



Research Article

Correlated Factors with Health Status among Residents in Urban and Rural Areas in Indonesia

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ABSTRACT

The increase in health status is not only the government's responsibility but also the self-awareness of each individual. Accelerating health information will affect one's health status; digital access can significantly affect health status. This research analyzes the correlation between age, gender, family size, marital status, educational level, and digital access to health status in urban-rural residents in Indonesia. This research type is quantitative with a cross-sectional model. This research is using secondary data. The data is collected from the seventh wave of the World Value Survey from 2017 to 2022. The population of this region is 2,912 Indonesian citizens, with 789 urban citizens and 2,123 rural citizens in Indonesia as samples. The results of the analysis show a significant correlation between digital access and public health status among Indonesia's urban citizens. It is discovered by a statistical result with a p-value <0,05, which is < 0,002 [OR 95% CI = 2,5]. It is also proven by the results of the analysis of Indonesia's rural citizens that there is a significant correlation between digital access and health status. It is discovered by a statistical result with a p-value <0.05, which is 0.000 [OR 95% CI = 2,1]. The population in rural and urban areas utilizing digital access to maintain good health status is predominantly composed of female respondents in their productive age (15–64), with family members ≤4, engaged in employment, married, and having a high level of education.

Keywords: Digital access, health status, rural, urban

INTRODUCTION

Human resources in a country are crucial for national progress, making the quality of these resources particularly important. Productivity must be prioritized to achieve a high standard of human resources. Productivity is closely linked to the health of the workforce.

According to the World Health Organization (WHO), health is defined not just as the absence of illness or disability but as a state of complete physical, mental, and social well-being. Similarly, Indonesian Law Number 36 of 2009 defines health as a condition encompassing physical, mental, spiritual, and social well-being, enabling individuals to live productively in society and contribute economically. The WHO has made the Sustainable Development Goals (SDGs) a central focus in



addressing health issues, mainly due to the disparities seen in the health sector across various countries. Previous research has indicated that health disparities may stem from differences in education levels and community demographic factors (Rakasiwi, 2021). As a result, the health status of individuals can vary significantly due to these inequalities.

Improving health status is not only the government's responsibility, but each individual must play an active role to increase the degree of public health. Various factors can influence health status. In terms of demographics, based on data from the Central Bureau of Statistics, the need for health service facilities in rural areas is still below that in urban areas (Badan Pusat Statistik, 2022). In addition to demographic factors, education level also plays a significant role in a person's health status. The level of education refers to the duration of a person's formal education. Previous research indicates that education level can influence health status, accounting for 50.4% of the effect. Generally, individuals with higher levels of education tend to have better health outcomes (Pradono & Sulistyowati, 2013). Besides demographic and educational factors, factors that affect health status include age. Many studies state that the less productive a person's age is, the more likely their health status will be poor (Rakasiwi, 2021). Gender influences health status, as research indicates that women generally have a higher stress threshold than men. Consequently, depression is more frequently experienced by women (Colangelo et al., 2012). However, the development of digital technology also plays an important role in influencing people's health status. A study regarding digital access revealed that the majority of respondents in Indonesia, Malaysia, and Thailand who use digital access are in good health (Zilfadila & Ainy, 2023). Digital information media can encourage the community's active role in preventive and promotive health efforts.

Comparing health status between urban and rural populations is important due to the differences in socioeconomic and regional conditions. Understanding these differences can reveal health disparities relevant to each region and inform targeted interventions for specific communities. Therefore, this study aims to investigate the correlation between digital access and public health status in Indonesia's urban and rural areas.

MATERIAL AND METHODS

This research utilizes a quantitative approach with a cross-sectional model, relying on secondary data sources. The data was collected from the 7th round of the World Value Survey, covering 2017 to 2022. Indonesia was explicitly studied in 2018 as part of this survey. Data collection involved face-to-face interviews conducted directly or through the CAPI (Computer Assisted Personal Interview) method and online data gathering using digital devices. For data analysis, chi-square analysis and simple logistic regression were employed. The study's population consisted of 2,912 Indonesians, from which a sample of 789 individuals living in urban areas and 2,123 individuals in rural areas was drawn. This sample is representative of the broader Indonesian population, with the division between urban and rural areas aligned with classifications from the Central Bureau of Statistics. A total of 20 out of 34 provinces were included in the sampling. Urban and rural areas were selected using a simple random sampling method, representing 81.8% of the total population. In this study, the dependent variable analyzed was health status, while the independent variables included digital access, education level, family size, age, marital status, and gender.

