The Distribution of Unmet Needs
for Contraception Events in 155 Villages
of Muaro Jambi, Jambi Province, in 2021

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Abstract. Unmet need for contraception is an unmet need for family planning, with the percentage of married women wanting to stop or delay childbearing without using modern contraceptive methods. In Indonesia, 2021 experienced a significant increase in unmet need for contraception of 18% with a target of 8,3%. Muaro Jambi Regency is a region with the highest unmet need for contraception in the province of Jambi. This research method is an ecological study with a spatial approach. The sample in this study uses an aggregate data analysis unit in 155 villages in Muaro Jambi Regency in 2021. This research was conducted from April to August 2022. Based on the results of the spatial analysis in 2021 of the 155 villages in Muaro Jambi Regency, there was a tendency to increase the unmet need for contraception in 26 villages by ≥ 20,61%, and there is a positive spatial autocorrelation.

Keywords: Unmet need contraception · 155 villages · spatial analysis · the year 2021

1 Introduction

A population is a central point in the sustainable development of all fields [1]. It is an indicator to measure the development of a nation, so it is vital to create an ideal comparison between balance, quantity, quality, and distribution of population and the environment [2]. The family planning program is one of the efforts to stabilize the quality and quantity of the population. The fertility rate in Indonesia is still stagnant from 2,4 in 2017 [3] and 2,45 in 2019 and 2020 and has not reached its target in 2020 of 2,26 [4]. It is related to the increase in Indonesia's population growth from 1,12 in 2019 to 1,25 in 2020 and has not reached its target of 1,11 percent per year in 2020. One of the efforts to reduce TFR in Indonesia is to reduce the unmet need for contraception.

Unmet Need for contraception is an unmet need for family planning with the percentage of married women who plan to delay or stop childbearing without using modern contraceptive methods [5]. In developing countries, 1 in 3 women of reproductive age is an unmet need [6, 7]. In Indonesia, the unmet need for contraception continues to increase from 2017 to 2021 from 11% to 18% and a target of 8,3% in 2022 [8].

The high *Unmet Need* in Indonesia is influenced by the high unmet for contraception in the provinces of Indonesia. One is the Jambi Province, with an *unmet need* level that continues to increase from 2018 to 2020 [4]. The province of Jambi consists of 11 regencies/cities where Muaro Jambi Regency is one of the districts with the highest number of unmet need for contraception in 2021 at 14,54% with the number of couples within childbearing age of up to 71,568 people [4].

The high unmet need for contraception is a major cause of unwanted pregnancies in developing countries. More than 30 million unwanted pregnancies have occurred in women with an unmet need [8, 9]. Women with an unmet need have a four-fold chance of having an unwanted pregnancy [10]. Based on the research by [11] which spatially analyses the demographic survey in Ethiopia in 2016, to reduce the unmet need for contraception in Ethiopia, it is essential to know the prevalence, geographic variation, and the distribution of unmet need in all regions. Thus, in this study, we tried to look at the distribution pattern of the unmet need for contraception in 155 villages in Muaro Jambi Regency using spatial analysis.

2   Method

This study used an ecological study research design using a spatial approach and secondary data from the BKKBN of Muaro Jambi Regency in 2021. The sample in this study used an aggregate data analysis unit in 155 villages in Muaro Jambi Regency in 2021. The analyses were run with the help of the free GeoDa 1.2 software to identify the distribution of unmet need for contraception and to assess the presence or absence of spatial autocorrelation between 155 villages in Muaro Jambi Regency in 2021.

3   Results

Muaro Jambi is one of the regencies in Jambi Province, Indonesia. In 2021, the population of Muaro Jambi district was 406,799 people. Geographically, Muaro Jambi Regency is located between 1°15'–2°20' Latitude and between 103°10'–104°20' Longitude. Muaro Jambi Regency is one of the 11 regencies/cities in Jambi Province with an area of 532.600 Ha (5.326 km^2) and is located at an altitude of 0–38 m above sea level. Muaro Jambi Regency is divided into one sub-district and 155 villages (BPS, Muaro Jambi Regency, 2021).

