Araştırma Makalesi – Original Article

The Effect of Education Given to Pregnant Women on Constipation-related Quality of Life and Severity of Constipation*

Konstipasyon Yaşayan Gebelere Verilen Eğitimin Kabızlık Yaşam Kalitesi ve Kabızlık Ciddiyeti Üzerine Etkisi

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ABSTRACT

Aim: The purpose of this study was to investigate the effects of education provided to pregnant women with complaints of constipation on their constipation-related quality of life and constipation severity.

Methods: This randomized controlled experimental study consisted of an intervention group (n:32) and a control group (n:32). The data were collected by using a Personal Information Form, the Constipation Severity Instrument and the Patient Assessment of Constipation Quality of Life Questionnaire. In data analysis, frequency and percentage calculations, chi-squared, Student's t-test or Mann-Whitney U test and Person's correlation analysis were used.

Results: After the education, the pregnant women in the intervention group had a lower mean total PAC-QOL score (49.42±4.19) and a lower mean total CSI score (19.40±2.62) than those in the control group (respectively, 74.00±5.47; 39.45±3.21) ($p<0.001$). Accordingly, the pregnant women who received constipation education had fewer constipation symptoms and higher levels of constipation-related quality of life. It was determined among all participants that, as the severity of constipation symptoms decreased, their quality of life increased ($p<0.01$).

Conclusions: As a result of the education provided to the pregnant women experiencing complaints of constipation, the pregnant women's constipation-related complaints significantly decreased, and their constipation-related quality of life increased. Nurses are recommended to provide pregnant women experiencing constipation with constipation-related evidence-based care and education.

Keywords: Pregnancy, Constipation, Education, Constipation-Related Quality of Life, Constipation Severity.

ÖZ

Amaç: Bu araştırmanın amacı konstipasyon şikayeti olan gebe kadınlara verilen eğitimin kabızlık yaşam kalitesi ve kabızlık ciddiyeti üzerine etkisini incelemekti.

Yöntem: Bu randomize kontrollü deneysel çalışma, bir deney (n:32) ve bir kontrol (n:32) grubundan oluşmaktadır. Veriler, Kişisel Bilgi Formu, Kabızlık Şiddet Ölçeği ve Kabızlık Yaşam Kalitesi Ölçeği kullanılarak toplanmıştır. Verilerin analizinde frekans ve yüzde hesaplamaları, ki-kare, Student's t-testi veya Mann-Whitney U testi ve Person's korelasyon analizi kullanılmıştır.

Bulgular: Eğitim sonrası girişim grubundaki gebelerin Kabızlık Yaşama Kalitesi Ölçeği toplam puan ortalaması (49.42±4.19) ve Kabızlık Ciddiyeti Ölçeği toplam puan ortalaması (19.40±2.62), kontrol grubundaki gebelerden daha düşüktü, sırayla (74.00±5.47; 39.45±3.21) ($p<0.001$). Buna göre kabızlık eğitimi alan gebelerin kabızlık semptomları daha az, kabızlığa bağlı yaşam kalitesi ise daha yüksekti. Tüm katılımcılarda kabızlık semptomlarının şiddeti azaldıkça yaşam kalitelerinin arttığı belirlendi ($p<0.01$).

Sonuç: Kabızlık şikayeti yaşayan gebelere verilen eğitim sonucunda gebelerin kabızlık ile ilgili şikayetleri azaldı ve konstipasyona bağlı yaşam kaliteleri arttı. Hemşirelerin kabızlık yaşayan hamile kadınlara kabızlıkla ilgili kanıta dayalı bakım ve eğitim vermeleri önerilir.

Anahtar kelimeler: Gebelik, Kabızlık, Eğitim, Kabızlıkla İlişkili Yaşam Kalitesi, Kabızlığın Şiddeti

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Introduction

Constipation is defined as excessively dry, hard stool, and/or difficulty in the passage of feces or incomplete defecation accompanied by a reduction in the normal frequency of defecation.[1] Pregnancy is one of the most sensitive physiological and emotional phases in women's life during which they may suffer from several complications including constipation.[2,3] While gastrointestinal complaints like nausea and vomiting are at the first place in pregnancy, constipation is at the second place.[1,4,5] Studies have reported that, worldwide, constipation is seen in 11-40% of pregnant women.[6,7] As a result of their study conducted in Belgium, Ferdinande et al. determined that constipation was seen %60.7 in pregnant women.[8] Studies in Turkey conducted to determine the prevalence of constipation determined that this prevalence varied in the range of %13 to %38.[9,10] Relaxation in the smooth muscles in the bowels caused by increased progesterone in pregnancy and the mechanical pressure of the growing uterus are among the causes of constipation. Additionally, increased renin secretion by estrogen and progesterone, conversion of angiotensinogen into firstly angiotensin 1 and the angiotensin 2 by the increased renin secretion, and increased water absorption by increased quantities of aldosterone as a result of these changes, may lead to constipation.[5,6,11]

