment because the financing is guaranteed by the government. As a result, there are still many patients who participate

in BPJS who have to be on waiting list for action (such as surgery) or BPJS patient from surgical polyclinic for inpatient must wait long to obtain inpatient rooms. A public health insurance eliminates the constraints of a patient's financial problems on access to surgical services so that potential causes a high demand.[22, 23]

The results of this study indicate that the specific investigations variable is the most influential variable on the waiting time (p=0.000; OR = 3.170). This occurs because preoperative investigations is performed in a general surgical outpatient clinic, either for investigation or indicated tests for patient. Because the type of visits BPJS participants is the most (92.43%), then on specific investigations of BPJS participants must come more than once. Patients arrive at a minimum interval of one week to undergo further inspection for preparation of surgery. This is related to the charge of BPJS which is paid to the hospital lower than the actual cost calculated by the hospital.

In this study, patients who needed a specific investigations required a waiting time of 1.28 times longer than patients without a specific investigations (3.63 weeks versus 2.84 weeks). From all specific investigations at general surgical outpatient clinic needed to confirm a clinical diagnosis with the ultrasonography of the breast and axilla (58.47%) in the case of breast fibroadenoma, ultrasonography of the thyroid and FT4 and TSH (33.90%) in struma nodosa, as well as an abdominal ultrasonography (7.63%) in cholelithiasis.

Patients with a diagnosis of fibroadenoma mammae underwent elective surgery after waiting <3 weeks 30 (53.62%) with an average waiting time of operation is 3.08 weeks (1-9 weeks). Patients with a diagnosis of struma nodosa underwent surgery after waiting > 3 weeks (79.49%), with an average waiting time of 4.61 weeks (1.29-11.43 weeks). Abdominal ultrasonography examination was performed in patients with cholelithiasis diagnosis of 10 cases (100%). Patients with cholelithiasis diagnosis underwent surgery after waiting > 3 weeks (80%) with a mean waiting time of cholelithiasis surgery was 3.67 weeks (1.29-5.29 weeks).

Compared with diagnoses of hernias and tumors that did not require special inspection, patients with diagnosed hernia had surgery after waiting <3 weeks (60.22%). The average waiting time is 2.82 weeks (0.14-8.00 weeks). Patients with a tumor diagnosis underwent surgery after waiting <3 weeks (55.43%) for an average waiting time of 2.84 weeks (0.43-8.75 weeks).

CONCLUSION

The waiting times for elective surgery are influenced by age category and specific investigations, with specific investigations variables being the most influential factors.

Ethical Clearance: This study approved and received ethical clearance from the Committee of Public Health Research Ethics of Medical Faculty, Lambung Mangkurat University, Indonesia. I this study, we followed guideline from Committee of Public Health Research Ethics of Medical Faculty, Lambung Mangkurat University, Indonesia for ethical clearance and informed consent. The informed consent included the research tittle, pupose, participants' right, confidentiality, and signature.

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REFERENCES

1. Dimakou, S. (2013). Waiting Time Distributions and National Targets for Elective Surgery in UK: Theoretical Modelling and Duration Analysis. Unpublished Doctoral Thesis. London: City University London Department of Economics.
2. Jónsdóttir, H. and Baldursdóttir, L. (1998). The Experience Of People Awaiting Coronary Artery Bypass Graft Surgery: The Icelandic Experience. Iceland Journal of Advanced Nursing Volume 27, 68-74.
3. Ringard, Å. and Hagen, TP. (2011). Are Waiting Times for Hospital Admissions Affected by Patients' Choices and Mobility? BioMedCentral Health Services Research Journal Volume 11 Number 170, 1-9.
4. Lau, R., Vair, BA. and Porter, GA. (2007). Factors Influencing Waiting Times For Elective Laparoscopic Cholecystectomy. Canada Journal Surgical, Volume 50 Number 1, 34-38.
5. Dimakou, S., Dimakou, O. and Basso, HS. (2015). Waiting Time Distribution in Public Health Care: Empirics and Theory. Health Economics Review

Journal Volume 5 Number 25, 1-27.

