Clinical and Experimental Health Sciences

The Effect of Duration of Active Labor Phase on Postpartum Fatigue and Comfort

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ABSTRACT

Objective: This study aims to examine the effect of the duration of the active labor phase on postpartum fatigue and comfort.

Methods: This descriptive study was conducted in a maternity hospital in Istanbul, Turkey date 2018. Nulliparous pregnant women without any risk (n: 120) participated in the study. Data were collected using the "Information Form", the "Visual Analogue Scale", the "Postpartum Comfort Scale" and the "Visual Analogue Scale for Fatigue", and statistically analyzed.

Results: The mean age of the women was 23.66±4.24 years. 22.5% felt very tired in the postpartum period. Their mean duration of active labor phase was 5.00±1.88 hours. Their Postpartum Comfort Scale and Visual Analogue Scale for Fatigue mean scores were 131.30±13.39 and 96.67±47.82, respectively.

Conclusion: Duration of active labor phase did not affect postpartum fatigue and comfort of women.

Keywords: Active phase, comfort, fatigue, labor

1. INTRODUCTION

Childbirth and postpartum period is a normal physiological process for women. Normal birth consists of four stages (1). The first stage of labor consists of the latent and active phases. This phase begins with cervical dilation of 4 cm accompanied by regular uterine contractions and ends with full cervical dilation at 10 cm. The duration of the active phase varies depending on whether the woman is multiparous or primiparous. The mean cervical dilatation rate in the active phase has been reported as 1.2 cm/hour in nulliparous and 1.5 cm/hour in multiparous. Although the average duration of the active phase in primiparous women is accepted as 4.9 hours, it is considered normal to last up to 11.9 hours (2, 3). The duration of the first stage of labor affects women's comfort. The long duration of the active phase at birth causes fatigue in the mother in the early postpartum period. Fatigue negatively affects both the mother's self-care and the baby's care and breastfeeding (4, 5).

The duration of normal labor varies depending on various factors. One of the most important factors affecting the duration of labor is the parity of the mother. Labor takes longer in primiparas. In particular, the prolongation of the first stage causes problems during and after birth. The most common problems are expressed as pain and fatigue. While fatigue causes the prolongation of the second stage, it affects the comfort of the mother in the postpartum period. Postpartum fatigue usually occurs within the first 36 hours after birth. Fatigue affects the mother's comfort by affecting the mother's functions (5, 6).

A prolonged labor and postpartum fatigue negatively affect both women's life comfort and their childbirth and postpartum care satisfaction (7). It is very important to identify and prevent the factors that cause fatigue in pregnant women, in order to increase their comfort and satisfaction during and after labor. Alleviating labor and postpartum fatigue positively affects postpartum comfort and satisfaction of women. In addition, qualified midwifery and nursing care/support services increase their physical/social comfort and childbirth satisfaction (8).

Prolongation of any phase of labor, especially of the first and active phases, may cause fatigue in mothers, negatively affecting their pushing performance in the second stage of labor and life comfort in the postpartum period. Henderson et al. (2018) reported that 13% of women feel "exhausted" in the first few days postpartum and 5% in the next 3 months. However, only two-thirds or less of these women reported experiencing fatigue or severe fatigue (5). Therefore, it is very important to identify and prevent the factors that cause

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fatigue in mothers during labor. There are no studies about the effect of active phase duration on postpartum fatigue. This study was conducted to determine the effect of duration of active labor phase on postpartum fatigue and comfort of women.

2. METHODS

2.1. Type of Research

This study is a descriptive type.

2.2. Population of the Research and Selection of Sample

The study was conducted between June 04 and November 30, 2018 in the maternity unit of a training and research hospital in Istanbul, Turkey. At the hospital where the research was conducted, care services are provided to both low-risk and high-risk pregnant women. The population of the study consisted of nulliparous women who were referred to the delivery room of this maternity hospital and had no labor risk (pregnant women without complications).

