The evaluation of Acehnese people’s health insurance from the welfare perspectives

Muhammad Yani¹, Rachmad Suhanda², Indrita Iqbalawati³, Diah Ayu Puspadari⁴, Hafasuddin⁵, Aditya Candra⁶, Teuku Muhammad Ilzana⁷, Teuku Muhammad Khaled⁸, Cut Rizka Rahmi⁹

ABSTRACT

Introduction: Indonesia has tried to implement the UHC system by implementing the National Health Insurance (JKN) program since 2014. To extend the coverage of JKN, the government of Aceh, one of the poorest provinces in Indonesia carries out Acehnese People’s Health Insurance (JKA), which aims to improve the health and welfare of the people of Aceh. However, there has never been an evaluation of the usefulness of JKA related to the welfare of the Acehnese people. Therefore, this study aims to evaluate the impact of JKA on the level of welfare of the people of Aceh.

Methods: This was an ecological study with a cross-sectional approach to evaluate the correlation between welfare indicators (education, health, and housing) and Community Coverage Levels and Capitation Costs on Acehnese People’s Health Insurance. All study data were taken from the Acehnese public health insurance accountability report and the people’s welfare statistics report from the Central Statistics Agency. All data collected were analyzed using SPSS ver. 25.

Results: JKA has an average community coverage of about 2 million people with an average capitation payment of around 139 billion rupiahs from 2015 to 2021. Immunization coverage was significantly correlated with community coverage, non-capitation fee, and drug cost. In addition, drug costs are also significantly related to formal school coverage. Meanwhile, medical equipment cost was correlated with sanitation and internet coverage. However, other welfare indicators did not find a correlation between community coverage and capitation costs.

Conclusion: Some indicators of JKA were significantly correlated with several indicators of welfare in Aceh.

Keywords: Aceh, health insurance, JKA, JKN, welfare.


BACKGROUND

Improving the health status of a country is a fundamental goal of the applied health system. It requires attention to provide equitable access to health services according to needs and efficient service delivery.¹ In particular, the health system should also seek to protect against the financial risks of each individual when accessing health services. A health system is effective if it can provide equitable access to affordable and high-quality health care—including treatment and curative services and health promotion, prevention, and rehabilitation services—to the entire population. However, many countries still do not meet these standards, lacking access, quality, and efficiency in health services.³ In addition, many households face hardships when using healthcare.³ Financial risks could impact a country’s health status and prosperity.⁴⁻⁵

Universal Health Coverage (UHC) is a response to the increasing awareness of problems related to access to health services, low quality of care, and high levels of financial risk.⁶ UHC can be a core principle of Sustainable Growth Development (SDG) issued by the United Nations (UN). UHC was preceded by the aspirational idea of minimum health standards for all following the Universal Declaration of Human Rights (adopted by the United Nations Assembly in 1948) and the Alma-Ata declaration in 1978.⁷

Indonesia implemented the UHC by conducting the National Health Insurance (JKN) program. This program started in 2014 with the objectives of facilitating access to health services while relieving financial burdens, providing high-quality health services at affordable costs, improving the quality of services in primary and referral facilities, and prioritizing preventive and promotive measures. Health care responsibilities are shared between the central, provincial, and district governments, and a mix of private and
public providers forms JKN. The Social Security Administration manages JKN for Health (BPJS-K), and the Social Security Management Agency for Health is responsible for the administration of JKN. BPJS-K is overseen by the National Social Security Council (DJSN), both of which report directly to the president. In order to extend the coverage of JKN, the government of Aceh carries out JKA, namely health insurance for the people of Aceh. Aceh province, the western part of the Indonesian archipelago, located on Sumatra Island. This region had 30 years of armed conflict between the Free Aceh Movement (known as Gerakan Aceh Merdeka (GAM) and the Indonesian Army between 1970-2005, which caused significant economic drawbacks. Aceh is continuously listed as an underdeveloped province, with 15.5% of the population below the poverty line in 2021.

Even though Aceh is listed as one of the poorest provinces in Indonesia, the government committed to implementing the JKA for the entire Aceh population. This health insurance has been integrated with BPJS-K where the Aceh government bears the premium since 2014. Through this program, the Government of Aceh also provides an equitable distribution of health services for participants regardless of social status, economy, religious beliefs, and political sects. This program will encourage the improvement of the health status of the Aceh population. Moreover, studies evaluating the UHC from a macro financing perspective are scarce, especially on welfare. Therefore, this study aimed to evaluate the impact of JKA on the welfare of Acehnese.

