

Sociodemographic Characteristics of Premature Birth in Sleman Regency

Dianita Putri Utami¹, Prima Dhewi Ratrikaningtyas², Vicka Oktaria³

¹School of Medicine, Faculty of Medicine, Public Health, and Nursing, Gadjah Mada University, Indonesia

^{2,3}Department of Biostatistic, Epidemiology, and Population Health, Faculty of Medicine, Public Health, and Nursing, Gadjah Mada University, Indonesia

Korespondensi: Dianita.putri.utami@mail.ugm.ac.id

Submisi: 1 Juni 2023; Revisi: 4 Juli 2024; Penerimaan: 4 Juli 2024

ABSTRACT

Background: Premature birth can increase mortality and disability in infants. Premature birth can be influenced by several types of factors, such as sociodemographic factors. Based on literature studies, there are several contradictory research results regarding the sociodemographic characteristics of premature birth. In addition, there is a surveillance system HDSS Sleman that periodically collects data on demographic transition, health status, and social transition in Sleman.

Objective: This research objective is determining the sociodemographic characteristics of premature birth in Sleman Regency.

Method: This is a cross-sectional study with total sampling method using HDSS Sleman secondary data from cycle 4 (2018) until cycle 6 (2020).

Results and Discussion: The results of this study showed that the total proportion of premature birth in Sleman Regency from 2018 to 2020 was 14.4%. Then, the proportion of premature birth each year from 2018 to 2020 were 18.5%, 13.0%, and 5.8% respectively. After that, the highest proportion of sociodemographic characteristics of the mothers experiencing premature birth were in the category of maternal age <20 years old (20.0%), "working" occupational status (15.4%), low educational status (18.8%), and low socioeconomic status (18.0%).

Conclusion: It can be concluded that the most common sociodemographic characteristics of the mothers experiencing premature birth were maternal age <20 years old, "working" occupational status, low educational status, and low socioeconomic status.

Keywords: Premature birth, sociodemographic characteristics, sociodemographic factors, Sleman Regency

ABSTRAK

Latar Belakang: Prematuritas dapat meningkatkan risiko mortalitas dan disabilitas pada bayi. Prematuritas dipengaruhi oleh beberapa jenis faktor, salah satunya faktor sosiodemografi. Berdasarkan hasil studi literatur, terdapat beberapa hasil penelitian yang bertolak belakang mengenai karakteristik sosiodemografi yang berhubungan dengan prematuritas. Selain itu, terdapat suatu sistem surveilans HDSS Sleman yang mengumpulkan data transisi demografi, status kesehatan, dan transisi sosial secara periodik di Kabupaten Sleman.

Tujuan: Tujuan penelitian ini adalah untuk mengetahui karakteristik sosiodemografi kejadian prematuritas di Kabupaten Sleman.

Metode: Penelitian ini merupakan penelitian *cross sectional* dengan metode *total sampling* menggunakan data sekunder HDSS Sleman dari siklus 4 (2018) hingga siklus 6 (2020).

Hasil dan Pembahasan: Hasil penelitian ini menunjukkan bahwa total proporsi prematuritas di Kabupaten Sleman tahun 2018-2020 adalah 14,4%. Kemudian, proporsi prematuritas setiap tahun dari tahun 2018 hingga 2020 secara berturut-turut adalah 18,5%, 13,0%, dan 5,8%. Setelah itu, karakteristik sosiodemografi terbanyak pada ibu yang mengalami persalinan prematur adalah usia ibu <20 tahun (20,0%), status pekerjaan "bekerja" (15,4%), rendah status pendidikan (18,8%), dan status sosial ekonomi rendah (18,0%).

Kesimpulan: Karakteristik sosiodemografi terbanyak pada ibu yang mengalami persalinan prematur adalah usia ibu <20 tahun, status pekerjaan "bekerja", status pendidikan rendah, dan status sosial ekonomi rendah.

Kata kunci: Faktor sosiodemografi, karakteristik sosiodemografi, prematuritas, Sleman

INTRODUCTION

The Infant Mortality Rate (IMR) is one of the public health indicator. One of the causes of infant mortality that can increase the IMR is premature birth. Premature birth occurs at the gestational age >20 weeks until <37 weeks, counted from the last menstrual period (LMP)¹. According to WHO (2018)², in 184 countries in the world, the prevalence of premature birth ranges from 5% to 18%. Meanwhile, Indonesia is ranked 5th as the country with the largest number of premature births in the world, with the total of 675,700 premature births². In addition, Indonesia is also ranked 9th as the country with highest rate of premature birth among 100 live births, where there are 15.5 cases of premature birth among 100 live births². Then, the prevalence of premature birth in each region in Indonesia, including in Sleman Regency, is still not available.

