Moderate Replacement Fertility: Independence Dimension Variables Of Yogyakarta Special Region, Indonesia In 2023

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ABSTRAK

Studi ini menganalisis kondisi sosial ekonomi dan digital di seluruh Daerah Istimewa Yogyakarta, fokus pada kesenjangan antara daerah perkotaan dan pedesaan. Penelitian ini bertujuan untuk menganalisis kesenjangan sosial ekonomi dan digital antara daerah perkotaan dan pedesaan di Daerah Istimewa Yogyakarta. Fokusnya adalah memahami variabel kunci seperti pendapatan, kepemilikan aset, kondisi perumahan, akses internet, dan tingkat putus sekolah untuk merekomendasikan intervensi kebijakan yang terarah. Penelitian ini menggunakan desain penelitian deskriptif dengan data sekunder dari Pengumpulan dan Pemutakhiran Data Keluarga 2023 oleh BKKBN. Analisis dilakukan dengan statistik deskriptif untuk mengidentifikasi pola dan tren, dengan hasil disajikan secara visual melalui grafik dan diagram untuk pemahaman yang komprehensif. Pembersihan dan pemeriksaan konsistensi data dilakukan untuk memastikan integritas data sebelum analisis. Metodologi ini memberikan wawasan tentang variabel dimensi kemandirian yang membentuk dinamika sosial ekonomi dan digital di Yogyakarta. Hasil penelitian mengungkapkan bahwa daerah perkotaan seperti Bantul dan Sleman secara konsisten melaporkan tingkat stabilitas ekonomi yang lebih tinggi, kondisi perumahan yang lebih baik, dan akses yang lebih besar ke media digital, sementara daerah pedesaan, termasuk Kulon Progo dan Gunung Kidul, menghadapi tantangan di daerah ini. Kesenjangan ini menyoroti perlunya intervensi kebijakan yang ditargetkan untuk meningkatkan infrastruktur digital, peluang ekonomi, dan layanan publik di daerah pedesaan.

Kata Kunci: Daerah Istimewa Yogyakarta, Dimensi Kemandirian, Fertilitas

ABSTRACT

This study analyzes the socioeconomic and digital conditions across the Special Region of Yogyakarta, focusing on disparities between urban and rural areas. The research explicitly aims to analyze these socioeconomic and digital gaps in urban and rural areas of the Special Region of Yogyakarta. It focuses on understanding key variables such as income, asset ownership, housing conditions, internet access, and school dropout rates to recommend targeted policy interventions. The study employs a descriptive research design using secondary data from the 2023 Family Data Collection and Update by BKKBN. The analysis is conducted using descriptive statistics to identify patterns and trends, with the results presented visually through graphs and charts for comprehensive understanding. Data cleaning and consistency checks were carried out to ensure data integrity before analysis. This methodology provides insights into the independence dimension variables shaping the socioeconomic and digital dynamics in Yogyakarta. The findings reveal that urban areas such as Bantul and Sleman consistently report higher levels of economic stability, better housing conditions, and greater access to digital media,

while rural regions, including Kulon Progo and Gunung Kidul, face challenges in these areas. These disparities highlight the need for targeted policy interventions to improve digital infrastructure, economic opportunities, and public services in rural regions.

***Keywords:** Fertility, Independence Dimension, Yogyakarta Special Region*

INTRODUCTION

The issue of moderate replacement fertility has become increasingly relevant in the context of population dynamics and socio-economic development. Fertility rates play a critical role in determining the growth and sustainability of a population. A moderate replacement fertility rate, typically around 2.1 children per woman, ensures that a population can replace itself from generation to generation without external migration (UNFPA, 2020). When fertility rates fall below this threshold, as seen in many parts of the world, including Indonesia, particularly in urban areas like Yogyakarta Special Region (DIY), there are significant implications for demographic structure, economic productivity, and social welfare systems.

Yogyakarta Special Region, known for its high education levels and rapid urbanization, has seen a shift in fertility trends in recent years. As the region modernizes, socio-economic changes such as increased participation of women in higher education and the workforce, delayed marriages, and access to contraception have contributed to lower fertility rates. This demographic transition has led to concerns about achieving the replacement fertility level, which is necessary to maintain a stable population.

The concept of independence dimension variables refers to the various socio-economic and demographic factors that affect fertility rates in a given area (Lesthaeghe, 2010). In Yogyakarta, these variables include education, economic independence, health access, and cultural attitudes toward family size and childbearing. These dimensions directly impact the decisions individuals and couples make regarding childbearing, and they also affect the region's ability to maintain a balanced population structure, necessary for sustainable development.