The sample size was calculated before the study data were collected. G-power analysis was performed to calculate the sample size of the study. When the number of groups was determined as one (1) in the sampling calculation, the number of women to be included in the sample was calculated as 120, considering the effect size (f): 0.30, type I error rate (α) 0.05, type II error rate (β): 0.05, and power of the study (1 – β): 0.95. A total of 120 women were included in the study with a 95% confidence interval (9). However, considering the data loss, a total of 142 women were interviewed. It was determined that cesarean section was performed in 11 women due to fetal distress during labor, 6 women due to non-progressive delivery indication, and postpartum complications developed in 5 women. Therefore, a total of 22 women were excluded from the study.

Study inclusion criteria: Nulliparous women who were between the ages of 18-35 years and 37-41 pregnancy weeks and had no complications were included in the study.

Study exclusion criteria: Pregnant women who had those who did not want to participate in the study, and those who underwent cesarean section were excluded from the study.

2.3. Data Collection Tools

Data were collected using the "Participant Information Form", the "Visual Analogue Scale (VAS)", the "Postpartum Comfort Scale (PCS)" and the "Visual Analogue Scale for Fatigue (VAS-F)".

One of the researchers was present for research in the hospital's maternity unit during or out of working hours. The subject of the research was explained to the pregnant women in the maternity unit and their consent was obtained. The forms were filled in by the researcher with face-to-face method within 10-15 minutes.

Participant information form: The form was prepared by the researchers in line with the literature (4,5), and includes questions about the participants' sociodemographic and obstetric characteristics, duration of labor, physical and emotional status, fetus characteristics, postpartum fatigue and comfort.

The visual analogue scale (VAS): The visual analogue scale was developed by Hayes and Patterson in 1921, and the reliability and validity of the scale for assessing pain was performed by Price et al. in 1983. Cronbach's alpha value of the scale was reported to be between 0.71 and 0.90.17,18 VAS is a scale that is used to evaluate pain. The patient indicates the pain s/he feels on a 10cm scale ranging from no pain on one side and severe pain on the other side. This line is used to measure the level of pain. In this study, it was used to assess pregnant women's level of pain based on their self-report. This scale is also used for the evaluation of labor pain in addition to the evaluation of general pain (10, 11).

Visual Analog Scale for Fatigue (VAS-F): The scale was developed by Lee et al. (1990), and adapted to Turkish by Yurtsever (1999). It consists of 18 items and two subscales, including fatigue and energy. It includes 10 cm long horizontal line with positive statement on one end and negative statement on the other. The person is asked to mark the appropriate part for him/her. Then the value is determined by measuring the part marked with a ruler Yurtsever (2003) found the Cronbach's alpha value of the scale as 0.90 (12). In this study, the Cronbach's alpha value was calculated as 0.71.

Postpartum Comfort Scale (PCS): The General Comfort Scale was developed by Kolcaba (1992) and adapted to Turkish by Kuğuoğlu and Karabacak (2007). The PCS was developed from the General Comfort Scale by Karakaplan and Yıldız Eryılmaz to evaluate the physical, psychosocial and sociocultural comforts of women who undergo cesarean section or have normal childbirth. This five-point Likert type scale consists of 34 items in total. The lowest and highest scores on the scale are 34 and 170 (13). The Cronbach's alpha value of the scale was found as 0.78. In this study, the Cronbach's alpha value calculated as 0.78.

2.4.Ethical Considerations

Ethical approval from Marmara University Faculty of Medicine Clinical Research Ethics Committee (Ethics Committee Approval Date: 2018/09.2018.417) and permission from the institutions where the study was conducted, and approval from the participants were obtained.

2.5.Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) 21 demo software program. Chi-square test was used to compare quantitative categorical data, and Mann Whitney-U test to compare continuous data with normal distribution. Spearman's correlation coefficient was calculated. In addition, mean, standard deviation, number,

and percentages were calculated. The results were evaluated at 95% confidence interval and 0.05 significance level.

