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The effect of small group teaching on quality of life in pregnant women with nausea and vomiting: A clinical trial

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Abstract:

INTRODUCTION: Nausea and vomiting in pregnancy is the most common medical complication in the first trimester of pregnancy. That associated with a wide range of physical and mental symptoms for the patient and his family and can affect the quality of life of women's life. In addition, the training to improve knowledge, in adjusting diet and lifestyle, and leading to decrease nausea and vomiting. Due to the positive characteristics of training using the small groups, this study was applied with the objective of "The effect of small group teaching on quality of life in pregnant women with nausea and vomiting."

METHODS: This study was applied based on intervention, on 59 nulliparous women with nausea and vomiting who referred to obstetrics ward of selected health and treatment centers in Neishaboor County. The training was presented by a researcher in group intervention in 8 sessions, each 45–30 min in small groups (3 groups 10 members). The control group received routine care. The study instruments (nausea and vomiting of pregnancy quality of life questionnaire) and (modified-PUGE) form. The results were analyzed using the Wilcoxon test, Mann–Whitney, and *t*-test.

RESULTS: Research units were no statistically significant difference of personal data, at the beginning of the study, and before intervention, was not differences between the mean change scores of postpartum stress disorder in two groups ($P = 0/192$). While the mean quality of life score in the intervention and control groups was statistically significant difference after intervention ($P = 0.001$). Quality of life score in the intervention group had statistically significant difference before and after the intervention ($P = 0.001$).

CONCLUSION: Training in the intervention group with small group strategies has more effective in comparison to conventional training of nausea and vomiting.

Keywords:

Nausea, quality of life, training, vomiting

Introduction

Nausea and vomiting of pregnancy (NVP) is one of the most common abnormalities in pregnancy.^[1] About 91% of women experience nausea and vomiting during pregnancy.^[2] Generally, symptoms begin at the 7th week of pregnancy and peak at 8–13 weeks, and decrease in severity when approaching the second trimester.^[3] Symptoms of nausea and vomiting vary from mild-to-severe during pregnancy. The

more severe form it is called hyperemesis gravidarum, which occurs in 0.3%–2% of pregnancies.^[4] Since NVP is known to be mild and mild vomiting and mild-to-moderate in severe risk for fetal life,^[5] and in many guidelines, it may be considered unimportant, but NVP has negative effects. There is a significant impact on quality of life, job performance, relationship with the spouse, and mother care of children.^[6] In addition, NVP lead to an increase in resource consumption in the health-care system and increase social and economic costs, as

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well as the main reason for admission to the hospital during pregnancy. It is responsible for about one-third of all hospital admissions during pregnancy, nausea, and vomiting.^[7] In this regard, Heitmann *et al.* (2017) study on 712 women with vomiting and pregnancy showed that nausea and vomiting during pregnancy reduced the quality of life of pregnant women.^[6] Bai *et al.*, based on an analysis of 5079 women in early pregnancy, showed that nausea, vomiting, and fatigue prevalent in women in early pregnancy had a negative effect on the quality of life associated with the health of pregnant women.^[8] Other studies also reported a decrease in quality of life in pregnant women with nausea and vomiting.^[9,10] The cause of nausea, vomiting, and fatigue during pregnancy is unknown. Increasing levels of hormone and stress can be a risk factor.^[11] Hormonal changes due to pregnancy, mental causes, and low blood sugar have been considered as causes of illness; therefore, this unpleasant feeling can often be reduced by psychological support and dietary changes.^[12] In addition, some women are not seeking treatment due to concerns about the safety of drugs.^[13] There are different regimens for treating NVP. All instructions start with diet and lifestyle. These include avoiding greasy or spicy foods, avoiding gastric emptying, avoiding fluids between meals, taking frequent meals, and putting crackers along the bed.^[3] A study by Liu *et al.* (2014), found that women who had received advanced support including interventions such as personal training and telephone support received less nausea and vomiting than the routine group, and the level Their quality of life was improved.^[14] In Tan *et al.* (2018), in a comparative study, the quality of life of pregnant women with nausea and nonnausea was measured and concluded that nausea and vomiting are a harmful physical condition that affects most pregnancies. NVP had a significant effect on the quality of life of pregnant women with nausea and vomiting, especially their physical and functional aspects. However, the use of low-dose therapy was beneficial even in people with moderate-to-severe symptoms who have been advised to learn more about raising the awareness of these women in managing the disease.^[15] On the other hand, group training has become increasingly popular today. This is because: today's commonly used managed treatment is seeking to reduce costs and costs, which has brought the experts and authorities into group training, which requires time and cost savings, lower expert skills, the relationship between patients and patients together, and the effect of the group on the behavior and performance of individuals are more effective than individual or indirect education.^[16] Training in small groups involves participatory learning groups, which in these groups are the best solution to a problem that has no more than 15 members.^[17] In the study of Ghavam-Nasiri *et al.* (2012), entitled "Comparing the Effect of Individual and Group Self-Care Education on the Quality of Life of Patients under Chemotherapy:

A Randomized Clinical Trial," the results of the in-group study showed that group education, Further improves quality of life of individuals.^[18]

Given that, pregnancy nausea and vomiting are not life-threatening, it can be stressful both for pregnant women and for their families,^[19] and the negative effects of pregnancy nausea and vomiting on women's quality of life, the importance of managing this disorder quickly.^[20] On the other hand, due to the positive features of the training using small groups, a study was conducted to "determine the impact of the company in the form of small educational groups on the quality of life of women with nausea and vomiting in pregnancy."

Methods

After approving the research, the researcher was selected by the Ethics Committee of the University of Mashhad and received an introduction from the Faculty of Nursing and Midwifery of Mashhad and presented it to the head of Neishabour Health Center. In this randomized clinical trial, was carried out on 59 nulliparous women with nausea and vomiting (30 women in intervention group and 29 in control group) who met the criteria and referred to health centers at 6, 7, 8 in city of Neishabur. The selection of these centers was based on the attendance of these centers. Sample size was calculated based on the preliminary study and using the mean comparison formula. For this purpose, a study was performed on 20 patients in both intervention and control groups (each group included 10 people). Then, the mean and standard deviation of quality of life score in women with NVP before and after intervention were calculated and with a statistical significance of 80% and level Alpha 5%, the sample size was estimated to be 28 in each group, Considering 15% probability of sample loss, the number of final samples was estimated to be 32 women. At first, 64 people were enrolled (32 in each group). In the intervention group, two people were excluded from the study because of their reluctance to attend educational sessions, and three in the control group, two people due to immigration and one person due to termination of pregnancy. In the end, the sample size reached 59. [Figure 1].

$$n = \frac{\left(z_{1-\frac{\alpha}{2}} + z_{(1-\beta)} \right)^2 \times (s_1^2 + s_2^2)}{\mu_1 - \mu_2^2}$$

$$n = \frac{(1.96 + 0.85)^2 (13.1^2 + 13.3^2)}{(110 - 100)^2} \approx 28$$

Inclusion criteria included

Diagnosis of NVP in accordance with the protocol of nausea and vomiting in the National Motherhood Program,^[21] having a mild-to-moderate nausea and vomiting, based