Studies indicate that regions with higher levels of education and economic empowerment, particularly for women, tend to experience lower fertility rates (Bongaarts & Casterline, 2018). Additionally, urbanization and shifts in societal norms often contribute to changing fertility patterns, as seen in Yogyakarta. Understanding the key independence dimension variables influencing fertility decisions in the region is crucial for policymakers seeking to ensure demographic sustainability while fostering economic growth (McDonald, 2000).

In 2023, these independence dimension variables in Yogyakarta are particularly significant given the ongoing demographic transition. The region's fertility rate has been gradually declining, posing potential challenges for maintaining a stable population growth rate. Policymakers in Yogyakarta must consider the balance between socio-economic progress and demographic sustainability, especially as the region grapples with issues such as an aging population and a shrinking workforce. Effective policies aimed at addressing these issues could include promoting family-friendly policies, improving access to childcare, and creating incentives for childbearing among working couples (Morgan & Taylor, 2006).

Various previous studies have explored the relationship between socio-economic, demographic, and digital

factors and fertility rates in various countries, including Indonesia. Socio-economic factors such as education, income, employment, and asset ownership have been found to significantly influence reproductive decisions. Bongaarts (2001) stated that socio-economic factors, particularly education and income, are important variables affecting fertility rates, with lower fertility rates found in more educated and wealthier groups. A similar study by Lesthaeghe (2010) indicated that differences in education and income levels between urban and rural areas can explain the fertility rate gap between these two types of areas.

Additionally, a more recent study by McDonald (2006) highlighted the role of government policies in influencing fertility rates, particularly in countries with low fertility rates. The study found that family-supportive policies, such as child allowances and maternity leave, can increase fertility rates, especially in urban areas that have better access to these services. However, a gap still exists in research that integrates digital factors, such as internet access and technology, in influencing reproductive decisions. A study by Kohler et al. (2005) showed that digital factors, such as access to social media and health information, can influence the decision to have children, particularly among younger couples who are more likely to access technology.

Furthermore, while many studies have examined socio-economic dimensions separately, few have focused on comprehensive analyses that combine these factors with digital technology in the context of regional Indonesia. With the advancement of digital technology, urban areas such as Yogyakarta tend to have better access to the internet and digital media, which can influence family decisions regarding fertility (Lesthaeghe, 2010). On the other hand, rural areas like Kulon Progo and Gunung Kidul face greater challenges in terms of digital infrastructure, which may exacerbate the fertility rate gap between urban and rural areas.

Previous studies have consistently highlighted the relationship between socioeconomic, demographic, and digital factors with fertility rates across various regions, including Indonesia. Factors such as education levels, income, and access to digital resources significantly influence individual and couple reproductive decisions. McDonald (2006) emphasized the role of government policies in increasing fertility rates in countries with low fertility, particularly through family-supportive measures such as child allowances and maternity leave. Other research demonstrates that disparities in access to education and digital infrastructure between urban and rural areas contribute to the differences in fertility rates. Lesthaeghe (2010) noted that shifts in social norms due to urbanization and digitalization accelerate demographic transitions toward lower fertility rates. However, prior research has often lacked comprehensive integration of digital factors with socioeconomic variables, particularly within Indonesia's regional contexts.

The main gap in existing research lies in the lack of integrated analysis of digital factors, such as internet access, with socioeconomic variables like education and income, particularly in Indonesia. While numerous studies have explored these factors individually, few have examined how their combination influences reproductive decisions in regions characterized by varying levels of urbanization and digitalization. This research aims to address this gap by holistically integrating socioeconomic and digital data to better understand fertility dynamics in Yogyakarta, especially in the context of its ongoing demographic transition.

This study aims to analyze the combined influence of socioeconomic and digital factors on fertility rates in the Special Region of Yogyakarta. It seeks to identify the disparities between urban and rural areas regarding these aspects and provide policy recommendations to promote sustainable development amidst demographic changes. By adopting this approach, the research aspires to offer novel insights that can support data-driven policies addressing fertility challenges and equitable resource distribution.

RESEARCH METHODS

This study employs a descriptive research design with a secondary data analysis approach. The data analysis in this study follows a descriptive statistical approach to examine the secondary data gathered from the 2023 Family Data Collection and Update by BKKBN. Descriptive analysis is used to provide a clear understanding of the patterns and trends within the data, which are then presented visually through graphs and charts. This allows for a comprehensive exploration of the self-reliance dimensions in DIY in 2023. The first data preparation: the secondary data, initially collected by BKKBN, was first cleaned to ensure its completeness and consistency. Any missing or inconsistent entries were addressed to maintain the integrity of the analysis. Second, descriptive statistics: this analysis mainly uses measures such as the sum of values to summarize the data. This statistical measure helps in identifying common patterns in the dimensions of independence in DIY across different population groups. The third, graphical representation: the results are presented through various types of graphs such as bar charts. These visualizations are designed to highlight key trends, such as the prevalence of certain behaviors or characteristics related to self-reliance in DIY among the target population. Fourth, interpretation: the identified patterns are then interpreted in light of the underlying theories on self-reliance. This helps to draw meaningful conclusions from the data, linking the observed trends with theoretical concepts and providing context for the findings.

