The Effect of the Covid-19 Pandemic on the Utilization and Catastrophic Costs of National Health Insurance

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Abstract

Background: The COVID-19 pandemic in Indonesia has significantly impacted the health care system and insurance schemes. Social distancing policies during the pandemic have led to changes in the utilization of health facilities, especially those related to catastrophic diseases that cost a lot of money. This study aims to analyze the impact of the Covid-19 pandemic on the utilization and financing of catastrophic diseases in the National Health Insurance (NHI) program.

Methods: The research design is quantitative and qualitative. The quantitative study analyzed secondary data obtained from the Social Security Administrator for Health and the nat. This study also has qualitative data from in-depth interviews with government and private hospital informants, health economists, and social health insurance experts.

Results: 2020 COVID-19 pandemic has impacted decreasing the utilization of National Health Insurance participants to health facilities and significantly affected the financing of catastrophic diseases. There was also a change in the ranking diseases pattern before and during the covid-19 pandemic. Before pandemic, the disease with the highest claim fee was ischemic heart disease, and after the pandemic, the disease with the highest claim fee was chronic kidney disease.

Conclusion: Covid-19 pandemic has impacted the catastrophic utilization and financing of the National Health Insurance program. The referral program has strengthened National Health Insurance financing cost containment efforts with conditions increasing during the Covid-19 pandemic. In the future, National Health Insurance financing needs to expand the scope of the benefits of preventive and promotive services.

Keywords: Covid-19 Pandemic, National Health Insurance, Utilization, Cost

Abstrak

Latar belakang: *Pandemi COVID-19 di Indonesia berdampak signifikan terhadap sistem pelayanan kesehatan dan skema asuransi. Kebijakan social distancing selama pandemi telah menyebabkan perubahan penggunaan fasilitas kesehatan, terutama yang terkait dengan penyakit katastropik yang memakan biaya besar. Penelitian ini bertujuan untuk menganalisis dampak pandemi Covid-19 terhadap pemanfaatan dan pembiayaan penyakit katastropik dalam program Jaminan Kesehatan Nasional.*

Metode: *Desain penelitian ini adalah kuantitatif dan kualitatif. Studi kuantitatif menganalisis data sekunder yang diperoleh dari Badan Penyelenggara Jaminan Sosial Kesehatan dan Dewan Jaminan Sosial Nasional. Penelitian ini juga memiliki data kualitatif dari wawancara mendalam dengan informan rumah sakit pemerintah dan swasta, ekonom kesehatan, dan pakar asuransi kesehatan sosial.*

Hasil: *Pandemi COVID-19 tahun 2020 berdampak pada penurunan utilisasi peserta Jaminan Kesehatan Nasional ke fasilitas kesehatan dan berpengaruh signifikan terhadap pembiayaan penyakit katastropik. Sebelum pandemi, penyakit dengan biaya klaim tertinggi adalah penyakit jantung iskemik, dan setelah pandemi, penyakit dengan biaya klaim tertinggi adalah penyakit ginjal kronis. Perubahan pola peringkat penyakit juga terjadi sebelum dan selama pandemi Covid-19.*

Kesimpulan: *Pandemi Covid-19 berdampak pada pemanfaatan dan pembiayaan program Jaminan Kesehatan Nasional. Program rujukan memperkuat upaya pengendalian biaya pembiayaan Jaminan Kesehatan Nasional dengan kondisi yang semakin meningkat di masa pandemi Covid-19. Pembiayaan*

Jaminan Kesehatan Nasional ke depan perlu memperluas cakupan manfaat pelayanan preventif dan promotive.

Kata kunci: *Pandemi Covid-19, Jaminan Kesehatan Nasional, Utilisasi, Biaya*

INTRODUCTION

The increase in Covid-19 cases has significantly impacted the global economy, including Indonesia (1). After being declared a pandemic, several sectors worldwide were affected by economic problems, including the transportation, tourism, trade, and health sectors (2,3). Social distancing policies implemented in various countries, including Indonesia, have also hampered the improvement of the health economy in Indonesia. The health system in Indonesia is not optimal after being affected by the Covid-19 pandemic (4).

