ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

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The Effect of the Care Provided Based on Self-Care Model of Orem on Self-Care Agency and Frequency of Nursing Diagnoses in Pregnant Women with Threat of Preterm Birth

Erken Doğum Tehdidi Olan Gebelerde Orem'in Özbakım Modeline Göre Verilen Bakımın Özbakım Gücüne ve Hemşirelik Tanılarının Sıklığına Etkisi

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ABSTRACT Objective: This study was conducted to evaluate the effect of the care, provided based on the self-care model of Orem, on self-care agency and frequency of nursing diagnoses in pregnant women with threat of preterm birth. **Material and Methods:** The study was conducted as pretest-posttest quasi-experimental model with control group between March 2010 and 2011. Approval of ethics committee and official permission from related institution were received and written consents and voluntary participation of the pregnant women were taken into consideration. The study was conducted with a total of 80 pregnant women randomly selected as 40 pregnant women in the experimental group and 40 pregnant women in the control group. The data were collected by using "Personal Information Form", "High-Risk Pregnancy Follow-up Form", and "Self-Care Agency Scale" (SCAS). The pretest and interim test data were collected in the hospital. The care for nursing diagnoses was provided by paying five clinical visits to the pregnant women. The posttest data were collected through home visit one month after they were discharged. Percentage, mean, Cronbach Alpha coefficient analysis, McNemar test, and analysis of variance were used to assess the data. **Results:** It was found that nursing diagnoses after the care provided for the need were significantly lower in pregnant women of the experimental group compared to those in the control group ($p<0.05$). Furthermore, the pregnant women in the experimental group had a significantly higher self-care agency than the pregnant women in the control group ($p<0.05$). **Conclusion:** The care provided based on the self-care model of Orem decreased the nursing diagnoses and increased self-care agency in pregnant women with threat of preterm birth.

Keywords: Self care; obstetric labor, premature

ÖZET Amaç: Erken doğum tehdidi olan gebelerde Orem'in Özbakım Modeline göre verilen bakımın özbakım gücüne ve hemşirelik tanılarının sıklığına etkisini değerlendirmektir. **Gereç ve Yöntemler:** Araştırma, Mart 2010 Mart 2011 tarihleri arasında kontrol gruplu ön-test-son test yarı deneme modeli olarak gerçekleştirilmiştir. Etik kurul onayı ve ilgili kurumdan resmi izin alınmış, gebelerin yazılı onamları ile gönüllü katılımları dikkate alınmıştır. Rastlantısal olarak seçilen 40 deney, 40 kontrol grubunda olmak üzere toplam 80 gebe ile çalışılmıştır. Verilerin toplanmasında, "Kişisel Bilgi Formu" "Riskli Gebe İzlem Fomu" ve "Özbakım Gücü Ölçeği" kullanılmıştır. Ön test, ara test verileri hastanede toplanmıştır. Hemşirelik tanılarına yönelik bakım gebelere yapılan beş klinik ziyaret ile gerçekleştirilmiştir. Son test verileri, taburculuktan bir ay sonra ev ziyareti yapılarak toplanmıştır. Veriler, yüzdelik, ortalama, Cronbach Alpha katsayı analizi, McNemar testi ve varyans analizi ile değerlendirilmiştir. **Bulgular:** Kontrol grubundakilere göre deney grubundaki gebelerde, gereksinime yönelik verilen bakım sonrasında hemşirelik tanıları önemli düzeyde daha az saptanmıştır ($p<0,05$). Ayrıca, deney grubundaki gebelerin kontrol grubundaki gebelere göre özbakım gücünün önemli düzeyde daha yüksek olduğu belirlenmiştir ($p<0,05$). **Sonuç:** Orem'in özbakım Modeli'ne göre verilen bakım, erken doğum tehdidi olan gebelerde hemşirelik tanılarını azaltmış ve özbakım gücünü arttırmıştır.

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Anahtar Kelimeler: Özzbakım; obstetrik doğum, prematüre

Preterm birth, defined as birth occurring prior to 37 weeks of gestation, occurs in around 5% to 10% of all pregnancies.[1] Preterm birth has serious effects on mother, child and society, which makes preterm birth an important issue to public health worldwide.[2] Being the leading cause of perinatal morbidity and mortality preterm birth is one of the leading causes of infant mortality. Despite the improvement in survival rates of preterm neonates, they are at increased risk of long-term neurodevelopmental disabilities and respiratory and gastrointestinal complications.[3] Approximately 18% of pregnant women each year in the United States will be placed on bed rest sometimes during their pregnancies.[4] The incidence of preterm birth in Turkish population is reported to be between 5-5.7%.[2,5,6]

Bed rest in hospital or at home is widely recommended for the prevention of preterm birth, and is the first step of treatment in many obstetrics text books. This advice is based on the observation that hard work and hard physical activity during pregnancy could be associated with preterm birth, as well as the idea that bed rest could reduce uterine activity. On the other hand, bed rest may have some adverse effects on other outcomes.[1] When the body is placed in the supine position, a series of physiological events occurs to help the body to adapt to the change in position. Change in body hydrostatic gradients and alteration in skeletal loading of weight-bearing tissues rapidly initiate a cascade of physiological changes in every major organ system. There is a redistribution of body fluids toward the head. Alterations occur in the cardiovascular/cardiopulmonary, fluid and electrolyte, hormonal, hematologic, musculoskeletal, and neurosensory and vestibular systems. These physiological alterations result in symptoms that can become disabling across the bed rest and recovery periods. For example, reduced loading and disuse of weight-bearing muscles lead to both muscle atrophy and bone demineralization.[7] Researchers conducted two studies on antepartum physical and psychosocial symptoms during hospital bed rest among women with either a singleton or multiple pregnancy.[8,9] The number of symptoms weekly reported by women treated with bed rest during hospitalization was significantly higher (M=9 per week) compared to a healthy control group and did not change throughout the treatment. The most common symptoms were fatigue, back muscle soreness, sleep cycle changes, round ligament pain, dry lips, nasal congestion, reflux, indigestion, mood changes, tenseness, and boredom.