3.RESULTS

3.1.Participants' Characteristics

In this study, 8.3% of the women had bachelor's degree, 9.2% were employed, 37.5% had extended family, and 15.8% reported to receive insufficient support from their spouses during pregnancy. The mean age of the women was 23.66±4.24 years, the mean height was 160.38±5.68 cm, the mean pre-pregnancy weight was 59.48±8.96 kg, and the total mean weight gain during pregnancy was 12.13±4.18 kg.

It was determined that 13.3% of the women had two or more pregnancies, 18.3% did not plan their pregnancy, 6.7% used oral iron medication during pregnancy, and 20% felt tired during the prepartum period. A statistically significant relationship was found between the women's VAS mean scores according to status of having a problem requiring psychological help (p<0.05)(Table 1).

A statistically significant relationship was found between the VAS-F mean scores of women who used iron/vitamins during pregnancy (91.62±20.96) and those who did not (104.75±15.43)(p<0.05)(Table 1).

The mean VAS-F score was 88.08±21.21 for women who did not feel constantly tired during pregnancy, 88.42±20.86 for those who felt occasionally tired, and 99.23±19.24 for those who felt constantly tired, and a statistically significant relationship was found between them (p<0.05)(Table 1).

The mean VAS-F score was 86.11±23.87 for women with regular sleep and 95.12±19.00 for those with irregular sleep, and a statistically significant relationship was found between them (p<0.05)(Table 1).

No statistically significant difference was found between the women's VAS-F mean scores according to planning status of pregnancy, perception of spouse and social support, and situation of having an emergency for consulting doctor during pregnancy (p>0.05)(Table 1).

A statistically significant relationship was found between the women's PCS mean scores, planning status of pregnancy and state of feeling tired (p<0.05).

The PCS mean score was 132.81±13.47 for women with planned/wanted pregnancy, 125.09±10.87 for those with unplanned but wanted pregnancy, and 130.40±16.57 for those who got pregnant via treatment/medical assistance (p<0.05)(Table 1). A statistically significant difference was found between the women's PCS mean scores according to state of constantly feeling tired during pregnancy (p<0.05) (Table 1).

The PCS mean score was 136.25±13.13 for women who did not feel tired during pregnancy, 133.36±11.32 for those who sometimes felt tired, and 126.47±14.32 for those who felt tired all the time, and a statistically significant relationship was found between them (p<0.05) (Table 1).

No statistically significant difference was found between the women's PCS mean scores according to status of having a problem requiring psychological help, perception of partner support, use of medication during pregnancy, and situation of having an emergency for consulting doctor during pregnancy (p>0.05)(Table 1).

Table 1. *Comparison of the women's individual characteristics and scale scores (n:120).*

Obstetric data	Visual Analogue Scale for Fatigue Mean ± SD	Postpartum Comfort Scale Mean ± SD
Problem requiring psychological help		
No	92.22±20.92	131.39±13.40
Yes	108.50±0.70	125.50±16.26
t; p	*8.177; 0.001*	*0.616; 0.539*
Perception of partner and social support (spouse, family support)		
Inadequate	*94.89±17.91*	*127.26±13.95*
Adequate	*92.04±21.40*	*132.05±13.22*
t; p	*0.544; 0.587*	*1.438; 0.153*
Planned pregnancy		
Planned/Wanted	91.22±21.58	132.81±13.47
Unplanned/Wanted	96.90±18.72	125.09±10.87
Via Treatment/Medical Assistance	96.80±14.34	130.40±16.57
F, χ^2 ;p	*0.769; 0.466*	*3.074; 0.074*
Use of medication during pregnancy		
No	104.75±15.43	126.50±8.99
Iron/Vitamin	91.62±20.96	131.64±13.62
t, Z ;p	*2.261; 0.050*	*1.049; 0.296*
Having an emergency for consulting doctor during pregnancy		
No	93.06±20.74	131.47±13.23
Yes	91.58±21.22	131.02±13.78
t, Z ;p	*0.377; 0.707*	*0.179; 0.859*
Feeling tired all the time during pregnancy		
No	88.08±21.21	136.25±13.13
Sometimes	88.42±20.86	133.36±11.32
Yes	99.23±19.24	126.47±14.32
F, χ^2 ;p	*4.102; 0.019*	*5.613; 0.005*
Sleep pattern		
Regular	86.11±23.87	131.91±12.63
Irregular	95.12±19.00	131.04±13.76
t, Z ;p	*2.187; 0.031*	*0.321; 0.749*

