Jurnal Ners Volume 10 Nomor 2 Tahun 2026 Halaman 4982 - 4987
JURNAL NERS
Research & Learning in Nursing Science
http://journal.universitaspahlawan.ac.id/index.php/ners

THE IMPACT OF REGIONAL POLICIES ON POSTPARTUM FAMILY PLANNING SERVICES IN SPECIAL REGION OF YOGYAKARTA PROVINCE : A RUN CHART ANALYSIS

Fikriyatul Arifah[1], Ella Nurlaella Hadi[2]
[1,2] Master Program in Public Health, Faculty of Public Health, University of Indonesia
fikriyatul.arifah42@ui.ac.id

Abstrak

Angka kematian ibu (AKI) di Indonesia masih tinggi, yaitu 189 per 100.000 kelahiran hidup (KH) pada 2023, jauh dari target SDGs tahun 2030 sebesar 70 per 100.000 KH. Salah satu strategi penurunan AKI adalah pelayanan Keluarga Berencana Pasca Persalinan (KBPP) untuk mencegah kehamilan terlalu dekat atau tidak direncanakan. Pemerintah Provinsi Daerah Istimewa Yogyakarta (DIY) menerbitkan Surat Edaran Gubernur Nomor 11/SE/VII/2022 tentang Pelayanan KBPP sebagai bentuk komitmen peningkatan kesehatan ibu. Penelitian ini bertujuan mendeskripsikan tren capaian peserta KBPP di DIY sebelum dan sesudah kebijakan tersebut menggunakan analisis *run chart*. Penelitian ini merupakan studi deskriptif kuantitatif dengan data sekunder dari Sistem Informasi Keluarga (SIGA) BKKBN periode Januari 2022–Desember 2023. Analisis *run chart* dilakukan terhadap 24 titik data dengan median capaian 820, untuk mendeteksi variasi acak dan non-acak berdasarkan empat aturan utama: *shift*, *trend*, *runs*, dan *astronomical point*. Hasil menunjukkan adanya dua pergeseran besar (*shift*) dari bawah ke atas median, tren peningkatan enam bulan berturut-turut, serta hanya dua lintasan median yang menandakan variasi non-random. Pola ini bertepatan dengan masa implementasi kebijakan. Kesimpulannya, terjadi perubahan sistemik yang bermakna dalam pelaksanaan KBPP di DIY sejak awal 2023, yang mengindikasikan peran kebijakan daerah dalam meningkatkan capaian KBPP, meskipun hal ini tidak membuktikan hubungan sebab-akibat

Kata Kunci: Keluarga Berencana Pasca Persalinan, *Run Chart*, Kebijakan Daerah, Variasi *Non-Random*, DIY

Abstract

Indonesia's maternal mortality ratio (MMR) remains high at 189 per 100,000 live births in 2023, far above the 2030 SDG target of 70 per 100,000. One key strategy to reduce MMR is Postpartum Family Planning (PPFP) services, which help prevent closely spaced or unintended pregnancies. The Government of the Special Region of Yogyakarta (DIY) issued Governor Circular Letter No. 11/SE/VII/2022 on PPFP services as a commitment to improving maternal health. This study aimed to describe trends in PPFP coverage in DIY before and after the policy using run chart analysis. A quantitative descriptive design was applied, utilizing secondary data from the Family Information System (SIGA) of BKKBN from January 2022 to December 2023. Run chart analysis was conducted on 24 data points with a median of 820 to detect random and non-random variation based on four rules: shift, trend, runs, and astronomical point. The results showed two major shifts from below to above the median, a six-month upward trend, and only two median crossings, indicating non-random variation. These patterns coincided with the policy's implementation. In conclusion, a meaningful systemic change in PPFP performance has occurred in DIY since early 2023, suggesting a positive role of regional policy, although causality cannot be confirmed

