





PREGNANCY LEAVE'S IMPACT ON ENERGY BALANCE AND LABOR PERIOD IN WORKING MOTHERS

Feras Inar Melati ¹, Bambang Purwanto ², Pirlina Umiastuti ³

¹ Midwifery Education Study Programme, Faculty of Medicine, Universitas Airlangga Surabaya

² Department of Physiology and Biochemistry, Faculty of Medicine, Airlangga University Surabaya

³ Department of Public Health Sciences, Faculty of Medicine, Airlangga University Surabaya

Correspondence address:

Jalan Mayjen Prof. Dr Moestopo No 47 Surabaya, Indonesia

Email : bambang-purwanto@fk.unair.ac.id

Abstract

Background: The government has given female workers the right to maternity leave. Law No. 13 of 2003 states that expectant mothers have the right to 1.5 months of rest both before and after giving birth. If a pregnant woman takes her maternity leave later than expected, she may have a lengthier second period. The purpose of this research is to ascertain how long the second stage of labor lasts and how energy balance relates to maternity leave. **Method:** The study's strategy uses a comparative study methodology because the energy balance and length of the second stage of labor in working mothers who take maternity leave with those who defer taking maternity leave will be compared. Mothers who matched the inclusion criteria and were giving birth at RSI Jemursari Surabaya made up the study's sample. Data collecting sheets, partograph sheets, and medical record books were the tools employed. Fisher's exact test was used to examine research data. **Result:** The majority of respondents (80.9%) experienced the second stage of labor in less than 90 minutes, and the majority of respondents (77%) had a negative energy balance. The statistical test findings between the second stage of labor and the maternity leave period resulted in a value of $p = 0.421$, whereas the test results of the maternity leave period with energy balance resulted in a value of $p = 1.000$. **Conclusion:** According to these data, there is no correlation between the length of maternity leave and energy balance, and there is also no discernible correlation between the length of maternity leave and working mothers' second stage of labor.

Keywords: Maternity leave, energy balance, length of second stage of labor, working mother.

INTRODUCTION

The country's health can be assessed using metrics such as its infant and maternal mortality rates. Every event related to pregnancy, childbirth, and the postpartum period per 100,000 live births is known as the maternal mortality rate, or MMR. According to data from the Ministry of Health's family health program, 4,627 maternal fatalities occurred in Indonesia in 2020. This figure represents an increase above the 4,221 deaths in 2019 (Hardhana et al., 2021). Based on data from



2012 Indonesian Demographic and Health Survey (SDKI), there were 359 live births for every 100,000 births on average. Compared to the 2007 IDHS statistics, which showed 228 deaths per 100,000, the average mortality rate has grown dramatically. The leading causes of death are bleeding (42%), eclampsia/preeclampsia (13%), abortion (11%), infection (10%), delayed labor/labor traffic jam (9%), and other reasons (15%). A high MMR suggests that the health of the mother is at risk. In the meantime, 102 per 100,000 live births is the MMR target for the 2015 Millennium Development Goals (MDGs) set by the WHO (Yohanna, 2016).

Bleeding, toxemia gravidarum, infection, protracted labor, and complications from abortion account for 90% of maternal mortality. The majority of these deaths can be avoided because they happen during childbirth. It is evident from these data that protracted labor is one of the factors contributing to maternal death. Several things, including pushing (uterine inertia, an uncoordinated delivery, the mother's exhaustion from pushing, and errors made during the second stage), can contribute to prolonged labor, including force. Birth canal abnormalities include soft birth canal abnormalities, cephalopelvic imbalance, small pelvis, and pelvic deformities. Regarding the passengers, there are anomalies in the fetus's growth and form as well as anomalies in its head position (Qonitul & Nur Fadilah, 2019).

The rights of female workers to maternity leave are governed by Law No. 13 of 2003, specifically chapter 82. According to this rule, female employees are entitled to 1,5 months of rest both before and after giving birth. The family of the female worker is required to inform the child of the birth within seven days of the woman giving birth. Additionally, within six months of giving birth, female employees must produce a birth certificate or proof of birth from the hospital (Ardianto & Atalim, 2018).

In research by Istiqomah et al (2020), it was stated that most of the pregnant women who did not work did not experience chronic energy deficiency, that is, of the 64 respondents, 35 respondents experienced chronic energy deficiency, while 19 respondents who had working status mostly experienced KEK, 15 respondents (78.9%). Waiting to take maternity leave is one pattern among working women that is hypothesized to be associated with chronic energy shortage. Pregnant women



who delay taking leave and continue working are suspected of experiencing energy deficiency during pregnancy (especially the 3rd trimester) which results in low blood glucose levels, pain, and a prolonged second stage. Thus, research is needed that proves the effect of maternity leave on energy balance, low blood glucose levels, pain, and a prolonged second stage.