t: Independent Sample t test. F: One way ANOVA. Z: Mann Whitney U test. χ2: Kruskal Wallis test. p<0.05

3.2.Participants' Labor-Related Variables

There was no statistically significant relationship between the women's VAS-F mean scores, hunger and satiety status, status of having hydration during labor, status of having induction during labor, status of having analgesics during labor, status of having amniotomy during labor, status of having bladder

drainage on obstetric table, and status of having episiotomy during birthdelivery (p>0.05)(Table 2).

Table 2. *Comparison of labor-related variables and scale scores (n:120).*

Variables	Visual Analogue Scale for Fatigue Mean ± SD	Postpartum Comfort Scale Mean ± SD
Status hunger and satiety		
Hungry	93.78±21.09	130.73±13.28
Full-solid	78.60±17.71	137.60±8.90
Full-liquid	94.50±19.91	129.50±12.79
Full – both solid and liquid	82.37±19.12	137.75±17.33
F; p	*1.559; 0.203*	*1.153; 0.331*
Application of hydration during labor		
No	91.14±22.08	129.83±13.75
Yes	93.40±20.09	132.27±13.15
t; Z; p	*0.724; 0.470*	*0.979; 0.330*
Application of induction during labor		
No	93.26±21.10	131.82±13.73
Yes	91.31±20.61	130.48±12.95
t; Z; p	*0.496; 0.621*	*0.530; 0.597*
Application of analgesics (pethidine 50 mg) during labor		
No	92.74±20.95	131.03±13.87
Yes	91.72±20.87	132.13±11.95
t; Z; p	*0.229; 0.819*	*0.385; 0.701*
Application of amniotomy during labor		
No	99.70±17.50	130.04±12.87
Yes	91.43±19.05	130.13±12.82
Naturally ruptured	90.07±23.20	132.86±14.17
F; χ^2 ;p	*1.870; 0.159*	*0.623; 0.538*
Bladder drainage on obstetric table		
No	93.04±21.66	131.49±13.82
Yes	91.44±19.36	130.69±12.68
t; p	*0.383; 0.703*	*0.297; 0.767*
Application of episiotomy		
No	87.75±19.06	134.00±18.65
Yes	92.66±20.96	131.20±13.27
F; p	*0.462; 0.645*	*0.409; 0.684*

t: Independent Sample t test. F: One way ANOVA. Z: Mann Whitney U test. χ2: Kruskal Wallis test. p<0.05

In addition, there was no statistically significant relationship between the women's PCS mean scores, hunger and satiety status, status of having hydration during labor, status of having induction during labor, status of having analgesics during labor, status of having amniotomy during labor, status of having bladder drainage on obstetric table, and status of having episiotomy during birthdelivery (p>0.05)(Table 2).

3.3. The Interventions Applied During Labor and Duration of Birth

There was no statistically significant relationship between the women's gestational week, status of hunger and satiety, status of having hydration, amniotomy and analgesics during labor, woman's age, pre-pregnancy body weight, fetuse's body weight and duration of the second stage of labor (p>0.05)(Table 3).

