

The effect of relaxation exercises on emotions of primigravida women in famenin

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Abstract

Context: Recognizing effective interventions for improving women's positive emotion can improve mental health and self-confidence in anxious women, at least during pregnancy.

Aim: This study aimed to investigate the effect of relaxation training on positive and negative emotions of primigravida women.

Setting and Design: In this randomized quasi-experimental study, 100 primigravida women with gestational age of 28–32 weeks, who were referred to the prenatal care centers in Famenin City (Hamadan, Iran), were randomly assigned into two groups of intervention and control, using randomized blocking.

Methods and Material: All the pregnant women completed the positive and negative affect schedule questionnaire. In the intervention group, eight sessions were held twice a week with emphasis on relaxation techniques. The control group received routine prenatal care.

Statistical Analysis Used: Descriptive statistics, independent and paired t-tests were used to compare the difference between and within two groups.

Results: The mean score of positive emotion increased from 31.92 ± 6.39 to 34.12 ± 5.41 after intervention ($P = 0.034$). In contrast, the mean score of positive emotion in the control group reduced from 33.62 ± 6.58 to 26.92 ± 6.35 after the intervention ($P < 0.001$). In addition, there was a significant difference between the mean scores of positive emotion in the two groups after the intervention ($P < 0.001$). The mean score of negative emotion reduced from 24.12 ± 7.06 to 17.18 ± 5.95 in the intervention group ($P < 0.001$). On the other hand, the mean score of negative emotion in the control group increased from 22.08 ± 6.85 to 28.42 ± 7.24 after the intervention ($P < 0.001$). There was a significant difference between the mean scores of negative emotion in the two groups after the intervention ($P < 0.001$). The mean score of positive emotion of the women increased after the intervention (from 31.92 ± 6.39 to 34.12 ± 5.41) ($P = 0.034$). In contrast, the mean score of positive emotion of the women in the control group reduced after the intervention (from 33.62 ± 6.58 to 26.92 ± 6.35) ($P < 0.001$). Also, the mean score of negative emotion reduced in the intervention group (from 24.12 ± 7.06 to 17.18 ± 5.95). On the other hand, the mean score of negative emotion of the women in the control group significantly increased after the intervention (from 22.08 ± 6.85 to 28.42 ± 7.24).

Conclusion: Research findings suggest that relaxation training may increase positive emotion and reduced negative emotion in pregnant women. It is recommended that relaxation techniques are used in prenatal care centers as a simple and available health intervention in pregnancy.

Keywords: Negative emotion, Positive emotion, Pregnancy, Relaxation

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INTRODUCTION

Pregnancy is a unique health experience which is influenced by various factors.^[1] Many researchers have considered pregnancy, even a natural pregnancy, as a period of intense emotional changes. These changes can be so challenging that the pregnant women might face considerable problems such as depression, mental confusion, family violence, isolation, and other mental health-related problems.^[2] Mental health-related problems might emerge during pregnancy; in fact, pregnant women are vulnerable to a variety of stressors.^[3] Pregnancy hormones can provide the basis for psychological changes and emotional pressures; thus, mood changes and anxiety are predictable in pregnancy. Studies have shown that, in half of the cases, postpartum depression begins during pregnancy or before delivery.^[4] Since the time of fertilization and conception until delivery, a pregnant woman experiences a series of fundamental physical and mental changes; therefore, she should adapt herself not only to a developing fetus, but also to pregnancy and its resulting changes as well as the sense of motherhood. Although these emotions are not directly and consciously felt by the fetus, the hormones produced due to a sense of pleasure, joy, happiness, or grief and sorrow in the mother's body are all transmitted to the fetus through the placenta. The predelivery mental stresses lead to preterm delivery or low birth weight; furthermore, mental problems during this period have been observed as the emergence of behaviors such as changes in diet, sleeping, exercise, drug abuse, and disregarding of relevant prenatal cares. Thus, it is necessary to apply serious and early interventions in individuals with such mental stresses during the predelivery period.^[5]

In general, human emotions are divided into two basic emotional dimensions, negative and positive emotions. Negative emotion means the degree to which a person has unpleasant emotions and feels dissatisfied. Negative emotion is a general aspect of inner disappointment, which leads to mood states such as anger, sadness, and feelings of guilt, fear, and anger. Positive emotion is a conscious emotional characteristic that includes positive feelings and emotions such as pleasure, joy, passion, and pride.^[6]

