Introduction

More than two-thirds of pregnant women suffer from nausea and vomiting,[1] which usually starts in weeks 6–8 of pregnancy and ends around week 12 although its symptoms may remain until week 20 in some women.[2] Half of the pregnant women usually suffer from nausea and vomiting and 25% suffer from only nausea.[3] Severe nausea and vomiting accompanied by symptoms including dehydration, acidosis, alkalosis, and weight loss threaten the mother’s health.[4] The main cause of this common problem of pregnancy is unknown and is probably due to several factors among which hormonal changes have the most important role.[5] Although nausea and vomiting of pregnancy (NVP) is limited to the first trimester of pregnancy, a minimal percentage of cases continue until delivery.[6] NVP is accompanied by an increased risk of maternal stress, anxiety and depression,[7] low quality of life,[8] and reduction of maternal physical and social function.[9] The risk factors of NVP include race,[10] baby’s sex,[11] young maternal age,[12] multifetal gestation, low income, low education level,[13] history of premenstrual syndrome, and unwanted pregnancy.[14] Complementary medicine has obtained special attention over the recent years.[15] Complementary medicine is based on ancient and natural remedies. Pregnant women are applying different methods of complementary medicine including aromatherapy, acupressure/acupuncture, herbs, homeopathy, and reflexology.[16] Different types of treatment are used for NVP.[17] Treatment of NVP depends on the severity of symptoms.[18] In addition to diet, therapy, and lifestyle modification, complementary medicine is an interesting complementary for many women[19] so that more than 87% of women use at least one method of complementary and alternative medicine during pregnancy.[20] Many pregnant women prefer complementary medicine, due to its lower adverse effects, to chemical drugs.[21] In a review, complementary and alternative therapies...
were more frequently used in pregnant women with higher education and a history of vaginal delivery.\textsuperscript{[22]}

Iranian traditional medicine is a school of holistic medicine, special comments on diagnosis and treatment of diseases.\textsuperscript{[23]}

Since review studies due to their precise and strict structure are considered a standard resource to establish healthcare-related evidence,\textsuperscript{[24]} a systematic review is a “vital link” between research-based studies and clinical decision-making.\textsuperscript{[25]} Indeed, considering the importance of maternal and fetal health and the side effects of chemical drugs as well as the need for effective treatment methods with minimal adverse effects, this study as a systematic review aimed to summarize the analysis of retrospective clinical trials carried out in Iran. Regarding the increasing demand for complementary medicine, this is the first systematic review in this field in Iran. This study aimed to review and summarize the analysis of clinical trials in this context and to assess safety and efficacy of different methods for relieving NVP in Iran.

**Methods**

**Searching strategy**

This study is a systematic review of randomized controlled trials (RCTs), assessing all published Iranian articles (RCT) from 2000 to 2015 in Persian or English searched from Iranian databases including MedLib, Magiran, Iran Medex, SID, Scopus, and PubMed and Google Scholar search engines. The articles were searched with the following keywords: Nausea and vomiting, pregnancy, complementary medicine, and clinical trials. In this study, all clinical trials assessing NVP in Iran were recruited. In Scopus, the articles were limited to Iran, and in PubMed, the articles were limited to clinical trials in all databases, advance search was used.

**Criteria for inclusion in this review**

**Selection of studies**

Two authors reviewed the eligibility of trials, independently evaluated the risk of bias, and extracted the data for the included trials. Information on demographic characteristics of the study population during the study period, the number of patients in control group, duration of study, measurement tools, adverse effect of each intervention, and the number of affected participants who got better with treatment and placebo were extracted. All RCTs containing complementary medicine for treatment of NVP were included in the study, and all clinical trials employed one of the following standard tools to measure the severity of NVP: the Rhodes Index of Nausea and Vomiting, visual analog scale-McGill nausea questionnaire, and Pregnancy-Unique Quantification of Emesis and Nausea.

**Types of participants**

All clinical trials including healthy pregnant women who had experienced nausea with or without vomiting, with single fetus, and without any history of gastrointestinal diseases were assessed.

**Types of interventions**

The types of interventions used were all clinical trials including complementary medicine treatment versus placebo, no treatment, or any treatment for NVP.

**Types of comparator/control**

The types of comparator/control used were placebo and no treatment.