Table 3. *Intervention at birth, information about mother and fetus, comparison of the duration of the second stage of labor and the active labor stage (n:120).*

Duration of active labor phase					Test statistics	
Variables	≤5 Hours		>5 Hours		*t; χ^2*	*p*
	n	%	n	%		
Pregnancy week according to the last menstrual period						
37-40 weeks	65	66.3	33	33.7	1.312	0.859
41 weeks and over	15	68.2	7	31.8		
Status hunger and satiety						
Hungry	55	61.8	34	38.2	4.862	0.182
Full-solid	3	60.0	2	40.0		
Full-liquid	15	83.3	3	16.7		
Full – both solid and liquid	7	87.5	1	12.5		
Application of induction during labor						
No	54	74.0	19	26.0	4.477	0.034
Yes	26	55.3	21	44.7		
Application of hydration during labor						
No	32	66.7	16	33.3	0.00	1.000
Yes	48	66.7	24	33.3		
Application of amniotomy during labor						
No	15	62.5	9	37.5	0.243	0.886
Yes	30	68.2	14	31.8		
Naturally ruptured	35	67.3	17	32.7		
Application of analgesic during labor						
No	62	68.1	29	31.9	0.364	0.546
Yes	18	62.1	11	37.9		
The woman's pushing performance in the second stage						
Sufficient	44	81.5	10	18.5	13.627	0.001
Insufficient	5	33.3	10	66.7		
Crystals were used	31	60.8	20	39.2		
***Continuous variables**	**Mean ± SD**		**Mean ± SD**		**t**	**p**
Age of the woman	23.55±4.12		23.88±4.51		0.394	0.694
Pre-pregnancy body weight of women	58.45± 8.62		61.55±9.38		1.802	0.074
Body weight of fetuses	3219.38±387.69		3289.75±348.67		0.968	0.335
Duration of the second stage of labor	29.00±14.37		39.00±23.67		2.871	0.005

χ2= Chi Square Test, Kruskal Wallis test, t=Independent Sample t test, p<0,05

However, a statistically significant relationship was found between the induction during labor, woman's pushing performance in the second stage, duration of the second stage of labor, and duration of active labor phase (p<0.05) (Table 3).

The mean duration of active labor phase of the women was 5.00±1.88 hours, where the shortest and longest active phases lasted 2 and 14 hours, respectively. The mean duration of the second phase of labor was 29.00±14.37 minutes for women with active labor phase ≤5 and 39.00±23.67 minutes for those with active labor phase >5 (p<0.05)(Table 3).

3.4. Women's Postpartum Physical and Emotional States

The relationship between the women's VAS-F mean scores, emotional self-perception, perception of the environment, need for support, and state of feeling safe after labor was statistically significant (p<0.05). But the relationship between their VAS-F mean scores, emotional self-perception, perception of the environment, need for support, and state of feeling safe after labor was statistically insignificant (p>0.05)(Table 4).

Table 4. *Comparison of the women's postpartum physical and emotional states and scale scores (n:120).*

Perceptions	Visual Analogue Scale for Fatigue Mean ± SD	Postpartum Comfort Scale Mean ± SD
The mother's perceive the environment		
Very uncomfortable	95.33±20.40	111.66±9.09
Very comfortable	92.35±20.95	132.33±12.79
t; Z; p	*0.340; 0.734*	*3.897; 0.001*
The mother's perceive herself physically		
Energetic	90.69±25.99	138.15 ± 13.75
A little bit tired	88.83±18.55	130.58 ± 13.49
So tired	103.33±17.49	126.48 ± 10.22
F; χ^2 ;p	*5.107; 0.007*	*5.656; 0.005*
The mother's perceive herself emotionally		
Happy / joyful	93.09±21.58	132.11±13.15
Sad / Anxious	93.33±24.11	134.00±29.51
Surprised / panicked	92.66 ±17.59	127.41±15.76
Restless / nervous	96.00±28.58	128.00±6.24
Excited / enthusiastic	83.62 ±14.60	127.75±6.67
F; χ^2 ;p	*0.396; 0.811*	*0.547; 0.701*
The mother's state of feeling safe after birth		
Doesn't feel safe	113.00±39.23	136.00±24.97
Feels safe	91.97±20.20	131.17±13.14
t; Z; p	*1.739; 0.085*	*0.614; 0.541*
The mother needs any support		
Needs no support	89.83±21.70	133.32±14.06
Needs her mother's support	96.34±19.99	123.47±9.65
Needs her husband's support	99.00±16.65	133.29±10.80
F; χ^2 ;p	*1.355; 0.260*	*4.005; 0.009*