METHOD

This study involves a comparative study approach to comparing the energy balance and duration of the second stage of labor in working moms who take maternity leave to those who delay taking maternity leave. The study's participants were expectant mothers who gave birth at RSI Jemursari Surabaya on a day off. Two types of criteria were used to select the sample: mothers with psychological disorders, birth mothers with pelvic abnormalities and large babies, mothers who received epidural administration, and primiparous mothers aged 20 to 35 with a normal BMI and a history of giving birth at RSI Jemursari Surabaya were among the exclusion criteria. A sample of 52 respondents was acquired after the sample size was determined using the sample size formula for an unpaired categorical comparative analytical study utilizing hypothesis testing. Sampling uses persuasive sampling. The location of this research is RSI Jemursari Surabaya and will be carried out in July – October 2023. Ethical is from RS Jemursari with number 099/KEPK-RSISJS/VII/2023 for an ethical test.

Partograph sheets, data collection sheets, and patient medical records were the equipment used to gather secondary data for the study. The data analysis method for this research uses univariate analysis to describe variables and bivariate analysis to determine the relationship between two variables using Fisher's exact test statistic. This study involves a comparative study approach because researchers will be comparing the energy balance and duration of the second stage of labor in working moms who take maternity leave to those who delay taking maternity leave. In reality, there is more than one Chi-square in the test formula.

RESULT AND DISCUSSION

Of the study's 44 participants, 84.7 percent were employed by private companies. The majority of respondents (86.3%) in the category of private employees took maternity leave; there were 38 of them. When maternity leave was broken down by respondent type, 44 (84.6%) of the respondents took maternity leave, while 8 (15.4%) did not.

Table 1. Frequency distribution of respondents by occupation

Profession	Maternity Leave				Total
	Take Leave		Not Taking Leave		
	n	%	n	%	
Private Employee	38	86,3	6	13,4	44
Civil Servant	2	66,7	1	33,3	3
Teacher	3	75	1	25	4
Lecturer	1	100	0	0	1
Amount	44	100	8	100	52

Table 2. Frequency Distribution of Respondents' Age

Age	Frequency	Percent (%)
20-35	52	100
Total	52	100

Based on Table 5.2, it can be seen that the ages of the respondents in this study were all (100%) respondents aged 20-35 years.

Table 3. Frequency Distribution of Length of Stage II and Energy Balance Based on Maternity Leave

	Maternity Leave				Total
	Take Leave		Not Taking Leave		
	n	%	n	%	
II Stage					
II Stage > 90 minutes	9	90	1	10	10
II Stage < 90 minutes	33	78,6	9	21,4	42
Energy Balance					
Positive Energy	12	100	0	0	12
Negative Energy	30	75	10	25	40

Partograph sheets that were acquired from hospital data were used to evaluate the duration of the second phase of this investigation. The duration of the second

stage of labor can be divided into two categories: a long stage for primiparas if the second stage lasts more than 90 minutes, and a normal stage for primiparas if the second stage lasts less than 90 minutes.

The study's findings indicated that 12 respondents (23%) had greater energy balance and 40 respondents (77%) had less. Most moms (75%) in the group with poor energy balance took maternity leave.

Table 4. The Relationship Between Taking Maternity Leave and Energy Balance

Maternity Leave	Energy Balance				P Value
	Positive		Negative		
	n	%	n	%	
Yes	9	81	31	75,6	1,000
No	2	19	10	24,4	
Amount	11	100	41	100	

Maternity leave-taking and pregnant women's energy balance are not significantly correlated, according to the results of Fisher's exact test statistical test, which yielded a value of $p = 1,000$ ($p > \alpha$). This indicates that there is no statistically significant difference in energy balance between working women who take maternity leave and the reported findings.

Table 5. The Relationship Between Taking Maternity Leave and the Length of the Second Stage of Labor in Working Mothers

Maternity Leave	Length of Second Stage of Labor				P Value
	II Stage > 90 minutes		II Stage < 90 minutes		
	n	%	n	%	
Yes	10	90,9	30	73,2	0,421
No	1	9,1	11	26,8	
Amount	11	100	41	100	

The study's statistical tests, which employed Fisher's exact test, resulted in a value of $p = 0.421$ ($p > \alpha$), indicating that there is no significant correlation between working mothers' duration of the second stage after giving birth and their use of maternity leave. The findings do not support the existence of a statistical relationship because this indicates that taking maternity leave does not significantly alter the duration of the second stage of labor.

