# ANALYSIS OF LABOR CONTRACTIONS AND FOOD INTAKE WITH FATIGUE LEVEL OF LABORING MOTHERS IN INDEPENDENT MIDWIFE PRACTICE

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***Abstract***
*The labor process will require a lot of energy to help the mother in the labor process. Contractions that are felt continuously, causing the mother to lack appetite or intake, making the mother weaker and easily tired. It is necessary for the midwife's initial assessment of the mother's fatigue condition when she comes to the midwife clinic for delivery, so that the mother can undergo her labor process normally and without complications due to the fatigue she experiences. This research is analytic with a cross sectional approach. The population and samples in this study were vaginal delivery mothers. The sample of this study was 23 people with the sampling technique was simple random sampling, conducted from June-September 2023. The results showed the majority was moderate fatigue, namely 14 people (43.5%), the average VAS-fatigue value of 5.78 points, fatigue factors based on his/contraction factors, namely 16 people (69.6%), based on factors of lack of food intake, namely 14 people (60,9%), There is a significant relationship between his/contraction factors on fatigue in laboring women (P=0.00) and There is a significant relationship between factors of lack of food intake on fatigue in laboring women (P=0.00). Assessment, supervision and management of laboring women who have risk factors for fatigue by midwives are needed to prevent complications of labor in the mother and fetus.*
*Keywords: fatigue factors, contraction, food intake, laboring women*

## INTRODUCTION

The Sustainable Development Goals (SDGs) target for reducing the maternal mortality rate (MMR) in Indonesia by 2030 is less than 70 per 100,000 KH by 2030 (Kemenkes RI, 2018). However, until now it has not been maximally achieved to 183 per 100,000 KH by 2024. This indicates that strategic and comprehensive efforts are needed to accelerate the 5.5% reduction in MMR per year. The direct causes of maternal mortality are hypertensive disorders in pregnancy (33.1%), obstetric hemorrhage (27.03%), non-obstetric complications (15.7%), other obstetric complications (12.04%), pregnancy-related infections (6.06%), and other causes (4.81%) (SRS 2016). These causes of maternal mortality indicate that maternal deaths can be prevented if service coverage is accompanied by good quality of service. 77% of maternal deaths were found in hospitals, 15.6% at home, 4.1% on the way to hospitals/health facilities, and 2.5% in other health care facilities (Kemenkes RI, 2022).

Bleeding triggers include anemia, uterine atony, birth canal laceration, and others. Fatigue is indirectly a factor that must be considered for these problems to occur. Fatigue that is not managed properly during pregnancy and labor will increase the risk of complications in pregnancy and labor (Noviyanti & Jasmi, 2022).

Normal labor is a natural process that will be experienced by pregnant women to remove the results of conception that is full-term and able to live outside the uterus, through the process of

spontaneous vaginal delivery. In this case, labor will take place with various stages and phases that the fetus must go through in order to exit the birth canal normally (Noviyanti & Jasmi, 2022).

The process of expelling the fetus takes a lot of time and energy, where this energy is needed by the mother to help the uterine muscles contract during labor. The mother's high energy needs during labor must certainly be met so that the mother does not become exhausted and experience physiological stress which results in glucose homeostatic disorders or changes in the body's energy needs. For this reason, it is necessary to regulate the provision of fluids or hydration, nutritional intake, comfort and emotional stability in laboring mothers. The American College of Obstetricians and Gynecologists (ACOG) recommends fluid and food intake during labor and prohibits restriction of fluid and food intake during labor.(Saleh et al., 2022).

Fatigue in labor can be triggered by the high force of contractions that consume large amounts of calories. During contractions the mother will feel pain and agony and this affects the mother's emotional and physical endurance. The need for ATP increases through aerobic and anerobic metabolic processes during labor. In addition, the effect of lack of food intake during labor also affects the mother's physical endurance and makes the mother feel tired easily. Maternal nutritional needs must be met before and when the mother experiences the process of inpartu or labor (Saleh et al., 2022).