Bed rest may be stressful for women and their families, inducing ambivalent feelings about the pregnancy, or selfblame feelings in case of failure to comply with the prescription.[1] Several studies have investigated maternal antepartum stress and the effect of hospital bed rest on the family. Maternal stress is high during hospitalization, with the primary sources of stress as separation from and concerns for the family at home, negative emotions, self-image, and health status.[7-9]

Bed rest may increase costs for the families, directly because of the expenses for the care of other children, or indirectly through job absenteeism. Lastly, it may also increase healthcare costs.[1]

In fact, there are increasing evidences that bed rest causes several adverse physiological and psychological side effects in women and their infants.[7] Some of these physiological and psychological side effects experienced in the antenatal period due to bed rest may develop when the individual cannot meet her own self-care needs sufficiently. When self-care is effectively performed, it helps to maintain structural integrity and human functioning and contributes to human development.[10] Self-care is performed based on the individual's self-care agency. Self-care agency is viewed as influencing self-care and, in turn, self-care is viewed as influencing health outcomes.[11] The role of the nurse is to take deliberate action related to the operations necessary to design, plan, implement, and evaluate systems of therapeutic self-care for individuals and multi-person units who have limited abilities to be self-care agents.[12]

In this study; the conceptual framework of Orem's self-care theory was taken as a guide and NANDA nursing diagnoses were used. In 1953, V. Fry introduced the term of nursing diagnosis to de-

scribe a step necessary in developing a nursing care plan. Nursing diagnosis is a clinical judgement about individual, family, or community responses to actual or potential health problems/life processes. Nursing diagnosis provides the basis for selection of nursing interventions to achieve outcomes for which the nurse is accountable.[13]

SELF-CARE FRAMEWORK

Orem's self-care model was used to guide the study. The conceptual elements of the theory are self-care, self-care agency, and self-care requisites. Self-care is an enduring system of actions produced by or for persons from birth to death through the performance of care actions and action sequences. The persons' powers and capabilities for action are referred to collectively as their agency. Self-care agency includes (a) operational powers specific to performing estimative, transitional, and productive result-seeking operations of self- care; and (b) the capabilities and dispositions essential to performing them. Self-care requisites are those actions that are required to maintain human functioning and human development and give rise to the development and activation of self-care agency.[14] Therapeutic self-care demand summarizes all of the actions required over time to meet known self-care requisites. A self-care requisite expresses the goals of action necessary for regulating an aspect(s) of human functioning and development. There are three categories of self-care requisites or goals of self-care: universal category, which is common to all persons (Figure 1) developmental category, which is particular to the person's developmental stage; and health deviation, which addresses particular health states.[14]

Orem's self-care deficit nursing theory is particularly valuable for examining disease prevention and health promotion because of its emphasis on individual responsibility for both activities and on nursing assistance when deficits in self-care occur.[15] Orem's theory provides common language leading to improved communication and enhances consistency in care delivery and consensus about goals and outcomes of nursing. Nurses are in key positions to facilitate the achievement of self-care which requires sophisticated communication skills, teaching skills, specialized knowledge and an