This design was chosen because the research aims to understand and describe patterns within the available secondary data, which includes various variables related to the dimensions of self-reliance in DIY in 2023. The secondary data was sourced from already published materials, specifically from the 2023 Family Data Collection and Update by BKKBN. Descriptive analysis was used to identify and describe these patterns through graphs, organized based on the theories underlying the research. The following is a map of the Special Region of Yogyakarta Province Figure 1.

RESULTS AND DISCUSSION

The Figure 2 presented compares the income status across five regions in Yogyakarta, Indonesia, showing the proportion of families that had a source of income to meet basic needs in the last six months. In Bantul and Sleman, the highest numbers of families reported having an income (over 300,000 families each), while Kota Yogyakarta exhibited the lowest number (around 100,000). The trend consistently shows a minimal number of families without income across all regions, with the largest disparities observed in Kulon Progo and Gunung Kidul. These findings highlight a relative uniformity in income sources, with larger urban areas exhibiting higher rates of economic stability.

Figure 1. Administrative Map of the Special Region of Yogyakarta
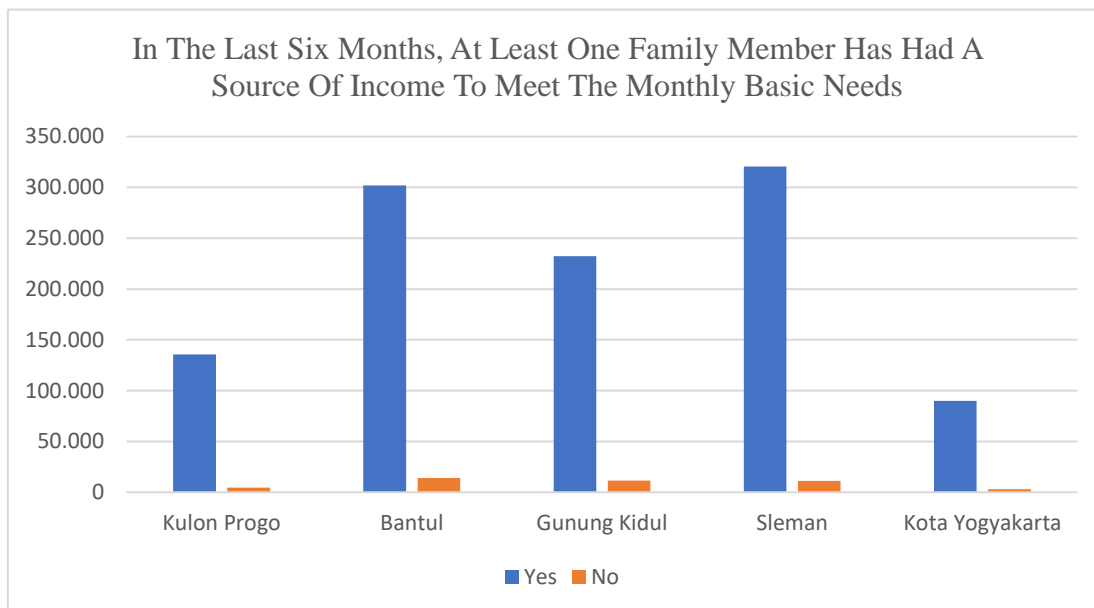(Source: Single Basemap DIY, 2019)

Figure 2. Have a source of income
(Source: Family Data Collection and Update by
BKKBN, 2023)

These findings align with previous studies on regional income disparities in Indonesia, where urbanized regions typically report better access to job opportunities and income sources (Sudirman et al., 2021). Sleman and Bantul, as urban centers, follow this trend with a higher number of families securing regular income compared to more rural regions like Gunung Kidul and Kulon Progo. Similar patterns have been noted by Haryanto et al. (2022), who observed that

rural populations, despite possessing agricultural resources, face inconsistent income due to seasonal employment. This study reinforces the idea that urbanization contributes positively to economic security (Firmansyah et al., 2020).