At the time of the visit of pregnant women to health facilities both in hospitals, health centers, and independent midwife practices to give birth, from the initial assessment it has been asked about the history of food intake in the form of a recal of the last 24 hours of nutrition, and the fulfillment of their hydration needs, the history of the length of contractions that exist is calculated from the time of the appearance of his until the mother decides to come to the midwife's practice. At the time of the examination, the condition of his or her contractions was assessed, including frequency, duration, interval, intensity of his or her, so that the quality of his or her contractions was known to be adequate or weak, which would certainly affect the level of maternal fatigue during the first phase of labor until the second phase later.

## RESEARCH METHODS

This research is a quantitative study that aims to connect a state of a variable in depth with other variables and present data systematically, in this case describing an Analysis of His Factors and Food Intake Before Delivery with the Fatigue Level of Maternity Women at PMB in 2023. The design of this study is cross sectional, namely observing the variables to be studied in the same period of time (Resmana & Hadianti, 2018).

The study population was pregnant women registered since 2022-2023 at the midwife practice as many as 125 people, sampling by simple random sampling, which is for a random sampling method from the population used as the object of research. This method is used to ensure that the sample taken is representative and unbiased towards certain characteristics of the population. The research sample amounted to 23 people who came from June-September 2023.

The research instrument used questionnaires and records of cohort books and KIA patients at the Islah Wahyuni Midwife clinic.

## RESEARCH RESULTS

### Univariate Data

The results of data on the characteristics of respondents in this study can be seen in the following table:

**Characteristics of respondents**

**Table 1. Frequency Distribution of Respondent Characteristics**

| No | Variable | N | F | Persentage (%) |
|---|---|---|---|---|
| **1** | Age | 23 | | |
| | - <20 | | 1 | 4,3 |
| | - 20-35 | | 16 | 69,6 |
| | - 35-45 | | 6 | 26,1 |
| **2** | Education : | 23 | | |
| | - Low | | 5 | 21,7 |
| | - Secondary | | 15 | 65,2 |
| | - High | | 4 | 17,3 |
| **3** | Occupation : | 23 | | |
| | - Employee | | 5 | 21,7 |
| | - Non employee | | 18 | 78,3 |
| **4** | Parity | 23 | | |
| | - Primi Gravida | | 6 | 26,1 |
| | - Multi Gravida | | 14 | 60,9 |
| | - Grande Multi Gravida | | 3 | 13 |

Based on Table 1, it can be seen that the majority of respondents based on the age of the majority of 20-35 years as many as 16 people (69.6%), the majority of secondary education as many as 15 people (65.2%), the majority did not work (non employee) as many as 18 people (78.3%), the majority of multi gravida as many as 14 people (60.9%).

**Contraction factors and food intake of respondents**

**Table 2. Frequency distribution of contraction factors and food intake of respondents**

| No | Variable | N | F | Persentage (%) |
|---|---|---|---|---|
| **1** | Contraction Factors | 23 | | |
| | - Weak | | 4 | 17,4 |
| | - Moderate | | 10 | 43,5 |
| | - Severe | | 9 | 39,1 |

| | | | | |
|---|---|---|---|---|
| **2** | Food intake factors | 23 | | |
| | - Lack | | 14 | 60,9 |
| | - Adequate | | 9 | 43,5 |

Based on Table 2, it can be seen that the majority of respondents experienced moderate contractions during labor, namely 10 people (43.5%) and the majority of respondents experienced lack food intake during labor, namely 14 people (60.9%).

**Fatigue level of respondents**

**Table 3. Frequency Distribution of Respondents' Fatigue Level**

| No | Variable | N | F | Persentage (%) |
|---|---|---|---|---|
| **1** | Level of fatique | 23 | | |
| | - Weak | | 3 | 13 |
| | - Moderate | | 14 | 60,9 |
| | - Severe | | 6 | 26,1 |

Based on Table 3, it can be seen that the majority of respondents experienced moderate fatigue levels, namely 14 people (60.9%).