**Types of outcome measures**

Nausea and vomiting symptom scores were measured by standardized scales. The occurrence of adverse effects and side effects was recorded.

**Risk of bias**

Jadad criteria were used to evaluate the articles. This scale assesses the articles based on the probability of bias in randomization, the patients’ follow-up, and blinding. The overall score of this scale ranges from 0 to 5 where score 5 is the strongest methodologically.\textsuperscript{[26]} According to these criteria, the articles with a score 3 or higher were included in the study. Searching in databases was performed by two authors; the abstracts were first assessed and then some articles were subjected to final assessment according to Jadad scale and inclusion criteria.

This study was approved by the Ethical Committee of Shahid Beheshti Medical University (IR.SBMU.PHN.1395.629).

**Results**

In this study, 95 clinical trials were recruited, and after eliminating 74 articles, 21 articles were eventually assessed: out of 21 articles, 10 papers were about ginger, one was about cardamom, three were about aromatherapy, six were about pericardium 6 (P6) acupressure, and one was about KID21 acupressure. Most studies have demonstrated a positive effect on reducing NVP; however, no adverse effect was reported.

The evaluated studies are summarized in Table 1, and the assessed methods are described in Figure 1.

**Ginger**

Ginger is considered a medicinal herb used for the treatment of nausea of pregnancy, alleviation of joint pain, treatment of inflammatory diseases such as rheumatoid arthritis, osteoarthritis,\textsuperscript{[27]} improving the symptoms of premenstrual syndrome,\textsuperscript{[28]} reducing nausea and vomiting after surgery,\textsuperscript{[29,30]} and after chemotherapy.\textsuperscript{[31]} Ginger’s
### Table 1: Characteristics of included studies

| Reference | Author/year | Method                  | Participants | Intervention group | Control group | Measure | Results                                                                 | Adverse effects                  | Jadad score |
|-----------|-------------|-------------------------|--------------|--------------------|---------------|---------|------------------------------------------------------------------------|----------------------------------|-------------|
| [39]      | Ozgoli et al. (2009) | Single-blinded clinical trial | 67 pregnant women | 4 capsules daily containing 250 mg ginger for 4 days | Placebo VAS | Ginger is more effective than placebo in reducing NVP (85% vs. 56%, respectively; \( P<0.01 \)) | Without adverse effects | 4           |
| [36]      | Saberi et al. (2014)   | Randomized controlled trial | 120 pregnant women | 3 capsules daily containing 250 mg ginger for 4 days | Placebo (lactose capsule) | Rhodes | Ginger is effective in mild and moderate NVP | Heartburn | 4           |
| [37]      | Firouzbakht et al. (2014) | Double-blinded clinical trial | 120 pregnant women | 1st group: 4 capsules daily containing 250 mg ginger for 4 days, 2nd group: Vitamin B6 40 mg/qid | Placebo (sugar 40 mg) | VAS | Ginger is as effective as Vitamin B6 in reducing NVP | Stomachache and heartburn | 4           |
| [35]      | Haj Seid Javadi (2013) | Double-blinded clinical trial | 120 pregnant women | MPUQE | | Ginger and B6 are effective in reducing NVP and have no significant difference | Without adverse effects | 3           |
| [41]      | Hosseinkhani (2009)   | Double-blinded clinical trial | 121 pregnant women | Placebo VAS | | Ginger is more effective than placebo in reducing nausea of pregnancy | Not mentioned | 4           |
| [38]      | Saberi et al. (2013)   | Randomized controlled trial | 159 pregnant women | - Rhodes | Ginger is more effective than acupressure in reducing NVP | In ginger group, one woman with heartburn | 3           |
| [40]      | Basirat et al. (2009) | Double-blinded clinical trial | 65 pregnant women | Placebo VAS | | Ginger is effective in reducing nausea of pregnancy | Dizziness Heartburn | 5           |
| [43]      | Narenji et al. (2013) | Single-blinded clinical trial | 100 pregnant women | - VAS | Ginger powder and root are similarly effective in reducing NVP | Without adverse effects | 4           |

*Contd...*
### Table 1: Contd...