***Keywords*:** *Postpartum Family Planning, Run Chart, Regional Policy, Non Random Variation, Yogyakarta*

* Corresponding author :
Address : Kecamatan Beji, Kota Depok, Jawa Barat
Email : fikriyatul.arifah42@ui.ac.id
Phone : 085363619613

INTRODUCTION

The maternal mortality rate (MMR) remains a major global health challenge. According to data from the World Health Organization (WHO), in 2020, an estimated more than 287,000 women died annually due to complications of pregnancy and childbirth, with the majority of cases occurring in developing countries (Cresswell, 2023). In Indonesia, the results of the 2020 Population Census Long Form (SP2020) show that the MMR remains quite high, at around 189 per 100,000 live births (Badan Pusat Statistik RI, 2023). This figure is still far from the SDGs target of reducing the MMR to less than 70 per 100,000 live births by 2030 (United Nations, 2020). Many causes of maternal death are preventable. According to the WHO, one way to do this is by preventing unwanted pregnancies. One way to prevent unwanted pregnancies is to provide access to contraceptive services that can space pregnancies and prevent unplanned pregnancies, ultimately reducing the risk of childbirth complications and maternal mortality (WHO, 2015).

Postpartum Family Planning (PPFP) is an important strategy for preventing unplanned pregnancies and preventing closely spaced pregnancies in the first 12 months after delivery. PPFP is provided after delivery for up to 42 days, to regulate birth spacing, pregnancy spacing, and avoid unwanted pregnancies, so that every family can plan a safe and healthy pregnancy (BKKBN, 2025).

However, PPFP coverage in Indonesia remains suboptimal. In 2024, coverage reached only 48.9% (BKKBN, 2024), indicating that many postpartum women have not utilized contraceptive services. This highlights ongoing challenges in access and program implementation. Policy support plays an important role in strengthening family planning services (Hellwig et al., 2024). However, only a limited number of local governments in Indonesia have implemented specific policies on PPFP. The Special Region of Yogyakarta (DIY) is one of the regions that has issued a Governor's Circular Letter No. 11/SE/VII/2022 to strengthen PPFP services.

Despite the importance of policy interventions, empirical evidence at the local level remains limited. There is still a lack of published studies that specifically describe PPFP trends before and after regional policy implementation using run chart analysis, particularly in Indonesia and the Special Region of Yogyakarta. The purpose of this study was to describe trends in PPFP outcomes in the Special Region of Yogyakarta (DIY) Province using run charts before and after the enactment of the Circular Letter on PPFP.

METHODS

This study employed a quantitative descriptive study with time-series design using run chart analysis. The data used were secondary data from the *Sistem Informasi Keluarga* (SIGA) of the National Population and Family Planning Agency (BKKBN), which are publicly accessible at siga.bkkbn.go.id. Data extraction was conducted using the "Tabulasi SIGA" feature by selecting the family planning service (YANKB) dataset and accessing monthly reports. The data were filtered by province (Special Region of Yogyakarta/DIY) and by period (January 2022 to December 2023).

The dataset included aggregated monthly data on the number of new PPFP participants across all districts/cities in DIY. The unit of analysis was monthly data, consisting of 24 data points. This period was selected to represent conditions before and after the implementation of the Governor's Circular Letter No. 11/SE/VII/2022 issued in July 2022. All available data that met these criteria during the study period were included in the analysis