**Mean Fatigue score based on VAS-FATIQUE**

**Table 4. Frequency Distribution of the average value of fatigue based on VAS-F**

| No | Variable | N | Mean | Std. Deviation | Min-Max |
|---|---|---|---|---|---|
| | **VAS-F :** | | | | |
| 1 | Skore Kelelahan | 23 | 5.78 | 1,622 | 3-9 |

Based on Table 1.4, it can be seen that the average fatigue score of respondents based on VAS-Fatique is 5.78 points.

**Bivariate Data**

**Relationship between contraction factor and fatigue of laboring mothers**

**Table 5. Relationship between contraction factor and labor fatigue**

**Coefficients[a]**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | .534 | .214 | | 2.218 | .025 |
| | contraction factor | .610 | .103 | .627 | 5.442 | .000 |

a. Dependent Variable: **Kondisi Kelelahan Ibu**

** Regresion Linear test*

Based on Table 1.5 Coefesient, it can be seen that the maternal contraction factor will affect the fatigue condition of the mother with a significance value (0.000).

**The relationship between food intake factors with maternal fatigue**

**Table 6. Relationship between intake factor and labor fatigue**

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | .457 | .212 | | 2.105 | .021 |
| | food intake factors | .511 | .101 | .743 | 4.637 | .000 |

a. Dependent Variable: **Kondisi Kelelahan Ibu**

**Regresion Linear test*

Based on Table 1.5 Coefesient, it can be seen that the factor of maternal food intake will affect the fatigue condition of the mother with a significance value (0.000).

## DISCUSSION

### Relationship between labor contraction factor and maternal fatigue

Uterine contractions are related to the process of expelling the baby, which is assessed by intensity, duration, frequency to identify abnormalities that can cause obstetric complications, such as uterine inertia, uterine atony. (Ben-noun, 2020) Uterine contractions also play an important role in minimizing postpartum hemorrhage (Koutras et al., 2021), which explains why these complications occur due to lack of myometrial contractility (Sabir., 2022).

The study of uterine activity during labor using an electromyogram (EMG) on the uterus placed from the abdominal surface of a pregnant woman, shows the presence of electrical activity in the uterine muscles that causes the transmission and spread of endometrial electricity causing uterine contractions and increasing their amplitude so that they correlate with large changes in intrauterine pressure and pain sensations (Rosen & Yogev, 2023)

Contractions result in shrinking blood vessels which compensate for the pain felt by the mother during labor. The stronger the hiss or contraction, the longer and higher the level of pain felt by the mother (Sabir., 2022) When contractions will consume enormous energy so that the mother will feel exhausted (Saleh et al., 2022).

When the labor process takes place, the mother needs stamina and excellent body condition. Metabolism in laboring women will increase, this is due to an increase in body muscle activity accompanied by anxiety (Support et al., 1999). Muscle activity during labor requires optimal energy. With optimal energy, the mother will get optimal strength or energy as well (Saleh et

al., 2022). The results of Soviyati's research (2015) state that most mothers who have poor strength (84.1%) have a labor duration of more than 18 hours. (Resmana & Hadianti, 2018)

When the mother comes to the midwife's practice, the initial assessment is to assess when the contractions have been experienced by the mother, how long or duration and strength or intensity as well as the number of his frequencies that come in 10 minutes (Rosen & Yogev, 2023). This assessment is a fundamental thing that midwives must know when assisting the mother's labor, this is because his or contraction is also known as power which is one of the determining factors that affect the process of labor will take place normally or not, supervision, monitoring and management of his, Contractions during labor are needed as a parameter to see his abnormalities or the effect of strong hiss on the physical endurance of the mother so that the midwife can provide appropriate childbirth care advice such as reducing walking or standing mobilization activities during labor time I by replacing it with just sitting or lying down during contractions causing discomfort to the mother, this makes the mother unable to move more and only chooses one position that reduces the use of muscle energy when walking and moving (Rosen & Yogev, 2023).