| Reference | Author/year | Method | Participants | Intervention group | Control group | Measure | Results | Adverse effects | Jadad score |
|-----------|-------------|--------|--------------|-------------------|---------------|---------|---------|----------------|-------------|
| [42]      | Narenji et al. (2012) | Single-blinded clinical trial | 100 pregnant women | 1st group took 1 spoon daily containing one spoon of ginger and 3 spoons of honey for 4 days, 2nd group: Vitamin B6 40 mg/bid for 4 days | - | VAS | Ginger and B6 are effective in reducing NVP and have no significant difference | Without adverse effects | 3 |
| [44]      | Modares et al. (2012) | Triple-blinded clinical trial | 105 pregnant women | 1st group: ginger capsules twice a day for 1 week, 2nd group: chamomile capsule twice daily | Placebo (glucose capsule) | Rhodes | Chamomile capsule is more effective than ginger capsule in reducing NVP | Chamomile group: Severe nausea, skin allergy ginger group: diarrhea and vomiting | 5 |
| [59]      | Ozgoli et al. (2015) | Double-blinded clinical trial | 120 pregnant women | 3 capsules daily containing 500 mg cardamom for 4 days | Placebo | PUQE | Cardamom is effective in reducing NVP | Heartburn | 5 |
| [48]      | Pasha et al. (2012) | Double-blinded clinical trial | 60 pregnant women | Inhalation 4 drops of mint oil each night for 4 days | Placebo (normal saline) | VAS | Peppermint aromatherapy is not effective in reducing NVP | Not mentioned | 4 |
| [49]      | Joulaee-Rad (2015) | Single-blinded clinical trial | 64 pregnant women | 5 drops of mint inhaled 4 times a day | Placebo (almond oil) | PUQE | Peppermint inhalation is not effective in reducing NVP | Not mentioned | 5 |
| [73]      | Nacimi Rad et al. (2012) | Single-blinded clinical trial | 80 pregnant women | Acupressure in KID21 point 20 min daily for 4 days | Placebo | VAS | Acupressure in KID21 is more effective in reducing NVP compared to control group | Not mentioned | 5 |
| [53]      | Yavarikia (2014) | Double-blinded clinical trial | 100 pregnant women | Inhaling 10 cc lemon oil for 4 days | Placebo | PUQE | Lemon aromatherapy is effective in reducing NVP | Not mentioned | 5 |
| [65]      | Ozgoli et al. (2008) | Single-blinded clinical trial | 75 pregnant women | 1st group: acupressure in Nei Guan with C-band 4 times a day for 4 days, 2nd group: wristbands without doing pressure, 3rd group without intervention | - | VAS | Nei Guan acupressure is effective in the treatment of NVP | Not mentioned | 4 |

*Contd...*
mechanism of action in reducing nausea and vomiting is unknown.[32] In this review, ten clinical trials with 1059 participants evaluated the effectiveness of ginger for NVP. However, some studies have shown that ginger acts through antiserotonin-3 (5HT3).[33,34] Haji Seid Javadi et al. reported that ginger and Vitamin B6 are both effective in reducing NVP. Although the impact of Vitamin B6 was greater, there was no statistically significant difference.[35] Saberi et al. found that ginger capsules led to more significant mitigation of NVP compared to the control group and placebo.[36] Firouzbakht et al. found that ginger capsule was as effective as Vitamin B6 in alleviating NVP.[37] In another study, Saberi et al. demonstrated that ginger is more effective than acupressure in reducing NVP.[38] Ozgoli et al. showed that 1000 mg of daily ginger intake

| Reference | Author/year | Method | Participants | Intervention group | Control group | Measure | Results | Adverse effects | Jadad score |
|-----------|-------------|--------|--------------|-------------------|---------------|---------|---------|----------------|-------------|
| [68]      | Nurani et al. (2011) | Single-blinded clinical trial | 99 pregnant women | Acupressure 2 min every 2 h for 4 days in 3 groups. 1st group: acupressure in K-K9, 2nd group: acupressure in P6, 3rd group: acupressure in aberrant point | Rhodes | K-K9 acupressure is more effective in reducing nausea of pregnancy but P6 and K-K9 acupressure had similar effect in reducing vomiting | Not mentioned | 4 |
| [67]      | Saberi et al. (2012) | Single-blinded clinical trial | 150 pregnant women | Acupressure in P6 point, placebo group acupressure in opposite point of P6, control group without intervention | Placebo | Acupressure is effective in reducing NVP | Not mentioned | 3 |
| [69]      | Aga-Miri et al. (2008) | Single-blinded clinical trial | 120 pregnant women | Acupressure in Nei Guan with C-band 4 times a day for 4 days | Placebo | 70% reduction in intensity and frequency of nausea in experimental group versus 16% in control | Not mentioned | 3 |
| [70]      | Tadion et al. (2000) | Clinical trial | 102 pregnant women | Acupressure in Nei Guan with C-band 4 times a day for 4 days, 2nd group: Vitamin B6 40 mg/bid for 4 days | VAS | Acupressure and B6 are both effective in reducing NVP and have no significant difference | Without adverse effects | 3 |
| [66]      | Forouhari et al. (2014) | Quasi experimental | 195 pregnant women | Acupressure in P6 point, placebo group P6 wristbands with a button on the front of the pack, control group without intervention | Placebo | The severity of nausea and frequency of vomiting reduced significantly in treatment in Group 1 compared with the other two groups | Not mentioned | 3 |