Treatment options in constipation are planned based on the severity and duration of constipation. The treatment involves diet, exercise, eating high-fibre foods (such as wholegrain foods, vegetables, beans and pulses), lifestyle changes, laxative usage and patient education.[12,13] Nurses are healthcare professionals who take roles at all stages of the care and treatment of constipation, take on responsibilities and have roles in improving and developing the health of the individual. By providing the healthcare service needed by the individual and their family and making the appropriate and required changes in the lifestyle of the individual, nurses play an important role in helping individuals use their coping mechanisms towards the problem and reach a high-quality life.[14] Some interventions included in the classification of nursing interventions related to the nursing diagnosis of constipation and proposed for the solution of constipation problems may be listed as defecation, nutrition, teaching and managing fluid intake, exercise development, toilet training and pain management.[1] Education to be provided by nurses for individuals who have constipation is effective in increasing quality of life.[14] Although constipation, which is one of the changes developing in relation to pregnancy, is physiological, it affects the quality of life of pregnant women, and it may lead to some psychosocial problems depending on the severity of constipation.

In pregnant women's coping with this situation, education and counseling which are among the independent functions of nurses have an important place. Education to be provided to pregnant women regarding constipation may play a role in their coping with constipation and in reduction of the problems they experience. In the literature review, no study investigating the effects of education about constipation on the severity of constipation and the constipation-related quality of life of pregnant women could be encountered. This study was conducted to determine the effects of education provided to pregnant women who had complaints of constipation on their constipation-related quality of life and constipation severity.

Materials and Methods

Design, Setting, and Sample

The study was conducted to determine the effect of education given to pregnant women suffering from constipation on the severity of constipation and quality of life related to constipation. This randomized controlled experimental study was conducted between 14/07/2019 and 10/09/2019 at the Obstetrics and Gynecology polyclinic of a university hospital located in eastern Turkey. The population of the study consisted of pregnant women with constipation who visited the obstetrics and gynecology polyclinic at the specified dates and experienced constipation. The questions of pregnant women with constipation and changes in

bowel habits after pregnancy were determined. The sample size of the study was calculated by using the G*Power 3.1.3 software (Heinrich Heine Universitat, Dusseldorf, Germany). With the power analysis, it was determined that each of the experiment and control groups needed to include at least 32 participants (α = 0.05, 1-β = 0.80). However, considering factors like participants leaving the study or having preterm labor, the study was completed by including 40 pregnant women in each of the experiment and control groups.[15] Being in the 35th or an earlier week of pregnancy (as the education would be provided once a week for four weeks, pregnant women who were in their later weeks of pregnancy were not included considering that they might not be able to complete the study), agreeing to participate in the study, having complaints of constipation after becoming pregnant, presence of a single and viable fetus, being at the age of 19 or older, being literate, not having a psychiatric problem, and not having a communication problem. Pregnancy weeks later than the 35th week, not volunteering to participate in the study, presence of multiple pregnancies, and presence of any communication-related, mental, cognitive or psychiatric problem.

Data collection

This study was conducted as an experimental study with randomized controlled parallel groups (1:1). Using a computer program module designed for randomized controlled studies (http://www.randomizer.org/form.htm), a randomization list was created, and the participants were assigned to the intervention and control groups according to this list. In the study, the data were collected in person by the researcher, and the education for the experiment group was provided by the researcher.

Nursing Intervention

At the first encounter with the pregnant women in the experiment group, introductions were made, the purpose of the study was explained, and consent was requested for the education program. Before starting the education, some demographic and obstetric information of the pregnant women was collected, and the Constipation Severity Instrument and the Patient Assessment of Constipation Quality of Life Questionnaire were applied among the women. The education was provided by the corresponding author in a room belonging to the Obstetrics and Gynecology polyclinic of a university hospital in eastern Turkey. The education was provided for four weeks, one day a week and for an average of 60 minutes per day. Interactive training given to pregnant women was supported by a visual presentation. The training was carried out in the form of group training.