Midwifery care for mothers during the first stage of labor is to help fulfill physical needs and anticipate reducing pain in laboring mothers, which aims to make mothers feel more relaxed and comfortable so that these contractions are not too draining for the mother's energy and fatigue will certainly be felt less by the mother. (Vaziri et al., 2016)

In this study it is clear that the majority of respondents experienced moderate fatigue 14 people (60.9%) with an average VAS fatigue value of 5.78 points, and there is an influence of labor contractions on the incidence of maternal fatigue, P value (0.000). This researcher found when conducting an assessment that the majority of respondents had experienced his or contractions since > 6 hours at home before visiting the midwife's practice, even some had experienced contractions since 1-3 days earlier but were still maintained at home because the contractions were not so strong. When the contractions had increased, the mother began to contact the midwife by telephone or came directly to the midwife clinic, so that when the mother came the mother already felt exhausted due to the contractions she experienced and was also triggered by the mother not being able to rest and sleep well and her appetite was reduced.

During the midwife clinic, the mother usually asks the midwife's permission and still tries to mobilize herself to move by walking and gymball according to the direction of the midwife. Of course, the purpose of mobilization at this time is to accelerate the descent of the head and strong contractions so that labor in the opening phase of kala I ends immediately with the birth of the baby in kala II. However, as a midwife who understands and understands the mother's need for comfort and the importance of maternal stamina to push during the second stage of labor later, to save the mother's energy by minimizing energy intake in the limb muscles when moving tersbut, then the kebidana care that we can provide is how to delay the mother to walk around the runagan berslain or ward hallway if the mother already looks too close to the interval of his contractions, or fekewenis already 3-4 times in 10 minutes, or when we see the peak of his or the pain felt by the mother has made the mother seem emotional by screaming and crying,

then at this time the midwife directs the mother to choose a position lying on her left or right side without having to force herself to walk or just stand up because it is more thought that if you stand or move around it will help speed up the decline of the jnanin's head and the perslainan process will end soon.

This is very effectively advised to laboring mothers because it is able to save the mother's energy and energy so that according to the experience of researchers when assisting laboring mothers who only lie down during contractions compared to those who walk or stand during contractions are much more tired of mothers who move and walk during contractions where it can be seen during the second stage of receiving the mother's legs trembling and moving shivering on their own, this is due to fatigue of the leg muscles when used to move during the opening phase of the first stage.

**Relationship between dietary intake factors and maternal fatigue**

The food intake of laboring women needs to be carefully assessed in the last 24 hours. System recal review of maternal nutrition in the last 24 hours will help provide an overview of the fulfillment of nutrients for the mother's body in assessing the strength and fatigue that occurs due to low intake of calories, carbohydrates before the mother is in the labor phase (Pascawati et al., 2018).

The recommended food intake for pregnant women before delivery is high in calories and protein and foods that can increase stamina during labor. All assessments of food intake will relate to the quality of food consumed and the physical resilience of the mother to face high calorie needs in labor later.(Saleh et al., 2022).

The World Health Organization (WHO) recommends not to limit food and nutrient intake and drinking when the mother is in labor because of the large energy needs at this stage (Tzeng et al., 2013) (Document, 2017).

It is known that nutrition and hydration intake is one of the factors that can affect adequate uterine contractions (Ainny, 2014). In Ghani's 2012 study, oral hydration intake in the form of zam-zam water was shown to have a significant effect on the frequency and duration of uterine contractions. Because the level of glucose in the mother's blood will affect the formation of ketone bodies in labor. If this ketone body is formed a lot, it will affect uterine contractions. (Resmana & Hadianti, 2018) In the study of Malik et al, 2016, providing adequate intake of utrition during labor as much as 47 Kcal / hour will help prevent the formation of ketone bodies in labor (Pascawati et al., 2018).