VAS=Visual analog scale, NVP=Nausea and vomiting of pregnancy, PUQE=Pregnancy-Unique Quantification of Emesis and Nausea, MPUQE=Modified pregnancy-unique quantification of emesis and nausea
was more effective than placebo in reducing NVP (85% vs. 56%, respectively; *P < 0.01*). Basirat et al. (2009) demonstrated a significant decrease in nausea of pregnancy in the study group receiving ginger biscuits, but there was no significant reduction in vomiting of pregnancy in the ginger group. Hosseinkhani and Sadeghi found ginger capsules to be effective in reducing nausea of pregnancy. Narenji et al. (2012) demonstrated that ginger root syrup was almost as effective as Vitamin B6 in reducing NVP. Likewise, Narenji et al. found that ginger root and powder were similarly effective in the alleviation of NVP. Modares et al. found that chamomile oral capsules are more effective in reducing the symptoms of NVP compared to ginger and placebo.

**Pericardium 6 (Nei Guan)**

Acupressure is a nonmedicinal method for reducing nausea and vomiting. Acupressure in C-band area is an effective, safe, and inexpensive method for mitigating NVP. Acupressure in P6 point which is two-thumb width above the distal crease of the internal wrist has long been used in the treatment of NVP, postoperative nausea, and chemotherapy-induced nausea. The mechanism of acupressure is unknown, but low-frequency transcutaneous stimulation may change the transmission of neurotransmitters. Acupressure also has an inhibitory effect on the secretion of gastric acids. In a study conducted by Ozgoli et al., a wristband with a button was more effective than placebo in alleviating the severity of nausea and was more effective than control group in reducing the frequency of vomiting; however the wristband, compared to placebo, was not effective in reducing the frequency of vomiting. Forouhari et al. (2014) concluded that P6 acupressure caused a significant reduction in severity and frequency of NVP. Saberi et al. demonstrated that P6 acupressure is an effective treatment for NVP and the difference was not significant between placebo and P6 acupressure. Nurani et al. also suggested that K-K9 acupressure (in the second phalanx of ring finger) was more effective in reducing nausea during pregnancy, but it had similar effects as P6 acupressure in reducing vomiting of pregnancy. Aga-Miri et al. demonstrated that acupressure in Nei Guan point reduced the frequency and severity of nausea by 70%.

**Acupressure in KID21 point**

Acupressure as a nonmedicinal method is effective in reducing nausea and vomiting after surgery and chemotherapy. KID21 is the distance of 2 cun below the sternal angle and 0.5 cun lateral to mid anterior in the sternocostal angle and 0.5 cun lateral to mid anterior in the
abdominal area. Naeimi Rad et al. showed that acupressure in KID21 area is more effective than placebo (shame acupressure) in reducing NVP in pregnant women.[73]

Discussion
This review was intended to assess the effects of complementary medicine on NVP. Twenty-one clinical trials with 2004 participants were included in this review. Different types of intervention such as acupressure, aromatherapy, and herbal medicine have been used in these studies. Twenty-one studies took 3–5 scores of Jadad scale. Jadad criteria such as the randomization, blinding, follow-up concealment allocation, intention to treat[26] were used in evaluating all the respective articles.