	VAS-F		PCS	
	r**	p	r*	p
Postpartum pain	0.193	0.034	-0.312	0.001
Duration of active phase	0.081	0.377	0.004	0.969

**r=Pearson Correlation Coefficient. **r= Spearman Rho Correlation Coefficient. p<0.05*

The women's PCS scores, physical self-perception, perception of the environment, and need for support had a statistically significant relationship (p<0.05). But the relationship between their PCS mean scores, emotional self-perception, and state of feeling safe after labor was statistically insignificant (p>0.05)(Table 4).

A statistically significant relationship was also found between the women's pain values in the postpartum period and their PCS and VAS-F mean scores (p<0.05)(Table 4).

4. DISCUSSION

In this study, the findings of the research, in which we examined the effect of the duration of the active birth phase on postpartum fatigue and comfort, were discussed in line with the relevant literature.

In this study, the mean age of the women was 23.66±4.24 years, and the mean weight gained during pregnancy was 12.13±4.18 kg, which are consistent with the 2018 Hacettepe University Institute of Population Studies data (14). A statistically significant linear correlation was found between the VAS-F and PCS scores of women who felt constantly tired during pregnancy. Those who felt tired during pregnancy had higher VAS-F mean scores (Table 1). Those who felt tired during pregnancy had lower PCS mean score than those who did not (Table 1). Studies on the relationship between sleep patterns and fatigue have shown that irregular sleep has a negative effect on fatigue (15, 16).

In the study, those with full satiety had higher PCS mean score and lower VAS-F mean score than those with hunger (Table 2). Regarding oral food intake restriction in labor, the American College of Obstetricians and Gynecologists (ACOG) suggest that pregnant women without complications can consume oral fluid without grains. Other studies support oral food intake during labor (17, 18). However, an oral liquid-solid food intake restriction policy is applied to women in the hospital where the study was conducted. There was no statistically significant relationship between the women's hunger levels at the time of birth and the length of the active phase of labor (Table 3). Other studies reported different results suggesting that oral liquid/food intake shortened or did not affect the duration of active labor phase (19-22). The most important cause of women's fatigue may be associated with routine restriction or interruption of food intake during labor.

In this study, the active phase duration of 66.7% of women who were given hydration (fluid support) during delivery was ≤5 hours, and the active phase duration was >5 hours in 33.3% of those who were not given hydration. The hydration given to the mother during labor did not affect the duration of the active labor phase (Table 3). The Institute for Clinical Systems Improvement (ICSI) reported that an administration of intravenous (IV) fluids during labor shortened delivery time (23, 24). The different result in the present study may be due to other factors that affect the duration of active labor phase. Labor induction affected the duration of active labor

phase (Table 3). Similar to this study, other studies have also reported that labor induction affects the duration of active labor phase (23,25).

The present study also found no statistically significant relationship between amniotomy, VAS-F and PCS scores and duration of active labor phase (p>0.05)(Table 2, Table 3). Another study supports this study result (26). The present study determined that episiotomy, a routine procedure administered to nulliparous women in the hospital where the study was conducted, did not affect the women's VAS-F and PCS scores (Table 2). Akgün and Duran Aksoy (2020) did not find a significant difference between the mean postpartum comfort questionnaire (PPCQ) scores of women who underwent episiotomy and those who did not. According to Yilmaz et al. (2021) stated that the comfort level of all women who underwent or did not undergo episiotomy was moderate, and there was no difference in terms of the mean postpartum comfort (PPC) score. This result of the study showed similarities with the studies (27, 28).