Fulfillment of energy during labor is expected to contain balanced nutrition, especially carbohydrates, protein. At the stage of the latent phase of labor, contractions can still be maintained by the mother, so the midwife can encourage the mother to finish eating at this time. However, entering the active phase I as the strength of his increases, and the duration gets longer and shorter, the mother's appetite decreases and the mother becomes reluctant to eat, the gastric emptying period is inhibited so that solid food will be digested longer, so soft or liquid

food is highly recommended because it will help fulfill energy and not release residue or residue, but that does not mean the mother is not given hydration and nutritional intake at this time, many researchers recommend giving fluids, fruit juices and soft or dilute foods can be suggested to the mother. Such as coconut water, watermelon juice without sugar is believed to be able to reduce maternal fatigue because it contains citrulline which slows the formation of lactate during labor, milk and egg tea, sweet tea is often given to laboring mothers to restore their energy during labor (Pascawati et al., 2018).

For this reason, in helping mothers minimize fatigue during labor, it is sought to pay attention to and manage the mother's nutritional intake and hydration so that the mother can undergo the delivery process well and have minimal complications due to the fatigue she experiences during labor (Saleh et al., 2022).

In order for labor contractions to be good and increase during labor, it can be done in a non-pharmacological way, namely increasing fluid intake and nutrition. During labor, it takes a lot of energy to push and push the fetus out by providing nutrition for oral intake of food and drink which is needed by the laboring mother to gain energy or strength to push through, avoid fatigue which results in dehydration, and ensure the welfare of the mother and fetus.(Resmana & Hadianti, 2018)

When signs of abnormalities appear in pregnant women, there is anxiety and unpreparedness that is sometimes felt by some pregnant women (Ika Yulianti, Supriaydi, 2018), as a result many of them are too focused on contractions and pain they experience and this has an impact on their desire or appetite to decrease and lazy to consume food, During these contractions the mother is more focused on dealing with the pain she feels and all the mother's activities become stopped such as doing household chores, exercise and even the fulfillment of food is ignored because they feel this is no longer interesting to them and as if his or the pain that comes has taken away the mother's ability to rationalize in meeting her other physical needs (Noviyanti & Jasmi, 2022).

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taken away the mother's ability to rationalize in meeting her other physical needs (Noviyanti & Jasmi, 2022).

Here we can see the misperception of pregnant women that during labor they limit their food and drink intake, while when contractions occur the uterus requires a very large number of anaerobic and aerobic ATP calories (Resmana & Hadianti, 2018), it is necessary to emphasize and educate pregnant women during ANC to teach and provide understanding so that when signs of labor are present later the mother is asked to be able to meet her food needs before contractions become stronger (Hassanzadeh et al., 2019), 2019), it is highly recommended and directed that mothers consume soft and calorie-filled foods in order to have energy reserves when going into labor, consume stamina-enhancing foods such as supplements, fruits that can increase energy during labor such as watermelon, and at least midwives can ensure that mothers will not feel excessive fatigue during labor and postpartum later (Wahyuni, 2018).

Therefore, the midwife's initial assessment of the mother who will give birth is one of them by assessing her food intake and reminding the mother to continue to fulfill her intake so that during labor the mother does not experience excessive fatigue. And midwives must be able to provide care and management of the fatigue felt by the mother while undergoing the labor process.

## CONCLUSIONS AND SUGGESTIONS

The majority of maternal fatigue factors showed moderate fatigue, namely 14 people (43.5%), the average VAS-fatigue score was 5.78 points, fatigue factors based on the his/contraction factor were 16 people (69.6%), based on the lack of food intake factor were 14 people (60.9%), there was a significant relationship between the his/contraction factor on fatigue in laboring women (P=0.00) and there was a significant relationship between the factor of lack of food intake on fatigue in laboring women (P=0.00). Assessment, supervision and management of laboring women who have risk factors for fatigue by midwives are needed to prevent complications of labor in the mother and fetus.

## BIBLIOGRAPHY

Ainny, D. W. Y. N. (2014). *No Title*. 1–7.

Ben-noun, L. (2020). *UTERUS CONTRACTIONS Medical Research in Biblical Times*. *April*.