Positive and negative emotions are considered as predictors of life satisfaction.^[7] It has been demonstrated that positive emotion leads to increased creativity, cognitive flexibility, efficiency in decision-making and problem solving and improves physical health through strengthening the immune system.^[7] When positive emotion is at a high level, the person feels enthusiastic, energetic, intelligent, and optimistic.^[8] Positive emotions can have great effects on

health and well-being and can increase life expectancy in an individual by preparing him/her to face various activities. In addition, in situations in which the individual encounters pain, positive emotion is greatly effective. Since delivery is an event with high psychological pressures, women experience most of the positive and negative emotions during pregnancy and delivery.^[9,10]

Today, many researchers focus on the nonmedical (nonpharmacological) methods affecting the physical and mental health of pregnant women.^[11-14] Relaxation techniques are among the physiological mechanisms that link the mind and the body and have positive effects on stress management.^[15] Over the past two decades, researchers have found that relaxation techniques decrease the body's oxygen exchange, muscle tension, systolic and diastolic blood pressures, and enhance immune function.^[16] Some studies have shown that relaxation techniques reduce pain in patients with gynecology and obstetrics problems.^[16] Also, it has been associated with improved quality of life after surgery.^[17]

Therefore, it seems that relaxation techniques can lead to positive results in delivery and postdelivery procedures through increasing pregnant women's positive emotion. Moreover, such activities are of low cost and safe and can be performed in the living environment with no certain tools. However, studies in other countries had indicated the efficacy of relaxation on the mood disorders,^[12] but the views of women about pregnancy, expectations and beliefs and their attitude toward child, and being a mother are different in various cultures.^[18] Moreover very few studies have been conducted in Iran on the effect of relaxation on mothers' psychological well-being through increasing positive emotions and weakening negative emotions. Thus, the present research was designed to investigate the effect of relaxation training on the emotions of primigravida women.

MATERIALS AND METHODS

The present randomized quasi-experimental study was conducted on 100 primigravida women who were at the gestational age of 28–32 weeks and referred to the prenatal care center in Famenin City, Iran, in 2016. The inclusion criteria consisted of normal pregnancy without medical complications, lack of anxiety and depression, and lack of use of psychotropic drugs before and during the current pregnancy, based on medical records of pregnant women. Exclusion criteria included failure to participate in more than one session of sessions, reluctance to continue the study, and occurrence of stress-inducing events (such as death of relatives, accident) during the study.

Sample size was calculated using the following formula considering previous study^[8] ($\sigma = 6.8$, $\sigma_2 = 4.5$, $d = 3.5$):

$$n = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2 (\sigma_1^2 + \sigma_2^2)}{d^2}$$

The sample size was calculated for both groups by assuming the significance level to be 5% and the power of the test to be 80%.

The data collection tools used in the present study consisted of a demographic and obstetrics characteristic questionnaire and the Positive and Negative Affect Schedule (PANAS). The PANAS was designed by Watson *et al.*^[14] It is a 20-item self-evaluation tool designed to measure two mood dimensions, namely the positive emotion and negative emotion. This scale includes ten items for positive emotion and ten for negative emotion. The participants were asked to specify “their current exact score of that feature” on a 5-grade scale ranging from 1 (very low or never) to 5 (very high). The total score is calculated by finding the sum of the ten positive items and then the ten negative items. Scores range from 10 to 50 for both sets of items. For the total positive score, a higher score indicates more of a positive effect. For the total negative score, a lower score indicates less of a negative effect.^[19]

The questionnaire’s face validity was assessed using different experts’ opinions, and its reliability was calculated using Cronbach’s alpha coefficient ($\alpha = 0.89$).

The demographic and obstetrics characteristic questionnaire included the mother’s age, gestational age, education level of the mother and spouse, employment status of the mother and spouse, household income, and wanted pregnancy.

The study participants were pregnant women who had been admitted to a referral hospital for prenatal care. Based on the written informed consent and the inclusion criteria, 100 pregnant women with the gestational age of 20–28 weeks were selected randomly through lottery based on the pregnancy file numbers, and then, allocated randomly to two groups of intervention and control (fifty members each), using four randomized blocking.