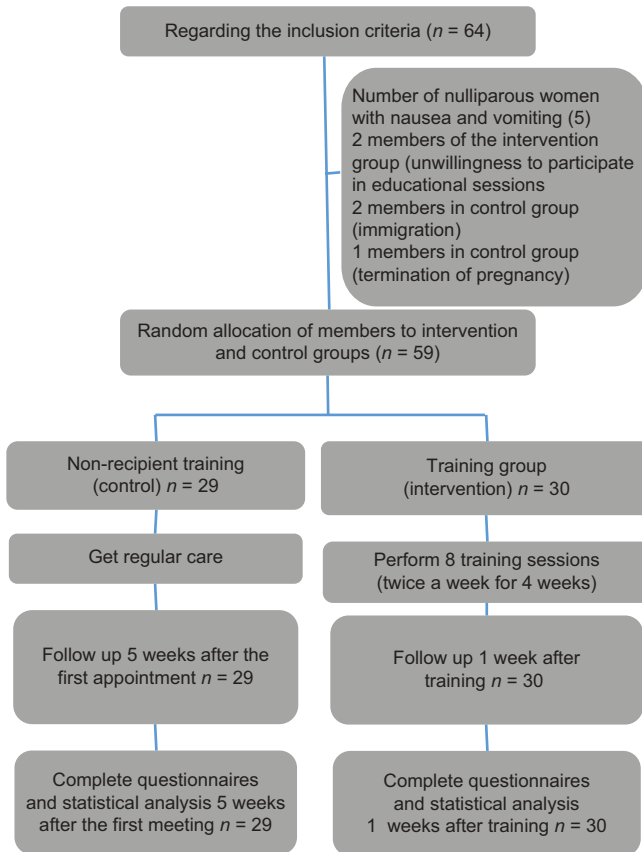


Figure 1: Consort flow diagram

on a moderated questionnaire of specific nausea and vomiting in pregnancy,^[22] age pregnancy was between 6 and 12 weeks, had reading and writing skills, and was satisfied with participation in the study. Research units in case of having a medical or obstetric condition during pregnancy (migraine, urinary tract infection, gastric ulcer, chronic failure such as pulmonary, liver, kidney and cardiovascular disorders, hyperthyroidism, biliary disease, and diabetes), the intention to terminate pregnancy, using anti-nausea medicines or herbal remedies during the past week, pregnancy is sought after infertility, having known mental illness, having a severe and unpleasant incident (death of loved ones, severe financial problems, having a divorce and academic failure within 3 months past), having symptoms of abortion, miscarriage and molar pregnancy, having digestive diseases such as gastritis, diabetes several internal and surgical diseases such as pyelonephritis and appendicitis, febrile illnesses such as influenza, absences of more than two sessions in the group program, and the use of tobacco and drugs were excluded from the study. The data gathering tool was a demographic questionnaire, a questionnaire for quality of life in women with nausea and vomiting in pregnancy, and a slightly modified questionnaire on nausea and vomiting in pregnancy.

Modified-PUQE (Pregnancy-Unique Quantization of Emesis and Nausea), a moderated questionnaire, consists

of three five-choice questions and is especially designed to measure nausea and vomiting within 1 day of the beginning of pregnancy goes. The severity of nausea and vomiting to score six is mild nausea and vomiting, a median score of 12–7, and a score of ≥ 13 are severe nausea and vomiting. The validity of specially adjusted nausea and vomiting questionnaire in pregnancy by Lacasse *et al.* was determined by a standardized reliability method, and its reliability was confirmed by a correlation coefficient ($r = 0.71$).^[22] In this study, the validity of the tool was determined by the content validity method and reliability of the tool by Cronbach's alpha = 0.87.

NVP quality of life questionnaire nausea and vomiting in pregnancy nausea and vomiting, consists of 30 items with Likert scale in four dimensions: physical, fatigue, psychological, and limitation. The total score is between 210 and 30 lower scores represent a higher quality of life. In the study of Lacasse *et al.*, its validity was confirmed by the validation method,^[20] and its reliability was confirmed by Chung *et al.*, with a 95% Cronbach alpha.^[23] In this study, the validity of the tool was determined by content validity method, and the reliability of the tool was confirmed by using Cronbach's alpha coefficient ($\alpha = 0.94$).

The mothers who had the criteria for entering the study were selected by simple sampling and randomly divided into intervention and control groups (in the first 3 days of the week or the 2nd day of the week). For this purpose, the first 3 days of the first 3 days were first written on paper and placed inside the nylon bag. If, after dropping the coin, the intervention group was placed on the first 3 days after first leaving the nylon, and if, after dropping the coin, the control group was placed on the first 3 days after leaving the first time.

The researcher talked about the research project, the research objectives, the method of research, the type of training, and how to answer the questions and questionnaires with the women who referred to the center for receiving health services. Then, the research unit selection form was completed by interviewing and entry and exit conditions. After explaining the research objectives, they provided them with a written informed consent form and provided them with information about the confidentiality of information and is assured on leaving the study (in tendency at any time). In case of satisfaction and after providing necessary information on how to respond to each questionnaire, all of the research units completed the demographic profile and the quality of life questionnaire. Then, the training started in the intervention group.

