The Effect of Healthy Lifestyle and Accessibility of Health Facilities on Quality of Life and Life Expectancy of Communities in Jakarta

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ABSTRACT
This research investigates the intricate relationships between healthy lifestyle practices, the accessibility of health facilities, and their impact on the quality of life and life expectancy in Jakarta. Employing a quantitative approach with a sample of 300 participants, the study employs Structural Equation Modeling with Partial Least Squares (SEM-PLS) to analyze the data. The measurement model confirms the reliability and validity of latent constructs, while the structural model reveals significant positive associations. Improved accessibility of health facilities is strongly linked to higher life expectancy and better quality of life. Additionally, healthier lifestyle practices positively influence both life expectancy and quality of life. The statistical tests further support these relationships, emphasizing the critical role of healthcare infrastructure and individual choices in shaping public health outcomes. The findings provide actionable insights for public health interventions and policy development to enhance the overall well-being of Jakarta’s residents.

Keywords: Healthy Lifestyle, Accessibility, Health Facilities, Quality of Life, Life Expectancy, Communities, Jakarta

1. INTRODUCTION

The global emphasis on health and well-being has led to a growing recognition of the complex relationship between lifestyle choices, healthcare accessibility, and their impact on quality of life and life expectancy. Jakarta, as the capital and largest city of Indonesia, reflects this dynamic urban environment with its diverse lifestyle patterns and varying degrees of healthcare accessibility. The city has implemented initiatives such as the Priority Villages program, which integrates geospatial and citizen participation using GIS to support smart city planning and improve the distribution of building establishment decision letters [1]. However, urbanization and rapid population growth in Jakarta have also led to economic disparities between urban and rural areas, highlighting the need for policies that address these inequalities [2]. Efforts to improve health and well-being in Jakarta should consider the unique challenges and opportunities presented by the city’s urban landscape and population dynamics [3], [4]. This research seeks to delve into the nexus of healthy living practices and the accessibility of health facilities in Jakarta, aiming to unravel their combined influence on the well-being and life expectancy of its residents.

This study aims to analyze the effect of Environmental Consciousness, Perceived Usefulness, and Perceived Ease of Use on the Decision to use E-Wallet in the Millennial Generation in Jakarta through their Attitude Toward Green [5]. Transit-oriented development (TOD) areas are one alternative to solving these problems by increasing density and accessibility between destinations and integrating modes of public transportation [6]. To meet the nutritional needs of the people of Jakarta, urban agriculture is one of the food supply solutions [7]. The importance of this research is to determine the impact of Coronavirus Disease 2019 (COVID-19) on the household economic resilience of the people of Jakarta in meeting their families’ food, education, and health needs [8].

This study was compiled to find out the results of an analysis of the factors that influence the human development index in DKI Jakarta Province for the 2017-2021 period [9]. By examining the correlation between healthy lifestyle choices and healthcare accessibility, the study aims to unravel the complex web of factors influencing the well-being of Jakarta's population. Furthermore, the research endeavors to analyze the impact of these factors on the overall quality of life and life expectancy of residents in the bustling metropolis.

2. LITERATURE REVIEW

2.1 Healthy Lifestyle and Quality of Life

Regular physical activity, a balanced diet, and the avoidance of harmful habits have consistently emerged as key determinants of overall well-being [10], [11]. Numerous studies underline the positive impact of healthy lifestyle choices on mental health, with physical activity being linked to reduced stress, anxiety, and depression [12]. The promotion of healthy living has become a cornerstone of public health initiatives globally, recognizing its potential to mitigate the burden of chronic diseases and contribute to a higher quality of life [13], [14].

2.2 Healthcare Accessibility and Life Expectancy

Research has consistently shown that healthcare accessibility plays a crucial role in shaping life expectancy [15]. Timely access to medical services, preventive care, and effective healthcare infrastructure have been associated with increased life expectancy, particularly in urban environments [16]. Disparities in healthcare access, both geographical and socio-economic, contribute to health inequities, influencing mortality rates and overall population health [17]. Understanding the nuances of healthcare accessibility is crucial for developing targeted interventions that address the multifaceted determinants of life expectancy [18].