During the education, a 'Constipation Education Booklet' prepared in relation to management of constipation and for strengthening the education program was utilized. The content of this education booklet prepared for women who have complaints of constipation in pregnancy was created by the researcher in line with the literature and organized with the help of experts.[15-17] The education booklet consisted of two parts. The first part included information on the definition of constipation, causes of constipation in pregnancy, risk factors for constipation, some recommendations to solve constipation (e.g., regular defecation, not postponing defecation when the feeling of it arrives, the best position for defecation), constipation treatment and the importance of individual management in constipation. The second part included information on healthy and balanced nutrition, types of nutrition, sufficient fluid intake, benefits of exercise, selection of the appropriate exercise and solving constipation, effective coping and individual methods to prevent constipation, as well as toilet training. After providing the pregnant women with education for four weeks, the Constipation Severity Instrument and the Patient Assessment of Constipation Quality of Life Questionnaire were applied again. At the end of the education program, the pregnant women were given a brochure prepared in relation to the topics that were discussed.

No education was provided to the control group. The Constipation Severity Instrument and the Patient Assessment of Constipation Quality of Life Questionnaire were applied at the beginning of the study and four weeks later.

Data collection tools

The data of the study were collected by using a Personal Information Form prepared by the researcher in line with the literature, the Constipation Severity Instrument and the Patient Assessment of Constipation Quality of Life Questionnaire. The Personal Information Form consisted of seven questions on the sociodemographic characteristics of the pregnant women. The Patient Assessment of Constipation Quality of Life Questionnaire (PAC-QOL) was developed by Marquis et al. in 2005.[18] The validity and reliability study of the scale in Turkish was conducted by Dedeli et al., and the scale's Cronbach's alpha reliability coefficient was reported as 0.91.[19] The scale consists of the "worries and concerns" (11 items), "physical discomfort" (4 items), "psychosocial discomfort" (8 items) and "treatment satisfaction" (5 items) subscales and a total of 28 items. The item scores of the 5-point Likert-type scale vary in the range of 1-5. While the first and fifth parts of the scale are scored in the form of "not at all (1)" to "extremely (5)", the second, third, fourth and sixth parts are scored in the form of "none of the time (1)" to "all the time (5)". The minimum and maximum possible scores in the scale are 28 and 140. Higher scores indicate more negative effects on quality of life. The Cronbach's alpha value of the scale in this study was found as 0.87. The Constipation Severity Instrument (CSI) was developed by Varma et al. in 2008, while its validity and reliability study in Turkish was carried out by Kaya and Turan in 2010.[20,21] The scale has 16 items. CSI has three dimensions as "Obstructive defecation", "Colonic inertia" and "Pain". The possible scores in the dimensions are in the ranges of 0-28 for Obstructive Defecation, 0-29 for Colonic Inertia and 0-16 for Pain. The lowest and highest possible scores in the scale are 0 and 73. Higher scores indicate a higher severity of symptoms. Kaya and Turan determined the Cronbach's alpha coefficient of the scale between 0.92 and 0.93.[21] In this study, the Cronbach's alpha coefficient of CSI was found as 0.95.

Data analyses

All statistical analyses were performed using IBM SPSS v.23 (IBM Corp. Armonk, NY), and the level of significance was set at $\alpha = 0.05$ (two-sided). Parametric tests were used in the analysis of datas that were compatible with normal distribution, and nonparametric tests were used in the analysis of datas not compatible with normal distribution. Chi-square test or Fisher's exact test were used for categorical variables, and a Student's t test for the continuous variables to confirm differences in general characteristics between the groups. The scores of the PAC-QOL and CSS between groups were compared using Student's t-test or Mann-Whitney U-test. The relationship between these two parameters was analyzed using a Pearson-correlation test.

Ethical consideration

Before starting the study, approval was obtained from the Social Sciences and Humanities Ethics Committee of Elazığ Fırat University (Date: 01/07/2019, Decision no: 336008). Informed written consent was also obtained from the participants.