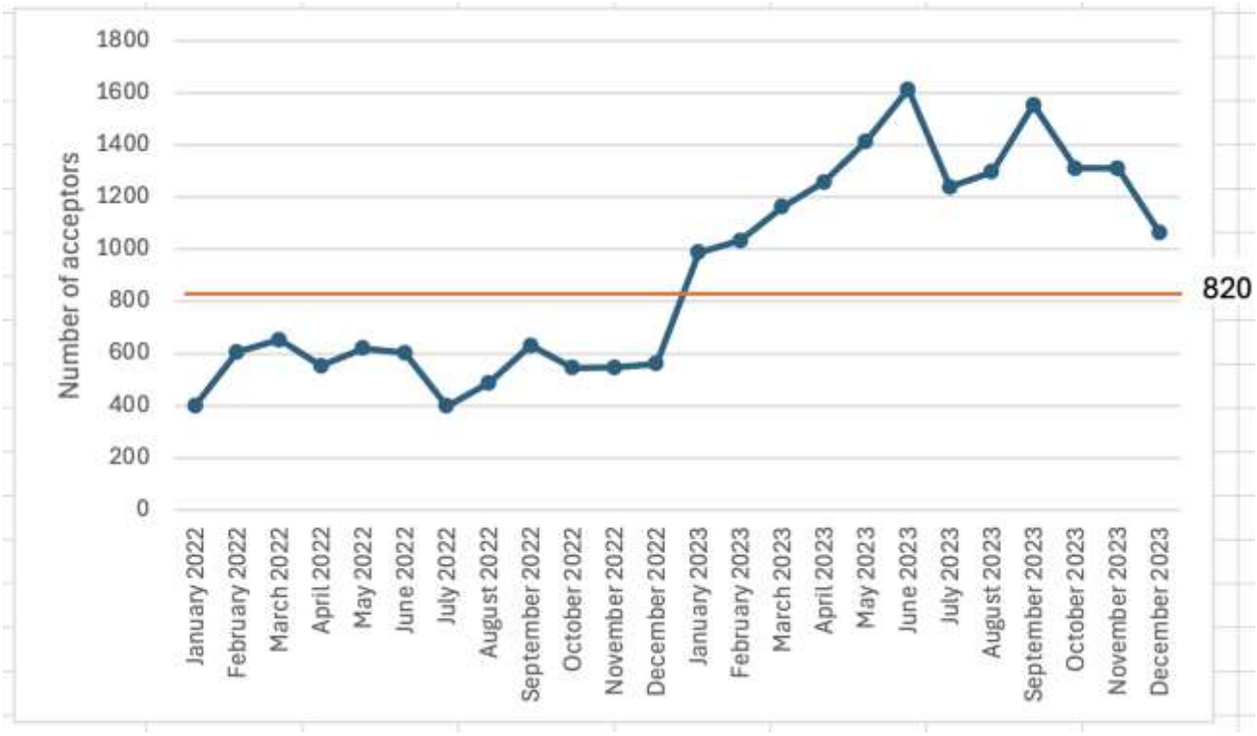
A run chart is a graphical method used to display data over time with a median line as a reference (McQuillan et al., 2016). It is a simple yet powerful tool for monitoring trends, detecting systemic changes, and assessing whether an intervention is followed by meaningful operational improvements (Provost & Murray, 2022; Ulfat, 2021; Williams, 2018; Winckler et al., 2024). Run charts do not require complex statistical assumptions and can be used with routine data (e.g., monthly outcomes). This method is particularly suitable for evaluating short- to medium-term changes in program performance, including the impact of regional policies on PPFP coverage.

The run chart was constructed by plotting monthly PPFP achievement data, with the median value of the 2022–2023 data used as the center line. Interpretation of the run chart followed four standard rules to identify patterns of variation and distinguish between random and non-random changes. Systematic variation may indicate the presence of special causes that warrant further investigation. The rules applied in this study were as follows: (1) shift, defined as six or more consecutive points above or below the median; (2) trend, defined as five or more consecutive points consistently increasing or decreasing; (3) runs, referring to the number of times the data line crosses the median, where too few or too many crossings indicate non-random variation; and (4) astronomical point, defined as a data point that is markedly different from the overall pattern and considered an outlier. To assess the randomness of the data pattern, the number of runs was compared with the criteria proposed by Swed and Eisenhart. For 24 observations, the expected number of runs ranges between 8 and 18; values outside this range indicate non-random variation. (Provost & Murray,

2022). All analyses and visualizations were performed using Microsoft Excel.