2.3 Urban Health Challenges in Jakarta

As a bustling metropolis, Jakarta faces various urban health challenges. The rapid urbanization has led to sedentary lifestyles and increased exposure to environmental pollutants, impacting public health [19]. Traffic-related air pollution poses a significant risk to respiratory health, while lifestyle factors like diet and physical activity contribute to the prevalence of non-communicable diseases [20]. Additionally, there are disparities in healthcare infrastructure between different regions of the city, which need to be addressed [2]. Acknowledging and addressing these challenges is crucial for contextualizing the present study within the broader framework of urban health research [21], [22].

2.4 Urbanization and Health Behavior

Urbanization has been found to have an impact on health behaviors and lifestyle patterns. Studies have shown that urban living often leads to decreased physical activity due to the convenience of modern amenities and sedentary occupations [23]. Additionally, the availability of diverse food options in urban areas can influence dietary choices [24]. Understanding the dynamics of health behavior in an urban setting is crucial for developing interventions that promote healthy living. It is important to consider the unique challenges and opportunities presented by urban environments when designing these interventions [25]. By tailoring interventions to address the specific needs of urban
populations, it is possible to promote healthy behaviors and improve overall health outcomes in urban areas.

2.5 Gaps in Existing Literature

While existing literature provides valuable insights into the individual relationships between lifestyle, healthcare accessibility, quality of life, and life expectancy, there is a notable gap in research that comprehensively examines the combined impact of healthy lifestyle practices and healthcare accessibility in specific urban contexts. The present study aims to address this gap by focusing on Jakarta, thereby contributing to the body of knowledge on urban health and providing context-specific findings that can inform targeted interventions and policy decisions.

3. METHODS

This study used a quantitative approach to investigate the complex relationships between healthy lifestyle practices, healthcare accessibility, quality of life, and life expectancy in Jakarta. The methodological framework chosen was to distribute a survey to a sample of 300 participants, using Structural Equation Modeling (SEM) with Partial Least Squares (PLS) as the main statistical analysis tool. A stratified random sampling technique was used to ensure a representative sample of Jakarta’s diverse population. Strata were defined by geographical area, to ensure participation from both urban and suburban areas. A sample size of 300 participants was determined to achieve statistical significance and would include a mix of age groups, socioeconomic backgrounds and lifestyles.

Data Collection

The survey was distributed electronically and in print, so as to reach a wider audience among city dwellers. The survey instrument will include sections on lifestyle practices, perceived accessibility of health services, self-reported quality of life, and demographic details. The participants will be assured of the confidentiality of their answers, and informed consent will be obtained prior to participation. In addition, data regarding health infrastructure and facilities in different areas of Jakarta will be collected from relevant government and non-government sources.

Data Analysis

Structural Equation Modeling with Partial Least Squares (SEM-PLS) is chosen for the analysis of primary data due to its ability to handle complex models, incorporate latent variables and measurement errors. SEM-PLS allows for simultaneous testing of multiple relationships and provides robust results even with non-normal data. The measurement model in SEM-PLS assesses the reliability and validity of observed variables, ensuring that the selected indicators effectively measure the latent constructs of interest. The structural model will examine the relationships between latent variables, providing insights into the direct and indirect effects of healthy lifestyle practices and healthcare accessibility on quality of life and life expectancy. Bootstrapping technique will be applied to estimate standard errors and confidence intervals, enhancing the robustness of the findings. Model fit indices such as the Goodness of Fit Index (GFI) and Comparative Fit Index (CFI) will be used to evaluate the goodness of fit of the proposed model to the observed data.

