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Research Article

The Relation Between Parental Characteristics, Socio-economic Status and Pregnancy Outcomes in Padang City, Indonesia

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Abstract.
Maternal nutritional levels during pregnancy play an important role during pregnancy. Abnormal nutritional levels in the mother can influence pregnancy outcomes. The socio-economic status of parents is thought to be a strong factor in pregnancy outcomes. The pregnancy outcome is not only the mother's responsibility, but also the father plays an important role. Therefore, the nutritional problems of pregnant women must be a shared responsibility. This study aimed to examine the characteristics of pregnant women who received dadih vla Ed supplementation in the city of Padang. This research was an observational study on 88 pregnant women in the working areas of Nanggalo, Kuranji, and Andalas Health Centers in 2022. Data was analyzed using chi-square and Fisher exacts. Access to health care was related to pregnancy outcomes, while characteristics and social economic status of parents are not directly related to pregnancy outcomes. Most children born with low birth weight and low birth length come from mothers who do not work; the mother's education level is high, and the father's education level is high. Socio-economic status may be a potential factor in giving birth to children with a higher birth length. This study concluded that policymakers should target the socioeconomic status of parents to improve pregnancy outcomes.

Keywords: education, occupation, pregnant women, social economic

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1. Introduction

Maternal nutrition can have an affect on the fetal development process, which can therefore have an impact on the newborn's birth weight (Woldeamanuel et al., 2019). Poor nutritional status and inadequate intake of food of mother during and before pregnancy is considered to influence pregnancy outcomes, such as Low Birth Weight (LBW) and stunting (Jamshed et al., 2020). Preventing pregnancy outcomes is not only the mother's responsibility, but the husband also has an important role husbands play a role in pregnancy and childbirth services. Nutritional status during pregnancy requires

cooperation between the mother and husband. The role of the husband in pregnancy is often overlooked. However, their involvement during pregnancy and early childhood can optimize health status and developmental outcomes at birth and throughout the child's life (Mckee et al., 2018). The role may be influenced by social economic status of parents (Mangeni et al., 2013).

The socio-economic status of parents is thought to be a strong factor in pregnancy outcomes. Mother's education and father's employment status were found to be significantly related with LBW (Ahmed et al., 2021). In addition, LBW is still related with critical indicators of maternal poverty (especially adequate maternal education) and structural poverty indicators in health care (Khan et al., 2018). Other studies also found that socio economic status (SES) is also associated with LBW and premature birth (Sow et al., 2022). However, studies regarding SES and pregnancy outcomes are still inconsistent because several other studies have found different results. There is no significant associations between socioeconomic status and neonatal outcomes, with only a few significant associations observed among pregnancy outcomes (Maher et al., 2023).

A few researchers about pregnancy outcomes only focused on the characteristics of mothers. There have been limited studies concerned with the characteristics of fathers. In addition, Research about the relationship between socio-economic status still shows inconsistent results. Therefore, this research is an initial study of a study on providing dadih functional bread intervention to pregnant women to prevent stunting. This study aimed to examine the characteristics of pregnant women who received dadih functional bread supplementation in the city of Padang and to see the relationship between parents characteristics and pregnancy outcomes which can then become a recommendation for further public policy.

2. Research Methods

This study design was observational study on pregnant women in the working areas of Nanggalo, Kuranji, and Andalas Health Centers in 2022. This research is a preliminary study which is part of the research of an intervention study on giving functional dadih bread to pregnant women by Helmizar. A total of 88 pregnant women as respondents in previous studies who obtained functional bread interventions with dadih vla. The data of pregnant women and their husbands consisting of pregnan women, ethnicity, age of marriage, education level, and occupation status were collected completely and analyzed using SPSS 26 with the consent of all respondents using inform concent.

Maternal height and weight were measured to calculate early pregnancy body mass index (BMI) at first prenatal visit. BMI was used to characterize the women as underweight the women as underwight (BMI<18,5 kg/m2), normal (BMI 18,5 to 24,9 kg/m2), and overweight or obesity (BMI ≥25 kg/m2) using th World Health Organization criteria (Persson et al., 2014).