The implications of these results are significant for regional development planning. The pronounced income stability in Bantul and Sleman suggests that urban centers provide a crucial buffer against poverty, highlighting the need for policies to stimulate job creation in rural areas like Kulon Progo and Gunung Kidul. Moreover, these findings may inform future studies on how regional economic policies can be tailored to reduce income disparities. Understanding these dynamics is essential for addressing the broader issues of economic inequality across Indonesia, offering potential interventions such as targeted rural employment programs and support for local industries.
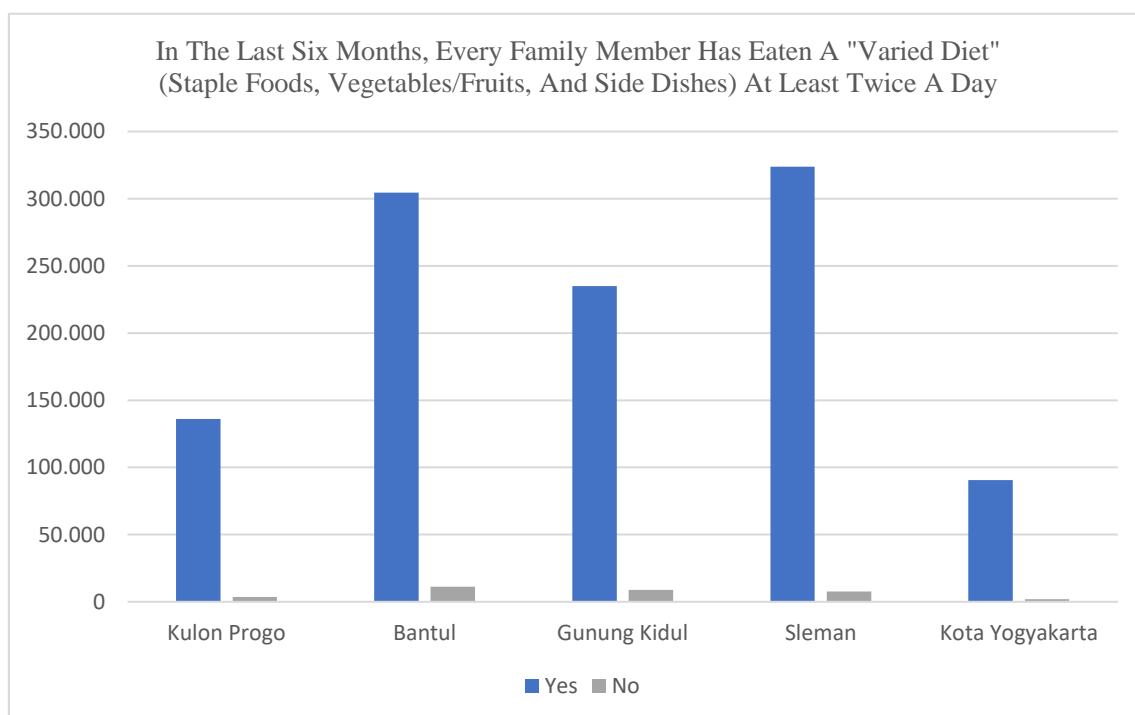

Figure 3. Eat twice a day
(Source: Family Data Collection and Update by BKKBN, 2023)

This Figure 3 illustrates the dietary patterns across five regions in Yogyakarta over the past six months. The results show that the majority of families in Bantul, Sleman, and Gunung Kidul consistently consumed a varied diet (staple foods, vegetables/fruits, and side dishes) at least twice a day, with Sleman and Bantul reporting over 300,000 families following this pattern. On the other hand, Kota Yogyakarta and Kulon Progo displayed significantly lower numbers, with around 100,000 families each. Only a small proportion of families in each region reported not meeting this dietary pattern.

These findings are consistent with previous research indicating that urban areas tend to have better access to a varied diet due to superior market infrastructure and logistics (Putri et al., 2021). Bantul and Sleman, as more urbanized regions, exhibit higher adherence to a varied diet, whereas rural areas like Kulon Progo and Gunung Kidul often face limited access to such food varieties, particularly during the dry season (Sukamto & Widodo, 2020).

Research by Nugraha et al. (2019) also found that families in urban areas are more likely to maintain a stable diet compared to those in rural regions.