Respondent's Occupation

Based on the research findings, it was discovered that 44 respondents (84.6%) took maternity leave before giving delivery, whereas 8 respondents (15.4%) did not take maternity leave. The research findings revealed that 8 respondents (15.4%) did not take maternity leave, while 44 respondents (84.6%) did take time off before giving birth.

Number 13 of 2003 concerning Employment, especially articles 76, 81, 82, 83, 84, 93, and Minister of Manpower Decree No. 224 of 2003. Article 82 of Law Number 13 of 2003 concerning Employment regulates the issue of maternity leave. maternity leave protection for 1.5 months before giving birth and 1.5 months after giving birth with full pay (Kusumaningrum et al., 2023).

Indonesian women have shown that they are workers and have increased their involvement in the country's growth. Today's women can contribute to the betterment of their families by working in a variety of settings, including factories, offices, companies, and fields. Working women can change a decision made in their behavior, namely by accepting a dual role that will be carried out between obligations at work and home. Therefore, the government's provision of legal protection in the form of favorable legal regulations in the area of employment is one way that it shows its concern for the nature of women. This legal protection is provided by the inclusion of rights (such as the right to menstruation leave, childbirth, miscarriage, and breastfeeding) in Law No. 13 of 2003 concerning Employment paragraphs 81–83 that are especially granted to female workers. The goal of extending leave privileges is to uphold the fundamental rights of female employees about their ability to procreate (Ega, 2021).

Age

Three groups were created for the age variable in this study: age < 19 years, age 20–30 years, and age \geq 31 years. As can be shown, the majority of respondents to this poll (96.2%) were between the ages of 20 and 30. the optimal age for a woman to conceive and give birth, particularly on her first attempt. The age range for pregnancy is twenty to thirty. If a woman chooses to become pregnant after that



age, she will probably go through a physically and mentally high-risk pregnancy (Cahyono, 2022).

Women can be classified as Women of Childbearing Age regardless of their marital status if they are between the ages of 19 and 49. The reproductive organs of fertile women still operate properly between the ages of 20 and 45. Reproductive age in women advances more quickly than in men. Ages 20 to 29 are considered to be the prime reproductive years. Women have a 95% likelihood of becoming pregnant at this age. Around thirty years of age, the percentage drops to ninety percent. (Ba'ka et al., 2023).

The reproductive system's maturity is correlated with a pregnant woman's age. According to Nisa and Aprilina's research (2019), 33 respondents, or 78.6%, of the 42 respondents were between the ages of 20 and 35. There is a safe age range of 20 to 30 years for pregnancy and childbirth in a healthy reproductive age. Since the reproductive system is developed at this age, pregnancy disruptions can be minimized.

Length of Stage II Based on Maternity Leave

The findings revealed that 10 respondents (19.2%) had a second stage lasting longer than 90 minutes (long second stage), while 42 respondents (80.8%) had a second stage lasting less than 90 minutes (regular second stage). Nearly all responders (78.6%) took maternity leave in the second stage group (less than 90 minutes, which is the typical second stage). According to Wulan's research from 2019, pregnancy-related activities, such as exercising, can have an impact on how long birth takes.

It is required of pregnant women who take maternity leave to prepare themselves physically and mentally to give birth naturally. Exercise throughout pregnancy has an impact on how long labor takes. It will be more difficult for pregnant women to move and perform daily tasks due to the growing weight of the womb. Pregnant ladies tend to be lethargic when it comes to doing everyday tasks and will instead relax and sleep more as a result. It is believed that indolent expectant mothers will have challenging labors. Pregnant women who engage in physical activity during their pregnancy are said to have shorter labor times than

those who do not. The risk of protracted labor is decreased during pregnancy when physical exercise has a favorable effect on cervical ripening before birth. Furthermore, exercise during pregnancy can lower the need for medical labor interventions such as amniotomies, labor inductions, and cesarean sections (Szumilewicz et al., 2013).

More energy is needed by pregnant women who move around than by those who remain immobile. Energy is required for all tasks, so the more activities a pregnant woman does, the more energy she will require (Ernawati, 2018).