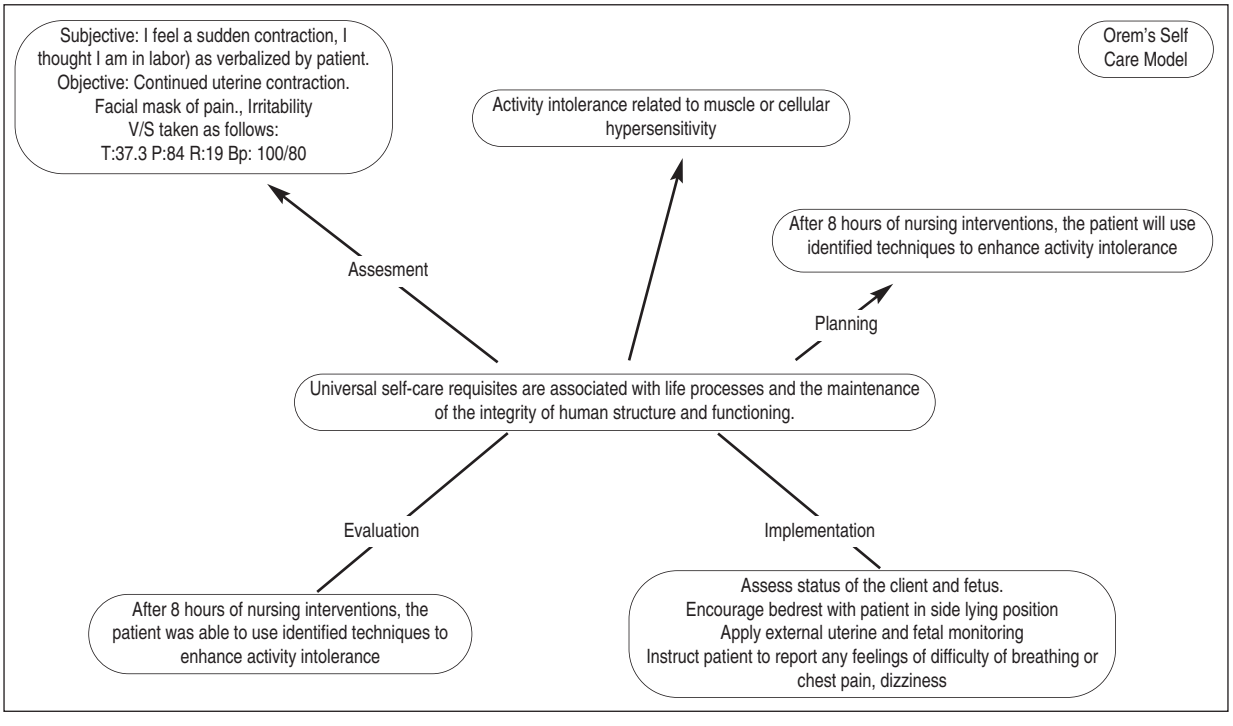

FIGURE 1: Orem's model and nursing process.

awareness of the multiple factors affecting nurse-patient relationship during the provision of care.[11] In line with this fact, problems that pregnant women may experience in this period due to bed rest may be prevented or resolved by providing qualified follow-up and care services for pregnant women staying at hospitals due to threat of preterm birth. Therefore, it can be ensured that pregnant women get through their pregnancies without problems and their self-care agencies gain strength.

THE RESEARCH HYPOTHESES

Hypothesis 1: The care provided for pregnant women diagnosed with preterm birth by using Orem's Self-Care Model reduces the frequency of nursing diagnoses of pregnant women.

Hypothesis 2: The care provided for pregnant women diagnosed with preterm birth by using Orem's Self-Care Model increases self-care agency of pregnant women.

MATERIAL AND METHODS

Design: This study is conducted as pre-test post-test quasi-experimental model with control group.

Sample: The study was conducted between March 2010 and March 2011 in the obstetrics and gynecology clinic of a university hospital located in a city in the Eastern Anatolia Region in Turkey and at houses of pregnant women diagnosed with preterm birth. The pregnant women, who were diagnosed with preterm birth, and were open to communication and cooperation, were included in the study. The women, who were diagnosed with fetal anomalies during their pregnancies and had multiple gestations, were not included in the study. The population of the study consisted of the pregnant women who were diagnosed with preterm birth and were staying in the above-mentioned clinic. The sample group consisted of totally 80 women, including 40 women in the experimental group and 40 women in the control group, with an effect size of 0.8 and a significance level of 0.05 according to the power analysis. The sample group's level of representing the population was 0.94. The pregnant women in the experimental group were included in the study at first, followed by the pregnant women in the control group. Since 6 women in the experimental group and 13 women in the control group had preterm births, post-test data were completed with 34 women in the experimental group and 27 women in the control group.

INSTRUMENTS

The data were collected by using "Personal Information Form", "High-Risk Pregnancy Follow-up Form", and "Self-Care Agency Scale" (SCAS). The Personal Information Form was prepared by the researcher and involved socio-demographic characteristics of the pregnant women. High-Risk Pregnancy Follow-up Form was prepared by the researcher based on Orem's self-care model in line with the literature.[10,11,14] This form consisted of questions determining nursing diagnoses that include the universal self-care needs, self-care needs in case of health deviation, and developmental self-care needs.

The Exercise of Self-Care Agency Scale (ESCAS) (Kearney and Fleischer, 1979) developed based on Orem's self-care theory has been found to have high reliability and validity in several international studies. It is a 43-item, self-report instrument used to measure an individual's ability to engage in self-care activities.[16] This scale was adapted into the Turkish society by Nahcivan and arranged as 35 items.[17] Each item is scored from 0 to 4 and assessed in accordance with answers given on the basis of 5-point likert scale. The answer of *'never defines me'* is given score 0, the answer of *'hardly defines me'* is given score 1, the answer of *'I have no idea'* is given score 2, the answer of *'partially defines me'* is given score 3, and the answer of *'strongly defines me'* is given score 4. In the scale, the items 3, 6, 9, 13, 19, 22, 26, and 31 are assessed negatively and the scoring is reversed. While the lowest score to be obtained from the scale is 35, the highest score is 140. High scores signifies high self-care agency. The scale's Cronbach alpha coefficient was determined as 0.89. Cronbach alpha coefficient in this study was determined as 0.95 in the experimental group and 0.75 in the control group.

DATA COLLECTION

The data were collected by the researcher in the hospital through face-to-face interviews when pregnant women were staying in the obstetrics and gynecology clinic and in home visits during and one month after discharge from the hospital. *Pre-test data* of the pregnant women in the experimental and control groups were collected in the hospital by using Personal Information Form, SCAS, and High-Risk Pregnancy Follow-up Form. The pretest data were taken just after the pregnant women were hospitalized.

Interim test data were collected in the hospital by using High-Risk Pregnancy Follow-up Form and SCAS. Three visits were performed per week so long as the pregnant women were hospitalized and interventions intended to the determined diagnosis were performed. After the first three visits, the requirements were determined by performing two or three visits per week according to the status of the pregnant woman and the care was given accordingly. The interim test data were taken one week after the interventions were started. The care for nursing diagnoses was provided by paying five clinical visits to the pregnant women.