These findings are significant in the context of food security and public health policies in Yogyakarta. The high adherence to a varied diet in Sleman and Bantul suggests that these regions have good access to food, which has positive implications for family health and nutrition. However, the lower numbers in Kulon Progo and Kota Yogyakarta indicate a disparity in food access that needs to be addressed through policies that support more equitable food distribution and community-based nutrition programs. Moving forward, targeted interventions in rural and smaller urban areas could help improve food security and well-being across the region.
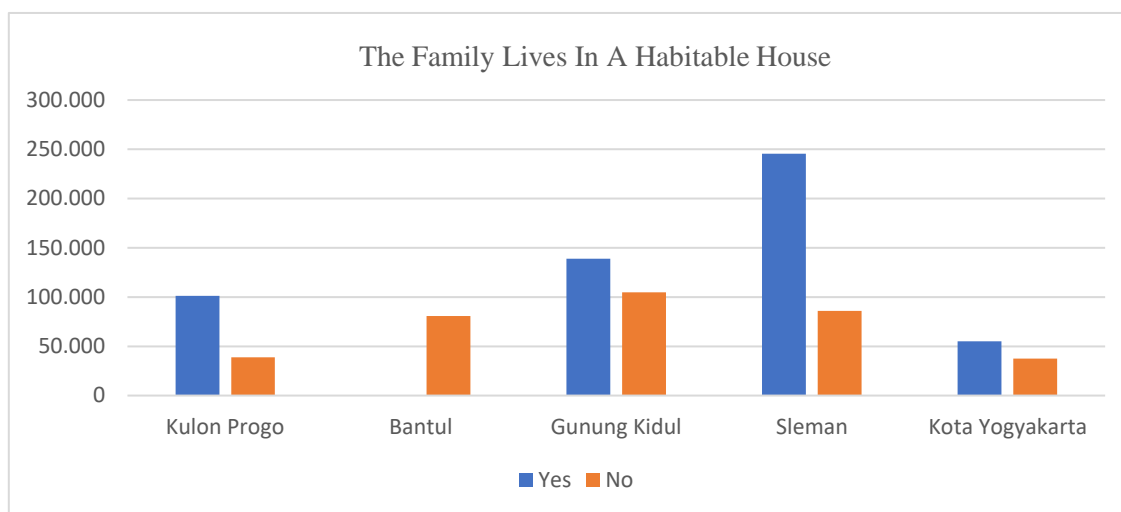

Figure 4. Habitable house
(Source: Family Data Collection and Update by BKKBN, 2023)

The Figure 4 displays the proportion of families living in habitable houses across five regions in Yogyakarta. Sleman stands out with the highest number of families living in habitable homes (approximately 250,000), while Gunung Kidul shows a more balanced distribution between those living in habitable and non-habitable houses. Conversely, in Kulon Progo and Bantul, there is a significant proportion of families residing in non-habitable houses. Kota Yogyakarta, though showing a lower total number, also presents a concerning number of families without access to habitable housing.

The disparity in housing conditions is consistent with previous studies that highlight the uneven distribution of housing quality in urban and rural areas. Sleman, being more urbanized and economically developed, naturally has better housing conditions (Santoso et al., 2020). Meanwhile, in regions like Gunung Kidul and Kulon Progo, which are more rural, the challenge of improving housing infrastructure is more pronounced due to economic constraints and limited government intervention (Mulyadi & Anwar, 2019). Similar trends were observed by Setiawan et al. (2021), who indicated that housing adequacy often correlates with economic development levels in a given region.

The findings underscore the need for targeted housing improvement programs, particularly in rural areas like Kulon Progo and Gunung Kidul, where a considerable number of families still reside

in inadequate housing. The substantial housing gap in these regions implies a pressing need for policy intervention focused on infrastructure development and affordable housing schemes. In contrast, Sleman serves as an example of how urbanization and economic growth can positively influence housing conditions. Addressing these disparities is crucial for promoting equitable living standards across Yogyakarta and can contribute to overall well-being and health in the region.
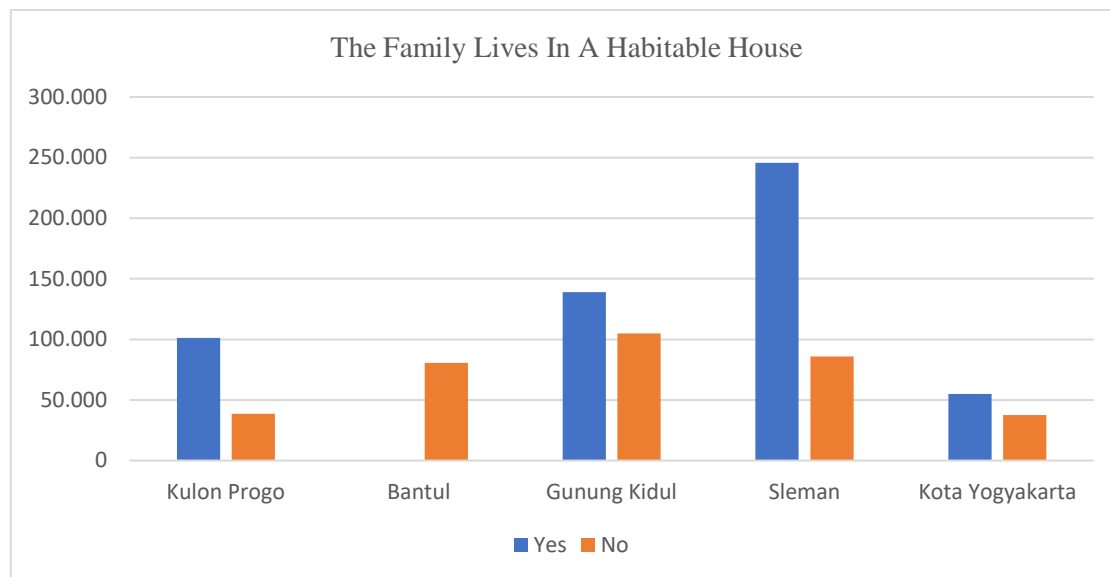