Document, T. (2017). *Fatigue of Chinese Mothers from Pregnancy to Postpartum*.

Hassanzadeh, R., Abbas-Alizadeh, F., Meedya, S., Mohammad-Alizadeh-Charandabi, S., & Mirghafourvand, M. (2019). Assessment of childbirth preparation classes: A parallel convergent mixed study. *Reproductive Health*, *16*(1), 1–7. https://doi.org/10.1186/s12978-019-0826-2

Ika Yulianti, Supriaydi, A. S. (2018). The effect of yoga on stress, anxiety, and depression in women. *JOurnal of Materenal and Child Health*, *3*, 100–104. https://doi.org/10.4103/ijpvm.IJPVM_242_16

Kemenkes RI. (2022). Profil Kesehatan Indonesia 2021. In *Pusdatin.Kemenkes.Go.Id*.

Kementerian kesehatan Repubelik Indonesia. (2018). *Data dan Informasi profil Kesehatan Indonesia 2018*.

Koutras, A., Fasoulakis, Z., Syllaios, A., Garmpis, N., Diakosavvas, M., Pagkalos, A., Ntounis, T., & Kontomanolis, E. N. (2021). Physiology and pathology of contractility of the myometrium. *In Vivo*, *35*(3), 1401–1408. https://doi.org/10.21873/invivo.12392

Noviyanti, A., & Jasmi, J. (2022). Faktor Fisik dan Psikologis Ibu Bersalin dengan Intensitas Nyeri Persalinan Kala I pada Ibu Primipara. *Jurnal Kesehatan*, *13*(3), 437. https://doi.org/10.26630/jk.v13i3.2945

Pascawati, R., Martasari, B. L., Andriani, R., Maharani, S., Susiarno, H., Satari, M. H., Shahib, N., Husin, F., Hidayat, Y. M., Nugraha, G. I., & Cahyadi, W. (2018). Formula Minuman Nutrisi Persalinan (Mixed Juice). *Universitas Padjajaran*.

Resmana, R., & Hadianti, D. N. (2018). Keton Urin Bersalin Berhubungan Dengan Asupan Nutrisi. *Care : Jurnal Ilmiah Ilmu Kesehatan*, *6*(1), 64. https://doi.org/10.33366/cr.v6i1.784

Rosen, H., & Yogev, Y. (2023). Assessment of uterine contractions in labor and delivery. *American Journal of Obstetrics and Gynecology*, *228*(5), S1209–S1221. https://doi.org/10.1016/j.ajog.2022.09.003

Sabir., A. M. S. (2022). *Physiology contraction, uterine_pdf.pdf*.

Saleh, U. K. S., Namangdjabar, O. L., & Saleh, A. S. (2022). Kajian pola pemenuhan nutrisi dan hidrasi ibu bersalin selama proses persalinan. *Journal Scientific of Mandalika*, *3*(3), 230–234.

Support, N., Labour, D., Trial, R. C., Controlled, P., Intake, O., Labour, D., & Elizabeth, J. (1999). *Nutritional support during labour:*

Tzeng, Y. L., Kuo, S. Y., & Tsai, S. H. (2013). Childbirth-Related fatigue during labor: An important but overlooked symptom. *Journal of Nursing*, *60*(6), 16–21. https://doi.org/10.6224/JN.60.6.16

Vaziri, F., Arzhe, A., Asadi, N., Pourahmad, S., & Moshfeghy, Z. (2016). Spontaneous pushing in lateral position versus Valsalva maneuver during second stage of labor on maternal and fetal outcomes: A randomized clinical trial. *Iranian Red Crescent Medical Journal*, *18*(10). https://doi.org/10.5812/ircmj.29279

Wahyuni, I. (2018). Managemen Kelelahan Saat Persalinan Menggunakan Jus Semangka. *Jurnal Ipteks Terapan*, *12*(1), 19. https://doi.org/10.22216/jit.2018.v12i1.2385