Since the sampling was different from the three centers, the intervention group was invited to attend a specific

day at the health center. The day of the training session was, of course, reminded by telephone. Then, the intervention in the intervention group was conducted by a small group discussion (3 groups of 10), twice a week for 4 weeks and 45–30 min each time by the researcher. Teaching was a lecture and a question and answer; during the sessions, individuals tried to discuss each other about the state of NVP, and the trainer had a facilitator role, and related and Educate relevant and troublesome issues about the disease. Educational materials like slideshows were also used. In each training (in small groups), recommendations were made to improve the NVP. These recommendations included: diet and lifestyle modification, methods for reducing fatigue during pregnancy, and recommendations for improving the mental status of pregnant women. Training sessions in small groups were planned to be presented to research units in each section of each of the four domains. Meanwhile, at the end of each training session, the research units were asked to express their questions about the cases or any concerns and stress in the context of pregnancy. Then, the research unit's questions were answered, and if there were concern and stress in the context of pregnancy, an explanation was needed for the research unit to remove or reduce the concern and stress created and assured. At the end, the research unit was encouraged to act on the above, and people were asked to tell them to ensure they remembered. Meanwhile, during each session, symptoms of severe nausea and vomiting were investigated, and in case of severe nausea and vomiting in the research unit, the person was asked to go to the doctor. At the next session, if the urine test had shown ketone, the research unit was excluded from the study. At the same time, the research units could contact the researcher at 8 am to 8 am with a researcher to address their problems with nausea and vomiting during pregnancy. Furthermore, in each session at the time of training, the content of the training is written in a preset form.

Content of training sessions

In the first session, training in small groups was divided into two groups of diets (eating dry biscuits or breads in the morning before getting out of bed, eating breakfast ½ h after awakening, taking low-fat milk and dairy, bread, eliminating butter), a case of lifestyle (slowly rising from bed), an item of fatigue (spending only minimal energy for preparing food) and two cases of mental-psychological (harmless nausea and vomiting for the fetus, a good feeling relative to pregnancy).

The second training session in small groups, the recommendations of the first session were reviewed and is discussed two dietary items (eating before or as soon as hungry, smelling of lemon, peppermint, orange, or orange), one case of lifestyle (avoiding odors,

flavors, activities or places that provoke nausea), a case of fatigue (having enough sleep) and two cases of mental-psychological (waiting for nausea and talking with people around them).

At the third training session in small groups, the re-examination of the practice was performed on the recommendations given in the previous sessions, and is discussed two dietary items (consuming high-carbohydrate foods every 1–2 h and reducing simple carbohydrates, consuming foods-containing vitamin B6 During the day), two cases of lifestyle (do not lie immediately after eating, drinking sweetened liquids in a cup with a lid on it), one case in the area of fatigue (rest and snooze during the day as much as possible daily leave from work) and two cases mental-psychological (taking time to rest, getting enough sleep).

At the fourth training session in small groups, we reviewed the practice of the recommendations presented in the previous sessions, and is discussed two of the areas of diet (eating and drinking individually, drinking cold, carbonated and sour liquids), two cases of lifestyle (Lying down as soon as nausea and deep breathing feel), a case of fatigue (exercise and walking), and two episodes of psychosis (nutrition, exercise, deep breathing and limiting excessive information about possible risks in pregnancy). The conversation took place at the fifth session of training, small groups re-reviewed the recommendations made in the previous sessions, and is discussed two cases of diet (the removal of foods that stimulate symptoms and the elimination of fast foods, high fat and fried potatoes, cabbage, spinach, garlic, onion), two cases of lifestyle (washing teeth immediately after meals, washing mouth and teeth after each vomiting and taking out mouth water repeatedly and washing repeatedly in the mouth), and one case of mental-psychological (self-treatment with laughter and work).

At the sixth session, the training in small groups reviewed the practice of the recommendations presented in the previous sessions, and is discussed two aspects of the diet (cold appetite and food consumption in a small and frequent manner), two areas of lifestyle (rest in a quiet, dark room, wearing loose clothing, using a cool and wet cover in the forehead, neck or wrists, or using a cold compress on the stomach area) and one case of mental-psychological (using deviant techniques such as TV, studying, meeting friends, and music).