In health services, social distancing policies can reduce the utilization of health facilities to prevent coronavirus transmission. Moreover, there are cases of health workers exposed to Covid-19, making some health facilities have to be temporarily closed and not provide health services (4,5). The experience of the spike in Covid-19 cases resulted in hospitals no longer having sufficient capacity to treat all Covid-19 and other patients in March and April 2020. Hospitals must intervene by increasing the availability of nurses ready to work, raising beds, and accelerating the procurement of junior doctors (5). Moreover, there is an appeal by the association of specialist doctors in Indonesia to postpone visits to health facilities to suppress the transmission of Covid-19.

Patients with chronic diseases such as diabetes, hypertension, and kidney disease require expensive health financing. Based on the Social Security Administrator for Health (BPJS Kesehatan) report, the cost of services for catastrophic illnesses in 2018 (until September) reached 22 percent of the total health costs or 14.5 trillion rupiahs; with the three highest diseases, namely heart disease, cancer, and stroke (6). In the same year as the Covid-19 pandemic, the National Health Insurance (NHI) program reported financial performance, ending the financing deficit in 2020 (7). The surplus of NHI financing can potentially affect the utilization of health services for NHI participants after the pandemic because there is an increase in visits by Covid-19 patients and public concerns for treatment during the pandemic. However, changes in utilization and claims for high-cost diseases on BPJS Kesehatan make it uncertain whether the increase or decrease will be confirmed. If there is a decrease, visit delays in patients with the catastrophic disease can potentially result in abnormal symptoms, severity, and a spike in mortality in the future. (8). Therefore, this study aims to analyze the effect of the Covid-19 pandemic on the catastrophic utilization and financing of the NHI program.

METHODS

This study uses a cross-sectional design with a mixed-method method (quantitative and qualitative). This study uses primary and secondary data. Primary data were obtained from in-depth interviews with selected informants from government-owned and private hospitals and in-depth interviews with experts according to the topic of study. Hospital information is management related to medical services and National Health Insurance management, while expert informants are experts in the field of National Health Insurance and health financing. The interview was conducted in 2021 with discussions on topics before and during the pandemic. Three hospitals became informants, consisting of two local government hospitals and one private hospital. All three are type B hospitals. Two hospitals are in South Tangerang City, and one is in Sleman Regency. The three were chosen so that there are variations in the type of hospital, ownership, and region.

Secondary data were obtained from the Social Security Administrator for Health and National Social Security Council. The secondary data obtained from the Social Security Administrator for Health are claim data and visit data from all hospitals in Indonesia in 2019 and 2020. The secondary data from the National Social Security Council is on visits by National Health Insurance participants to primary and secondary health facilities in 2019 and 2020. The quantitative method in this study was carried out by analyzing secondary data by comparing and looking at data trends in two observation periods, namely before and during the covid-19 pandemic.

The variables of this study are related to the financing of catastrophic diseases of the National Health Insurance program, namely the utilization of health services and claims for catastrophic diseases. The utilization of health services is seen from the visits of National Health Insurance participant patients to First Level Health Facilities, visits to hospitals, referrals of participants from First Level Health Facilities to hospitals, and Referral Program participants from hospitals to First Level Health Facilities. The utilization data from the Social Security Administrator for Health is sorted according to the highest utilization based on primary diagnosis in outpatient and inpatient settings. Meanwhile, data on claims for catastrophic diseases are sorted based on the top 10 rankings of diseases that are expensive. The inclusion criteria for this study are the data on the utilization of participants to health service providers, which can be found on the website page for the National Social Security Council data or Social Security Administrator for Health data. The selection of primary data is a National Health Insurance provider hospital determined based on representatives of government and private hospitals. Meanwhile, the exclusion criteria for this study are the utilization and financing of non-National Health Insurance participants.

Data analysis was carried out in an exploratory, descriptive manner by comparing conditions before and during the Covid-19 pandemic regarding utilization, medical services, and National Health Insurance financing. Qualitative data were analyzed by content from visit data and claim data at the hospital with in-depth interview data with hospital management regarding utilization patterns and claim data for National Health Insurance participants. Data validation was carried out by triangulating secondary data sources with primary data.