The posttest data were collected one month after they were discharged as pregnant". P*ost-test data* were collected in home visits one month after discharge from the hospital by using High-Risk Pregnancy Follow-up Form and SCAS (Figure 2). The care provided for Orem's Self-Care needs was evaluated according to NANDA (North American Nursing Diagnosis Association) nursing diagnoses. Interventions were performed according to the specified diagnoses every day during the stay of pregnant women in the experimental group in the hospital and in home visits one month after discharge from the hospital. All care-oriented visits were provided in the clinic where the women stayed. New nursing diagnoses were specified in each visit by using High-Risk Pregnancy Follow-up Form and old diagnoses were evaluated. Nursing care was provided according to the appearing new diagnoses. The post-test was applied by paying only one home visit (without providing care). An appointment was made for the next interview at the end of each visit (Figure 2).

NURSING CARE

Nursing diagnoses for the nursing care provided to pregnant women in the experimental group were determined according to Orem's self-care requisites. Among the nursing diagnoses grouped according to Functional Health Patterns that were approved by NANDA (North American Nursing Diagnosis Association), the ones that were convenient for the individual were used during the diagnosis. In nursing interventions, on the other hand, the nursing process was used. Inspection Form for Risky Pregnant Women was used for evaluation of the results of nursing intervention. The evaluation of '*there is no problem'* symbolizing that the objective is attained for the determined diagnosis was used in case that the problem was solved and the evaluation of '*there is a problem'* symbolizing that the present problem continues was used in case that the problem was not solved.

No intervention was performed on pregnant women in the control group except for the routine care provided in the hospital.

Analysis: Coding and assessment of the data were performed in computer environment through the SPSS 11.0 package program. Percentage, arithmetic mean and standard deviation, independent samples t test, dependent samples t test, Chi-square test, McNemar test, and Mauchly's test were used to assess the data.

ETHICAL ASPECT OF THE STUDY

Before commencing the study, written permissions were obtained from the hospital where the study would be conducted. Ethical approval for the study protocol, which adhered to the principles of the Declaration of Helsinki, was obtained from the ethical council of the university prior to the study (IRB No.CMUH-2010.3-1/5). Before starting to collect the data of the study, women were informed about the processes to be performed during the study and those who were voluntary were included in the study. The participants provided their written informed consent, in accordance with the Declaration of Helsinki. The women were informed that they could leave the study anytime and the information obtained and the identities of responders would be kept confidential.