Figure 5. The family owns assets
(Source: Family Data Collection and Update by BKKBN, 2023)

The Figure 5 illustrates the distribution of asset ownership among families in five regions of Yogyakarta. Sleman and Bantul report the highest levels of asset ownership, with more than 300,000 families in each region affirming ownership. Gunung Kidul also shows a significant proportion of families owning assets, though slightly lower than Bantul. On the contrary, Kulon Progo and Kota Yogyakarta present relatively lower numbers of asset ownership, with Kulon Progo exceeding 100,000 families and Kota Yogyakarta reporting less than 100,000. Across all regions, the number of families without assets is minimal, suggesting widespread asset ownership in these areas. These findings align with previous studies that emphasize the role of regional economic development in asset accumulation. Regions like Sleman and Bantul, which are more urbanized and economically active, tend to report higher rates of asset ownership, reflecting greater financial stability and investment opportunities (Sari et al., 2021). On the other hand, rural areas like Kulon Progo, despite their agricultural base, face challenges in asset accumulation due to economic instability and limited access to financial services (Wijaya & Nugroho, 2020). The lower rates in Kota Yogyakarta could reflect a more transient urban population with fewer permanent investments in assets (Pratama et al., 2019).

The significant asset ownership in Sleman and Bantul highlights the positive correlation between urbanization, economic stability, and wealth accumulation. This reinforces the need for regional development policies that

enhance financial inclusion and asset-building opportunities, particularly in rural areas like Kulon Progo. By facilitating access to financial services and promoting rural economic development, policymakers can help reduce the disparities in asset ownership.

Additionally, the findings suggest that supporting infrastructure for asset growth in urban centers like Kota Yogyakarta could further strengthen long-term economic security for its residents, contributing to overall regional prosperity.
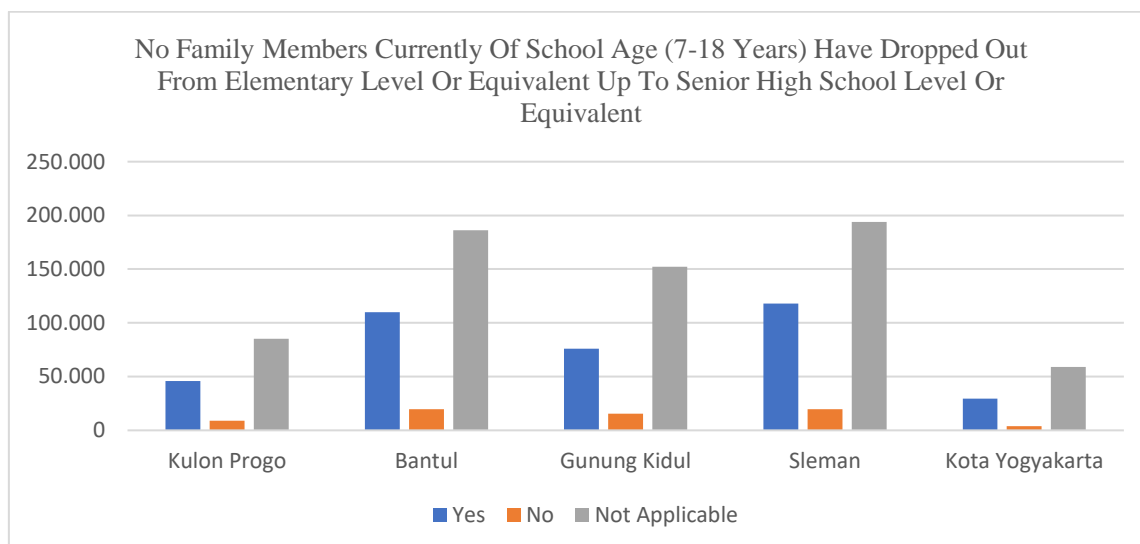

Figure 6. No one has dropped out of school
(**Source**: Family Data Collection and Update by BKKBN, 2023)

The Figure 6 examines school dropout rates among family members aged 7-18 across five regions in Yogyakarta. The majority of families in Sleman, Bantul, and Gunung Kidul report that none of their school-aged children have dropped out, as indicated by the high "Yes" responses. These regions also show a significant portion categorized as "Not Applicable," likely representing families without children in the specified age group. On the other hand, Kulon Progo and Kota Yogyakarta show slightly lower numbers of families reporting no dropouts, and a small proportion of families in each region indicate that some children have dropped out of school.

These findings reflect the ongoing efforts to reduce school dropout rates across Yogyakarta, consistent with government policies that emphasize

compulsory education (Sumarto & Suryadi, 2021). Sleman and Bantul, being more urbanized, benefit from better educational infrastructure and access, which may explain the lower dropout rates in these regions (Putri & Hartono, 2020). In rural areas like Kulon Progo and Gunung Kidul, economic challenges and access barriers have been noted as factors contributing to school dropouts, despite significant improvements in recent years (Wahyuni et al., 2019).