Premature birth can have significant impacts on the baby and its parents. Premature baby who survives has higher risk of experiencing disabilities, such as cerebral palsy, retinopathy of prematurity, and sensorineural deafness³. This disability can reduce the baby's quality of life. In addition, this disability can also be a physical, financial, emotional, and psychological burden for the premature baby's parents due to the premature baby's long term care⁴. In worse condition, this disability can cause the loss of livelihood for parents who are forced to stop working for taking care of their child⁴.

Premature birth can be influenced by several types of factors, such as sociodemographic factors. Based on literature studies, there are some different research results regarding the sociodemographic characteristics of premature birth. In addition, there is also a surveillance system that collects data on demographic transitions, health status, and social transitions periodically over a certain period of time in Sleman Regency. This surveillance system is HDSS Sleman. The HDSS Sleman has been collecting data from 2015 to 2021. HDSS Sleman has been collecting data for 7 cycles. The research conducted by HDSS Sleman involved 19,724 individuals in 5,147 households that spread across 216 clusters (184 urban clusters and 32 rural clusters) in Sleman Regency.

Therefore, research on the sociodemographic characteristics of premature birth in Sleman Regency is important to do. This research is useful to describe the sociodemographic characteristics of premature birth in Sleman Regency to assist the government in designing and implementing well-targeted strategic programs to reduce the incidence of premature birth.

METHOD

This research was a descriptive observational study with a cross-sectional study design. The population of this study was all the mothers who gave birth and recorded in HDSS Sleman data from cycle 4 (2018) to cycle 6 (2020), with the total of 461 subjects. Then, the research sample was selected by the total sampling method from the population that met the inclusion and exclusion criteria, where this sampling method obtained 446 subjects as the sample of this study. The inclusion criteria for this study were all the mothers who gave birth and recorded in HDSS Sleman data from cycle 4 (2018) to cycle 6 (2020). Meanwhile, the exclusion criteria for this study were subjects with incomplete data on the dependent variable as the main variable, subjects who answered "other" (95) or "unknown" (98) on the dependent variable as the main variable, and subjects who gave birth at the gestational age <20 weeks (abortion).

HDSS Sleman has been collecting data for 7 cycles. Premature birth in this study was determined based on the gestational age data in HDSS Sleman. The gestational age data were collected in all HDSS cycles other than cycles 1 and 7. Therefore, data from HDSS Sleman cycle 1 and cycle 7 were excluded from this study. Then, there was a different standard of prematurity between cycles 2 and 3 with cycles 4, 5, and 6. In cycles 2 and 3, the HDSS data collecting team used the standard that premature occurred before 36 weeks of gestation. Meanwhile, in cycles 4, 5, and 6, the HDSS data collecting team used the standard that premature occurred before 37 weeks of gestation. Due to the prematurity standard difference, data from HDSS Sleman cycle 2 and cycle 3 were also excluded from this study.

The analysis of this research was descriptive analysis. This descriptive analysis aimed to present the data in the form of frequency distribution table of sociodemographic characteristics of the subjects who met the inclusion and exclusion criteria of this study.

RESULT AND DISCUSSION

As explained before, the research sample of this study was selected by the total sampling method from the population that met the inclusion and exclusion criteria, where this sampling method obtained 446 subjects as the sample of this study. Then, the sociodemographic characteristics of those 446 subjects were presented in Table 1.

Table 1. Sociodemographic Characteristics of Subjects

Variables	Number of valid data (N)	%
Maternal age	446	100%
<20 years old	10	2.2%
20-35 years old	321	72.0%
>35 years old	115	25.8%
Maternal parity	292*	65.5%
1	185	41.5%
2-3	101	22.6%
≥4	6	1.3%
Maternal occupational status	438**	98.2%
Working	182	40.8%
Not working	256	57.4%
Maternal educational status	445***	99.8%
Low	16	3.6%
Middle	294	65.9%
High	135	30.3%
Location of residence	446	100%
Rural area	63	14.1%
Urban area	383	85.9%
Socioeconomic status	446	100%
Low	150	33.6%
Middle	98	22.0%
High	198	44.4%

*In the maternal parity variable, there are 154 missing data.

**In the maternal occupational status variable, there are 8 missing data.

***In the maternal educational status variable, there is 1 missing data.

From a total of 446 subjects who met the inclusion and exclusion criteria of this study, there were 64 subjects (14.4%) who experienced premature birth and 382 subjects (85.6%) who did not experience premature birth. This study also showed that the proportion of premature birth from 2018 to 2020 of the subject in this study has decreased significantly. The proportion of premature birth each year from 2018 to 2020 were 18.5%, 13.0%, and 5.8% respectively. This proportion analysis was carried out by weighting using a weighting variable that had been determined by HDSS Sleman. These results provide important information about the prevalence of premature births in Sleman Regency, considering that the prevalence of premature births in each region in Indonesia, including in Sleman Regency, is still not available.