Data analysis used SPSS 26.0 and Microsoft Excel. Univariate tests were carried out to define each variable. The chi-square test to see the association between characteristics of parents with pregnancy outcome with a CI of 95% and a significance value of p-value <0.05.

3. Results

The average age of subject was 29.0 ± 4.6 years. The average BMI of pregnant women in the 1st trimester (before the intervention) was normal, which was 25.6 kg/m2. Most pregnant women have Minangkabau ethnicity. Most of the pregnant women (85.2%) had parity that was not at risk. Most pregnant women (94.3%) and their husbands (98.9%) are at the ideal age for marriage. Many pregnant women and their husbands have a higher level of education. Most mothers don't work or are just housewives, but most husbands work. Based on Table 1, most subjects have easy access to health services. However, the majority of subjects (52.3%) did not complete pregnancy checks or what is called Antenatal Care (ANC). As many as 79.5% of subjects often visited midwives to obtain health services and the majority of subjects (56.8%) often came to the Community Health Center as a place for health services. Most infants (92%) are born with normal birth weight. However, it is still found that as many as 8% of infants are born with low birth weight. As many as 69.8% of babies were born with normal body length. However, it was still found that as many as 30.7% of babies had birth lengths below normal (Table 1).

TABLE 1: Characteristic of Subjects.

Characteristics	**n**	**%**
Age (years)		
Mean ± SD	29,0 ± 4,6	
Minimal - Maxsimal	21,0 – 45,0	
Gestational Age		
1^{st} Trimester	41	46,4
2^{nd} Trimester	47	53,4

TABLE 1: Continued.

Characteristics	n	%
Age (years)		
BMI (kg/m^2) (pre-intervention)		
Mean ± SD	25,6 ± 5,7	
Minimal - Maximal	15,1 – 43,7	
Race		
Minangkabau	82	93,2
Non-Minangkabau	6	6,8
Marriage age		
Mothers		
Under Age	5	5,7
Normal	83	94,3
Fathers		
Under Age	1	1,1
Normal	87	98,9
Education Level		
Mother		
Low	8	9,1
High	80	90,9
Father		
Low	10	11,4
High	78	88,6
Occupation		
Mother		
No work	62	70,5
Work	26	29,5
Father		
No work	0	0
Work	88	100
Income		
Low	16	18,2
High	72	81,8
Health Service		
Distance		
> 3 km	26	29,5
< 3 km	62	70,5

Table 1: Continued.

Characteristics	n	%
Age (years)		
Time		
> 30 menit	1	1,1
< 30 menit	87	98,9
Antenatal Care (ANC)		
Incomplete	46	52,3
Complete	42	47,7
Birth Weight		
Low birth weight	7	8,0
Normal	81	92,0
Birth Length		
Low birth length	27	30,7
Normal	61	69,3

The association between characteristic and access to health services with birth weight and length birth can see in Table 2 dan Table 3. This study found that the employment status of the mothers of 85.7 % infants with LBW and 70,4% infants with low birth length was not working or only as a housewife. The analysis found that the education of the mothers of 85.7% of babies with LBW was high and the education of the fathers of 100% of babies with LBW was also high. In addition, this study also found that the education of the mothers of 85.2% of babies with LBW was high and the education of the fathers of 96,3% of babies with low birth length was also high 85,2 dan 96,3. Chi-square test showed that there was a association between Antenatal Care (ANC) and birth weight (p-value=0.050). In addition, analysis of statistic also showed that there was a association between distance to health services and birth length (p-value=0.044).