The ethical clearance of this study was granted by the ethics committee of the Agency for Health Research and Development, Ministry of Health of Indonesia (No. LB.02.01/2/KE.41/2021).

RESULTS

Figure 1 shows the changes in visits by National Health Insurance participants at First Level Health Facilities before and during the Covid-19 pandemic. During the COVID-19 pandemic, participant visits for non-COVID-19 to health care facilities decreased. Participant visits that experienced the most significant decline during the COVID-19 pandemic were visits to puskesmas (public health centers) and Pratama clinics. After confirmation to the hospitals, the results showed the same pattern: a decreasing trend of outpatient and inpatient visits for National Health Insurance participants during the Covid-19 pandemic (in 2020). According to study informants, being afraid to visit hospitals (and other health facilities) due to the transmission of COVID-19 is the main reason why the number of visits has decreased—supported by government regulations that limit community activities, including activities in health facilities.

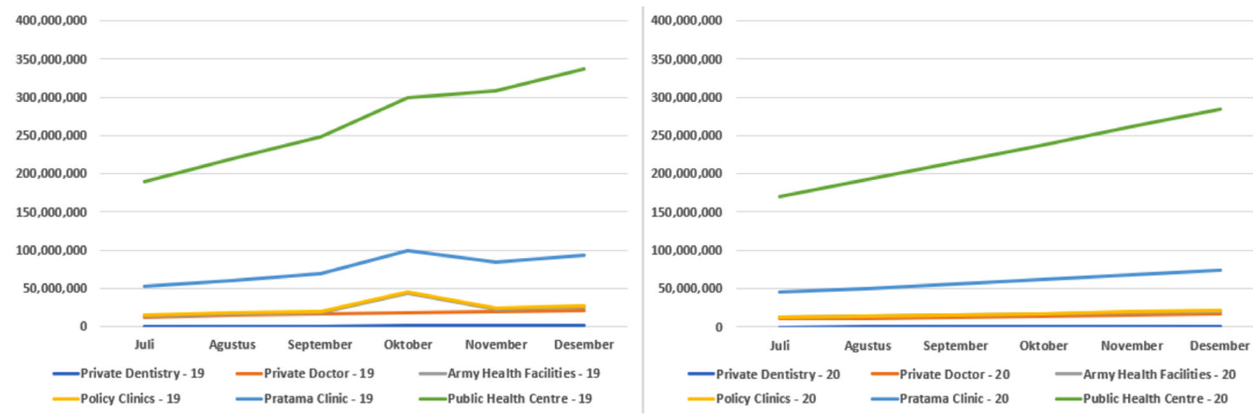

Figure 1. Changes in Utilization of NHI Participants in FKTP Before and After the Covid-19 Pandemic (Source: Processed from DJSN Data)

Based on the results of in-depth interviews with the management at the hospital, the hospital management's efforts to maintain the stability of patient visits to the hospital were carried out with several strategies. Among them are visits to patients' homes so that health service control can still be carried out. Hospitals also make use of telemedicine with patients.

Referrals for National Health Insurance participants in First Level Health Facilities before and during the Covid-19 pandemic generally showed a downward trend. Most of the referrals occurred at puskesmas and pratama clinics in 2019 and 2020, and a trend of decreasing referrals for National Health Insurance participants after the Covid-19 pandemic.

According to diagnosis, the referral program distribution in First Level Health Facilities was dominated by DM, heart disease, and hypertension before and during the Covid-19 pandemic. The referral program in cases of diabetes, hypertension, and heart disease experienced an increasing trend before and during the Covid-19 pandemic. Meanwhile, the distribution of the referral program at First Level Health Facilities according to disease diagnoses in Asthma, Stroke, COPD, Epilepsy, and Schizophrenia was relatively similar before and during the Covid-19 pandemic.

Table 1 shows that the National Health Insurance utilization based on primary diagnosis before the Covid-19 pandemic was highest in Type 2 Diabetes (5,382,994) and the lowest for Breast Cancer (1,018,573). Meanwhile, National Health Insurance utilization based on primary diagnosis during the Covid-19 pandemic was highest in cases of chronic kidney disease (5,633,476) and lowest for asthma (801,769). From table 1, it can also be seen that only chronic kidney disease experienced an increase in the percentage of visits by 14 percent, while the other nine diseases experienced a decrease in the percentage.

