

EXPLORING THE USE OF INTEGRATIVE THERAPIES DURING PREGNANCY

by

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### Abstract

**Background:** About 60% of women experience back pain while pregnant (Jayson, 2016). “Morning sickness” affects about 80-90% of pregnant women (Viljoen, Visser, Koen, & Musekiwa, 2014). Stress and anxiety during pregnancy can cause negative birth outcomes (Effati-Daryani, Mohammad-Alizadeh-Charandabi, Mirghafourvand, Taghizadeh, & Mohammadi, 2015). **Purpose:** The purpose of this research was to (1) explore the published literature regarding the use of integrative therapies during pregnancy for low back and pelvic pain (LBPP), nausea and vomiting (N/V), and depressed mood or anxiety, and (2) to survey ethnic and racially diverse pregnant women receiving prenatal care at a birth center in North Carolina about their use of integrative therapies to alleviate common discomforts of pregnancy, including LBPP, N/V, and depressed mood or anxiety. **Methodology:** A convenience sample of 31 was obtained by requesting participation in a survey from pregnant women at a birth center in Chapel Hill, North Carolina that assessed their use of integrative therapies during pregnancy. Pregnant women of all trimesters and races were included in the study. Those women who were unable to speak and read English were excluded from this study. **Results:** Yoga (32.3%) and chiropractic services (29.1%) were commonly reported integrative therapies used to treat low back and pelvic pain during pregnancy. Acupressure (12.9%) was the most commonly reported integrative therapy used to treat nausea and vomiting during pregnancy. Meditation/yoga (6.5%) and herbs (6.5%) were commonly reported integrative therapies used to treat mood disturbances during pregnancy. About 23% of participants reported having used integrative therapies during pregnancy without notifying their healthcare providers. **Implications:** The findings of this research were used to understand what integrative therapies women are using to alleviate their common discomforts of pregnancy, specifically related to LBPP, N/V, & mood disturbances.

### **Background and Significance**

During pregnancy, a woman's body goes through many changes. A pregnant woman may experience many common symptoms such as nausea and vomiting, heartburn, insomnia, and pain, among others. Low back pain, for example can be common during pregnancy. About 60% of women experience back pain while pregnant (Jayson, 2016). Given that more than half of pregnant women suffer from back pain, this issue seems to be an important one to address.

Additionally, many women experience nausea and vomiting during pregnancy. It is known that "morning sickness" affects about 80-90% of pregnant women, which depicts the significance of this issue (Viljoen, Visser, Koen, & Musekiwa, 2014). The majority of pregnant women experience these unpleasant symptoms; therefore, they may experience difficulty carrying out activities of daily living while pregnant.

Furthermore, mental health issues often surface during pregnancy. Studies have shown that stress and anxiety during pregnancy can cause negative effects such as fetal growth restriction and preterm delivery (Effati-Daryani, Mohammad-Alizadeh-Charandabi, Mirghafourvand, Taghizadeh, & Mohammadi, 2015). Negative birth outcomes could potentially be avoided if affected pregnant women are provided proper treatments to mitigate stress and anxiety.

Integrative therapies, such as yoga, aromatherapy, and others, have gained interest among individuals in recent years and have been used to reduce stress, pain, and other symptoms individuals may experience due to various conditions (Kalyankar, Attar, & Shinde, 2012). This research focuses specifically on the use of integrative therapies by pregnant women. While it is known that women use integrative therapies during pregnancy to treat a wide variety of pregnancy-related symptoms, one cross-sectional study found that although more than one-third

of the pregnant women who participated in the study had used integrative therapies within the past year, only half of those participants disclosed that information to their primary healthcare providers (Holden, Gardiner, Birdee, Davis, & Yeh, 2015). Kıssal, Çevik Güner, & Batkın Ertürk (2017) conducted a cross-sectional descriptive study in Turkey, which revealed that 76% of the respondents were not given information about the use of integrative therapies during pregnancy from their healthcare providers. Furthermore, a multinational survey study revealed that friends and family were the primary sources of influence for pregnant women with regards to using integrative therapies during pregnancy, not their healthcare providers (Kennedy, Lupattelli, Koren, & Nordeng, 2013).

Women use integrative therapies during pregnancy to treat a wide variety of conditions including low back and pelvic pain, nausea and vomiting, and depressed mood or anxiety. Most integrative therapy users are White, middle class women; less is known about the use of integrative therapies among women of color or those from less affluent backgrounds (Holden et al., 2015).

The purpose of this research is to (1) explore the published literature regarding the use of integrative therapies during pregnancy for lower back and pelvic pain (LBPP), nausea and vomiting (N/V), and depressed mood or anxiety, and (2) to survey ethnic and racially diverse pregnant women receiving prenatal care at a birth center in North Carolina about their use of integrative therapies to alleviate common discomforts of pregnancy, including LBPP, N/V, and depressed mood or anxiety.

## **Review of Literature**

### **Search Process**

A review of the literature of research articles and systematic reviews was conducted by searching the following databases: PubMed, CINAHL, and ProQuest. After consulting with a medical librarian, search terms were determined. Search terms included: “pregnancy or pregnant,” “prenatal,” “aromatherapy,” “massage,” “yoga,” “essential oils,” “acupressure,” “acupuncture,” and “complementary or alternative therapies.” Search terms such as “back pain in pregnancy,” “nausea and vomiting in pregnancy,” and “mental health in pregnancy” were not included because prior to the literature search, there was no intent to focus specifically on those three areas. The literature search revealed that those three areas of concern seem to be the ones most commonly addressed with integrative therapies during pregnancy; therefore, the focus of this paper was narrowed. Only articles published in English since 2012 were included in the review, with the exception of one highly cited article, which was published in 2005. A total of 37 articles were selected as relevant for the review, but only 20 were used. Reasons articles were excluded were primarily due to relating to the postpartum period.