Ten articles were dedicated to the effects of ginger and six to the impacts of Nei Guan acupressure. Cochrane’s reviews found that ginger and acupressure can reduce nausea of pregnancy without adverse effects.[74] Other meta-analyses have also supported the safe effectiveness of ginger on NVP.[32,75] The exact mechanism of ginger in reducing NVP is unknown,[76] but ginger-containing compounds such as 6-gingerol, 6-shogaol, and galano-lactogen have antiserotonin-3 (5HT3) effects.[77] Moreover, ginger has central anti-emetic and anticholinergic properties.[78,79] The recommended dose of ginger in most studies is 250 mg every 4 h and the side effects of this herb are unknown although it may cause heartburn, diarrhea, and fibrinolysis.[76] In our review, different forms of ginger such as capsule, syrup, and biscuit have been compared versus placebo or anti-emetic drug, and the side effects of using this intervention have been mentioned. In clinical consultations for the management of NVP, it is very important to address the potential harms and benefits of ginger.[80]

Six articles have examined the effect of P6 acupressure on NVP. The exact mechanism of acupressure effect on preventing from NVP is unknown, but studies have shown that concentration of β-endorphin increases in cerebrospinal fluid after acupressure which has anti-emetic effect.[81,82] In addition, P6 stimulation reduces nausea and vomiting by increasing blood flow and stabilizing the brain cortex[83] and also increases the regular gastrointestinal myoelectrical activity.[84] A systematic review conducted by Van den Heuvel et al. reviewed RCT studies on the efficacy of different techniques of acupoint stimulation in pregnant women for treatment of NVP or hyperemesis gravidarum (HG) and their studies did not show any evidence of symptoms alleviation in NVP and HG.[85] Matthews et al. (2014) reviewed different interventions for nausea and vomiting such as acupressure, acustimulation, acupuncture, ginger, and Vitamin B6 in early pregnancy as previously published in 2003 and reported no significant effect of P6 or traditional acupuncture in pregnant women with nausea and vomiting and also presented limited evidence on the effectiveness of ginger.[86] However, the results presented by Lete and Allué demonstrated that ginger was used as an effective treatment for nausea and vomiting of early pregnancy.[87] Only one study examined each on cardamom, lemon, and KID21 acupressure and two studies examined peppermint aromatherapy. Although the results of most studies were positive and these methods were effective in reducing NVP, more research in this field is required. Regarding safety, more clinical trials are needed to evaluate their side effects. The results of this study can improve the quality of health services and health problem-solving in pregnant women. In general, to provide sufficient evidence on the effects of complementary medicine, high-quality methodological studies are needed. It is hoped that further studies with high methodological quality can establish a protocol about the effectiveness of complementary medicine in the treatment of NVP to use healthcare team, including physicians, gynecologists, and midwives provided.

Limitation
There are a few limitations in our systematic review; one limitation is related to variability in dosage and duration of treatment, another limitation concerns differences in the formulation of some treatment methods such as different forms of ginger including syrup, biscuit, and capsules. Another limitation of this study is that, since a scanty number of studies have been conducted on some types of interventions such as aromatherapy and acupressure, along with inconsistency of studies, it was impossible to perform meta-analysis. Another limitation of this study was that there was no possibility to search in gray literature. The strength of this study is that this is the first systematic review of clinical trials about the effects of complementary medicine on NVP carried out in Iran.

Conclusions
Some types of complementary medicine are commonly consumed in our life. According to results of the review, most methods were effective in reducing the incidence of NVP, among which ginger and P6 acupressure can be recommended more confidently. In addition, regarding our systematic review, we concluded that complementary medicine is an effective nonpharmacological option for improving NVP with respect to the inherent inconsistency of available literature.

Financial support and sponsorship
Nil.

Conflicts of interests
There are no conflicts of interest.

Received: 03 Jan 17 Accepted: 02 Jul 17
Published: 30 Aug 18

References
1. Herrell HE. Nausea and vomiting of pregnancy. Am Fam Physician 2014;89:965-70.
The burden of illness of severe nausea: The efficacy of ginger added to ondansetron. Effect of ginger on acute and delayed nausea and vomiting.

Ozgoli and Saei Ghare Naz: Complementary medicine and nausea and vomiting in pregnancy.

Abedzadeh Kalahroudi M. Complementary and alternative medicine practitioner during pregnancy. J Altern Complement Med 2014;20:571‑7.

Complement Ther Med 2011;19:303‑10.