After obtaining the written consent forms, questionnaires were completed by both groups through self-report method. After providing sufficient explanations, the intervention group were informed of the date of classes and provided with class attendance cards.

The eight sessions were held by a midwifery graduated who had relaxation training certificate, twice a week, with the

maximum number of ten pregnant women. Each session lasted 1–1.5 h and included a combination of training, videos, questions, and answers, as well as relaxation. The training axes included pregnancy changes in relation to anatomy and physiology, hormonal aspects alongside their psychological impact on physical and mental status of the pregnant women, the effect of relaxation on reducing anxiety in pregnancy, the effect of relaxation on physical and mental health of the mother and fetus and quality of sleep and nutrition of pregnant women, and familiarization with the process and stages of delivery.

At the end of all sessions, the relaxation techniques that were easy and safe in pregnancy were rehearsed. The mothers wore comfortable clothes and performed the relaxation with the instructor in an appropriate place. It was easy to perform for every participant, lasting at least 10–20 min and involving the toe to the forehead. The most important practical training included settling in a quiet environment, mental preparation, and response in a comfortable position, the deep loosening of muscles from foot to the top for 10–20 min, and finally reversing slowly. In order to ensure that participants practice the relaxation techniques, they were provided with compact disks and were asked to perform the relaxation exercises at home every day.

The control group did not receive any intervention, except for routine pregnancy care, and was only invited to special sessions to fill out the questionnaires. At the end of the sessions and 4 weeks after beginning intervention, questionnaires were recompleted by intervention and control groups, respectively. The statistical analyses were performed using the SPSS statistical software (version 19.0, SPSS Inc., Chicago, IL, USA). For the normality analysis of the data, Kolmogorov–Smirnov test was used. In order to estimate the mean, standard deviation, and distribution of frequencies, descriptive statistics were used. Baseline characteristics were compared between groups using independent *t*-tests for continuous variables and Chi-square tests for categorical variables. In order to compare the mean scores of the positive and negative emotions of the women before and after the intervention between the control and intervention groups and within the groups, independent and paired *t*-tests were used, respectively. Significant level was considered <5% in this research.

The study was approved by the Ethical Committee of Hamadan University of Medical Sciences (IR. UMSHA. REC.1394.256). Written consent was obtained from the participants; they were assured of confidentiality of their information and were told they could withdraw whenever they wished.

RESULTS

In this study, a total of 100 primigravid women who satisfied the inclusion criteria were assigned into two groups (fifty women in each group). There was no sample loss in each group. Kolmogorov–Smirnov test was used to determine the normality of quantitative data, and all data had normal distribution.

There was no significant difference between the two groups in terms of the mean age of pregnant women, mean gestational age, women's education, women's occupation, husband's education, husband's occupation, and housing status [Table 1].

The mean score of the positive emotion of the women in both groups, which had no significant difference before the intervention, was increased after the intervention in the intervention group and differed significantly. However, the mean score of the positive emotion of the women in the control group was reduced, so that it significantly differed from the preintervention state. Also, there was a significant difference between the mean scores of positive emotion in the two groups after the intervention [Table 2].

On the other hand, the mean score of the negative emotion of the women in both groups, which had no significant difference before the intervention, was reduced after the intervention. But, the mean score of the negative emotion of the women in the control group was increased and significantly differed from the preintervention state. There was a significant difference between the mean scores of negative emotion in the two groups after the intervention [Table 3].

DISCUSSION

The present study investigated the effect of relaxation training on positive and negative emotions of primigravida women. The findings of the study revealed that relaxation techniques can increase the positive emotion of pregnant women and, on the contrary, reduce their negative emotion. In a systematic review of the literature about the benefits of relaxation during pregnancy for mother, fetus, and the newborn, researchers found that relaxation during pregnancy had a positive impact on women's emotional state, as well as regulation of emotional states and physiology. Relaxation is also associated with positive effects both on fetal behavior and on obstetric and neonatal outcomes,^[17] while researchers in a study on 139 pregnant women reported that relaxation training is more beneficial for women with elevated levels of anxiety and depression, not all pregnant women.^[18]

Table 1: Demographic characteristics of the participants in intervention and control groups