Energy Balance Based on Maternity Leave

Three categories exist for energy balance: balanced energy balance, negative energy balance, and positive energy balance. When the body expends less energy than it takes in, there is a positive energy balance. When energy is discharged more than it is taken in by the body, there is a negative energy balance.

When the amount of energy consumed through food and the amount of energy spent through activity are roughly equal, an energy balance is reached. You will have the perfect body if the energy coming in and exiting out is balanced. A building of energy will occur if energy intake is excessive and not balanced with energy-consuming physical activity. This buildup will eventually affect body weight, leading to a fat body and the possibility of excess weight or obesity. In the meantime, an individual's energy imbalance might also result from energy use that exceeds energy intake. The person will lose weight as a result of feeling less energetic (Wiaro, 2013).

According to the study's findings, 12 respondents (23%) had greater energy balance than 40 respondents (77%) did. Seventy-five percent of moms in the group with poor energy balance took maternity leave. This study's findings contrast those of a study by Ernawati (2018), which found that pregnant women who work are less likely to have energy shortages than the group of mothers who do not work or care for their families 9,3 times more frequently. Working pregnant women have the power to make choices that will help them overcome their health issues. As a result, working women have access to more information that might influence



attitudes, behavior, income, and eating habits. These modifications may affect the mother's selection of food and how much of it she eats.

Another research that contradicts the results of this research is research conducted by Lestari (2021). Research conducted by Lestari (2021) states that pregnant women who do not work (housewives) are 2.9 times more likely to experience energy shortages compared to pregnant women who work. Employment status when a mother is pregnant is a risk factor for energy deficiency in pregnant women.

The Relationship Between Maternity Leave for Working Mothers and Energy Balance

Pregnant women's energy balance and taking maternity leave do not significantly correlate, according to Fisher's exact test statistic results, which gave a value of $p = 1,000$ ($p > \alpha$). This indicates that there is no statistically significant difference in energy balance between working women who take maternity leave and the reported findings.

This study agrees with that of Haryanti et al. (2021), who found no particular correlation ($p = 0.893$, $p > 0.05$) between physical activity and nutritional status in pregnant women. Energy expenditure from physical activity is crucial for preserving one's physical, mental, and overall well-being. A physical activity's level is determined by how much energy is used in a given type of activity for a day.

The American College of Obstetricians and Gynecologists (ACOG) first recommended regular, moderate-intensity physical activity for women who were experiencing healthy pregnancies in 2015. The recommendation was then reiterated in 2017 and calls for at least 20 to 30 minutes of physical activity per day, or most days of the week. The purpose of this recommendation is to avoid several pregnancy-related complications. Among these complications are diabetes, gestational hypertensive disorders, and fetal growth disorders. These conditions are linked to a higher adult risk of cardiovascular disease as well as an increased risk of early mother and possibly offspring death.

The Relationship between the Maternity Leave Period and the Length of the Second Stage of Labor in Working Mothers

The study's statistical tests, which used Fisher's exact test, created a value of $p = 0.421$ ($p > \alpha$), indicating that there is no significant correlation between working mothers' duration of the second stage after giving birth and their use of maternity leave. This demonstrates that there is no discernible difference in the duration of the second stage of labor when taking maternity leave, thereby excluding any statistical relationship from the results.

According to research by Hasanah et al., (2021), mothers who engage in physical activities, such as pregnancy exercise, have a longer second stage of labor; this duration is a minimum of 2 minutes and a maximum of 80 minutes, with a standard deviation of 15.375. In contrast, mothers who do not engage in pregnancy exercise have a longer second stage of labor. The standard deviation is 16.042, with the shortest delivery time being 10 minutes and the longest being 75 minutes. Based on the statistical test results, it can be inferred that there is a significant difference between the duration of the second stage of labor for mothers who participated in pregnancy exercises and those who did not. Specifically, the p -value = <0.000 indicates that the p -value = $<\alpha$. It can be inferred from Hasanah's research that pregnant women who engage in greater physical activity before delivery may have an impact on the duration of the second stage of labor.

Work Law No. 13 of 2003 regarding employment regulates maternity leave for female employees as a special right granted to them as a means of protecting their reproductive function. Every female employee has an unalienable right to leave before and after giving birth. Many pregnant female employees waive their right to leave during their pregnancy because they can take longer leave after giving birth. This is because working women must devote their time, energy, and resources to caring for and nursing their newborns (Ega, 2021).



CONCLUSION AND SUGGESTION

Conclusion

This research concludes that there is no relationship between the period of maternity leave and energy balance and there is no relationship between the period of maternity leave and the length of the second stage of labor in working mothers.