Taylor T. Treatment of nausea and vomiting in pregnancy. Indep Rev 2014;37:42‑5.

Lee NM, Saha S. Nausea and vomiting of pregnancy. Gastroenterol Clin North Am 2011;40:309‑34, vii.

Kramer J, Bowen A, Stewart N, Muhajarine N. Nausea and vomiting of pregnancy: Prevalence, severity and relation to psychosocial health. MCN Am J Matern Child Nurs 2013;38:21‑7.

Attard CL, Kohli MA, Coleman S, Bradley C, Hux M, Atanackovic G, et al. The burden of illness of severe nausea and vomiting of pregnancy in the United States. Am J Obstet Gynecol 2002;186:S220‑7.

Smith C, Crowther C, Beilby J, Dandaeux J. The impact of nausea and vomiting on women: A burden of early pregnancy. Aust N Z J Obstet Gynaecol 2000;40:397‑401.

Lacasse A, Rey E, Ferreira E, Morin C, Bérard A. Epidemiology of nausea and vomiting of pregnancy: Prevalence, severity, determinants, and the importance of race/ethnicity. BMC Pregnancy Childbirth 2009;9:26.

Tezerjani FZ, Sekhavat L. Relationship between fetal sex and nausea and vomiting of pregnancy. World Appl Sci J 2013;28:1024‑6.

Källén B, Lundberg G, Aberg A. Relationship between vitamin B6 and dimenhydrinate in the treatment of nausea and vomiting in early pregnancy: A meta-analysis. J Am Board Med 2013;26:42‑5.

Adams J, Lui C, Sibbritt D, Broom J, Wardle J, Homer C. Maternal characteristics and risk factors. Paediatr Perinat Epidemiol 2006;20:270‑8.

Soltani A, Kajuri MD, Safavi S, Hosseini F. Frequency and severity of nausea and vomiting in pregnancy and the related factors among pregnant women. Iran J Nurs 2007;19:95‑102. Available from: http://ijn.iums.ac.ir/article-1-222-en.html or http://ijn.iums.ac.ir/article-1-222-en.html. [Last accessed on 2015 Apr 07].

Adams J, Lui C, Sibbritt D, Broom J, Wardle J, Homer C. Women’s use of complementary and alternative medicine during pregnancy: A critical review of the literature. Birth 2009;36:237‑45.

Bishop J, Northstone K, Green J, Thompson E. The use of complementary and alternative medicine in pregnancy: Data from the Avon Longitudinal Study of Parents and Children (ALSPAC). Complement Ther Med 2011;19:303‑10.

Babaei AH, Foghaha MH. A randomized comparison of Vitamin B6 and dimenhydrinate in the treatment of nausea and vomiting in early pregnancy. Iran J Nurs Midwifery Res 2014;19:199‑202.

Smith J, Refuerzo R, Ramin S. Treatment of Nausea and Vomiting of Pregnancy (Hyperemesis Gravidarum and Morning Sickness). Document consulté le; 2011.

Hollyer T, Boon H, Georgousis A, Smith M, Einarson A. The use of CAM by women suffering from nausea and vomiting during pregnancy. BMC Complement Altern Med 2002;2:1.

Frawley J, Adams J, Broom A, Steel A, Gallois C, Sibbritt D, et al. Majority of women are influenced by nonprofessional information sources when deciding to consult a complementary and alternative medicine practitioner during pregnancy. J Altern Complement Med 2014;20:571‑7.

Abedzadeh Kalahroudi M. Complementary and alternative medicine in midwifery. Nurs Midwifery Stud 2014;3:e19449.

Strouss L, Mackley A, Guillen U, Paul DA, Locke R. Complementary and alternative medicine use in women during pregnancy: Do their healthcare providers know? BMC Complement Altern Med 2014;14:85.

Jafari-dehkordi E, Sohrabvand F, Nazem E, Minaee B, Hashem-Dabagian F, Sadegpo O, et al. Nausea and vomiting in pregnancy and an overview of the causes and treatments of traditional medicine in Iran. Open J Obstetrics Gynecol 2013;5:33‑48.

Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA‑P) 2015 statement. Syst Rev 2015;4:1.

Malboosbaf F, Azizi F. What is systematic review and how we should write it? Pejouhesh 2010;34:203‑7.