Variables	Intervention	Control	P
Age, mean±SD	24.86±4.19	24.28±4.36	0.60
Gestational age, mean±SD	28.99±3.76	29.89±3.98	0.25
Women's education, n (%)			
Primary school	1 (2)	1 (2)	0.81
Middle school	7 (14)	9 (18)	
High school	24 (48)	23 (46)	
University	18 (36)	17 (34)	
Women's occupation, n (%)			
Unemployed/householder	41 (82)	43 (86)	0.58
Employed	9 (18)	7 (14)	
Husband's education			
Primary school	4 (8)	2 (4)	0.81
Middle school	8 (16)	10 (20)	
High school	27 (54)	26 (52)	
University	11 (22)	12 (24)	
Husband's occupation			
Unemployed	1 (2)	0 (00)	1
Employed	49 (98)	50 (100)	
Housing status			
Private	30 (60)	40 (80)	0.02
Rental	20 (40)	10 (20)	

SD: Standard deviation

Table 2: Inter- and intra-comparison of positive emotion of pregnant women in relaxation and control groups

Group	Positive emotion, Mean – SD		Statics (paired t-test)	P
	Before intervention	After intervention		
	Intervention	31.92±6.39	34.12±5.41	2.19
Control	33.62±6.58	26.92±6.35	5.81	<0.001
Statistics (independent t-test)	-1.28	6.10		
P	0.203	<0.001		

SD: Standard deviation

Table 3: Inter- and intra-comparison of negative emotion of pregnant women in relaxation and control groups

Group	Negative emotion, Mean – SD		Statics (paired t-test)	P
	Before intervention	After intervention		
	Intervention	24.12±7.06	17.18±5.95	5.81
Control	22.08±6.85	28.42±7.24	5.72	<0.001
Statistics (independent t-test)	1.47	-8.48		
P	0.146	<0.001		

SD: Standard deviation

In the present study, with the progression of pregnancy and approaching the end of pregnancy, the mean score of positive emotion in women in the control group reduced. In a study recently conducted on 3513 pregnant women, researchers reported decreased positive emotion from early-to-middle pregnancy. In addition, complications such as postpartum depression have been associated with reduced positive emotion.^[19] This decreasing trend of positive emotion by approaching the end of the pregnancy

indicated the necessity of an intervention to prevent the reduction of positive emotion among pregnant women, especially at the end of their pregnancy.

On the other hand, relaxation training significantly reduced the negative emotion of women in the intervention group. Other researchers also have stated that muscle relaxation increases the calmness of pregnant women and decreased stress and adjustment of mental distress.^[20,21] However, Chambers' study found that the effect of progressive muscle relaxation in reducing the negative mood in pregnant women is not more than self-care.^[22]

In our study, in the control group, with increase in gestational age, a significant increase was observed in negative emotion ($P < 0.001$). Previous research suggests that female sex hormones can increase the sensitivity of women's emotion-processing systems. The largest rises in sex hormone levels in a woman's life are from early to late pregnancy. Pearson *et al.* found more general negative emotion during late, compared with early, pregnancy.^[23]

It seems that pregnant women have lower levels of vitality, physical functioning, and social functioning compared to other people.^[24] This becomes more important with the progression of pregnancy for various reasons such as fear of having an abnormal infant, labor- and delivery-threatening problems, fear of injuries, and even maternal death, especially in women with no previous experience of pregnancy.^[25-27]

Other researchers have also shown that a strategy for reducing gestational anxiety, which can improve mothers' health, is relaxation that might be associated with decreased stress as well as decreased need for medication.^[22] Respiratory exercises during pregnancy reduce gestational stress and the need for pharmacological methods for pain relief in labor by increasing relaxation.^[26] In another study, the women who had performed physical activities and relaxation exercises during pregnancy experienced higher positive emotion and happiness during pregnancy and after delivery.^[8,24] In fact, studies have shown that positive emotion is increased more in the individuals with poor positive emotion than those with higher positive emotion.^[27]

It seems that obtaining a sense of self-control through relaxation and learning how to use mental power to deal with stress and anxiety have been appropriate solutions to increasing positive mood among these women, because positive emotion indicates the individual's eagerness for life and sense of activity and intelligence. Relaxation can affect pregnant women's mild anxiety through significant

changes in the hypothalamic–pituitary–adrenal axis. Increased secretion of endorphins, decreased secretion of adrenaline, declined cortisol level, and decreased heart rate and blood pressure have been observed among mothers by performing these exercises.^[28-33]

Mental health promotion has an undeniable role in the society's health. As shown in the studies conducted in other countries, appropriate interventions can have persistent effects on the positive attitude and mood of the mother, unborn infant, and even other family members.^[34]

Limitations

The evident limitation of the present study was the individual differences affecting the reception of the trainings, as well as small sample size of study which may not be generalizable to other groups and communities. Hence, it is suggested that future studies will be conducted at wider population.