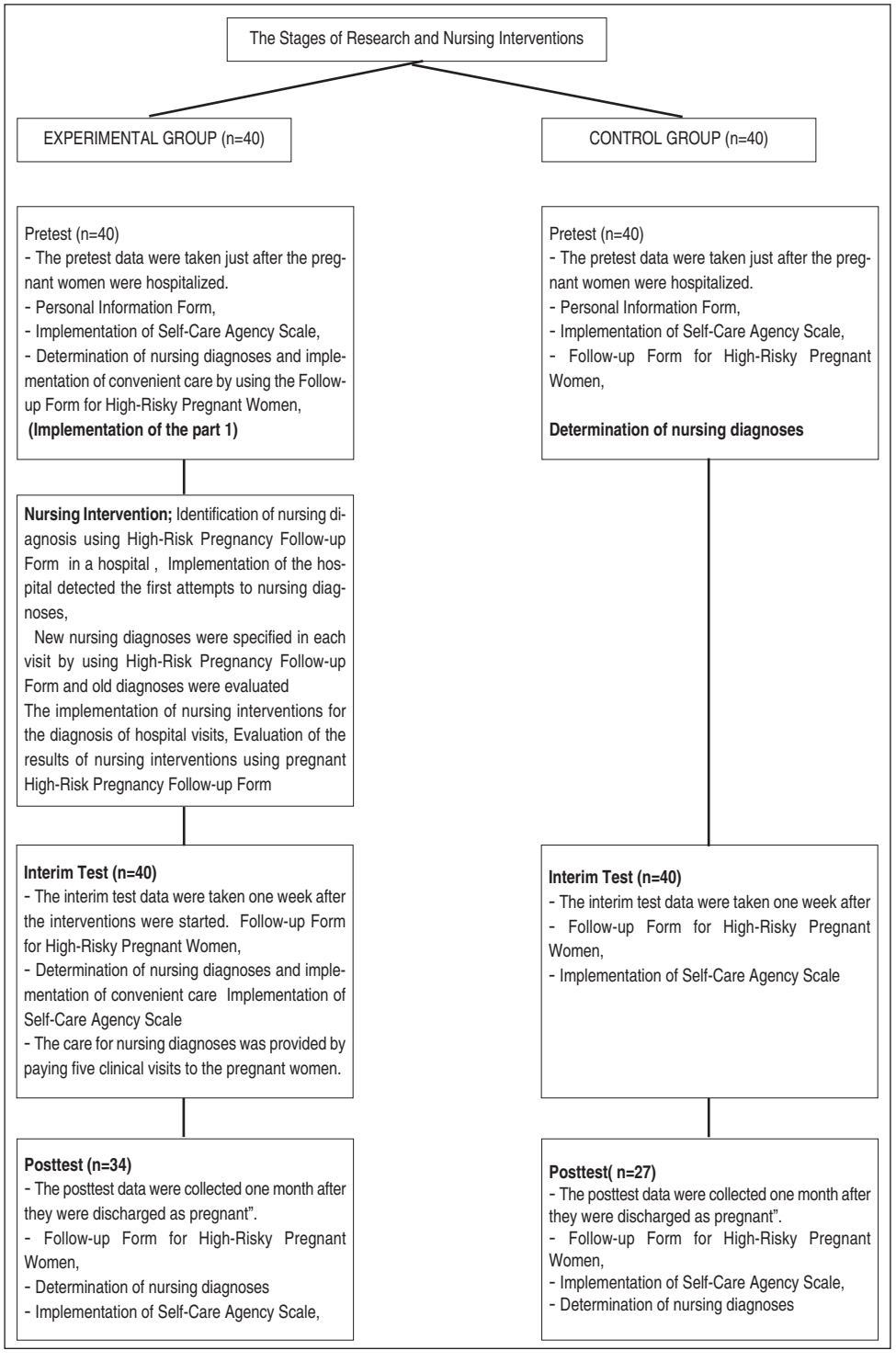

FIGURE 2: The stages of research and nursing interventions.

RESULTS

It was determined that the average age of pregnant women in the experimental group was 27.05±5.27, 45% of them were primary school graduates, 77.5% were unemployed, 70% had 1-2 child(ren), and 70% had births in weeks 37-41 (Table 1).

It was determined that the average age of pregnant women in the control group was 27.62±5.02, 65% of them were primary school graduates, 92.5%

TABLE 1: Characteristics of women in the experimental and control groups

	Experimental Group (n=40)		Control Group (n=40)		Total (n=80)		
Characteristics	**N**	**%**	**N**	**%**	**N**	**%**	**Test and p**
Age group (year)							
19-29	30	75	29	72.5	59	73.8	X^2=18.16.
30-40	10	25	11	27.5	21	26.3	p=0.705
Education level							
Primary school	18	45	26	65	44	55	
Secondary school	6	15	5	12.5	11	13.8	X^2=5.38
High school	5	12.5	5	12.5	10	12.5	p=0.421
University	11	27.5	4	10	15	18.8	
Employment condition							
Employed	9	22.5	3	7.5	12	15	X^2=3.20
Unemployed	31	77.5	37	92.5	68	85	p=0.952
Gravidity							
Primigravida	22	55	18	45	40	50	X^2=0.85
Multigravida	18	45	22	55	40	50	p=0.542
Number of children							
1-2	28	70	27	67.5	55	68.8	X^2=0.17
3-4	12	30	13	32.5	25	31.3	p=0.704
Week of pregnancy							
25-27 week	6	15	3	7.5	9	13.3	X^2=9.85
28-30 week	16	40	10	25	26	32.5	p=0.066
31-33 week	18	45	27	67.5	45	56.3	
Duration of stay in hospital							
8-14 day	16	40	30	75	46	57.5	
15-21 day	16	40	4	10	20	25	X^2=0.17
22-28 day	0	12.3	3	7.5	3	3.8	p=0.087
29 and day	8	20	3	7.5	11	13.8	
Gestational age in delivery							
28-36 week	12	30	8	20	20	25	X^2=0.94
37-41 week	28	70	32	80	60	75	p=0.256

were unemployed, 67.5% had 1-2 child(ren), and 80% had births in weeks 37-41 (Table 1).

The difference between the experimental and control groups was not statistically significant and the groups had similar characteristics in terms of variables ($p > 0.05$, Table 1). Five interviews were made with pregnant women during the antenatal period within the study and a total of 25 nursing diagnoses were made. 9 of these diagnoses involved universal self-care needs, 7 involved self-care needs in health deviations, and 9 involved developmental self-care needs.

The frequency of fluid volume deficiency, inadequate feeding, sleep disorder, social isolation, and information deficit (feeding) diagnoses among the diagnoses specified before the care provided for universal self-care needs of pregnant women in the experimental group reduced after the care and the difference before and after care was found to be statistically significant ($p<0.05$) (Table 2).

The difference between the frequencies of sleep pattern disorder diagnosis among the universal self-care needs in pre-test and post-test interviews of pregnant women in the control group was statistically significant ($p<0.05$); whereas, the difference between all other diagnoses was not significant ($p>0.05$) (Table 2).

TABLE 2: Comparison of Distribution of NANDA Nursing Diagnoses of the Experimental and Control Groups According to 'Universal Self Care determined during Pretest-Posttest Antenatal Interviews (n=80).*