Jadad AR, Moore RA, Carroll D, Jenkinson C, Reynolds DJ, Gavaghan DJ, et al. Assessing the quality of reports of randomized clinical trials: Is blinding necessary? Control Clin Trials 1996;17:1‑12.

Biniaz V. A review of the world-wide researches on the therapeutic effects of ginger during the past two years. Jentashapir J Health Res 2013;4:333‑7.

Khayat S, Kheirkhah M, Behboodi Moghadam Z, Fanaei A, Kasaeian A, Javadimehr M, et al. Effect of treatment with ginger on the severity of premenstrual syndrome symptoms. ISRN Obstet Gynecol 2014;2014:792708.

Mandal P, Das A, Majumdar S, Bhattacharyya T, Mitra T, Kundu R, et al. The efficacy of ginger added to ondansetron for preventing postoperative nausea and vomiting in ambulatory surgery. Pharmacognosy Res 2014;6:52‑7.

Montazeri AS, Hamidzadeh A, Raei M, Mohammedi M, Montazeri AS, Mirshahi R, et al. Evaluation of oral ginger efficacy against postoperative nausea and vomiting: A randomized, double-blind clinical trial. Iran Red Crescent Med J 2013;15:e12268.

Panahi Y, Saadat A, Sahebkar A, Hashemian F, Taghikhani M, Abolhassani E, et al. Effect of ginger on acute and delayed chemotherapy-induced nausea and vomiting: A pilot, randomized, open-label clinical trial. Integr Cancer Ther 2012;11:204‑11.

Thomson M, Corbin R, Leung L. Effects of ginger for nausea and vomiting in early pregnancy: A meta-analysis. J Am Board Fam Med 2014;27:115‑22.

Yamahara J, Rong H, Iwamoto M, Kobayashi G, Matsuda H, Fujimura H. Active components of ginger exhibiting anti‑serotonergic action. Phytother Res 1989;3:70‑1.

Marx W, Kiss N, Isenring E. Is ginger beneficial for nausea and vomiting? An update of the literature. Curr Opin Support Palliat Care 2015;9:189‑95.

Haji Seid Javadi E, Salehi F, Mashrafi O. Comparing the effectiveness of vitamin b6 and ginger in treatment of pregnancy-induced nausea and vomiting. Obstet Gynecol Int 2013;2013:927834.

Saber F, Sadat Z, Abedzadeh-Kalahroudi M, Taebi M. Effect of ginger on relieving nausea and vomiting in pregnancy: A randomized, placebo-controlled trial. Nurs Midwifery Stud 2014;3:e11841.

Firouzbakht M, Nikpour M, Jamali B, Omidvar S. Comparison of ginger with Vitamin B6 in relieving nausea and vomiting during pregnancy. Ayu 2014;35:289‑93.

Saber F, Sadat Z, Abedzadeh-Kalahroudi M, Taebi M. Acupuncture and ginger to relieve nausea and vomiting in pregnancy: A randomized study. Iran Red Crescent Med J 2013;15:854‑61.
39. Ozgoli G, Goli M, Simbar M. Effects of ginger capsules on pregnancy, nausea, and vomiting. J Altern Complement Med 2009;15:243-6.

40. Basirat Z, Moghadamnia A, Kashifard M, Sharifi-Razavi A. The effect of ginger biscuit on nausea and vomiting in early pregnancy. Acta Med Iran 2009;1:51-56.

41. Hosseinikhani N, Sadeghi T. The effect of ginger on pregnancy-induced nausea during first trimester. Iran J Nurs 2009;22:75-83. Available from: http://ijn.iums.ac.ir/article-1-716-en.html. [Last accessed on 2015 Apr 07].

42. Nareni F, Delavar M, Rafiee M. Comparison of ginger with Vitamin B6 in relieving nausea and vomiting during pregnancy. IJOGI 2012;15:39-43.

43. Nareni F, Delavar M, Rafie M. Comparison of ginger powder and fresh root of ginger on the nausea and vomiting of the pregnancy. J Complement Med Res 2013;2013:336-43.

44. Modares M, Besharat S, Mahmoudi M. Effect of ginger and chamomile capsules on nausea and vomiting during pregnancy. J Gorgan Univ Med Sci 2012;14:46-51.

45. Alankar S. A review on peppermint oil. Asian J Pharma Clin Res 2009;2:27-33. Available from: http://innovareacademics.in/journal/apjar/Vol2Issue2/187.pdf. [Last accessed on 2015 Apr 07].