CONCLUSION

The present study confirmed the importance of relaxation training on increasing positive mood of the primigravida women. It is recommended that relaxation techniques are used in prenatal care centers as a simple and available health intervention in pregnancy.

Conflicts of interest

There are no conflicts of interest.

Author contribution

All authors contributed to this research.

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REFERENCES

1. Soltani F, Maleki A, Shobeiri F, Shamsaei F, Ahmadi F, Roshanaei G, *et al.* The limbo of motherhood: Women's experiences of major challenges to cope with the first pregnancy. *Midwifery* 2017;55:38-44.
2. Babnazari L, Moosakafi S. Comparative study of mental health and its relative demographic factors in different period of pregnancy. *J Health Psychol* 2007;1:44-52.
3. Karami KH, Shakerinezhad GH, Saki A. Effectiveness of a codified

- educational behavioral program on the mental health of pregnant women. *J Shahid Sadoughi Univ Med Sci* 2015;23:879-89.
4. Woods SM, Melville JL, Guo Y, Fan MY, Gavin A. Psychosocial stress during pregnancy. *Am J Obstet Gynecol* 2010;202:61.e1-7.
 5. Witt WP, Wisk LE, Cheng ER, Hampton JM, Hagen EW. Preconception mental health predicts pregnancy complications and adverse birth outcomes: a national population-based study. *Matern Child Health J* 2012;16:1525-41.
 6. Cohen JN, Taylor Dryman M, Morrison AS, Gilbert KE, Heimberg RG, Gruber J, *et al.* Positive and negative affect as links between social anxiety and depression: Predicting concurrent and prospective mood symptoms in unipolar and bipolar mood disorders. *Behav Ther* 2017;48:820-33.
 7. Lepage ML, Crowther JH. The effects of exercise on body satisfaction and affect. *Body Image* 2010;7:124-30.
 8. Mehdizadeh A, Roosta F, Kamali Z, Khoshgoo N. Evaluation of the effectiveness of antenatal preparation for childbirth courses on the health of the mother and the newborn. *Razi J Med Sci* 2003;10:455-61.
 9. Soltani F, Eskandari Z, Khodakarami B, Parsa P, Roshanaei G. Factors contributing to fear of childbirth among pregnant women in Hamadan (Iran) in 2016. *Electron Physician* 2017;9:4725-31.
 10. Bos SC, Macedo A, Marques M, Pereira AT, Maia BR, Soares MJ, *et al.* Is positive affect in pregnancy protective of postpartum depression? *Rev Bras Psiquiatr* 2013;35:5-12.
 11. Fredrickson BL, Joiner T. Positive emotions trigger upward spirals toward emotional well-being. *Psychol Sci* 2002;13:172-5.
 12. Dusek JA, Otu HH, Wohlhueter AL, Bhasin M, Zerbini LF, Joseph MG, *et al.* Genomic counter-stress changes induced by the relaxation response. *PLoS One* 2008;3:e2576.
 13. Zautra A, Smith B, Affleck G, Tennen H. Examinations of chronic pain and affect relationships: Applications of a dynamic model of affect. *J Consult Clin Psychol* 2001;69:786-95.
 14. Goradel JA, Mowlaie M, Pouresmali A. The role of emotional intelligence, and positive and negative affection on the resilience of primiparous women. *J Fundam Ment Health* 2016;18:243-8.
 15. Khorsandi M, Ghofranipour F, Hidarnia AR, Faghihzade S, Vafaei M, Rosta F, *et al.* The effect of childbirth preparation classes on childbirth fear and normal delivery among primiparous women. *J Arak Univ Med Sci* 2008;11:24-36.
 16. Akbarzade M, Toosi M, Zare N, Sharif F. Effect of relaxation and attachment behaviors training on anxiety in first-time mothers in Shiraz city: A randomized clinical trial. *Qomuniv Med SCIJ* 2013;6:14-23.