	Experimental Group (n=40)								Control Group (n=40)								Comparisons Experimental and Control Groups	
	Before Care				After Care				Pre Test				Post Test					
	Available		N/A		Available		N/A		Available		N/A		Available		N/A		Pretest	Posttest
Nursing Diagnosis	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**p****	**p*****
Deficient fluid volume	16	40.0	24	60	1	2.9	33	97.1	17	42.5	23	57.5	14	51.9	13	48.1	.207	.002
				*p=.000								*p=.286						
Inadequate feeding	13	32.5	27	67.5	3	8.8	31	91.2	14	35	26	65	9	33.3	18	66.7	.814	.001
				*p=.001								*p=.019						
Constipation	9	22.5	31	77.5	5	14.7	29	85.3	8	20	32	80	11	40.7	16	59.3	.786	.002
				*p=.480								*p=.405						
Disturbed sleep pattern	6	15	34	85	2	5.9	32	94.1	6	15	34	85	15	55.6	12	44.4	.642	.001
				*p=.003								*p=.001						
Activity intolerance	15	37.5	25	62.5	12	35.3	22	64.7	19	47.5	21	52.5	8	29.6	19	70.4	.369	.642
				*p=.289								*p=.450						
Fatigue	18	45	22	55	7	20.6	27	79.4	11	27.5	29	72.5	11	40.7	16	59.3	.106	.089
				*p=.064								*p=.257						
Social isolation	20	50	20	50	3	8.8	31	91.2	14	35	26	65	8	29.6	19	70.4	.496	.004
				*p=.001								*p=.400						
Information deficit (feeding)	17	42.5	23	57.5	4	11.8	30	88.2	9	22.5	31	77.5	9	33.3	18	66.7	.641	.007
				*p=.000								*p=.345						
Loneliness	17	42.5	23	57.5	8	23.5	26	76.5	26	65	14	35	20	74.1	7	25.9	.145	.001
				*p=.225								*p=.223						

* p McNamer test was applied; ** p Comparison of the distribution of nursing diagnoses of the Experimental and Control Groups that were determined before care; *** p Comparison of the distribution of nursing diagnoses of the Experimental and Control Groups that were determined after care.

Frequencies of diagnosis in all diagnoses specified before the care aimed at the health deviations self-care needs of pregnant women in the experimental group decreased after the care and the difference before and after the care was statistically significant ($p<0.05$) (Table 3).

While the difference between the frequency of change of comfort (headache) diagnosis, which was one of the self-care needs of pregnant women in the control group, in health deviations in pre-test and post-test interviews, was statistically significant ($p<0.05$), the difference between all other diagnoses was not significant ($p>0.05$) (Table 3).

The frequency of diagnoses of the risk of infection (perineum, urinary), maintenance of health risk, lack of knowledge (preterm labor), risk of anxiety, insufficiency in organizing activities and risk of change in family processes, among the diagnoses specified for the developmental self-care needs of pregnant women in the experimental group decreased after care and the difference before and after care was statistically significant ($p<0.05$) (Table 4).

While the difference between the diagnosis frequencies of the risk of change in familial processes, among the developmental self-care needs of pregnant women in the control group in their pre-test and post-test interviews ($p<0.05$) was statistically significant, the difference between all other diagnoses was not significant ($p>0.05$), (Table 4).

It was determined that the difference between mean scores of self-care agency obtained by pregnant women in the experimental and control groups during the pretest was statistically insignificant ($p>0.05$). It was also found that the difference between self-care agency mean scores of the experimental and control groups in the interim test and posttest was statistically significant ($p<0.05$), (Table 5).

DISCUSSION

Nine nursing diagnoses for universal self-care needs were made in this study. As a consequence of the performed nursing interventions, the frequencies of four diagnoses decreased after care in the experimental group. Constipation, activity intolerance, fatigue, and loneliness diagnoses among diagnoses made related to the universal self-care needs were not totally eliminated despite the nursing interventions performed in accordance with the diagnoses in all interviews during the pregnancy period (Table 2).

The inability to eliminate constipation may be associated with pregnant women's staying in bed throughout the day, growing uterus, and the pressure made on the bowels by the fetus. It was reported in studies that pregnant women had complaint of constipation due to bed rest.[18] Constipation has been reported to have reached to the rate of 40% in various phases of pregnancy.[19]

The diagnosis of activity intolerance (Table 2) continued during the antenatal period. This is thought to be caused by reasons such as the changes in the center of gravity towards the end of pregnancy, the long hours that pregnant women needed to stay in bed and feeling socially isolated in the hospital and at home.

The inability to eliminate fatigue may be associated with the long hours that pregnant women needed to stay in bed in the hospital and at home as well as staying in bed throughout the day. Additionally, sleep pattern disorders during pregnancy were thought to be contributing to fatigue. As night awakenings increase, deep sleep is interrupted and as a result of insufficient sleep, energy levels reduce and fatigue increases even more.[20] It was found by Beebe and Lee that the fatigue levels were higher among women who had insufficient sleep during their pregnancies.[21]

Regarding the diagnosis of loneliness; pregnant women were thought to be feeling lonely due to being in an unfamiliar atmosphere and leaving family behind after hospitalization and the feeling of being imprisoned at home due to stable bed rest, not having a spouse nearby and inability to see family and friends as often as desired. In a Canadian ethnographic study including 24 women treated with bed rest in the hospital, home, or both, women reported experiencing excruciating bore-

TABLE 3: Comparison of Distribution of NANDA Nursing Diagnoses of the Experimental and Control Groups According to 'Health Deviation Self Care' Requisites determined during Pretest-Posttest Antenatal Interviews (n=80).*