RESULTS AND DISCUSSION

Table 1 summarizes the characteristics of the respondents in this study based on various measured variables. According to Table 1, most respondents reported good health status, with 92.7%

indicating good health. Furthermore, 53.7% of respondents reported having digital access. Gender participation was relatively balanced, with 54.8% of respondents identifying as female. Regarding age, 95.7% of the respondents fall within the productive age group of 15 to 64. Most respondents also came from small family sizes, with 61.7% belonging to four or fewer families. Employment is shared among the respondents, with 75.1% currently employed. Regarding marital status, most respondents are married, accounting for 76.1%, while those who are cohabiting, divorced, or have other marital statuses make up a smaller percentage. Finally, in terms of education level, most respondents have completed secondary education (55.6%), followed by primary education (24.8%) and higher education (10.7%). Only 8.7% of respondents have either attended early childhood education or have not attended school at all.

Table 1. Characteristics of Respondents

Variable	n=2,912	%
Health Status		
Good	2,699	92.7
Poor	213	7.3
Digital Access		
Ever	1,564	53.7
Never	1,348	46.3
Gender		
Male	1,316	45.2
Female	1,596	54.8
Age		
Productive (15-64)	2,786	95.7
Non-productive (>64)	126	4.3
Household Size		
Small (≤ 4)	1,797	61.7
Large (> 4)	1,115	38.3
Employment		
Employed	2,187	75.1
Not employed	725	24.9
Marital Status		
Married	2,217	76.1
Living together	23	0.8
Divorced	91	3.1
Separated	9	0.3
Widowed	173	6.0
Single	399	13.7
Education Level		
Pres-school	254	8.7
Primary education	725	24.8
Secondary education	1,621	55.6
Higher education	312	10.7

Source: Secondary Data of World Value Survey Wave 7 (2017-2022)

Table 2 illustrates the relationship between various variables and the health status of the respondents, including the P value, odds ratio (OR), and 95% confidence interval (95% CI) for each variable.

Table 2. Factors Associated with the Health Status of Urban Residents In Indonesia

Variable	Health Status				P-Value	OR (95%CI)
	Good		Poor			
	n	%	n	%		
Digital Access						
Ever	508	68.6%	22	45.8%	.002*	2.5 (1.4-4.6)
Never	233	31.4%	26	54.2%		
Gender						
Male	320	43.2%	19	39.6%	.735	1.1 (0.6-2.1)
Female	421	56.8%	29	60.4%		
Age						
Productive (15-64)	705	95.1%	45	93.8%	.677	1.3 (0.4-4.4)
Non-productive (>64)	36	4.9%	3	6.3%		
Household Size						
Small (<=4)	408	55.1%	28	58.3%	.770	0.9 (0.5-1.5)
Large (>4)	333	44.9%	20	41.7%		
Employment						
Employed	519	70.0%	35	72.9%	.795	0.9 (0.4-1.7)
Not employed	222	30.0%	13	27.1%		
Marital Status						
Married	527	71.1%	30	62.5%	.789	1.1 (0.5-2.6)
Living together	3	0.4%	0	0.0%	.999	0.0 (0.0-0.0)
Divorced	17	2.3%	4	8.3%	.024*	4.6 (1.2-17.5)
Separated	4	0.5%	1	2.1%	.178	4.9 (0.4-5.0)
Widowed	52	7.0%	6	12.5%	.156	2.2 (0.7-1.0)
Single	138	18.6%	7	14.6%	.098	1.0 (ref)
Education Level						
Pre-school	29	3.9%	7	14.6%	.002*	7.5 (2.0-27.4)
Primary education	108	14.6%	11	22.9%	.053	3.1 (0.9-10)
Secondary education	479	64.6%	26	54.2%	.333	1.6 (0.5-4.9)
Higher education	125	16.9%	4	8.3%	.003*	1.0 (ref)

*Significant at the 0.05 level (2-tailed)

Table 3 presents factors associated with the health status of the rural population in Indonesia, using P values and odds ratios (OR) along with 95% confidence intervals (95% CI) for each variable.

Table 3. Factors Associated with the Health Status of Rural Residents in Indonesia