**METHOD**

This research was an ecological study with a cross-sectional retrospective design from June to September 2022. The research data were taken from the Acehnese public health insurance accountability report and the people's welfare statistics report from the Central Statistics Agency from 2015 – 2021. The variables in this study included community coverage, capitation costs, non-capitation costs, collective insurance costs, drug costs, and medical equipment costs. At the same time, welfare consisted of three dimensions: education, health, and housing.

Education indicators consisted of preschool education coverage and formal school coverage. Preschool education is prior to primary education through formal and non-formal education. Formal education is the hierarchically structured, chronologically graded education system that includes primary, secondary, and tertiary schools.

Health indicators comprised the number of people with illness, outpatient, inpatient, and immunization. People with illness is the ones who have health complaints and disruption of work, school, or daily activities (can not perform activities such as work, school, or daily activities normally as usual). Outpatients are efforts household members who have health complaints for check-ups and treatment by visiting places of modern or traditional health care without a stay, including bringing health workers to the homes of a household member. Inpatient is healing efforts of health complaints by staying one night or more in the modern or traditional health care unit; included in this incident was inpatient for childbirth. Immunization is an attempt to induce/enhance a person's active immunity against a disease so that one day of exposure to the disease will not get sick or experience only mild illness. The vaccine is an antigen such as microorganisms that are already dead, are still alive but weakened, intact or parts thereof, which have been processed, the form of the toxin microorganisms that have been processed into toxoid, recombinant protein when administered to an individual will generate specific immune active against certain infections.

Housing indicators comprised private house ownership, sanitary, clean water, electricity, and internet access. Private house ownership was private mastering status residential buildings or houses occupied by members of the route in terms of the occupants. Sanitary stands for facilities shared by family members for bathing, washing, and wastewater in certain settlements with dense populations and low economic levels. Clean water access was the percentage of households using an improved drinking water source. The improved drinking water source includes piped water on premises (pipel household water connection located inside the user's dwelling, plot or yard), and other improved drinking water sources (public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, and rainwater collection). Electricity access was the percentage of the household connected with electricity. The internet is a worldwide public computer network. It provides access to several communication services, including the World Wide Web, and carries email, news, entertainment, and data file.

Data were analyzed to describe the mean and standard deviation. We used the bivariate analysis with Pearson correlation since all the data have distributed normally. The correlation analysis was used to evaluate the impacts of JKA data and Aceh Province Welfare data. The p-value <0.05 was significant.

**RESULT**

JKA, from 2015 to 2021, had an average community coverage of about 2 million people with an average capitation payment of around 139 billion rupiahs. In 2016 there was a decrease in community coverage due to adjusting and validating regional data with BPJS Health which then obtained complex data reaching 460,061 data. The data was problematic because the identity number was incomplete and unreadable in the system. Then, the coverage data was added every year (Figure 1).

![Figure 1. Community Coverage Levels on the Aceh People's Health Insurance 2015 – 2021](image-url)
Regarding insurance financing, there was a significant increase in the 2016 capitation fee due to the determination of costs based on community coverage prior to data evaluation; in contrast, the non-capitation fee was the dramatic downfall. No drug and medical equipment costs were calculated in 2015 and 2016. The total collective cost slightly fluctuated, with around 800 billion yearly (Figure 2). Welfare indicators were summarized in Table 1. Generally, the percentage of welfare indicators fluctuated, but some indicators experienced an increase in percentage without experiencing fluctuations. In Pearson correlation analysis, immunization coverage was significantly correlated with community coverage (p=0.003), the non-capitation fee (p=0.008), and drug cost (p=0.027). In addition, drug cost was also significantly related to formal school coverage (p=0.006). Meanwhile, medical equipment cost was correlated with sanitation and internet coverage (p<0.05). However, other welfare indicators, such as preschool coverage, people with illness, private housing ownership, clean water coverage, and electricity coverage, are not correlated with community coverage and capitation costs (Table 2).