Figure 1 illustrates the distribution of the incidence of unmet need for contraception in Muaro Jambi Regency in 2021. The incidence rate of unmet need of <10,53% was in 70 villages, the incidence rate between 10,53%–20,61% was in 59 villages, and the incidence rate of unmet need of $\geq$ 20,61 was in 26 villages.
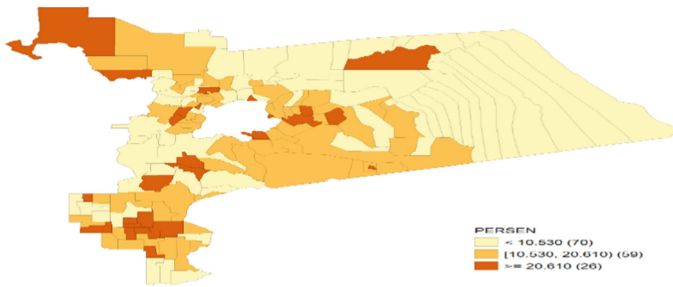
Fig. 1. Thematic map of the distribution of unmet need for contraception in Muaro Jambi Regency in 2021.

Table 1. Unmet need distribution pattern in Muaro Jambi Regency in 2021

Year	Moran Index	P value	Distribution pattern
2021	0,346	0,001	*Clustered*
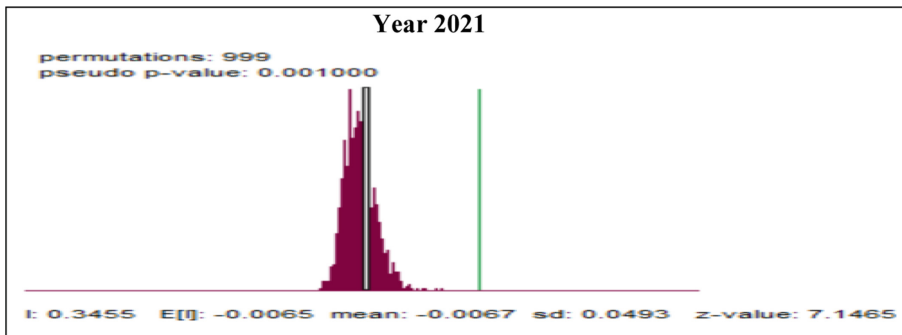
Fig. 2. Relationship pattern diagram of the unmet need case in Muaro Jambi Regency in 2021

The results based on Moran's Test or Moran Index were generally used to measure global spatial autocorrelation and could be applied to detect the onset of spatial randomness. In Table 1 are the results of the Moran Index analysis conducted in Muaro Jambi Regency to see the distribution of unmet need in 2021:

The spatial autocorrelation analysis of the unmet need for contraception case in 2021 showed an autocorrelation in the year with a p-value $<0,05$. The distribution pattern of unmet need for contraception in 2021 showed a clustered distribution pattern (Fig. 2).

The spatial dependence between villages could be proven by the results of Moran's Test, where it was concluded that the unmet need for contraception in Muaro Jambi Regency showed that globally there was a tendency for a positive autocorrelation to occur. It could be proven by the results of *Moran's Scatterplot* in Fig. 3.
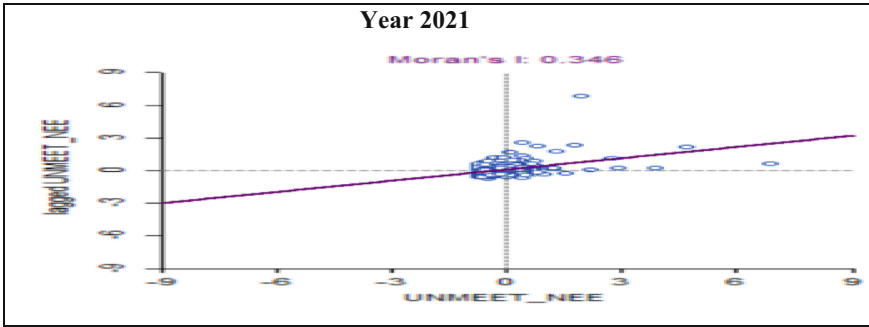
Fig. 3. Moran's Scatterplot Result