4. RESULTS AND DISCUSSION

4.1 Demographic Sample

The age distribution within the sample reflects a broad representation of Jakarta’s population, with a majority falling between 25 and 45 years. The sample includes participants from various socioeconomic backgrounds, allowing for the exploration of how economic factors intersect with health-related variables. Low-income participants make up 22% of the sample, middle-income participants make up 48%, and high-income participants make up 30%. The inclusion of both urban
and suburban areas ensures a nuanced understanding of how lifestyle practices and healthcare accessibility differ between densely populated urban centers and suburban regions. 55% of the participants are from urban areas, while 45% are from suburban areas.

4.2 Measurement Model

A crucial part of structural equation modeling is the measurement model, which evaluates the validity and reliability of the observed variables as well as their suitability for capturing the relevant latent components. Four latent constructs make up the measuring model in this study: life expectancy (LE), quality of life (QL), accessibility of health facilities (AHF), and healthy lifestyle (HL).

Table 1. Measurement Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Code</th>
<th>Loading Factor</th>
<th>Cronbach's Alpha</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Lifestyle</td>
<td>HL.1</td>
<td>0.823</td>
<td>0.860</td>
<td>0.912</td>
<td>0.776</td>
</tr>
<tr>
<td></td>
<td>HL.2</td>
<td>0.898</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HL.3</td>
<td>0.919</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility of Health Facilities</td>
<td>AHF.1</td>
<td>0.767</td>
<td>0.762</td>
<td>0.863</td>
<td>0.677</td>
</tr>
<tr>
<td></td>
<td>AHF.2</td>
<td>0.849</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AHF.3</td>
<td>0.850</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Life</td>
<td>QL.1</td>
<td>0.890</td>
<td>0.785</td>
<td>0.875</td>
<td>0.701</td>
</tr>
<tr>
<td></td>
<td>QL.2</td>
<td>0.859</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>QL.3</td>
<td>0.757</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>LE.1</td>
<td>0.821</td>
<td>0.805</td>
<td>0.885</td>
<td>0.720</td>
</tr>
<tr>
<td></td>
<td>LE.2</td>
<td>0.883</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LE.3</td>
<td>0.840</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Source: Data Processing Results (2023)

The measurement model results suggest that the observed variables effectively measure their respective latent constructs, with high loading factors, reliability, composite reliability, and AVE values. These findings instill confidence in the validity and reliability of the measurement model, providing a solid foundation for subsequent structural modeling and analysis of the relationships between the latent constructs in the study.

Table 2. Discriminant Validity

<table>
<thead>
<tr>
<th>Accessibility of Health Facilities</th>
<th>Healthy Lifestyle</th>
<th>Life Expectancy</th>
<th>Quality of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility of Health Facilities</td>
<td>0.823</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy Lifestyle</td>
<td>0.607</td>
<td>0.881</td>
<td></td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>0.494</td>
<td>0.436</td>
<td>0.848</td>
</tr>
<tr>
<td>Quality of Life</td>
<td>0.687</td>
<td>0.499</td>
<td>0.643</td>
</tr>
</tbody>
</table>

Source: Data Processing Results (2023)

The discriminant validity matrix demonstrates that the correlations between constructs are smaller than the square root of the AVE for each construct. This indicates that the latent constructs (Accessibility of Health Facilities, Healthy Lifestyle, Life Expectancy, and Quality of Life) are distinct from each other, supporting the discriminant validity of the measurement model. These results provide confidence in the ability of the measurement model to differentiate between the constructs and interpret their unique contributions to the study.
Model Fit Evaluation

The model fit indices provide an assessment of how well the proposed structural model aligns with the observed data. Here, we will discuss various fit indices for both the Saturated Model (a model with perfect fit) and the Estimated Model (the actual model being tested).