Table 1. Changes in the 10 Highest Utilization of National Health Insurance Participants in Outpatient and Inpatient Based on Primary Diagnosis Before and During the Covid-19 Pandemic

2019			2020			
No.	Diagnosis	Number of Visits	No.	Diagnosis	Number of Visits	Changes %
1	Type 2 Diabetes	5.382.994	1	Chronic Kidney Disease	5.633.476	+ 14.2
2	Essential hypertension	5.005.988	2	Type 2 Diabetes	4.896.926	- 9.0
3	Chronic Kidney Disease	4.930.848	3	Essential hypertension	4.236.600	- 15.4
4	Ischemic Heart Diseases	3.903.597	4	Ischemic Heart Diseases	3.715.564	- 4.8
5	Hypertensive Heart Diseases	3.046.401	5	Hypertensive Heart Diseases	2.718.879	- 10.7
6	Low Back pain	2.035.717	6	Low Back pain	1.490.269	- 26.8
7	COPD	1.529.660	7	COPD	1.248.883	- 18.3
8	Asthma	1.223.991	8	Breast cancer	1.011.625	- 0.7
9	Senile Cataract	1.196.036	9	Senile Cataract	881.181	- 26.3
10	Breast cancer	1.018.573	10	Asthma	801.769	- 34.5

Source: Social Security Administrator for Health Claims Data for 2019 and 2020

In the ten highest cases, before and during the pandemic, National Health Insurance utilization varied quite a bit on 1-3 and 8-10. In the order of 4-7 before and during the pandemic, National Health Insurance utilization did not differ, namely, ischemic heart disease, hypertensive heart diseases, low back pain, and chronic obstructive pulmonary disease. Most of the highest cases are non-communicable diseases that require expensive (catastrophic) treatment.

In the case of catastrophic financing, there was a change in National Health Insurance's catastrophic financing pattern before and during the Covid-19 pandemic (Table 2). Before the Covid-19 pandemic, the disease with the highest claim fee was heart disease, namely ischemic heart disease, with total financing of 5.5 trillion rupiahs. However, after the COVID-19 pandemic, there was a change. The disease with the highest claim fee was chronic kidney disease, with total financing of 5.6 trillion rupiahs. In line with utilization, in terms of financing, chronic kidney disease has also increased in percentage, while other diseases have decreased

Table 2. The 10 Highest Changes in National Health Insurance Financing Before and After the Covid-19 Pandemic

2019			2020			
No.	Diagnosis	Costs (in Rupiah)	No.	Diagnosis	Costs (in Rupiah)	Change %
1	Ischemic Heart Diseases	5.535.274.250.242	1	Chronic Kidney Disease	5.698.985.411.646	+ 6.7
2	Chronic Kidney Disease	5.340.159.287.135	2	Type 2 Diabetes	4.351.189.174.319	- 17.5
3	Type 2 Diabetes	5.277.158.428.234	3	Ischemic Heart Diseases	4.090.839.679.444	- 26.1
4	Essential hypertension	3.324.105.730.882	4	Essential hypertension	2.621.697.602.517	- 21.1
5	Hypertensive Heart Diseases	2.038.913.164.815	5	Hypertensive Heart Diseases	1.554.673.706.222	- 23.7
6	Senile Cataract	1.985.497.922.080	6	Senile Cataract	1.395.339.745.300	- 29.7
7	Ischemic stroke	1.711.416.888.715	7	Ischemic stroke	1.287.512.603.580	-24.7
8	Other Cataract	1.287.651.156.530	8	Breast cancer	986.508.392.118	- 7.9
9	Chronic obstructive pulmonary disease	1.149.172.111.525	9	Other Cataract	867.367.019.214	-32.6
10	Breast cancer	1.071.678.888.600	10	Hypertensive Renal Diseases	766.047.244.646	-

Source: Social Security Administrator for Health Claims Data for 2019 and 2020

In addition, there was a change in the ranking diseases pattern before and during the covid-19 pandemic. Before the COVID-19 pandemic, the top 10 diseases with high costs were ischemic heart disease, chronic kidney disease, type 2 diabetes, essential hypertension, hypertensive heart diseases, senile cataract, ischemic stroke and other cataracts, COPD, and breast cancer. Meanwhile, during the COVID-19 pandemic, the top ten diseases with high costs were chronic kidney disease, type 2 diabetes, ischemic heart diseases, essential hypertension, hypertensive heart diseases, senile cataract, ischemic stroke, breast cancer, other cataracts, and hypertensive renal diseases.