Variable	Health Status				P-Value	OR (95%CI)
	Good		Poor			
	n	%	n	%		
Digital Access						
Ever	981	50.1%	53	32.1%	.000*	2.1
Never	977	49.9%	112	67.9%		(1.5-2.9)
Gender						
Male	903	46.1%	74	44.8%	.816	1.0
Female	1,055	53.9%	91	55.2%		(0.7-1.4)
Age						
Productive (15-64)	1,888	96.4%	148	89.7%	.000*	3.1
Non-productive (>64)	70	3.6%	17	10.3%		(1.7-5.4)
Household Size						
Small (<4)	1,239	63.3%	122	73.9%	.008*	0.6
Large (>4)	719	36.7%	43	26.1%		(0.4-0.8)
Employment						
Employed	1,517	77.5%	116	70.3%	.045*	1.4
Not employed	441	22.5%	49	29.7%		(1.0-2.0)
Marital Status						
Married	1,533	78.3%	127	77%	.152	1.5 (0.8-2.7)
Living together	19	1%	1	0.6%	.982	0.9 (0.1-7.8)
Divorced	61	3.1%	9	5.5%	.028*	2.7 (1.1-6.6)
Separated	3	0.2%	1	0.6%	.126	6.1 (0.6-63.5)
Widowed	101	5.2%	14	8.5%	.019*	2.5 (1.1-5.6)
Single	241	12.3%	13	7.9%	.089	1.0 (ref)
Education Level						
Pre-school	174	8.9%	44	26.7%	.000*	9.0 (3.4-23.2)
Primary education	554	28.3%	52	31.5%	.011*	3.3 (1.3-8.4)
Secondary education	1,052	53.7%	64	38.8%	.101	2.1 (0.8-5.4)
Higher education	178	9.1%	5	3%	.000*	1.0 (ref)

*Significant at the 0.05 level (2-tailed)

Based on the analysis presented in Table 2, there is a significant correlation between digital access and health status in urban communities (p -value = 0.002, OR = 2.5, 95% CI = 1.4-4.6). Respondents with digital access were 2.5 times more likely to have a good health status than those without access. Similarly, the results from Table 3 indicate a significant correlation between digital access and good health status in rural communities in Indonesia (p -value = 0.000, OR = 2.1, 95% CI = 1.5-2.9). This finding aligns with previous research suggesting that increased digital access leads to higher exposure to information, thereby improving community health status (Yiting et al., 2023). Furthermore, the internet can help alleviate feelings of loneliness, acting as a means of support for mental health (Xu & Zhang, 2023). Individuals who have had digital access are more likely to enjoy good health. Digital technology in healthcare can enhance everyone's access to health services, delivering significant benefits to those who utilize it and contributing to achieving equitable health goals (Liu et al., 2022).

Tables 2 and 3 demonstrate that there is no significant correlation between gender and health status in both urban and rural areas, with p-values of 0.735 (OR = 1.1, 95% CI = 0.6-2.1) and 0.816 (OR = 1.0, 95% CI = 0.7-1.4) respectively. This finding indicates that gender is not a significant determinant of health status in these communities. Gender differences do not influence the likelihood of an individual maintaining good health in various regions. These findings align with previous research, indicating that men and women exhibit similar probability of contracting viruses or diseases (Putri et al., 2021). Furthermore, men and women present similar patterns in their chronic and acute health conditions. As a result, when reporting self-rated health conditions, the outcomes tend to be comparable, suggesting that gender does not impact health status (Zajacova et al., 2017).

There was no significant correlation between age and health status among urban residents (p-value = 0.677, OR = 1.3, 95% CI = 0.4-4.4), as shown in Table 2. This lack of correlation can be attributed to better access to healthcare, more opportunities for a healthy lifestyle, strong social support networks, economic stability, and effective public health initiatives. These factors contribute to similar health outcomes across different age groups, reducing age-related health disparities in urban areas. In contrast, there was a significant correlation between working-age individuals (ages 15-64) and good health status in rural regions, as indicated in Table 3 (p-value = 0.000, OR = 3.1, 95% CI = 1.7-5.4). The absence of a statistical significance between age and health status in urban communities in this study may be due to a significant difference in productive versus non-productive age groups, with a more significant proportion of productive-age individuals. In rural areas, those of productive age have a higher likelihood of maintaining good health. This finding aligns with previous research regarding the impact of socio-demographics on public health status, which suggests that as individuals age, their health tends to decline (Rakasiwi, 2021). This decline can also be influenced by unhealthy lifestyle habits developed during youth (Rakasiwi, 2021).

Table 2 shows no significant correlation between family size and health status among individuals living in urban areas (p-value = 0.770, OR = 0.9, 95% CI = 0.5-1.5). This finding indicates that family size is not a significant determinant of health status in urban communities. A previous study noted that family size, in conjunction with income, can influence health status (Hoffmann et al., 2022); however, this study examined the family size variable independently of income. As a result, the findings suggest that family size does not affect health status. As presented in Table 3, there is a significant correlation between small family size (≤ 4 members) and good health status (p-value = 0.008, OR = 0.6, 95% CI = 0.4-0.8). This result implies that individuals from small families have a lower chance of achieving good health. Conversely, increasing family members can positively impact the family's overall welfare. Theoretically, a more prominent family can improve welfare because, as family members reach a productive age, they can contribute to the family income. Additionally, with more members, families can share certain costs, resulting in a lower percentage of expenditure per individual compared to smaller families (Utaminingsih & Suwendra, 2022). Income plays a critical role in determining access to economic resources, such as earnings and assets, which in turn affects the likelihood of experiencing food insecurity. Economic deprivation often contributes to food insecurity, making it difficult for individuals or families to meet their basic food needs. The consequences of food insecurity can lead to significant health issues (Huang et al., 2016). Access to food is a fundamental right, as everyone requires sustenance. Food insecurity remains a major global development challenge that adversely impacts people's health, productivity, and, in many cases, their survival (Gunawardhana & Ginigaddara, 2021).