This study utilized secondary data obtained from a publicly accessible database (SIGA). The data were aggregated at the population level and did not contain any individual identifiers or personal information. Therefore, this study did not involve human subjects directly. The confidentiality and privacy of individuals were fully protected, as no identifiable data were used in the analysis.

RESULT AND DISCUSSION



Analysis was conducted on monthly data from January 2022 to December 2023 (n = 24) to assess variation patterns and detect potential changes using a run chart. The median value was 820, which was used as the center line in the chart to determine shift patterns, trends, the number of runs, and extreme points (astronomical points).

Table 1. The number of PPFP acceptors in DIY from Jan 2022 to Dec 2023

Month	Number of acceptors
Januari 2022	400
February 2022	606
March 2022	652
April 2022	552
May 2022	619
June 2022	602
July 2022	398
August 2022	487
September 2022	631
October 2022	545
November 2022	547
December 2022	560
Januari 2023	988
February 2023	1033
March 2023	1162
April 2023	1258
May 2023	1413
June 2023	1612
July 2023	1238
August 2023	1296
September 2023	1554
October 2023	1310
Novemeber 2023	1310
December 2023	1064

The run chart shows that all data points in 2022 were below the median, while almost all data points in 2023 were above the median. This pattern indicates two major shifts: one sequence of data points below the median in 2022 and one sequence above the median in 2023. Based on run chart rules, two shifts were identified, each consisting of six or more consecutive points on one side of the median.

In addition, an increasing trend was observed from January to June 2023, consisting of six consecutive data points that continuously increased. This pattern meets the criteria for a trend in run chart analysis.

The number of runs identified was two median crossings, occurring between December 2022 and January 2023. According to the Swed and Eisenhart criteria, the expected number of runs for 24 data points ranges from 8 to 18. Therefore, the observed number of runs indicates a non-random pattern.

An astronomical point was identified in June 2023, representing the highest value during

the study period (insert your value here). This data point is visually distinct compared to the overall pattern.

This study identified a non-random pattern in PPFP coverage in the Special Region of Yogyakarta. The findings include a shift from values below the median in 2022 to values above the median in 2023, an increasing trend in early 2023, and a lower-than-expected number of runs. These patterns indicate a systematic change in program performance over time.

The *run chart* analysis demonstrated a non-random variation pattern in the number of postpartum family planning (PPFP) participants in the Special Region of Yogyakarta Province during 2022–2023. This pattern was characterized by values tending to remain above the median line along with an upward tendency during specific periods. Based on *run chart* rules (shift, trend, runs, and astronomical points), such a pattern suggests a change in the system or service process rather than natural variation alone (Provost & Murray, 2022). Therefore, these findings indicate the presence of contextual factors or interventions that may have contributed to changes in program performance.

One relevant factor during this period was the issuance of the Governor of the Special Region of Yogyakarta's Circular Letter Number 11/SE/VII/2022 on Postpartum Family Planning Services, as a follow-up to BKKBN Regulation No. 18 of 2020. This circular included strategic directives such as strengthening PPFP services across all health facilities, ensuring continuity of counseling from pregnancy through the postpartum period, promoting cross-sectoral coordination, enhancing health worker training, and reinforcing monitoring and reporting systems. Although not legally binding, this policy functions as an administrative instrument to strengthen commitment and coordination among stakeholders at the regional level (Hanum, 2020)

Within the framework of the World Health Organization's Health System Strengthening (HSS), leadership and governance are key pillars in creating an enabling environment for sustainable health services (World Health Organization, 2021). Regional policies such as this circular can contribute to strengthening governance by improving cross-sectoral coordination, resource allocation, and the capacity of health facilities and personnel. The findings of this study are consistent with this framework, as the observed changes in PPFP achievement patterns may reflect improvements in the service system influenced by the policy context. However, it is important to emphasize that causal relationships cannot be established based solely on *run chart* analysis.