6. Siciliani, L. Borowtiz, M., Moran, V. (2013).Waiting Time Policiesin The Health Sector: What Works? Paris: OECD Health Working Papers, 67, OECD Publishing.
7. Sinko, A., Turner, A., Nikolova, S., and Sutton, M. (2014). Models for Waiting Times in Healthcare: Comparative Study Using Scottish Administrative Data. Manchester: University of Manchester Library.
8. Löfvendahl, S., Eckerlund, I., Hansagi, H., Malmqvist, B., Resch, S. and Hanning, M. (2005). Waiting For Orthopaedic Surgery: Factors Associated with Waiting Times and Patients' Opinion. International Journal for Quality in Health Care Volume 17 Number 2, 133-140.
9. Antelo, M., Santias, FR. and Calvo, AM. (2015). Bed Capacity and Surgical Waiting Lists: A Simulation Analysis. European Journal of Government and Economics Volume 4 Number 2.
10. Conrad, M. (2013). Patient Waiting Time And Associated Factors at the Assessment Center, General Out-Patient Department Mulago Hospital Uganda. Thesis. Kampala: Makerere University. https://www.researchgate.net/publication/.
11. Oudhoff, JP., Timmermans, DRM., Rietberg, M., Knol, DL. and Wal, Gvd. (2007). The Acceptability of Waiting Times for Elective General Surgery and The Appropriateness of Prioritising Patients. BMC Health Services Research Journal Volume 7 Number 32, 1-12.
12. Cookson, R., Gutacker, N. and Sicilianiy, L. (2015). Waiting Time Prioritisation: Evidence From England. United Kingdom: Centre for Health Economics Research Paper 114, University of York.
13. Siciliani, L. and Hurst, J. (2004). Explaining Waiting-Time Variations for Elective Surgery Across OECD Countries. Paris: OECD Economic Studies No.8 OECD Publishing.
14. Murphy, K. (Chief Executive). (2015). Crunch Time Annual Report on Hospital Waiting Times p: 7. England: The Patients Association
15. Valente, R., Testi, A., Tanfani, E., Fato, M., Porro, I., Santo, M., Santori, G., Torre, G., and Ansaldo, G. (2009). A Model To Prioritize Access To Elective Surgery On The Basis Of Clinical Urgency And Waiting Time. Health Services Research Biomedicine Journal Volume 9 Number 1, 1-15. Diakses tanggal 29 Oktober 2017
16. Martin, S., Jacobs, R., Rice, N. and Smit, P. (2003). Waiting Times for Elective Surgery: A Hospital-Based Approach Project Report. University of York, Health England. York, England: Department of Health. Diakses tanggal 3 Maret 2017
17. Sharifa Ezat WP, Azimatun NA, Nik Jasmin NM., and Aljunid, S. (2009). Waiting Times for Elective Orthopaedic Surgeries in a Teaching Hospital and Their Influencing Factors. Medicine & Health Journal Volume 4 Number 1, 53-60.
18. Acharya, SP., Dharel, D., Upadhyaya, S., Khanal, N., Dahal, S., Dahal, S. and Aryal, K. (2014). Study of Factors Associated with Waiting Time for Patients Undergoing Emergency Surgery in a Tertiary Care Centre in Nepal. Journal of Society of Anesthesiologists of Nepal Volume 1, 7-12.
19. Gravelle, H., Dusheiko, M. and Sutton, M. (2000). The Demand for Elective Surgery: Time and Money Prices in the UK National Health Service. York: National Primary Care Research and Development Centre, Centre for Health Economics, University of York.
20. Johar, M., Jones, G., Keane, M., Savage, E. and Stavrunova, O. (2010). Waiting Times For Elective Surgery And The Decision to Buy Private Health Insurance. Econometrics and Health Journal. Volume 20, Issue 1, 68-86. Diakses tanggal 28 April 2018
21. Agussalim, Hermiyanti, Abdul Rahman. (2017). Analisis Implementasi Kebijakan Jaminan Kesehatan Nasional (JKN) di Rumah Sakit Umum Daerah (RSUD) Undata Palu. Jurnal Kesehatan Tadulako Vol. 3 No. 1, 1-84.
22. Rahman, Mariati. (2017). Kualitas Layanan Kesehatan Pasien Peserta Badan Penyelenggara Jaminan Sosial (BPJS) di Rumah Sakit Universitas Hasanuddin. Jurnal Ilmiah Ilmu Administrasi Publik, Vol.7, No.1, 30-37.
23. Hurst, J. and Sicilianiy, L. (2003). Tackling Excessive Waiting Times for Elective Surgery: A Comparison of Policies in Twelve OECD Countries. Paris: OECD Health Working Papers No. 6 OECD Publishing.