	Experimental Group (n=40)								Control Group (n=40)								Comparisons	
	Before Care				After Care				Pre Test				Post Test				Experimental and	
	Available		N/A		Available		N/A		Available		N/A		Available		N/A		Control Groups	
Nursing Diagnosis	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**p****	**p*****
Infection (urinary)	15	37.5	25	62.5	3	8.8	31	91.2	16	40	24	60	13	48.1	14	51.9	.820	.004
				*p=.006								*p=.454						
Changes in comfort (Pyrosis)	18	45	22	55	4	11.8	30	88.2	11	27.5	29	72.5	16	59.3	11	40.7	.106	.001
				*p=.008								*p=.144						
Changes in comfort- (headache)	17	42.5	23	57.5	7	20.6	27	79.4	14	35.0	26	65	19	70.4	8	29.6	.494	.001
				*p=.002								*p=.002						
Changes in comfort (ear, nose and fullness)	21	52.5	19	47.5	5	14.7	29	85.3	26	65	14	35	24	88.9	3	11.1	.045	.001
				*p=.008								*p=.102						
Changes in comfort (muscle weakness)	19	47.5	21	52.5	10	29.4	24	70.6	21	52.5	19	47.5	19	70.4	8	29.6	.657	.003
				*p=.003								*p=.317						
Changes in comfort (muscle pain)	18	45	22	55	11	32.4	23	67.6	16	40	24	60	17	63.0	10	37.0	.550	.004
				*p=.002								*p=.808						
Changes in comfort (sight hearing problems)	20	50.	20	50.	8	23.5	26	76.5	34	85	6	15.0	26	96.3	1	3.7	.002	.001
				*p=.005								*p=.317						

**p McNamer test was applied; ** p Comparison of the distribution of nursing diagnoses of the Experimental and Control Groups that were determined before care; *** p Comparison of the distribution of nursing diagnoses of the Experimental and Control Groups that were determined after care.

dom and a sense of loneliness in both settings.[22,23] It is reported in the literature that the interventions like supporting the family and friend visits, creating opportunities to maintain the integrity of family, environmental planning, consultancy given regarding the communications with healthcare team, provision of occupation, meeting the needs of training and consultancy are effective in elimination of stressors experienced in bed rest in hospital.[24,25]

It was observed in a study, that complaints like back pains, dry lip, headache, sleep problems were intensively experienced in pregnant women of control group on partial bed rest.[24] Different from the results of this study, results of the present study were found to be statistically significant in the diagnosis frequency of sleep disturbances in the evaluation of pretest and posttest results of the pregnant women in the control group. This may be associated with the fact that the pregnant women in the control group spared enough time for sleep after coming from hospital environment to home environment and their sleeps were not interrupted (Table 2).

When the groups were compared, it was determined that there were differences at significant level in favor of experimental group in all other diagnoses except for activity intolerance and fatigue (Table 2). It was observed a the study, that the majority of physical symptoms were experienced at less moderate/severe level in the pregnant women in intervention group on absolute bed rest compared to the control group. These results show parallelism with results of the present study.[24]

In the study of Ozkay and Coskun, headache caused a great number of similar complaints at moderate/severe level in pregnant women in the intervention and control groups on absolute bed rest.[24] It was also reported in the study of Maloni et al. that headache was the symptoms which resulted in complaints at most.[8] As different from results of both studies, the results of the present study revealed that change in rest (headache) was statistically significant in diagnosis frequency compared to in comparison of pretest and posttest results of pregnant women in the control group (Table 3). When pregnant women in the control group were taken to the home environment, the fact that they moved from the hospital's stressful atmosphere to their own living spaces may have affected frequency of the change of comfort (headache) diagnosis.

The diagnosis of change risk in role performance among the diagnoses established for developmental self-care requirements in experimental group was not eliminated (Table 4).The reason behind why this diagnosis of change risk in role performance was not eliminated was that leaving family behind was the biggest source of stress for the pregnant women staying in bed in the hospital. Most problems on this subject appear due to the woman's role within the family. When mothers stay in hospitals, they feel anxious about the care of the children at home and the spouse who takes on this responsibility. The feeling of guilt, 'I am neglecting my children', related to the activity limitation at home may be associated with the inability of both the mother and the spouse to receive sufficient support to reorganize the house's order.[26]

The diagnosis of ineffective management of therapeutic regime was established in all interviews in the pregnancy period. Nursing care was provided in accordance with this diagnosis and the diagnoses significantly reduced.

It was determined that the change in the process of family was statistically significant in diagnosis frequency in comparison of pretest and posttest results of pregnant women in control group (Table 4). As different from results of the present study, it was found in a study, that the hospital stressors consisting of subgroups of separation, environment, emotional state, family situation were experienced less frequently in the pregnant women of the intervention group on absolute bed rest in hospital than the control group.[24] This result may be associated with the fact that the pregnant women in the control group were discharged from the hospital, and they moved back to their home atmosphere after the hospital as well as the time spent between pre-test and post-test and the

TABLE 4: Comparison of Distribution of NANDA Nursing Diagnoses of the Experimental and Control Groups According to 'Developmental Self-Care' Requisites determined during Pretest-Posttest Antenatal Interviews (n=80).