These findings are in line with previous studies. A cross-country study in 22 Sub-Saharan African countries by Kamuyango et al. found that stronger public-sector family planning programs were associated with higher use of long-term contraceptive methods. Although not specifically focused on PPFP, the study highlights the role of public policies and programs in strengthening contraceptive utilization (Kamuyango et al., 2022).

Furthermore, a systematic review and meta-analysis by Memon et al. identified that integrating family planning services into maternal and child health programs through supportive policies is one of the most effective strategies to increase contraceptive uptake. The study reported that countries implementing postpartum family planning counseling within routine services had up to 1.8 times higher use of modern contraceptives compared to those without such integration. This underscores the importance of structured policy frameworks and cross-sectoral coordination in sustaining program improvements (Memon et al., 2024).

Similar evidence was reported by Swan in the United States, showing that government policies play a significant role in shaping access to contraceptive services. Supportive regulations and funding mechanisms were associated with improved access and utilization of family planning services. Collectively, these studies suggest that public policy plays an important role in strengthening health systems and improving program outcomes, although the specific mechanisms may vary across contexts (Swan, 2021).

The implications of this study highlight the importance of strengthening regional policies as part of efforts to improve PPFP program performance. The Governor's Circular Letter can serve as a policy instrument to encourage program implementation, enhance cross-sector collaboration, and improve monitoring and evaluation systems. However, ensuring sustainability requires additional support, including strengthening health workforce capacity, ensuring adequate resource availability, and integrating policy directives into more operational regulations. Further research using more robust study designs is needed to better assess the causal relationship between policy interventions and program outcomes.

CONCLUSION

This study aimed to assess changes in postpartum family planning (PPFP) program performance following the issuance of the Governor's Circular Letter No. 11/SE/VII/2022 in the Special Region of Yogyakarta. Using *run chart* analysis, the findings revealed a non-random variation pattern, characterized by a shift of data points above the median and a sustained upward trend during the first half of 2023, indicating a

potential systemic change in program implementation.

Although causal relationships cannot be established using *run chart* analysis, the findings suggest that the policy may have contributed to improved PPFP coverage. The circular appears to have supported stronger cross-sectoral coordination, enhanced the quality of counseling and services, and reinforced commitment among health facilities. These results highlight the potential role of regional policy as part of health system strengthening, particularly in improving access to and utilization of postpartum family planning services.

More broadly, these findings indicate a potential role of regional policy interventions in strengthening governance and improving the effectiveness of reproductive health programs. Strengthening local government commitment may support efforts to reduce maternal mortality by enhancing access to safe and quality postpartum contraception.

RECOMMENDATION

From a practical perspective, regional governments should consider strengthening and institutionalizing policies that support postpartum family planning services, including ensuring continuous counseling, improving service quality, and reinforcing cross-sectoral coordination. In addition, the use of *run charts* is recommended as a simple and effective tool for routine monitoring of program performance at the local level, enabling timely identification of changes in service delivery.

For future research, further analytical studies are needed to better assess the relationship between policy interventions and program outcomes, in order to provide stronger evidence on the effectiveness of regional policies in improving postpartum family planning services.

ACKNOWLEDGEMENT

The authors would like to thank the National Population and Family Planning Agency (BKKBN) for providing data through the *Sistem Informasi Keluarga* (SIGA) used in this study.

REFERENCES

Badan Pusat Statistik RI. (2023, July 18). *Angka Kematian Ibu/AKI (Maternal Mortality Rate/MMR) Hasil Long Form SP2020 Menurut Provinsi, 2020*. https://www.bps.go.id/id/statistics-table/1/MjIxOSMx/angka-kematian-ibu-aki-maternal-mortality-rate-mmr-hasil-long-form-sp2020-menurut-provinsi-2020.html

BKKBN. (2024). *Laporan Kinerja Instansi Pemerintah (LKIP) BKKBN Tahun 2024*. BKKBN.