The duration of active labor phase statistically significantly differed according to the women's pushing performances. As the pushing performance increased the duration of active labor phase shortened. The self-pushing rate of women who had an active phase duration of ≤5 hours was 81.5%, indicating that those who exhibited less effort during labor could push the baby out more effectively (Table 3). The woman's pushing efforts facilitate the descent of the fetus into the pelvis. The woman's forceful pushing of the fetus shortens the second stage of labor. However, prolongation of labor and efforts to push the fetus for a long time cause fatigue in women (29).

There was a statistically significant relationship between the women's physical self-perception, perception of the environment, need for support and PCS scores (Table 3). Women who perceived the environment very uncomfortable had higher PCS scores. Akgün and Duran Aksoy (2020) found a positive and significant relationship between the postpartum comfort scores of mothers who expressed their general health status very well/well in their study (27). Capık et al. (2014) found that mothers who gave birth vaginally had higher postpartum physical and sociocultural comfort (4). Postpartum comfort is very important in terms of mothers' adaptation to the postpartum period and their roles.

The VAS-F mean scores of women who felt energetic or slightly tired or very tired were compared, the mean score of those who felt very tired was found to be significantly higher as expected (Table 4). The mean score in this study was higher than the mean score reported by Çapık et al. (2014) (4). Aktaş and Karaçam (2017) stated that many factors affect fatigue and that the postpartum fatigue level of mothers is high (8). Akgün and Duran Aksoy (2020) found a positive and significant relationship between the postpartum comfort scores of mothers who expressed their general health status as very good or good. The results of the study support the results of other studies (27). It is very important to support mothers with fatigue problems and to increase their comfort by easing their fatigue.

No statistically significant difference was found between the women's PCS mean scores according to duration of the second stage of labor (Table 4). A negative weak linear statistically significant relationship was found between the women's postpartum pain values and PCS scores (Table 4). According to this result, PCS scores decrease as women's postpartum pain values increase (30). Fatigue and pain are the most common problems faced by women in the early postpartum period (31). Factors such as pain and fatigue during and after birth affect the comfort of mothers negatively (4). According to Wilson and Kolcaba (2004), one of the most important factors influencing the decrease in physical comfort is pain (32). In the study conducted by Taylor and Johnson (2013), it was stated that postpartum fatigue in the first week of postpartum is associated with pain experienced in the last 24 hours. (33). In order to increase the postpartum comfort of the mother, interventions to reduce pain should be planned and implemented.

A positive, weak, linear, statistically significant correlation was found between postpartum pain scores of women and VAS-F scores. According to this finding, VAS-F scores increased as women's postpartum pain increased (Table 4). Troy reported that primiparous women are more likely to experience postpartum fatigue (34). Other studies show that postpartum fatigue is associated with postpartum pain (8,35,36). In parallel with the women's pain score, energy use increases, which causes the woman to feel more tired.

Friedman was the first to describe the progress of primiparous women in the active phase as 1.2 cm/hour (2). In the literature, different results have been given regarding the duration of the active birth phase (37, 38, 39). In this study, the shortest and longest periods of active labor were 2 and 14 hours, respectively. The mean duration of the active phase was 5.00±1.88 hours, which was very close to the time reported by Coşkun and Ünal (5.11 hours) (40).The relationship between pain and fatigue in mothers in the early period is thought to be related to the birth process.

5. CONCLUSION

As a result of the study, from the women's obstetric and demographic characteristics; feeling tired all the time, feeling safe in the environment and need for support during labor affected postpartum comfort. Medical interventions applied during labor did not affect postpartum comfort. The duration of the active labor phase did not affect postpartum comfort.

As a result: Relevant interventions should be made to relieve pain and fatigue of pregnant women in order to increase their comfort during childbirth and postpartum period. Ineffective applications should be excluded from routine labor interventions. The effect of hunger and satiety status of women should be examined in detail and, unless necessary, oral food intake should not be restricted during labor. The

reliability of the results should be increased by repeating the study with a larger sample.

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