Table 2 depicts no significant correlation between employment and health status among the population in urban areas (p-value = 0.795, OR = 0.9, 95% CI = 0.4-1.7). The type of work is not a

significant determining factor in the health status of urban communities. According to WHO, health is where the physical and mental levels are stable or perfect, not only free from weakness or disability. So, those who work and have not worked together have the opportunity to have the same health status because those who work have the opportunity to experience stress due to work. In contrast, those who have not worked can have the same stress level due to a lack of self-confidence and feeling useless (Farré et al., 2018). Based on the result shown in Table 3, it can be concluded that there is a significant correlation between employment and health status among the population in rural areas (p -value = 0.045, OR = 1.4, 95% CI = 1.0-2.0). People who work are more likely to have good health status than those who do not work. This finding aligns with previous research, which states that individuals who are not working or unemployed tend to have poor health (Mooi-Reci & Wooden, 2022). When a person loses their job or even does not have a job, they may not have access to the financial resources necessary to fulfill basic needs such as food, shelter, and medical care. As a result, unemployment may contribute to health problems as individuals face economic hardships that may affect their well-being (Picchio & Ubaldi, 2023).

The analysis presented in Table 2 indicates that there is no significant correlation between marital status (married, living together, separated, widowed, and single) and health status among individuals living in urban communities (p -value > 0.05). Similarly, Table 3 shows that there is no significant correlation between marital status (married, living together, separated, and single) and health status among the rural population (p -value > 0.05). For married individuals and those in other marital categories, there is potential for similar levels of health. Married individuals may experience stress if their marital relationship is not positive (Robles et al., 2015). Conversely, those who are unmarried may also face stress, anxiety, depression, and even schizophrenia (Merrill, 2022). In rural areas, people tend to be more socially connected. As a result, the impact of marriage on health may not be as significant there. However, in urban areas, where many families are structured more as nuclear units, marital status could have a more pronounced effect on health (Saha et al., 2022).

Table 2 illustrates that there is no significant correlation between the level of education (primary and secondary) and health status among residents in urban communities (p -value > 0.05). The results presented in Table 3 similarly indicate no significant correlation between secondary education and health status among residents in rural communities (p -value > 0.05). Therefore, education level does not significantly influence health status in different populations.. This lack of correlation may be attributed to several factors, including comparable health behaviors across educational levels, cultural and social norms that promote health, and specific characteristics of the respondents, such as age distribution and occupation types. These elements may collectively lead to similar health outcomes, regardless of individual education levels, thereby diminishing the impact of education on health status in the studied populations. These findings align with previous research indicating that health conditions do not necessarily improve for educated or non-educated individuals, yet education influences a person's social status (Bourne, 2010). In contrast, another study found that adults with higher education reported better self-rated health than those with only secondary education (Chang, 2021). The differences in our findings may be attributed to the significant disparity in the number of respondents with higher education in our study. We found that the proportion of individuals with higher education was notably low compared to those with secondary education in urban and rural areas. This imbalance in educational representation could have affected our results, resulting in a lack of significant correlations in our study.

CONCLUSION AND SUGGESTION

Digital access significantly improves the health status of individuals in both urban and rural areas. In urban areas, there is no notable correlation between gender and health status; both men and women are equally likely to be infected by a virus or disease. Similar findings apply to age—while a general trend shows a decline in health with increasing age, age does not significantly correlate with health status in urban settings. Furthermore, previous studies indicate that family size and income can influence health outcomes. However, variables like employment and marital status do not show a significant impact in urban areas, as individuals in both categories face similar chances of experiencing stress-related events. Moreover, there is little difference in health status between educated and non-educated individuals since social status plays a more substantial role in urban environments. In contrast, in rural areas, variables such as age, family size, and occupation significantly impact health status, while gender, marital status, and education level do not show a significant effect. The observation that both men and women tend to report their health conditions equally, combined with the close relationship between marital status and stress in rural areas, suggests that these factors may contribute to stress among individuals.

CONFLICT OF INTEREST

Authors declare that there is no conflict of interest.

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