Results

Table 1 shows the sociodemographic and obstetric characteristics of pregnant women. No significant difference was determined between the two groups with respect to their age, educational status, employment status, type of family, health insurance, gestational week and pregnancy week when constipation starts ($p>0.05$). The average age of the participants in the intervention group was 30.72 (3.51),

while the average age of the participants in the control group was 31.70 (3.92). The average week of gestation of the participants in the intervention group was 28.90 (4.56), and 27.00 (6.95) in the control group

Table 1. Sociodemographic and obstetric characteristics between the two groups

Variable	Control group (*n*=40)	Intervention group (*n*=40)	*p*
Age (years)	31.70 (3.92)	30.72 (3.51)	0.245 †
Educational Status			
Primary school	8 (20.0)	13 (32.5)	
Secondary school	18 (45.0)	19 (47.5)	0.240
High school or higher	14 (35.0)	8 (20.0)	
Employment status			
Employed	21 (52.5)	15 (37.5)	0.261‡
Unemployed	19 (47.5)	25 (62.5)	
Type of family			
Elementary	37 (92.5)	35 (87.5)	0.712 §
Extended	3 (7.5)	5 (12.5)	
Health insurance			
Present	38 (95.0)	39 (97.5)	1.000 §
Absent	2 (5.0)	1 (2.5)	
Gestational week	28.90 (4.56)	27.00 (6.95)	0.153 †
Pregnancy week when constipation starts	14.85 (4.00)	14.22 (3.42)	0.456 †

Categorical variables are presented as n (%) and continuous variables as mean (SD).
† Student's t-test ‡ Chi-square test with Yates' Continuity Correction § Chi-square test with Fisher's Exact Test

Table 2 shows differences in outcome indicators between two groups at baseline and after the intervention. The homogeneity of the outcomes between the groups was found at baseline PAC-QOL and subscale scores, CSS and subscale scores (p>0.05), but not in the post-intervention PAC-QOL and subscale scores and CSS and subscale scores (p<0.001). After the education, the mean total PAC-QOL score of the pregnant women in the experiment group (49.42±4.19) was lower than that of the control group (74.00±5.47). Likewise, after the education, the mean total CSI score of the participants in the experiment group (19.40±2.62) was lower than that of the control group (39.45±3.21). This showed that the pregnant women who received constipation education had fewer constipation symptoms and high constipation-related quality of life levels.

Table 2. Comparison of the PAC-QOL and CSI total and subscale scores of the pregnant women in the experiment and control groups before and after the education

	Before Education			After Education		
PAC-QOL and Subscales	**Control group (*n*=40)**	**Experiment group (*n*=40)**	***Test*** † ***p***	**Control group (*n*=40)**	**Experiment group (*n*=40)**	***Test*** † ***p***
Physical discomfort	13.77 (2.04)	13.02 (2.11)	t=1.611 0.111	12.17 (1.10)	6.95 (1.60)	t=16.982 **0.000**
Psychosocial discomfort	16.60 (2.27)	15.72 (3.04)	t=1.456 0.149	20.32 (2.40)	11.37 (1.59)	t=19.634 **0.000**
Worries and concerns	30.52 (3.71)	30.40 (2.23)	t=-0.182 0.856	31.00 (3.44)	13.80 (2.64)	t=25.034 **0.000**
Treatment satisfaction	12.97 (1.62)	12.50 (1.53)	t=1.344 0.183	10.50 (1.30)	17.30 (1.80)	t=-19.363 **0.000**
Total	73.75 (5.65)	71.65 (4.92)	t=-1.771 0.080	74.00 (5.47)	49.42 (4.19)	t=22.520 **0.000**
CSI and Subscales			***Test*** ***p***			***Test*** † ***p***
Obstructive defecation	16.00 (8-19)	16.00 (12-20)	U=713.500‡ 0.397	17.65 (1.83)	8.85 (1.47)	t=23.317 **0.000**
Colonic inertia	15.77 (1.83)	15.50 (1.73)	t=0.688† 0.493	13.70 (1.87)	7.80 (1.41)	t=15.900 **0.000**
Pain	8.02 (1.60)	7.97 (1.49)	t=0.144† 0.886	8.10 (0.95)	2.75 (1.31)	t=20.811 **0.000**
Total	40.50 (22-45)	39.00 (30-44)	U=656.500‡ 0.165	39.45 (3.21)	19.40 (2.62)	t=30.560 **0.000**

Table 3 shows the correlations between post-intervention PAC-QOL and CSS total scores in each group and total. A statistically significant correlation was found between post-intervention PAC-QOL and CSS total scores at total ($p<0.01$), but not in each group ($p>0.05$). There was a positive very-high correlation between the PAC-QOL and CSS scores at total. In other words, the quality of life increases as the severity of constipation symptoms decreases.