**DISCUSSION**

This study found significant correlations between immunization, sanity, and internet coverage with the Acehnese People’s Health Insurance (JKA). The health insurance model in Aceh uses a health care system given to all Acehnese people through identification, for example, citizen card identity (KTP) or family card identity (KK). Currently, the implementation of JKA by the community can be done by bringing a JKA card directly to the nearest health center. The correlation between immunization coverage and JKA can be explained because immunization is a mandatory program prioritized by the Ministry of Health in Indonesia. In addition, the immunization program is more widely known in the community, making it easier to be implemented. The JKA model that implements health promotion, especially on the family health

![Figure 2. Insurance Financing of Aceh People’s Health Insurance 2015 – 2021](image)

**Table 1. Levels of Aceh People’s Welfare Indicators 2015 – 2019**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>Mean±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal School Coverage</td>
<td>87.65</td>
<td>89.6</td>
<td>88.93</td>
<td>86.45</td>
<td>91.68</td>
<td>90.26</td>
<td>90.15</td>
<td>89.24±1.74</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt sick</td>
<td>16.37</td>
<td>14.21</td>
<td>13.84</td>
<td>15.04</td>
<td>16.68</td>
<td>14.04</td>
<td>12.35</td>
<td>14.64±1.51</td>
</tr>
<tr>
<td>Outpatient</td>
<td>60.52</td>
<td>59.85</td>
<td>62.97</td>
<td>66.69</td>
<td>69.69</td>
<td>70.42</td>
<td>58.09</td>
<td>63.96±5.00</td>
</tr>
<tr>
<td>Inpatient</td>
<td>4.59</td>
<td>4.43</td>
<td>5.76</td>
<td>6.65</td>
<td>7.03</td>
<td>6.68</td>
<td>4.43</td>
<td>5.65±1.16</td>
</tr>
<tr>
<td>Immunization</td>
<td>16.28</td>
<td>40.37</td>
<td>25.9</td>
<td>25.9</td>
<td>20.18</td>
<td>19.26</td>
<td>21.55</td>
<td>24.20±7.93</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Housing Coverage</td>
<td>82.36</td>
<td>81.66</td>
<td>80.42</td>
<td>81.21</td>
<td>80.32</td>
<td>80.96</td>
<td>80.51</td>
<td>81.06±0.74</td>
</tr>
<tr>
<td>Sanity Coverage</td>
<td>78.63</td>
<td>80.78</td>
<td>80.05</td>
<td>81.16</td>
<td>84.25</td>
<td>87.12</td>
<td>87.78</td>
<td>82.82±3.58</td>
</tr>
<tr>
<td>Clean Water Coverage</td>
<td>63.81</td>
<td>65.39</td>
<td>65.65</td>
<td>66.48</td>
<td>70.7</td>
<td>71.79</td>
<td>71.48</td>
<td>67.90±3.31</td>
</tr>
<tr>
<td>Electricity Coverage</td>
<td>98.44</td>
<td>98.74</td>
<td>99.02</td>
<td>99.43</td>
<td>99.55</td>
<td>99.65</td>
<td>99.87</td>
<td>99.24±0.52</td>
</tr>
<tr>
<td>Internet Coverage</td>
<td>15.16</td>
<td>17.32</td>
<td>22.86</td>
<td>30.69</td>
<td>35.60</td>
<td>42.56</td>
<td>49.23</td>
<td>30.48±12.84</td>
</tr>
</tbody>
</table>
scale, also influences the immunization coverage level for the Aceh people. The correlation between housing coverage aspects, including sanitation and internet coverage, with the Acehnese People's Health Insurance can also be related to massive internet use. The provision of assistance by the government, including health insurance, is also generally used in housing coverage. A previous study has reported that the implementation and expansion of health insurance for low-income people, directly and indirectly, increase the ability to purchase and maintain homes and household needs.

This study correlated medical equipment costs with sanitation and internet coverage. Previous studies also stated that Improving infection prevention and control in public healthcare facilities can aid in preventing healthcare-associated infections. Therefore, regulation of medical equipment costs will indirectly improve the sanitation level of health centers to provide better health services. In addition, drug costs are also significantly related to formal school coverage. This finding could occur due to populations with low levels of education who were less likely to use drug cost-reduction strategies, resulting in higher drug costs. On the other hand, populations with higher levels of education will also know how to use drugs better, resulting in an increased need for drugs, leading to increased drug costs. However, there was no significant correlation between most of the community welfare indicators and the implementation of JKA. Several factors can lead to the minimal effect of health insurance on the welfare of the people of Aceh. First, the amount of the health insurance budget does not match the number of Aceh's population. The JKA covers only those not covered by BPJS, 2 million out of the 5.2 million population of Aceh, and most of them are the poorest in the category. Advanced provision of health care are available in the city or some capital of the district most of the population live in village far from the city. Previous research also reported that the health insurance budget is associated