<table>
<thead>
<tr>
<th></th>
<th>Saturated Model</th>
<th>Estimated Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRMR</td>
<td>0.109</td>
<td>0.128</td>
</tr>
<tr>
<td>d_ULS</td>
<td>0.929</td>
<td>1.284</td>
</tr>
<tr>
<td>d_G</td>
<td>0.431</td>
<td>0.493</td>
</tr>
<tr>
<td>Chi-Square</td>
<td>272.637</td>
<td>287.248</td>
</tr>
<tr>
<td>NFI</td>
<td>0.680</td>
<td>0.662</td>
</tr>
</tbody>
</table>

The SRMR measures the average standardized difference between observed and predicted correlations. The Estimated Model’s SRMR (0.128) is slightly higher than the Saturated Model’s (0.109), but still within an acceptable range. The d_ULS measures the discrepancy between the observed and predicted covariance matrices. The Estimated Model’s d_ULS (1.284) is higher than the Saturated Model’s (0.929), indicating some discrepancy. The d_G is another measure of fit, and the Estimated Model’s d_G (0.493) is higher than the Saturated Model’s (0.431), suggesting a potential lack of fit. Chi-Square assesses the difference between the observed and expected covariance matrices. The difference in Chi-Square between the Saturated and Estimated Models (287.248 - 272.637 = 14.611) is statistically significant, indicating that the Estimated Model is a poor fit to the data.
272.637) is used for statistical testing. A non-significant Chi-Square suggests good fit, but the difference may be due to the simplicity of the Estimated Model compared to the Saturated Model. The NFI compares the fit of the estimated model to a null model. The Estimated Model’s NFI (0.662) is slightly lower than the Saturated Model’s (0.680), suggesting a less optimal fit.

<table>
<thead>
<tr>
<th>R Square</th>
<th>Q2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Expectancy</td>
<td>0.454</td>
</tr>
<tr>
<td>Quality of Life</td>
<td>0.482</td>
</tr>
</tbody>
</table>

R-Square (Coefficient of Determination) measures the proportion of variance in the dependent variable explained by the independent variables in the model. For Life Expectancy (LE), the R-Square value of 0.454 indicates that approximately 45.4% of the variance in life expectancy is explained by the independent variables in the model. This suggests a moderate level of explanatory power, leaving room for unexplained variance or influence from other factors not considered in the model. For Quality of Life (QL), the R-Square value of 0.482 indicates that approximately 48.2% of the variance in quality of life is explained by the independent variables in the model. This suggests a relatively higher level of explanatory power compared to life expectancy.

Q2 (Cross-validated Redundancy) assesses the predictive relevance of the endogenous constructs in the model. For Life Expectancy (LE), the Q2 value of 0.261 suggests that the model has good predictive relevance for life expectancy. For Quality of Life (QL), the Q2 value of 0.474 indicates that the model has excellent predictive relevance for quality of life.

**Structural Model**

The statistical tests conducted on the original sample (O) provide insights into the significance of the relationships between variables. The tests include the sample mean (M), standard deviation (STDEV), T statistics (|O/STDEV|), and P values for each relationship in the model.

| Accessibility of Health Facilities -> Life Expectancy | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (|O/STDEV|) | P Values |
|-----------------------------------------------------|---------------------|-----------------|----------------------------|-------------------------|----------|
| Life Expectancy                                     | 0.364               | 0.372           | 0.096                      | 3.792                   | 0.000    |
| Accessibility of Health Facilities -> Quality of Life| 0.608               | 0.615           | 0.079                      | 7.727                   | 0.000    |
| Healthy Lifestyle -> Life Expectancy                 | 0.316               | 0.321           | 0.105                      | 3.045                   | 0.002    |
| Healthy Lifestyle -> Quality of Life                 | 0.231               | 0.230           | 0.085                      | 2.535                   | 0.004    |

All relationships in the model demonstrate statistically significant associations, as indicated by low p-values. The positive values of the original sample in each relationship suggest that higher values in the independent variable (Accessibility of Health Facilities, Healthy Lifestyle) are associated with higher values in the dependent variables (Life Expectancy, Quality of Life). The T statistics provide evidence of the strength and significance of the relationships.

a. The relationship between Accessibility of Health Facilities and Life Expectancy is statistically significant. The T statistics of 3.792, with a p-value of 0.000, indicates that the
observed relationship is unlikely to be due to random chance. The positive value of the original sample suggests that increased accessibility to health facilities is associated with higher life expectancy.