BKKBN. (2025). *Peraturan Menteri Kependudukan dan Pembangunan Keluarga/ Kepala BKKBN RI Nomor 2 Tahun 2025 Tentang Pelayanan KBPP*. https://peraturan.bpk.go.id/Details/328596/perka-bkkbn-no-2-tahun-2025

Cresswell, J. (2023). *Trends in Maternal Mortality 2000 to 2020: Estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division* (1st ed). World Health Organization.

Hanum, C. (2020). *ANALISIS YURIDIS KEDUDUKAN SURAT EDARAN DALAM SISTEM HUKUM INDONESIA*. *10*(2).

Hellwig, F., Moreira, L. R., Silveira, M. F., Vieira, C. S., Rios-Quituizaca, P. B., Masabanda, M., Serucaca, J., Rudasingwa, S., Nyandwi, A., Mulu, S., Rashad, H., & Barros, A. J. D. (2024). Policies for expanding family planning coverage: Lessons from five successful countries. *Frontiers in Public Health, Volume 12-2024*. https://doi.org/10.3389/fpubh.2024.1339725

Kamuyango, A., Yu, T., Ao, C.-K., Hu, S. C., Hou, W.-H., Tseng, C.-C., & Li, C.-Y. (2022). The public-sector family planning program impact scores in association with long-acting reversible contraceptive use among young women in 22 Sub-Saharan African countries: A pooled multi-level analysis. *Contraception*, *108*, 44–49. https://doi.org/10.1016/j.contraception.2021.12.013

McQuillan, R. F., Silver, S. A., Harel, Z., Weizman, A., Thomas, A., Bell, C., Chertow, G. M., Chan, C. T., & Nesrallah, G. (2016). How to Measure and Interpret Quality Improvement Data. *Clinical Journal of the American Society of Nephrology : CJASN*, *11*(5), 908–914. https://doi.org/10.2215/CJN.11511015

Memon, Z. A., Tahmeena, Fazal, S. A., Reale, S., Spencer, R., Bhutta, Z., & Soltani, H. (2024). Effective strategies for increasing the uptake of modern methods of family planning in South Asia: A systematic review and meta-analysis. *BMC Women's Health*, *24*(1), 13. https://doi.org/10.1186/s12905-023-02859-2

Provost, L. P., & Murray, S. K. (2022). *The Health Care Data Guide: Learning from Data for Improvement* (2nd ed.). John Wiley & Sons.

Swan, L. E. T. (2021). The impact of US policy on contraceptive access: A policy analysis.

Reproductive Health, *18*(1), 235. https://doi.org/10.1186/s12978-021-01289-3

Ulfat, S. (2021). *Strategies and Approaches for Tracking Improvements in Patient Safety*. https://psnet.ahrq.gov/primer/strategies-and-approaches-tracking-improvements-patient-safety

United Nations. (2020). *The 2030 Agenda for Sustainable Development's 17 Sustainable Development Goals (SDGs)*. https://sdgs.un.org/sites/default/files/2020-09/SDG%20Resource%20Document_Targets%20Overview.pdf

WHO. (2015). *Strategies toward ending preventable maternal mortality (EPMM)*. WHO.

Williams, E. (2018). Understanding Variation: Part1- the Run Chart. *Current Problems in Pediatric and Adolescent Health Care*, *48*(7), 186–190. https://doi.org/10.1016/j.cppeds.2018.08.012

Winckler, B., McKenzie, S., & Lo, H. (2024). A Practical Guide to QI Data Analysis: Run and Statistical Process Control Charts. *Hospital Pediatrics*, *14*(1), e83–e89. https://doi.org/10.1542/hpeds.2023-007296

World Health Organization. (2021). *Building health systems resilience for universal health coverage and health security during the COVID-19 pandemic and beyond*. World Health Organization.