**Table 2. Correlation of Community Coverage Levels and Capitation Costs on Acehnese People's Health Insurance to Levels of Welfare Indicators**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Community Coverage R</th>
<th>Community Coverage p</th>
<th>Capitation Fee R</th>
<th>Capitation Fee p</th>
<th>Non-capitation Fee R</th>
<th>Non-capitation Fee p</th>
<th>Collective Cost R</th>
<th>Collective Cost p</th>
<th>Drug Cost R</th>
<th>Drug Cost p</th>
<th>Medical Equipment Cost R</th>
<th>Medical Equipment Cost p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preschool Coverage</td>
<td>-0.275</td>
<td>0.551</td>
<td>0.373</td>
<td>0.410</td>
<td>-0.395</td>
<td>0.381</td>
<td>-0.159</td>
<td>0.798</td>
<td>-0.326</td>
<td>0.593</td>
<td>-0.263</td>
<td>0.670</td>
</tr>
<tr>
<td>Formal School Coverage</td>
<td>0.139</td>
<td>0.766</td>
<td>0.387</td>
<td>0.391</td>
<td>0.163</td>
<td>0.727</td>
<td>0.322</td>
<td>0.598</td>
<td>0.971</td>
<td>0.006*</td>
<td>-0.370</td>
<td>0.540</td>
</tr>
<tr>
<td>People with illness</td>
<td>0.015</td>
<td>0.975</td>
<td>-0.567</td>
<td>0.185</td>
<td>-0.017</td>
<td>0.971</td>
<td>0.709</td>
<td>0.180</td>
<td>0.036</td>
<td>0.954</td>
<td>0.659</td>
<td>0.227</td>
</tr>
<tr>
<td>Outpatient</td>
<td>0.394</td>
<td>0.382</td>
<td>-0.181</td>
<td>0.698</td>
<td>0.464</td>
<td>0.294</td>
<td>0.199</td>
<td>0.749</td>
<td>0.189</td>
<td>0.761</td>
<td>0.333</td>
<td>0.584</td>
</tr>
<tr>
<td>Inpatient</td>
<td>0.368</td>
<td>0.417</td>
<td>-0.193</td>
<td>0.678</td>
<td>0.479</td>
<td>0.277</td>
<td>0.355</td>
<td>0.558</td>
<td>-0.018</td>
<td>0.977</td>
<td>0.560</td>
<td>0.326</td>
</tr>
<tr>
<td>Immunization</td>
<td>-0.925</td>
<td>0.003*</td>
<td>0.521</td>
<td>0.231</td>
<td>-0.888</td>
<td>0.008*</td>
<td>0.116</td>
<td>0.852</td>
<td>-0.920</td>
<td>0.027*</td>
<td>0.632</td>
<td>0.253</td>
</tr>
<tr>
<td>Private Housing Ownership</td>
<td>-0.303</td>
<td>0.508</td>
<td>-0.247</td>
<td>0.593</td>
<td>-0.467</td>
<td>0.291</td>
<td>-0.651</td>
<td>0.234</td>
<td>-0.554</td>
<td>0.333</td>
<td>-0.039</td>
<td>0.950</td>
</tr>
<tr>
<td>Sanitary Coverage</td>
<td>0.578</td>
<td>0.174</td>
<td>0.61</td>
<td>0.145</td>
<td>0.568</td>
<td>0.183</td>
<td>-0.481</td>
<td>0.412</td>
<td>0.742</td>
<td>0.151</td>
<td>-0.933</td>
<td>0.020*</td>
</tr>
<tr>
<td>Clean Water Coverage</td>
<td>0.616</td>
<td>0.141</td>
<td>0.507</td>
<td>0.246</td>
<td>0.632</td>
<td>0.128</td>
<td>-0.267</td>
<td>0.664</td>
<td>0.855</td>
<td>0.065</td>
<td>-0.800</td>
<td>0.104</td>
</tr>
<tr>
<td>Electricity Coverage</td>
<td>0.596</td>
<td>0.158</td>
<td>0.513</td>
<td>0.239</td>
<td>0.657</td>
<td>0.109</td>
<td>-0.441</td>
<td>0.457</td>
<td>0.521</td>
<td>0.368</td>
<td>-0.847</td>
<td>0.070</td>
</tr>
<tr>
<td>Internet Coverage</td>
<td>0.692</td>
<td>0.085</td>
<td>0.505</td>
<td>0.248</td>
<td>0.711</td>
<td>0.073</td>
<td>-0.525</td>
<td>0.363</td>
<td>0.591</td>
<td>0.294</td>
<td>-0.941</td>
<td>0.017*</td>
</tr>
</tbody>
</table>

*p-value<0.05
with some indicators of public welfare and health, including maternal and infant mortality rates and life expectancy in Aceh.19,20