At the seventh session of the training in small groups, the recommendations of the previous sessions were re-examined and is discussed two cases of diet (food intake with mint or ginger taste and consuming a light meal with high protein before bed and half awake)

night), three areas of lifestyle (ventilation of the room and kitchen, using methods of diversion, regular exercise) and one case of mental-psychological (if unusual stress is referred to the doctor).

At the eighth session of small-school training, the review will be followed up on the recommendations of the previous sessions. During this period, the control group provided the usual care services in the field of NVP in accordance with the country protocol contained in the “National Motherhood Safety Program, Integrated Mental Health Care” program by the researcher. These include recommendations for reducing nausea and vomiting, such as psychosocial support, the consumption of solids, especially early in the morning, reducing the consumption of fondant foods, spicy, hot and fat, using mild and fried foods, using gingerbread or smell ginger and avoiding sudden changes such as fasting from sleep.^[21] One week after completing the training, both groups completed the quality of life questionnaire.

Data were analyzed by SPSS software version 16 and by independent *t*-test, Mann–Whitney, Chi-square, and Wilcoxon tests. The significance level was considered to be $P < 0.05$.

Results

The results of Chi-square, Mann–Whitney, and independent *t*-tests showed that the research units at the beginning of the study were based on individual characteristics including maternal age, mother’s occupation, maternal education, gestational age, body mass index, family income, type of housing, sleep at night, hiking time, and nausea score was not significant ($P < 0.05$) [Tables 1 and 2].

According to the results of the Mann–Whitney test, there was no significant difference between the mean score of life quality before intervention ($P = 0/192$). However after the intervention, according to the Mann-Whitney test, there was a significant difference between two groups ($P = 0.001$). Furthermore, according to the Wilcoxon intra-group test, the mean quality of life score in the intervention group, before and after the intervention, was statistically significant ($P = 0.001$). However, in the control group within control group, Wilcoxon was not significant ($P = 0.499$) [Table 3].

Discussion

In this study, the aim of the present study was to determine the effect of the company in the form of small educational groups on the quality of life of women with nausea and vomiting in pregnancy. The results showed that the mean score of quality of life in the intervention

Table 1: Comparison of mean and standard deviations of demographic variables at the beginning of the study in two groups

Variable	Group		P (independent t-tests)
	Intervention, mean±SD	Control, mean±SD	
Age of the woman (years)	25.8±4.6	25.7±4.5	0.956
Gestational age (week)	9.4±1.3	9.5±1.6	0.695
Hiking time (min)	16.2±12.5	16±12.4	0.952
Body mass index (kg/m ²)	23.1±4.6	21.9±3.2	0.254
Night sleep (h)	9.5±1	9.5±1.1	0.956
Nausea score	6.1±2.4	5.9±2.6	0.761

SD=Standard deviation

and control groups at the beginning of the study was significantly different. While after the intervention, the mean score of quality of life in the intervention and control groups was statistically. Furthermore, there was no significant difference in the mean score of quality of life in the control group before and after the intervention, while in the intervention group, the mean score of life quality before and after the intervention showed a significant difference. These results show that education in small groups has improved the quality of life of women with symptoms of nausea and vomiting in pregnancy. The results of this study are in accordance with the study of Abedian (2014)^[24] and the study of Liu *et al.* (2014)^[14] In the Liu study, professional support was provided by the researcher, in the form of face-to-face training and a booklet. In this study, professional support reduced nausea and vomiting in the intervention group compared to the control group. In Abedian’s study entitled “Investigating the Impact of Telephone Support on the Quality of Life of Women Related to Health in Women with Nausea and Vomiting in Pregnancy,” conducted on 60 women with nausea and vomiting in pregnancy, telephone support for quality of life associated with health in pregnant women, it was effective. In the present study, the support provided by small groups of peers has led to improved quality of life, due to the support of the peer group.

In studies by Lacasse *et al.*, Chou *et al.* reported low the quality of life of women with nausea and vomiting in pregnancy.^[20,25,26] On the other hand, due to the positive features of education using small groups such as active participation, face-to-face contact, and targeted activities, this training method is emphasized in the field of health education.