DISCUSSIONS

Visits of NHI Participants at FKTP before and during the Covid-19 pandemic, the results of this study generally showed a downward trend. Meanwhile, in 2021, the number of NHI participants will be 222.4 million of the total Indonesian population of 273.8 million. The decline in the utilization of patients to health facilities also occurred in other countries (9–11). In Singapore, the Covid-19 pandemic was associated with a 9.3% reduction in doctor visits, a decrease in inpatient visits, and a 2.7% decrease in being diagnosed with a chronic condition (9). Xiao et al.'s study in China also showed decreased outpatient and more inpatient visits in urban areas after the Covid-19 pandemic (11).

In the case of kidney failure, patient utilization increased. This increase occurred because hemodialysis could not be postponed, so patients visited health services during the pandemic and ruled out the coronavirus risk. International data shows that the fatality rate in dialysis patients has increased to 30% after the Covid-19 pandemic, so medical personnel prefers to do dialysis at home (12). Through the NHI program, the Government of the Republic of Indonesia is faced with the choice to provide coverage for dialysis patients in hospital or at home and the decision to provide kidney transplant benefits, both of which require considerable costs. The philosophy of "prevention is better than cure" provides an option for the government to expand the coverage of the benefits of screening in people with a high risk of developing kidney failure (13).

Most of the highest cases of patients participating in NHI are non-communicable diseases that require expensive (catastrophic) treatment. However, this study's findings revealed that these patients' utilization decreased during the Covid-19 pandemic. In other countries, visits to critically ill patients also significantly reduced with a difference in the incidence rate of 3.1 per 100,000 person-months, including stroke patients (10). Moreover, the Indonesian people are faced with various risk factors for non-communicable diseases that can contribute to the increase in disease cases in the future (14). These risk factors include consuming junk food, cigarette smoke that triggers cancer cases and not exercising regularly (15,16).

Based on the Presidential Decree on Health Insurance No. 82 of 2018, Article 46 paragraph 1 states that the benefits of comprehensive NHI include individual preventive, promotive, curative, and rehabilitative benefits (17). A study revealed that the NHI program's individual preventive and promotive benefits could improve the health of NHI participants to avoid various costly diseases. (18). This opportunity signals NHI to further develop individual preventive and promotive benefits, especially on claims of high-cost diseases.

The screening benefits contained in the NHI are based on Presidential Regulation no. 82 of 2018 concerning Health Insurance, namely screening for the detection of diabetes, hypertension, breast cancer, and cervical cancer (17). According to the results of this study, this individual preventive benefit needs to be increased by looking at the ten highest-cost expensive cases. The NHI must also screen for other necessary diseases based on the results of this study, in addition to diabetes, hypertension, cancer, kidney failure, cataracts, stroke, and low back pain. Increasing the benefits of this NHI must be done by restricting drugs, procedures, and medical devices guaranteed through the Health Technology Assessment (HTA) procedure (19). The NHI health facility network can expand screening coverage, such as in pharmacies, implemented in Germany. (20).

Based on the results of confirmation to the hospital in this study, the hospital management carried out outpatient visits to the home to maintain the stability of patient visits. The home visit helps monitor the improvement of the condition of chronic disease patients and provides education to patients to implement a healthy lifestyle. Meanwhile, visits by medical personnel to patients' homes that NHI can cover have the potential to be applied to the coverage of contact numbers contained in the Commitment-Based Capitation services. Improving the quality of the coverage of contact numbers on capitation payments is very much needed in the future to reduce the high cost of abnormality in chronic disease patients.