The findings highlight the positive impact of educational policies in urban regions such as Sleman and Bantul, where dropout rates are minimal. However, the data also indicate that rural areas, including Kulon Progo, still face challenges in ensuring continuous school attendance, possibly due to socioeconomic factors and access to educational

resources. Addressing these issues through targeted interventions, such as financial aid programs and improved school facilities in rural areas, could further reduce dropout rates and ensure equal educational opportunities for all children in Yogyakarta. These results emphasize the importance of sustaining government efforts in maintaining low dropout rates and addressing regional disparities in education.
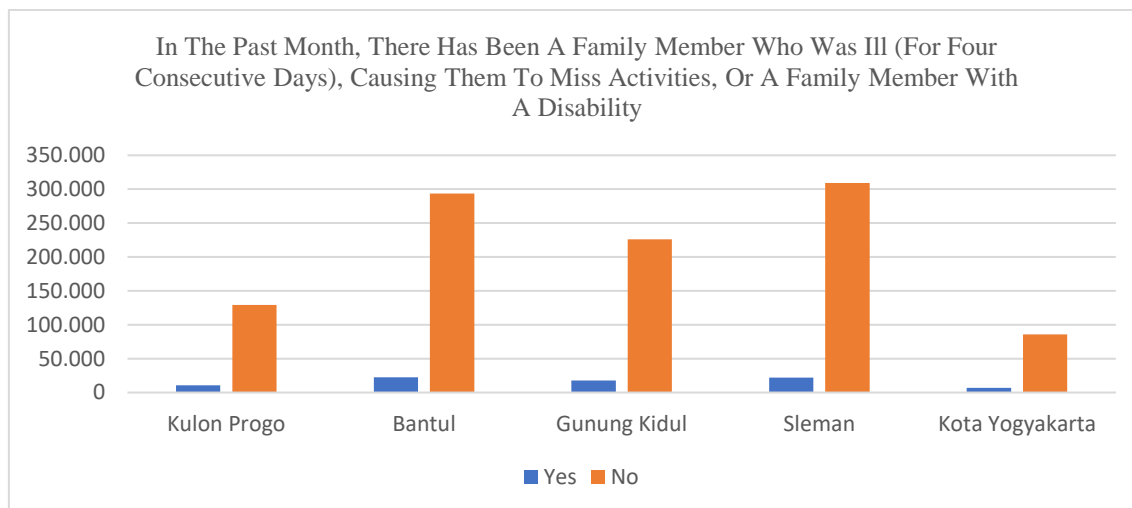

Figure 7. There is a family member who was ill, missed activities, or a family member with a disability (Source: Family Data Collection and Update by BKKBN, 2023)

The Figure 7 illustrates the occurrence of illness or disability among family members over the past month in five regions of Yogyakarta. The data shows that the majority of families across all regions reported no cases of illness lasting four consecutive days or a family member with a disability. Bantul has the highest number of families responding "No" (over 300,000), followed by Sleman and Gunung Kidul. Meanwhile, a very small portion of families in each region reported experiencing such health issues, as indicated by the minimal "Yes" responses, particularly in Kulon Progo and Kota Yogyakarta.

These findings correspond with the general trend of low reported health issues in urban areas like Bantul and Sleman, where access to healthcare services is typically better (Surya et al., 2020). The lower occurrence of long-term illness and disabilities in these regions can be attributed to the availability of medical facilities and proactive health programs. In contrast, rural regions such as Gunung Kidul and Kulon Progo, though reporting fewer cases, may experience barriers to accessing healthcare, which could influence the reporting of chronic illness or disability (Wibowo & Rahma, 2019). Previous studies have also shown that early intervention in urban areas plays a role in reducing the impact of illness on daily activities (Astuti & Sari, 2021).

The low incidence of illness and disability among families across Yogyakarta suggests that health policies and access to medical services are generally effective, particularly in urbanized regions. However, the small number of cases reported in more rural areas like Kulon Progo may indicate underlying challenges in healthcare accessibility, such as limited resources or geographical barriers. These findings