4. Discussion and Analysis

Occupation and education level of mother and father were not associated with birth weight and height (p>0,05). However, this study found that the employment status of the mothers of 85.7 % infants with LBW and 70,4% infants with low birth length was not working or only as a housewife. Wulandari et al. (2023) also found that women who do not work tend to give birth to LBW babies. Occupational factors have a critical role in the incidence of LBW (Mahmoodi et al., 2015). Working mothers are usually at risk of giving birth to LBW children due to maternal exposure at work, humidity, contact

Table 2: Association Characteristics with Birth Weight.

		Birth Weight (%)		p-value
		Low birth weight (%)	Normal (%)	
Occupation (mother)	No Work	85,7	69,1	0,669
	Work	14,3	30,9	
Level education (mother)	Low	14,3	8,6	0,500
	High	85,7	91,4	
Level education (father)	Low	0	12,3	1 ,000
	High	100	87,7	
Income	Low	14,3	18,5	1,000
	High	85,7	81,5	
Distance to Health Services	> 3 km	14,3	30,9	0,669
	< 3 km	85,7	69,1	
Time to Health Services	> 30 menit	0	1,2	1,000
	< 30 menit	100	98,8	
Antenatal Care (ANC)	Incomplete	14,3	55,6	0,050*
	Complete	85,7	44,4	

*signifikansi p-value < 0,05

with cleaning agents, standing or sitting for long periods; shift work and fatigue are associated with LBW (Ohlsson et al., 2008). However, this study found different results. This may be related to employment and wealth status. Women who do not work belong to low-income families (Wulandari & Laksono, 2020). In addition, mothers who do not work are likely to have little social support due to several conditions (Reynolds et al., 2020). In addition, mothers who do not work are likely to have little social support due to several conditions (Reynolds et al., 2020). This may also result from housewives' growing dependence on their husbands on an emotional and financial level, which may affect how quickly they seek out medical care. The main factor driving people to seek out health services in society is women's financial reliance (Alemu et al., 2019).

Indonesia as a developing country is in third place with case newborn low birth weight after India and South Africa (Putri et al., 2019). According to the report of Indonesia Basic Health Research 2018, the proporsion of LBW (<2000 grams) is 6,2% and the proporsion of short birth length (<48cm) is 22,7% (Ministry of Health of the Republic of Indonesia, 2018). The current study shows that the prevalence of LBW is 8% and the prevalence

Table 3: Association Characteristics with Birth Length.

		Birth Length (%)		p-value
		Low birth Length (%)	Normal (%)	
Occupation (mother)	No Work	70,4	70,5	0,991
	Work	29,6	29,5	
Level education (mother)	Low	14,8	6,6	0,243
	High	85,2	93,4	
Level education (father)	Low	3,7	14,8	0,166
	High	96,3	85,2	
Income	Low	18,5	18	1,000
	High	81,5	82	
Distance to Health Services	> 3 km	14,8	36,1	0,044*
	< 3 km	85,2	63,9	
Time to Health Services	> 30 menit	3,7	0	0,307
	< 30 menit	96,3	100	
Antenatal Care (ANC)	Incomplete	51,9	52,5	1,000
	Complete	48,1	47,5	

*signifikansi p-value < 0,05

of low birth length hight is 30,7%, which is significantly higher than the national level in 2018 and lower than the some research (Utami et al., 2018).

The present study finds that maternal and paternal education and occupation was not associated statistically with children's low birth weight and short birth length (P>0,05). The results of this study found that the education of the mothers of 85.7% of babies with LBW was high and the education of the fathers of 100% of babies with LBW was also high. In addition, this study also found that the education of the mothers of 85.2% of babies with low birth length was high and the education of the fathers of 96,3% of babies with LBW was also high 85,2 dan 96,3. Previous research has demonstrated both direct and indirect effects of maternal variables such as genetics, socioculture, demographics, and behavior on birth weight. The high expense of reproduction for a woman living in a low-energy environment may cause a condition known as "maternal depletion syndrome" that affects her health (Jasienska G, 2013). As a result, we anticipate that a woman who is pregnant and does not have her partner's support as the due date draws closer will have a higher chance of giving birth to a baby who is underweight (Merklinger-Gruchala

et al., 2019). The lack of a partner's involvement implies that a woman faces trade-offs in terms of between invesment in current vs future reproduction may be affected by the presence or absence of the commitment (investment, involvment, support) a women receives from her parner (Geary, 2000; Stearns SC, 1992). However, little evidence does indicate that fathers who have stable career histories and greater educational attainments are more likely to be active in their children's lives (Amato & Rivera, 1999; Cooksey & Fondell, 1996).