Suggestion

Because in this study there was no relationship between maternity leave and energy balance and the second stage of labor in working mothers, the advice for working mothers is that mothers who take leave at the beginning or end are expected to still pay attention to food intake and physical activity carried out during pregnancy.

ACKNOWLEDGMENT

Author declare there is no conflict of interest in this research

REFERENCE

- Ba'ka, L., Assa, I., Asriati, Bouway, D. Y., Tuturop, K. L., & Adimuntja, N. P. (2023). Pengentahuan Dan Sikap Wanita Usia subur Pada Penyakit Anemia Di Kampung Yoka. *JAmbura Journal Of Health Science And Research*, 5(2), 626–631. <https://ejurnal.ung.ac.id/index.php/jjhsr/index>
- Cahyono, B. E. (2022). Pengaruh Faktor Karakteristik Wanita Usia Subur Dan Pasangannya Terhadap Jarak Kelahiran Antara Anak Pertama Dengan Kedua Di Indonesia (Analisis Data SDKI 2017). *Jurnal Keluarga Berencana*, 7(1), 32–43.
- Ega. (2021). *Hak Cuti Melahirkan Bagi Tenaga Kerja Perempuan Berdasarkan Undang-Undang Dan Hukum Islam*. Institut Agama Islam Negeri Palopo.
- Ernawati, A. (2018). Hubungan Usia Dan Status Pekerjaan Ibu Dengan Kejadian Kurang Energi Kronis Pada Ibu Hamil. *Jurnal Litbang*, XIV(1), 27–37.
- Hardhana, B., Sibuea, F., & Widiyanti, W. (Eds.). (2021). *Profil Kesehatan Indonesia 2021*. Kementerian Kesehatan Republik Indonesia.
- Haryanti, R., Yovinna T, V., & Utami, A. (2021). Hubungan Aktivitas Fisik Dengan Status Gizi Pada Ibu Hamil. *Jurnal Medika Hutama*, 2(2), 698–705. <http://jurnalmedikahutama.com>
- Hasanah, U., Anis, W., & Purwanto, B. (2021). Lama Kala II Persalinan Pada Ibu Primigravida Yang Mengikuti Senam Dan Tidak Senam Hamil. *Indonesian Midwifery and Health Sciences Journal*, 3(1), 70–76. <https://doi.org/10.20473/imhsj.v3i1.2019.70-76>

- Kusumaningrum, D., Sari, A. G., & Pujiono, B. (2023). PERLINDUNGAN HUKUM TERHADAP PEKERJA WANITA. *Jurnal Tansparansi Hukum*, 06(01), 118–127.
- Lestari, A. (2021). FAKTOR RISIKO KURANG ENERGI KRONIS PADA IBU HAMIL DI PUSKESMAS GUNUNGPATI. *Sport and Nutrition Journal*, 3(2), 1–13. <https://journal.unnes.ac.id/sju/index.php/spnj/>
- Nisa, W. N., & Apprilina, H. D. (2019). Hubungan Kematangan Emosional dan Peran Suami dengan Kesiapan Primigravida Menghadapi Persalinan. *Jurnal Smart Keperawatan*, 6(2), 86. <https://doi.org/10.34310/jskp.v6i2.266>
- Qonitul, U., & Nur Fadilah, S. (2019). Faktor-faktor yang Melatarbelakangi Kejadian Partus Lama pada Ibu Bersalin di RSUD dr. R. Koesma Tuban. *Jurnal Kesehatan Dr. Soebandi*, 7(1), 51–57. <https://doi.org/10.36858/jkds.v7i1.141>
- Szumilewicz, A., Wojtyła, A., Zarębska, A., Drobnik-Kozakiewicz, I., Sawczyn, M., & Kwitniewska, A. (2013). Influence of prenatal physical activity on the course of labor and delivery according to the new Polish standard for perinatal care. *Annals of Agricultural and Environmental Medicine*, 20(2), 380–389. www.aaem.pl
- Wiaro, G. (2013). *Ilmu Gizi Dalam Olahraga*.
- Wulan, T. (2019). Hubungan Pelaksanaan Senam Hamil PAAda Ibu Hamil Dengan Kelancaran Proses Persalinan Di Puskesmas Papar Kabupaten Kediri Tahun 2017. *Jurnal Nusantara Medika*, 3(2), 86–96.
- Yohanna, W. S. (2016). Analysis Of Factors Related To The Old Labor. *Jurnal Aisyah*, 1, 1–14.