Second, the government tends to be unable to implement JKA competently. Implementing health insurance requires comprehensive and integrated coordination between all government components. However, implementing JKA has been reported to have limitations in the division of work tasks, poor monitoring and reporting mechanisms, and differences in perceptions between policy-implementing operators. This causes delays in payments, community financing, preparation of membership databases, and inadequate health services.21

Third, the poor integration of JKA implementation with the readiness of the people of Aceh. The provision of health assistance by the government is generally not accompanied by promotional and educational programs for the community. Community preparedness and empowerment are the main factors that play a role in successfully implementing health insurance. The lack of public knowledge regarding the management and use of funds originating from health insurance will result in a lack of welfare and health indicators. The study by Adyas (2021) shows that one of the challenges in Universal Health Coverage through National Health is the low government investment in public education.22

Apart from several factors that cause the low influence of JKA on people’s welfare, JKA has been reported to be able to improve the health status of the people of Aceh as a whole. Studies have shown that healthcare coverage can increase willingness and ability to pay for healthcare services in Aceh. This reflects the high level of enthusiasm of the Acehnese people for the JKA program. However, monitoring the enthusiasm factor of the people is also needed to prevent using this condition as a medium for political support.23 Other studies also reported that JKA increased the welfare of the maternal population in Aceh by increasing service capacity and the number of skilled birth attendants, which positively impacted maternal care.24

The solutions that can be implemented to increase JKA’s role in public welfare include adequate regulation of membership and individual fee mechanisms, increasing the number and quality of human resources, and disseminating JKA services through various media, which can reach and provide an adequate understanding of the community. Moreover, internet media as a promotive media and patient care tool has been known to have a good impact and effectiveness and can potentially reinforce existing social and health inequalities.25 In addition, optimal human resource empowerment for implementing JKA nationally is also central to achieving optimal health coverage. Three main components must be considered, including health service providers, organizers, and regulators, to achieve National Health Insurance (NHI) towards universal health coverage (UHC).26 Furthermore, health workers involved in JKA can also strengthen their understanding of the grand program design and operational standards and assist in optimizing the dissemination and dissemination of implementing guidelines.

The findings of this study may reflect that the implementation of JKA has not been able to improve the welfare of the people of Aceh significantly. This can be the foundation for future programs that the government’s immature planning and implementation of health insurance can lead to sub-optimal and ineffective results. Limitations in this study include not performing multivariate analysis, so the influence of confounding variables cannot be identified. In addition, the expansion of welfare indicators can also be carried out by evaluating such socioeconomic and environmental factors. This study was a population study so that there can be a relationship among individuals, where the middle economic group of JKA insurance participants can experience increased welfare after JKA. However, this study was ecological (population), so the relationship is not visible.

CONCLUSION

In summary, since it is implemented from 2015 to 2021, JKA has coverage of about 2 million people in Aceh with an average capitation payment of around 139 billion rupiah. The percentage of overall welfare indicators is found to vary; several welfare indicators significantly correlated with health insurance, including immunization coverage with community coverage, non-capitation fee, and drug cost. In addition, drug cost was also significantly correlated with formal school coverage. Meanwhile, medical equipment cost was correlated with sanitation and internet coverage. However, other welfare indicators did not correlate significantly with community coverage and capitation costs.

DISCLOSURE

There is no funding for this study.

AUTHOR CONTRIBUTION

Corresponding author: Muhammad Yani; Author roles: Muhammad Yani: Conceptualization, Methodology, Resources, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; Rachmad Suhanda: Data Curation, Investigation, Resources, Supervision, Validation, Visualization, Writing – Review & Editing; Indrita Iqbalawaty: Data Curation, Resources, Software, Validation, Writing – Review & Editing; Diah Ayu Puspandari: Data Curation, Resources, Software, Validation, Writing – Review & Editing; Hafasnuddin Hafasnuddin: Data Curation, Resources, Software, Validation, Writing – Review & Editing; Aditya Candra: Data Curation, Resources, Software, Validation, Writing – Review & Editing; Teuku Muhammad Ilzana: Data Curation, Investigation, Resources, Validation, Writing – Review & Editing; Muhammad Khaled: Data Curation, Resources, Supervision, Validation, Visualization, Writing – Review & Editing.

ETHICAL CONSIDERATION

This study was approved by the Ethical Committee of Faculty of Medicine, Universitas Syiah Kuala and Dr. Zainoel Abidin Abidin Hospital ( 110. EA. FK-RSUDZA 2022).

CONFLICT OF INTEREST

Authors have declared that no competing interests exist.
REFERENCES