After that, the results of this study also showed that the most common sociodemographic characteristics found in subjects experiencing premature birth was maternal age <20 years old (20.0%). Mother's age that is too young (<20 years) could increase the risk of premature birth because of the immaturity of the reproductive system for pregnancy⁵. Beside that, the most common sociodemographic characteristics found in mothers experiencing premature birth was "working" occupational status (15.4%). This is because working mothers are considered to have higher levels of physical fatigue and psychological stress than non-working mothers⁶. Then, the most common sociodemographic characteristics found in mothers experiencing premature birth was low educational status (18.8%). Mothers with low educational level are considered to have lower knowledge and insight than mothers with middle and high educational levels, including the knowledge and insight about how to properly take care of pregnancy⁶. Moreover, the most common sociodemographic characteristics found in subjects experiencing premature birth was low socioeconomic status (18.0%). Low socioeconomic status can reduce the quality of the mother's behavior in caring for her pregnancy, including the mother's behavior in carrying out routine antenatal checks and the mother's behavior in controlling nutritional status, BMI before pregnancy, and weight gain during pregnancy.

Table 2. The Proportion of Premature Birth in Sleman Regency

Cycle (Year)	Number of Sample (N)	Premature			Not premature		
		n	% before weighting	% after weighting	n	% before weighting	% after weighting
4 (2018)	201	37	18,4%	18,5%	164	81,6%	81,5%
5 (2019)	177	23	13,0%	13,0%	154	87,0%	87,0%
6 (2020)	68	4	5,9%	5,8%	64	94,1%	94,2%
Total	446	64	14,3%	14,4%	382	85,7%	85,6%

Furthermore, in the case about maternal parity, there was no different proportion between maternal parity 1 (13.0%) and maternal parity 2-3 (12.9%), and the proportion of maternal parity ≥4 was 0.0%. However, based on literature studies, the quality of the cervix in primiparous mother (maternal parity 1) is considered to be poor because it has never been used for giving birth before. Then, the quality of the cervix in grand multiparous mother (maternal parity ≥4) is also decreased because it weakens after being used to give birth many times. So, the result of this study was contradicted with the theory. This might be because the data on the maternal parity variable was uncomparable for the analysis. Beside that, in the case about location of residence, there was no different proportion between rural mothers (14.3%) and urban mothers (14.4%). Based on literature study, mothers who live in rural area have higher risk of experiencing prematurity than mothers who live in urban area. This is because mothers who live in rural area are considered to have more difficult access to the health services than mothers who live in urban area. However, there is not much different geographical condition between rural and urban area in Sleman. So, the access to the health services in rural and urban area in Sleman is also not much different. Beside that, based on data from Dinkes Sleman (2020)⁷, the percentage of pregnant women who receive maternal health services ranges from 80.6-99.6% at each puskesmas in various sub-districts in Sleman. Then, the percentage of mothers who receive delivery services ranges from 99.8-100% at each puskesmas in various sub-districts in Sleman⁷.

Table 3. Frequency Distribution Table of Prematurity based on Maternal Age

Variables	Premature		Not premature	
	n	%	n	%
Maternal age				
<20 years old	2	20.0%	8	80.0%
20-35 years old	48	15.0%	273	85.0%
>35 years old	14	12.2%	101	87.8%
Maternal parity				
1	24	13.0%	161	87.0%
2-3	13	12.9%	88	87.1%
≥4	0	0.0%	6	100.0%
Maternal occupational status				
Working	28	15.4%	154	84.6%
Not working	36	14.1%	220	85.9%
Maternal educational status				
Low	3	18.8%	13	81.3%
Middle	45	15.3%	249	84.7%
High	16	11.9%	119	88.1%
Location of residence				
Rural area	9	14.3%	54	85.7%
Urban area	55	14.4%	328	85.6%
Socioeconomic status				
Low	27	18.0%	123	82.0%
Middle	12	12.2%	86	87.8%
High	25	12.6%	173	87.4%

CONCLUSION

The results of this study showed that the total proportion of premature birth in Sleman Regency from 2018 to 2020 was 14.4%. The proportion of premature birth each year from 2018 to 2020 had decreased significantly. After that, the highest proportion of sociodemographic characteristics of the mothers experiencing premature birth were in the category of maternal age <20 years old, "working" occupational status, low educational status, and low socioeconomic status. Meanwhile, in the case about maternal parity and location of residence, there was no significant difference of proportion between each category of the mothers. However, it is necessary to carry out the studies with bigger number of samples. So, the data would be more comparable to analyze.

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