	Experimental Group								Control Group								Comparisons	
	Before Care				After Care				Pre Test				Post Test				Experimental and	
	Available		N/A		Available		N/A		Available		N/A		Available		N/A		Control Groups	
Nursing Diagnosis	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**S**	**%**	**p****	**p*****
Inadequate therapeutic regime	13	32.5	27	67.5	9	23.5	25	73.5	20	50	20	50	19	88.9	8	11.1	.114	.002
				*p=.218								*p=.064						
The risk of infection (perineum)	9	22.5	31	77.5	3	8.8	31	91.2	8	20	32	80	2	7.4	25	92.6	.820	.001
				*p=.004								*p=.317						
The risk of infection (urinary)	6	15	34	85	1	2.9	33	97.1	6	15	34	85	8	29.6	19	70.4	.824	.001
				*p=.003								*p=.454						
Maintenance of health risk	23	57.5	17	42.5	4	11.8	30	82.2	28	70	12	30	21	77.8	6	22.2	.494	.001
				*p=.000								*p=.243						
Lack of Knowledge (Preterm labor)	30	75	10	25.0	5	2.1	29	87.9	29	72.5	11	27.5	17	73.9	10	26.1	.641	.007
				*p=.000								*p=.055						
Risk of Anxiety	32	80	8	20.0	8	23.5	26	76.5	38	95	2	5.0	25	92.6	2	7.4	.004	.000
				*p=.000								*p=.068						
Risk of Change in the Role Performance	17	42.5	23	57.5	13	38.2	21	61.8	25	62.5	15	37.5	19	70.4	8	29.6	.075	.005
				*p=.796								*p=.075						
Inadequacy in Organizing the Activities	21	52.5	19	47.5	7	20.6	27	79.4	24	60	16	40	20	74.1	7	25.9	.502	.001
				*p=.001								*p=.835						
Risk of Change in Family Processes	23	57.5	17	42.5	3	8.8	31	91.2	20	50	20	50	24	88.9	3	11.1	.504	.001
				*p=.000								*p=.000						

* pMcNamer test was applied; ** p Comparison of the distribution of nursing diagnoses of the Experimental and Control Groups that were determined before care; *** p Comparison of the distribution of nursing diagnoses of the Experimental and Control Groups that were determined after care; **** It was taken as a nursing diagnosis and presence of requisites was considered a problem.

TABLE 5: Comparison of Mean Scores Obtained from Repetitive Measurements of Self-Care Agency Scale Performed on Pregnant Women in the Experimental and Control Groups

	Experimental group	Control group		
Self-Care Agency	X ± SD	X ± SD	Test and P value	
Pre- test	105.47±18.07	97.87±15.77	t=2.003	p>.055
Interim test	113.80±14.86	95.85±16.55	t=5.103	p<.000
Post-test	121.17±13.58	96.62±18.60	t=5.955	p<.000
Test and P value	mauchly's w=984 p=.000	mauchly's w=761 P=.686		

performance of the post-test at home. Because pregnant women were with their families, there may have been a decrease in the frequency of diagnosis of change in the familial process. This may have caused a statistical difference between the pre-test and post-test.

In consequence of nursing care provided to the experimental group according to self-care model of Orem, it was effective in decreasing frequency of most nursing diagnoses related to, universal, health deviation and developmental self-care needs. In their study, Oskay and Coskun concluded that the comprehensive nursery care, training and consultancy provided in decreasing and eliminating physical and psychological complaints and experienced hospital stressors of pregnant women with high risk on absolute and partial bed rest at the hospital were effective in elimination of a great number of problems.[24] The results of the present study are similar to the results of this study. The elimination of most nursing diagnoses related to self-care needs showed the efficiency of the care provided in accordance with Orem's self-care model. As a result of the care provided for pregnant women in the antenatal period based on Orem's self-care model, it was determined that the pregnant women experienced less problems in the antenatal period. This result showed that the hypothesis "The care provided for pregnant women diagnosed with preterm birth by using Orem's Self-Care Model reduces the frequency of nursing diagnoses of pregnant women" was verified. Similarly, in the studies conducted by Nazik and Eryılmaz by using Apay and Pasinlioğlu's model it was determined that the care provided in the postpartum period prevented/reduced postpartum complications.[27,28] Care outcomes were more effective and more systematic in studies conducted with models. In the solution of systematic nursing diagnoses and model-based care approach diagnosed problems, stronger results are achieved compared to the ordinary nursing care. This study result is an evidence for strengthening this perception.

In this study, when the groups were compared, it was found that posttest self-care agency mean score of the pregnant women were higher than pretest self-care agency mean score in favor of the experimental group. We are of the opinion that the care provided to the experimental group increased the self-care agency of pregnant women. This result showed that the hypothesis 'The care provided for pregnant women diagnosed with preterm birth by using Orem's Self-Care Model increases self-care agency of pregnant women' was verified.

CONCLUSION

As a result of the care provided by using Orem's self-care model, frequencies of most of the diagnoses made in the pregnancy period decreased. When the frequencies of diagnoses made of pregnant women in the experimental and control groups in the post-test were compared; the difference between the frequencies of most diagnoses was found to be statistically significant. Constipation, disturbed sleep, fluid volume deficiency, infection (urinary), change in comfort (pyrosis, headache, muscle weakness), lack of knowledge, and anxiety risk could be given as examples. Based on this result, it could be asserted that the group receiving the care had less problem.

Self-care agency among the pregnant women in the control group did not change while the self-care agency among the pregnant women in the experimental group increased. In line with these results; pregnant women diagnosed with preterm birth may be recommended with care to be provided by using Orem's self-care model.

LIMITATIONS OF THE STUDY

The important limitation of the study was that since 6 pregnant women in the experimental group and 13 pregnant women in control group gave preterm birth the posttest data were completed with 34 pregnant women in the experimental group and 27 pregnant women in the control group.

Conflict of Interest

Authors declared no conflict of interest or financial support.

Authorship Contributions

Meral Kılıç and Behice Erci were responsible for the study conception and design and the drafting of the manuscript. Meral Kılıç and Behice Erci performed the data collection and data analysis. Meral Kılıç and Behice Erci made critical revisions to the paper. Behice Erci provided statistical expertise. Behice Erci supervised the study.

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