 17. Fink NS, Urech C, Cavelti M, Alder J. Relaxation during pregnancy: What are the benefits for mother, fetus, and the newborn? A systematic review of the literature. *J Perinat Neonatal Nurs* 2012;26:296-306.
 18. Guskowska M, Sempolska K, Zaremba A, Langwald M. Exercises or relaxation? Which is more effective in improving the emotional state of pregnant women? *J Hum Mov Stud* 2013;14:168-72.
 19. Nakamura Y, Sato M, Watanabe I. Positive emotion and its changes during pregnancy: Adjunct study of Japan environment and children's study in Miyagi prefecture. *Tohoku J Exp Med* 2018;245:223-30.
 20. Malekzadegan A, Moradkhani M, Ashayeri H, Haghani H. Effect of relaxation on insomnia during third trimester among pregnant women. *Natl Heart Inst* 2010;23:52-8.
 21. Ahmadi Nejad FS, Golmakani N, Asghari Pour N, Shakeri M. Effect of progressive muscle relaxation on depression, anxiety, and stress of primigravid women. *Evid Based Care* 2015;5:67-76.
 22. Chambers A. Relaxation during Pregnancy to Reduce Stress and Anxiety and Their Associated Complications. Degree of Doctor of Philosophy: The University of Arizona; 2007.
 23. Pearson RM, Lightman SL, Evans J. Emotional sensitivity for motherhood: Late pregnancy is associated with enhanced accuracy to encode emotional faces. *Horm Behav* 2009;56:557-63.
 24. de Paula AA, de Carvalho EC, dos Santos CB. The use of the "progressive muscle relaxation" technique for pain relief in gynecology and obstetrics. *Rev Lat Am Enfermagem* 2002;10:654-9.
 25. Cheung YL, Molassiotis A, Chang AM. The effect of progressive muscle relaxation training on anxiety and quality of life after stoma surgery in colorectal cancer patients. *Psychooncology* 2003;12:254-66.
 26. Wichers M, Kenis G, Jacobs N, Myin-Germeys I, Schruers K, Mengelers R, *et al.* The psychology of psychiatric genetics: Evidence that positive emotions in females moderate genetic sensitivity to social stress associated with the BDNF val-sup-6-sup-6Met polymorphism. *J Abnorm Psychol* 2008;117:699-704.
 27. Geisser ME, Casey KL, Brucksch CB, Ribbens CM, Appleton BB, Crofford LJ, *et al.* Perception of noxious and innocuous heat stimulation among healthy women and women with fibromyalgia: Association with mood, somatic focus, and catastrophizing. *Pain* 2003;102:243-50.
 28. Hotelling BA. Promoting wellness in Lamaze classes. *J Perinat Educ* 2005;14:45-50.
 29. Voellmin A, Entringer S, Moog N, Wadhwa PD, Buss C. Maternal positive affect over the course of pregnancy is associated with the length of gestation and reduced risk of preterm delivery. *J Psychosom Res* 2013;75:336-40.
 30. Mottaghi Shahri M, Abdi S, Yazdankhah M, Heydari F. The relationship between empowerment and organizational citizenship behavior of staff in youth and sports general office of Khorasan Razavi. *Int J Sport Stud Health* 2015;5:475-81.
 31. Reed J, Buck S. The effect of regular aerobic exercise on positive activated effect: A meta-analysis. *J Sport Exerc Psychol* 2009;10:581-94.
 32. Hamidzade S. Effects of relaxation training on anxiety old dices hypertension. *SCIJ* 2005;8:45-51.
 33. Alder J, Urech C, Fink N, Bitzer J, Hoesli I. Response to induced relaxation during pregnancy: Comparison of women with high versus low levels of anxiety. *J Clin Psychol Med Settings* 2011;18:13-21.
 34. Bastani F, Hidarnia A, Kazemnejad A, Vafaei M, Kashanian M. A randomized controlled trial of the effects of applied relaxation training on reducing anxiety and perceived stress in pregnant women. *J Midwifery Womens Health* 2005;50:e36-40.