In this regard, Golmakani *et al.* conducted a study aimed at “Determining the effect of Ottawa’s educational intervention on nausea and vomiting in the first trimester of pregnancy;” the intervention group included two training sessions based on the Ottawa Manual (Groups of 3–5 people). At the end of the average, the overall score of nausea, vomiting, and gagging was significantly lower

Table 2: Distribution of demographic variables at the beginning of the study in two groups

Variable	Group	Intervention (30), n (%)	Control (29), n (%)	All (59), n (%)	P
Mother's education level	Elementary-guidance	7 (23.3)	5 (17.2)	12 (20.3)	0.744 (Mann-Whitney)
	Diploma	10 (33.3)	11 (37.9)	21 (35.6)	
	Academic	13 (43.3)	13 (44.8)	26 (44.1)	
Mother's job status	Housewife	24 (80)	24 (82.8)	48 (81.4)	0.612 (χ^2)
	Employed	6 (20)	5 (17.2)	11 (16.9)	
Family income	Anterior level	2 (6.7)	3 (10.3)	5 (8.5)	0.801 (Mann-Whitney)
	Soutable level	24 (80)	22 (75.9)	46 (78)	
	Superior level	4 (13.3)	4 (13.8)	8 (13.5)	
Type of housing	Leasing	18 (60)	17 (58.6)	35 (59.3)	0.914 (χ^2)
	Personal	12 (40)	12 (41.4)	24 (40.7)	

Table 3: Comparison of mean score of quality of life in the control and intervention group before and after the study

Quality of life score	Group		Mann-whitney test between two groups
	Intervention, mean±SD	Control, mean±SD	
Before intervention	106±1.6	110.8±1	P=0.192
After intervention	72.43±1.8	116.4±1.5	P=0.001
Wilcoxon intra-group test			
P	0.001	0.439	
Z	-5.652	-0.774	

SD=Standard deviation

in the intervention group than in the control group.^[27] These results are consistent with the findings of this study. That may be due to the similarity in the type of study, the consistency of the research community, sample size, sampling method, and educational method. In the Soltani study, the study population comprised 60 primary pregnant women aged 6–11 weeks pregnant and referred to health centers; they were divided into groups of 3–5 people. The researcher also used lecture instruction, slideshow, question and answer, and group discussion which is almost identical with the present study. However, the study did not find the impact of small training groups on quality of life. However studies have focused on the impact of small educational groups on other variables. In this regard, in the study of Tol *et al.*, (2013) there was a significant difference in knowledge of diabetic patients before and after education in the form of small groups.^[28] In the study, Dr. Tale was taught in the form of small groups of 12–5, who were trained for 45–60 min. Lecture and questioning methods were also used which is consistent with the study of the number of people in small groups, the duration of education and its teaching methods.

Today, group training has become increasingly common. Since today's conventional management is seeking to reduce costs and effectiveness, this has led to bringing experts and authorities toward group training, which is due to time-saving, costs, less specialized workforce, The relationship between patients and clients together and the effect of the group on the behavior and performance

of individuals is more effective than individual or indirect education.^[29]

Training intervention in the form of small groups in the present study has been able to increase the quality of life of pregnant women with NVP. Therefore, pregnant women with NVP in care units can be supported by a comprehensive and empathic approach, focusing on the education and emotional and practical support needed. This may facilitate the improvement of women's health.^[30]

Research constraints

From the limitations of the present study, it was difficult to coordinate and prepare the venue for discussion classes and coordinate the time of the participants to participate simultaneously in the discussion. To reduce the limitations, efforts were made to increase the number of meetings and hold meetings with the responsible health center to use existing spaces. Another limitation was the self-reported completion of questionnaires.

Conclusion

In this study, education in the form of small groups increased the quality of life of women with nausea and vomiting in pregnancy. Therefore, integration of this training method into the usual care for women with complaints of nausea and vomiting in pregnancy is recommended. Training in small groups, due to the impact of their peers and the discussion among people, as well as the wider content of training sessions, had a significant effect on reducing nausea and vomiting and increasing the quality of life of women with nausea and vomiting.

To achieve more accurate results and more generalizability for future research, the following topics are suggested. Comparative study of different educational methods on women's quality of life with nausea and vomiting in pregnancy. Investigating the presence of spouse in educational classes on the quality of life of women with nausea and vomiting in pregnancy.

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Conflicts of interest

There are no conflicts of interest.

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