46. Stea S, Beraudi A, De Pasquale D. Essential oils for complementary treatment of surgical patients: State of the art. Evid Based Complement Alternat Med 2014;2014:1-6.

47. Ahmed EM, Soliman SM, Mahmoud HM. Effect of peppermint as one of carminatives on relieving gastroesophageal reflux disease (GERD) during pregnancy. J Am Sci 2012;8:152-143.

48. Pasha H, Behmanesh F, Mohsenzadeh F, Hajahmadi M, Moghadamnia AA. Study of the effect of mint oil on nausea and vomiting during pregnancy. Iran Red Crescent Med J 2012;14:727-30.

49. Joulae Rad N. Effect of Inhaling the Fragrance of Peppermint oil. Asian J Pharma Clin Res 2012;3:31-9.

50. Tayarani-Najaran Z, Talasaz-Firoozi E, Nasiri R, Jalali N, Kasem N, Saeidi M. Efficacy and safety of Morinda Citrifolia (Longan) on nausea and vomiting of pregnancy. Iran J Nurs Midwifery 2013;6:347-45.

51. González-Molina E, Domínguez-Perles R, Moreno D, García-Viguera C. Natural bioactive compounds of Citrus limon and Mentha spicata. Molecules 2012;17:4917-4928.

52. Augustine A, Devi E, Latha T. Effectiveness of acupressure as one of carminatives on relieving gastroesophageal reflux disease (GERD) during pregnancy. J Am Sci 2012;8:152-143.

53. Yavari kia P, Safaeiollahi M, Naeini M, Nabavi R. Comparison of ginger with Vitamin B6 in relieving nausea and vomiting during pregnancy. J Obstet Gynecol Neonatal Nurs 2012;10:307-10.

54. Hazrati Z, Davarzani H, Mohammadi M, Nouraeian M. The effect of peppermint oil on nausea and vomiting during pregnancy. J Pharmacol Sci 2012;5:47-50.

55. Ozgoli and Saei Ghare Naz: Complementary medicine and nausea and vomiting in pregnancy.
alleviating mild-to-moderate nausea and vomiting of pregnancy. J Midwifery Womens Health 2005;50:z1-3.

79. Pongrojpaw D, Somprasit C, Chanthasenanont A. A randomized comparison of ginger and dimenhydrinate in the treatment of nausea and vomiting in pregnancy. J Med Assoc Thai 2007;90:1703-9.

80. Shawahna R, Taha A. Which potential harms and benefits of using ginger in the management of nausea and vomiting of pregnancy should be addressed? a consensual study among pregnant women and gynecologists. BMC Complement Altern Med 2017;17:204.

81. Clement-Jones V, McLoughlin L, Tomlin S, Besser GM, Rees LH, Wen HL, et al. Increased beta-endorphin but not met-enkephalin levels in human cerebrospinal fluid after acupuncture for recurrent pain. Lancet 1980;2:946-9.

82. Samad K, Afshan G, Kamal R. Effect of acupressure on postoperative nausea and vomiting in laparoscopic cholecystectomy. J Pak Med Assoc 2003;53:68-71.

83. Shin H, Song Y, Seo S. Effect of Nei-Guan point (P6) acupressure on ketonuria levels, nausea and vomiting in women with hyperemesis gravidarum. J Adv Nurs 2007;59:510-9.

84. Lin X, Liang J, Ren J, Mu F, Zhang M, Chen JD, et al. Electrical stimulation of acupuncture points enhances gastric myoelectrical activity in humans. Am J Gastroenterol 1997;92:1527-30.

85. Van den Heuvel E, Goossens M, Vanderhaegen H, Sun HX, Buntinx F. Effect of acustimulation on nausea and vomiting and on hyperemesis in pregnancy: A systematic review of western and Chinese literature. BMC Complement Altern Med 2016;16:13.

86. Matthews A, Dowswell T, Haas D, Doyle M, Dónal P, ’Mathúna O. Interventions for nausea and vomiting in early pregnancy. Cochrane Database Syst Rev 2014;9:1-68.

87. Lete I, Allué J. The effectiveness of ginger in the prevention of nausea and vomiting during pregnancy and chemotherapy. Integr Med Insights 2016;11:11.