Tablo 3. Correlation analysis of post-intervention PAC-QOL and CSS total scores

Variable	Constipation Severity (r) †
Constipation Quality of Life	
Control group	-0.017
Intervention group	0.089
Total	0.897 ‡

† Pearson-correlation test; r: correlation coefficient

‡ p <0.01

Discussion

Pregnancy is a treasured time in a women's life. Constipation in pregnancy hinders her quality of life. In this study, the effects of education provided to pregnant women who were experiencing complaints of constipation on their constipation-related quality of life and constipation severity were investigated. As a result of the literature review that was conducted, no study examining the effects of education given to constipated pregnant women on their constipation-related quality of life and constipation severity could be encountered. The results of the study are discussed alongside studies assessing the effects of education on constipation severity and quality of life in different diseases and different groups of individuals. In this study, the pre-education mean total PAC-QOL scores of the participants were determined as 71.65±4.92 in the experiment group and 73.75±5.65 in the control group ($p>0.05$). After the education, the mean total PAC-QOL score in the experiment group (49.42±4.19) was found to be significantly lower than that of the control group (74.00±5.47). Based on this result, we may state that the education provided to the pregnant women was effective on these individuals, and it provided an increase in their quality of life. Öztürk and Kılıç provided individuals with primary constipation with education and investigated the effects of this education on constipation-related quality of life and constipation severity.[15] After the education, they determined a significant reduction in the constipation-related quality of life and constipation severity mean scores of the experiment group. The result of their study was supportive of the result of this study.[15] In the study by Bilgin et al. conducted with stomach cancer patients and their caregivers, it was determined that nursing care and education provided at home increased the quality of life of patients, and there was also a reduction in chemotherapy-related constipation symptoms.[22] In their study, Çağlar et al. determined that constipation decreased in pregnant women as a result of the training they gave to pregnant women with constipation problems.[23] The results of the study support the research finding.

In our study, the median total constipation severity scores before the education were determined as 39.00 (30-44) in the experiment group and 40.50 (22-45) in the control group ($p>0.05$). After the education, the mean CSI score in the experiment group (19.40±2.62) was found to be significantly lower in comparison to the control group (39.45±3.21). The lower mean total CSI score in the experiment group after the education showed that the education given to the pregnant women was effective in reducing the severity of constipation symptoms. Moreover, in this study, it was determined that, as the severity of constipation symptoms decreased, quality of life increased. We may state that the pregnant women's acquisition of information on constipation experienced in pregnancy and learning of methods of coping with constipation via the given education increased their quality of life by providing alleviation in constipation symptoms and reduction in the severity of these symptoms. In their study on patients with complaints of primary constipation, Öztürk and Kılıç observed that there was a significant decrease in the mean constipation

severity score of the experiment group after the education they provided.[15] Their result was in line with the result of this study. In their study which investigated the effects of education given to cancer patients receiving chemotherapy on their chemotherapy-related symptoms, Şahin and Ergüney found that the severity of constipation decreased after the given education. Their result was supportive of the result of this study.[24]

Conclusion and recommendations

In this study, as a result of the education provided for the purpose of reducing the complaints of pregnant women who were experiencing constipation, increasing their quality of life and teaching them how to cope with these complaints, the constipation-related complaints of the pregnant women significantly decreased, and their constipation-related quality of life increased. According to the results of this study, it may be recommended,

a) for nurses to provide pregnant women experiencing constipation with constipation-related education,

b) for them to keep their knowledge about management of constipation in pregnancy up to date by following the literature relevant to constipation,

c) for them to utilize evidence-based studies while providing care for pregnant women experiencing complaints of constipation,

d) to repeat studies on this topic with broader groups.

Limitations

The first limitation of this study was that it was conducted with pregnant women visiting the obstetrics and gynecology polyclinic of a single hospital, and the results of this study may only be generalized to the population of the study. The second limitation was that the long-term effects of the provided education program after the study were not monitored.

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Ethical approval

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Author contributions

Özlem Doğan Yüksekol: Idea, design, control/supervision, data collection, analysis of data, literature search, writing the article, critical review.
Nazlı Baltacı: Design, analysis of data, literature search, writing the article, critical review.

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