b. The relationship between Accessibility of Health Facilities and Quality of Life is highly statistically significant. The T statistics of 7.727, with a p-value of 0.000, suggests that the observed relationship is unlikely to be due to random chance. The positive value of the original sample indicates that increased accessibility to health facilities is associated with higher quality of life.

c. The relationship between Healthy Lifestyle and Life Expectancy is statistically significant. The T statistics of 3.045, with a p-value of 0.002, suggests that the observed relationship is unlikely to be due to random chance. The positive value of the original sample indicates that a healthier lifestyle is associated with higher life expectancy.

d. The relationship between Healthy Lifestyle and Quality of Life is statistically significant. The T statistics of 2.535, with a p-value of 0.004, suggests that the observed relationship is unlikely to be due to random chance. The positive value of the original sample indicates that a healthier lifestyle is associated with higher quality of life.

Discussion

Effect of Health Facility Accessibility

Improved access to health services plays a crucial role in enhancing life expectancy and overall well-being [26], [27]. Timely intervention made possible by better health facility accessibility contributes to longer life expectancy and improved quality of life [28]. Studies have shown that geographic access to health care is essential for health equity and well-being [29]. Inequality in healthcare accessibility can be attributed to both the distribution of healthcare facilities and unequal transport access [30]. Factors such as travel time, distance, and personal perceptions influence residents’ choice of specific hospitals for medical treatment, affecting the actual accessibility of medical facility services. Investments in public infrastructure, such as water, sanitation, and public transportation, have positive effects on public health outcomes. Zoning policies, road safety regulations, and the creation of open public spaces also contribute to improved local health outcomes.

Impact of Healthy Lifestyle Practices

A healthier lifestyle, including physical activity, a balanced diet, and reduced substance use, has been found to have a positive relationship with both life expectancy and subjective well-being [12], [31], [32]. Studies have shown that engaging in healthy lifestyle behaviors, such as consuming fruits and vegetables, engaging in regular physical activity, and not smoking, is associated with better evaluative well-being and higher life satisfaction [33]. Additionally, practicing a healthy lifestyle has been found to enhance disease-free life expectancy and preserve bodily functions [34]. The value dimension of a healthy lifestyle, which includes the formation of health values and the development of moral and spiritual consciousness, is seen as an important aspect of education and socialization. Overall, adopting a healthy lifestyle is crucial for promoting longevity and improving quality of life.

Public Health Implications

a. Targeted interventions: Promoting healthy lifestyles appropriate for a range of age groups and socioeconomic backgrounds should be the main goal of public health campaigns.

b. Health Infrastructure: To guarantee fair access and ultimately enhance public health outcomes, policymakers should give priority to investments in health infrastructure.

c. Public Health Education: By enabling people to make knowledgeable lifestyle decisions, comprehensive public health education initiatives can promote a culture of wellbeing.
Limitations and Future Research:
Cross-Sectional Nature: The cross-sectional design of this study limits the establishment of cause-and-effect relationships. Future longitudinal research may provide insight into the dynamic interactions between variables over time.

Additional Factors: Other factors that influence life expectancy and quality of life, such as socio-cultural aspects and environmental factors, were not explored extensively. Future research could delve deeper into these dimensions.

CONCLUSION
In summary, this study clarifies the key variables affecting Jakarta’s life expectancy and quality of life. The necessity for comprehensive public health policies is highlighted by the beneficial relationships that have been found between major health outcomes, accessibility to health facilities, and healthy lifestyle choices. Fostering a healthier and more resilient population requires enhancing the healthcare system, encouraging healthier lifestyles, and designing treatments that are specific to the needs of various demographic groups. The data in this study provides a basis for well-informed decision-making in public health policy and practice as Jakarta grows and faces changing health problems. The findings support a comprehensive strategy that tackles structural issues as well as individual behaviors in order to build a more just and prosperous community.

REFERENCES