In addition to home visits, the hospital management revealed that telemedicine was used to reduce the decrease in inpatient visits through the findings of this study. The BPJS Kesehatan has developed an NHI mobile application with the potential for telemedicine services to be guaranteed by NHI. The advantages of the current NHI Mobile application are teleconsultation, development of online prescribing, online queues, and health education to NHI participants. (21). Technology-based screening, historical recording of participant claims history, and real-time data based on best practices can be a direction for future development of the NHI program implemented by the Korean state since the Covid-19 pandemic (22). These efforts are carried out to prevent a spike in high-cost claims cases and prepare for another pandemic. The Government of the Republic of Indonesia needs to strengthen regulations regarding telemedicine in Indonesia so that its operations become more focused on improving public health status (23).

In this study, the Refer Back Program in DM, hypertension, and heart disease cases experienced an increasing trend before and during the Covid-19 pandemic. Even though the pandemic status has been declared, this condition must be maintained. Increasing Refer Back Program is essential to strengthening the cost containment of NHI financing. Patients with high-cost diseases still receive financial protection under the NHI scheme. On the other hand, paying for health facilities on a fee-for-service or out-of-pocket basis should be avoided because this payment method can be more wasteful and impoverish patients (8). This momentum needs to be used as a benchmark for the Indonesian people to stay involved and remain active as NHI participants, especially patients with chronic diseases, in financial protection from increasingly expensive health costs (24).

The importance of social distancing during the Covid-19 pandemic has made the NHI provider health facility business adapt to providing services to chronic disease patients. Moreover, during the Covid-19 pandemic, the government implemented various social distancing policies, namely Large-Scale Social Restrictions and Enforcement of Community Activity Restrictions. This policy requires health facilities also to adapt. Studies before the pandemic revealed that the hospital's strategies to survive in the NHI era were operational cost efficiency, digitalization, increasing HR capabilities, customer relationship management, and collaboration (25). A study conducted during the Covid-19 pandemic found that health workers had not received training on data processing that was useful for strengthening patient screening practices (4).

The advantage of this study is that it uses three sources of data, both secondary and primary data. Secondary data with national coverage is obtained from BPJS Health and DJSN data. While primary data was obtained from confirmation of health facilities (RS) in several regions in Indonesia, better data accuracy

was obtained compared to using only secondary data without data confirmation. In comparison, the weakness of this study is that the BPJS Health data is in a one-year format, both in 2019 (before the pandemic) and 2020 (during the pandemic). The pandemic started in March 2020, so three months in 2020 shouldn't be counted as a pandemic. For the study, it is better if the data provided is monthly so that a firm selection can be made before and during the Covid-19 pandemic.

Compared to other studies, particularly in Indonesia, this study discusses specific diseases other than covid, which has been proven to have cost the NHI a lot (6). In contrast, other studies explain more about the costs incurred by the government from covid itself. This study also does not discuss how much the government has spent on Covid-19, even though it can be said that the COVID-19 disease has become catastrophic during this pandemic. In addition, because the pandemic has not ended, how much the costs of high-cost diseases after the pandemic have not been determined. So, further studies, especially regarding this catastrophic disease, must also be carried out after the pandemic ends.

CONCLUSION

This study concludes that the Covid-19 pandemic has impacted the catastrophic utilization and financing of the National Health Insurance program. This impact can be seen in the downward trend in utilization and referrals of NHI participants. However, The referral program has strengthened National Health Insurance financing cost containment efforts with conditions increasing during the Covid-19 pandemic. Visits of patients with chronic kidney disease have an increasing trend because hemodialysis procedures cannot be postponed. National Health Insurance funding for the top 10 catastrophic diseases reached more than 25 trillion before the Covid-19 pandemic and decreased to around 20 trillion during the Covid-19 pandemic.

This study suggests to the Ministry of Health that it is necessary to immediately end the Covid-19 pandemic status because there are dangerous implications for catastrophic diseases in the future. In the future, National Health Insurance financing needs to expand the scope of the benefits of preventive and promotive services, especially the prevention of catastrophic diseases, to reduce the burden of National Health Insurance claims. Health facilities provided by National Health Insurance providers need to prepare for better management of health services after the pandemic, including the actual cost of health services for catastrophic diseases, the efficiency of health services for catastrophic diseases, and digitization of the provision of health services to patients.

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Conflict of Interest

We have no conflicts of interest to disclose.

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