4 Discussion

The pattern of distribution of the incidence of unmet need for contraception in Muaro Jambi Regency in 2021 found that there has been a trend of the increased number of unmet need for contraception by more than 20% in 26 villages. In addition, based on the analysis results using Moran's I method with the help of GeoDa 1.2. Software, it was found that the distribution pattern of the unmet need for contraception in Muaro Jambi Regency in 2021 was in the form of clusters ($1 > 0$, $p < 0,05$). Spatially there was a correlation between the spread of unmet need for contraception from one village to another and showed that globally there was a tendency for positive autocorrelation to occur.

According to the results of research by Nyarko, Samuel H, Corey S Spark, and Fikrewold Bitew Genus. 2019 [12] in Ghana, where the use of the Ghana Demographic and Health Survey (GDHS) from 2003 to 2014 showed that the pattern of unmet family planning need in Ghana varies between regions. In 2003, the Central, Eastern, Volta, and Upper Eastern regions had the highest unmet need, between 42–55%, while the Upper West region had the lowest unmet need rate (33%). The Western, Central, and Eastern regions also had the highest unmet need rates of 42–55% in 2008, while the Greater Accra and Upper Eastern regions had the lowest unmet need rates (<33%). However, in 2014, the Eastern region had the highest number of unmet need, followed by the Ashanti and Volta region, while regions such as the West, Brong Ahafo, Upper East, and Upper West had the lowest number of unmet need of < 33%.

The study was supported by the research results of [13], who spatially analyzed a sample of 10,223 married women aged between 15–49 years old in Ethiopia, where the prevalence of unmet family planning needs was 22,3%. Thirteen percent had unmet family planning needs for spacing childbearing and 9,3% for limiting childbearing among married women. The unmet need for contraception spatial variation was found at the zone level because the global Moran's I value of 0.31 (p-value < 0,01) indicated a significant clustering of unmet need for contraception.

Based on the data from BPS Muaro Jambi Regency in 2021, the cause of the high unmet need for contraception in Muaro Jambi Regency was the lack of health facilities and health workers, and the distribution pattern of healthcare distribution was uneven for

remote villages. The condition has challenged the community to access family planning services. Supported by the statement of Pal, Anita et al. 2018, [13, 14] people's lifestyles, cultural ecology, and access the health facilities varied greatly in different countries. Geographical location significantly affected predictors that impact unmet need due to accessibility, availability, and means of transportation directly or indirectly. In accordance with the WHO statement in 2017 [15, 16], various reasons caused the high unmet need for contraception in the community, including limited access to contraceptive services, limited choice of contraceptive methods, fear or experience of side effects, cultural or religious views, poor quality of available family planning services and gender-based barriers.

Based on the BKKBN report in 2021, several factors affected the low achievement of the unmet need for family planning, including promotion and IEC in the regions that were not optimal and the quantity, distribution, and management of human resources in the field was not adequate [17, 18]. Moreover, the lack of understanding in the community about contraception and the provision of family planning counseling was not optimal. Thus, there was still a lack of public understanding about the benefits, side effects, and myths about contraception which created fear of using contraception. Therefore, spatial analysis of the incidence of unmet need for contraception can help program makers to design and direct more targeted interventions [19, 20].

5   Conclusion

There is a trend of increasing unmet need for contraception in 26 villages of Muaro Jambi Regency in 2021, with an incidence rate of 20.61%. The pattern of distribution of unmet needs for contraception in the form of clusters has shown a tendency for a positive autocorrelation globally.

For managers of the contraceptive unmet need control program, the results of this study can be used to provide information on area-based data of contraceptive unmet needs by considering location elements to prioritize interventions that can reduce unmet need for contraception.

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