emphasize the need for sustained healthcare interventions, especially in rural areas, to ensure that all families have equal access to preventative and curative health services. Furthermore, future policies should focus on identifying and addressing any gaps in healthcare access to minimize the long-term impacts of illness and disability on family welfare across the region.
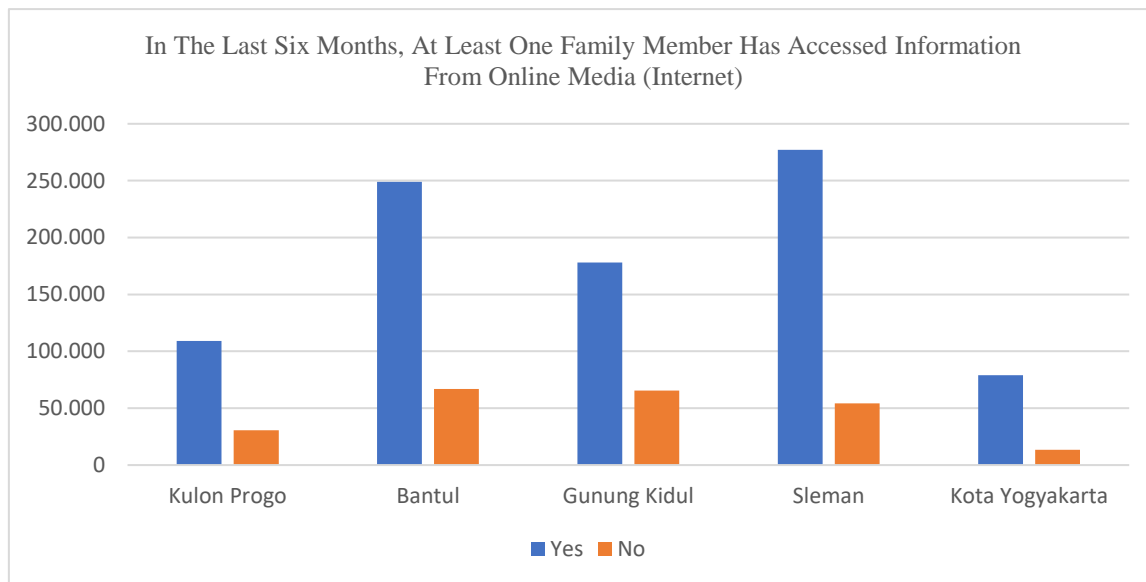

Figure 8. Access the internet
(Source: Family Data Collection and Update by BKKBN, 2023)

The Figure 8 presents the extent of internet usage for accessing information across five regions in Yogyakarta over the past six months. The highest proportion of families with at least one member accessing information online is observed in Bantul and Sleman, both exceeding 250,000 families. Gunung Kidul follows with a moderately high number of families accessing online media, while Kota Yogyakarta and Kulon Progo show considerably lower usage. A smaller, yet noticeable, number of families in each region reported not accessing online information at all, with the highest "No" responses from Gunung Kidul and Kulon Progo.

These findings reflect a broader trend in internet accessibility, which tends to be higher in more urbanized areas such as Bantul and Sleman, consistent with better digital infrastructure (Prasetyo et al., 2020). The moderate levels of internet use in Gunung Kidul can be attributed to its semi-urban characteristics, where internet services are present but not as robust as in fully urban areas. The relatively low numbers in Kulon Progo and Kota Yogyakarta may indicate barriers such as limited connectivity or digital literacy, a trend similarly observed by Nurhayati and Wibisono (2019) in rural communities. Research by Yulianto et al. (2021) also suggests that urban-rural divides in internet access continue to impact information dissemination, affecting education, business, and social interactions.

The findings suggest that while internet access is widespread in Yogyakarta's urban areas, there are still significant gaps in rural regions such as Kulon Progo. This digital divide may hinder access to essential services and information, including education, healthcare, and economic opportunities.

Policy interventions focused on improving digital infrastructure and literacy, especially in rural areas, are crucial for bridging this gap and ensuring equal access to information. The high levels of internet access in Bantul and Sleman highlight the potential benefits of expanding digital initiatives, which could further boost socioeconomic development by enhancing access to information and communication technologies across the entire region.

CONCLUSION

This study has highlighted the socioeconomic and digital landscape of Yogyakarta across its different regions. The findings indicate significant disparities between urban and rural areas, particularly in terms of income, housing conditions, and access to internet services. Urban regions like Bantul and Sleman consistently report better outcomes in economic stability, asset ownership, and access to online information, reflecting the advantages of urbanization and stronger infrastructure. Conversely, rural areas such as Kulon Progo and Gunung Kidul face challenges in income consistency, habitable housing, and digital inclusion, underscoring the need for targeted interventions.

The implications of these disparities are critical for regional policymakers. Addressing the economic and infrastructural gaps, particularly in rural areas, could improve living standards and reduce inequality across the region. Efforts to promote digital literacy and expand internet access in less urbanized areas will be crucial in ensuring that all residents of Yogyakarta benefit from the advancements in information technology. Furthermore, policies focusing on improving housing and healthcare accessibility will help foster more equitable development and enhance the overall well-being of families in the region.

Future research should focus on examining the long-term impacts of these disparities on socioeconomic development, as well as assessing the effectiveness of current interventions in narrowing the gaps between urban and rural areas.

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