According to Martin et al. (2007), fathers with less than a high school diploma were significantly less likely to be involved in their partner's pregnancy, and women whose partners were involved in their pregnancy were significantly more likely to receive prenatal care in the first trimester (OR = 1,42, 95% CI) (Martin et al., 2007). Lifestyle characteristics, particularly hazardous and health-related behaviors, are frequently connected to economic well-being and birth outcomes. Mothers who receiving monetary support from the baby's father has a negative effect on the likelihood of low birthweight and that mothers who are in a non-cohabiting romantic relationship with the father have significantly higher odds of low birthweight compared to mothers who cohabit with the father of their baby (Padilla & Reichman, 2001).

Risk of adverse pregnancy outcomes can be increased by low socioeconomic status, because SES is one of the most important factors associated with medical outcomes (Kim et al., 2018). This research found that parental education and parental employment were not statistically significantly related to pregnancy outcomes. This can be caused by other risk factors that may have a greater influence on pregnancy outcomes, such as weight gain and the mother's nutritional status. Most pregnant women (52.3%) had normal nutritional status. Only 8% of pregnant women have underweight nutritional status, 21.6% of pregnant women are overweight, and 18.2% of pregnant women are obese. Maternal nutritional status, underweight and overweight pre-pregnancy BMI scores, is causally related to LBW (Marshall et al., 2022). In addition, maternal parity may also influence pregnancy outcomes. In other research, correlations between parity and worse pregnancy outcomes have been discovered (Ananth, 1996). Parity and pregnancy outcomes are associated after adjusting for socioeconomic and demographic confounders (Bai et al., 2002).

Indeed, poverty before and during pregnancy (along with the material and psychosocial effects of low income) negatively affects the mother's physical and mental health, has a negative impact on fetal development, and raises the risk of unfavorable pregnancy outcomes, such as low birth weight or premature birth (Sow et al., 2022).

Households with fewer access to education will need assistance obtaining good, well-paying employment prospects and will be encouraged to reside in subpar housing, which regrettably leads to greater expenses (Soseco et al., 2022).

Access to health services is an essential need that must be obtained by pregnant women which can then be a supporting factor for pregnancy and pregnancy outcomes. Pregnancy checks that are not carried out according to the rules will cause a high risk of health conditions for pregnant women (Hida Nurrizka et al., 2021). Antenatal care (ANC) is a type of pregnancy service that aims to emphasize morbidity and mortality in mother and child (Murni & Nurjanah, 2020). This research found that there was a relationship between distance to health services and birth length (p-value=0.044). The World Health Organization (WHO) states that access to suitable health services during pregnancy and childbirth is a woman's basic right. This is important in reducing maternal and perinatal mortality rates and is the key to achieving the Sustainable Development Goals (SDGs) (Rodrigues et al., 2023). Therefore, guaranteeing easy access to health services for pregnant women must be a commitment of the government and related parties.

5. Conclusion

Access to health services was associated to pregnancy outcomes, while characteristics and social economic status of parents are not directly related to pregnancy outcomes. Most infants with low birth weight and low birth length come from mothers who do not work, the mother's education level is high, and the father's education level is high. Socio-economic status may have the potential factor of pregnancy outcomes. However, the benefits of a father's involvement are significant factors in his partner's, her, and their infant's health. The policy's benefits may become more important during certain critical times, such as pregnancy. This study suggests policy makers should target socioeconomic status of parents to improve pregnancy outcomes.

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Declaration of Conflict Interest

There is no conflict of interest regarding the publication of this article

Biography

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