## **Findings**

**Low Back and Pelvic Pain.** LBPP are common symptoms of pregnancy, with low back pain affecting about 67% of pregnant women, and pelvic pain affecting about 20% of pregnant women (Close, Sinclair, Cullough, Liddle, & Hughes, 2016). During a cross-sectional data analysis, researchers found that in a sample of 727 pregnant women, the top reasons the participants used integrative therapies included general wellness or disease prevention (33%) and back pain treatment (16%) (Holden, Gardiner, Birdee, Davis, & Yeh, 2015). In a systematic literature review exploring the safety of acupuncture during pregnancy, researchers found that LBPP was the symptom treated by acupuncture most often (Park, White, & Lee, 2014). A cross-sectional study, which included 176 completed surveys, revealed that the mean low back pain

intensity was 6.43/10, mean low back pain frequency was 7.16/10, mean pelvic pain intensity was 7.62/10, and mean pelvic pain frequency was 8/10 (Sinclair, Close, McCullough, Hughes, & Liddle, 2014). All of these values were measured using the visual analogue scale (VAS), with zero indicating low intensity/frequency and 10 indicating high intensity/frequency. Of the pregnant women who participated in this study, 64% used pain medication, 33% used physiotherapy, and 19% saw their primary care physicians for LBPP treatment. Additionally, osteopathy, reflexology, and chiropractic treatments were the most commonly reported integrative modalities used to treat LBPP (Sinclair et al., 2014). A randomized controlled trial compared the use of reflexology, footbaths, and usual care (placebo) to treat LBPP. After the reflexology and footbath interventions, the reported LBPP pain intensity scores were 5.14/10 and 5.63/10 respectively, and pain frequency scores were 5.41/10 and 6.13/10 respectively. The results of this study showed that the reflexology group had greater pain relief in intensity and frequency than the footbath group as measured by the visual analogue scale (VAS) (Close et al., 2016). A randomized controlled trial looked at the effectiveness of the use of rose oil to treat low back pain during pregnancy. A total of 114 pregnant women participated in this study, and they were divided into three groups: 37 rose oil, 38 almond oil (placebo), 39 no intervention (control). The results of this study revealed that topical administration of rose oil significantly decreases pain intensity of low back pain during pregnancy and improves functional ability of the patients when compared to the placebo and control groups (Shirazi et al., 2017). Schlegel, Whalen, & Williamsen (2016) conducted a retrospective analysis study to examine the use of integrative therapies for women with a high-risk pregnancy. The results of this study showed that pain decreased 78.9% with acupuncture therapy, 84.5% with guided imagery therapy, 83% with healing touch therapy, 61.4% with massage therapy, and 75.9% with reflexology therapy.



**Nausea and Vomiting.** N/V are symptoms that affect most pregnant women at some point during their pregnancies. A study conducted in Erzurum, Turkey revealed that 87.8% of the participants reported experiencing pregnancy-related N/V during their first trimesters (Nazik & Eryilmaz, 2013). This study included 909 pregnant women, with 303 participants from each trimester. Since N/V was reported as being most prevalent during the first trimester, this time period was selected for the purposes of this review. Participants were asked how they managed their N/V symptoms during the first trimester. Their responses are as follows: doing nothing (34.2%), eating salty foods (46.6%), being careful about food consumption (5.3%), taking prescribed medication (6%), drinking hot mint-lemon drinks (7.9%). This study looked only at the management strategies the participants used; the effectiveness of the treatments was not evaluated (Nazik & Eryilmaz, 2013). The authors concluded that most women ate salty foods to treat their N/V symptoms, which they reported as a recommended practice; whereas, only about 8% of women chose to drink hot mint-lemon drinks to treat their N/V symptoms, which they reported as a non-scientific practice. Viljoen et al. (2014) conducted a systematic literature review to determine how effective orally administered ginger is at treating N/V symptoms during pregnancy. The review included twelve random control trial studies comprised of 1278 total participants. Overall, ginger decreased nausea symptoms when compared to placebos. Ginger did not significantly decrease the frequency of vomiting episodes in pregnant women, but it did approach significance. The authors concluded that lower doses may be more effective than higher doses, and that ginger does not seem to have major side effects. Shawahna & Taha (2017) interviewed pregnant women in Palestine and found that participants felt that healthcare providers should improve on explaining the benefits of using ginger, including reducing N/V in pregnancy, and also address the risks of using ginger, including effects from its anticoagulant

properties, so the consumer can better make an informed decision about whether or not to use this remedy to treat N/V during pregnancy.

**Stress, Anxiety and Depression.** Many women experience transient mental health concerns during pregnancy including stress, anxiety, and depression. Studies have shown that stress and anxiety during pregnancy can contribute to negative birth outcomes (Effati-Daryani et al., 2015). Additionally, studies have shown that anxiety and depression during pregnancy may increase the incidence of N/V, preeclampsia, and preterm births (Effati-Daryani et al., 2015). Effati-Daryani et al. (2015) conducted a double-blinded placebo-controlled trial to determine how lavender cream with and without foot-baths affects anxiety, stress, and depression in pregnant women. The results showed that all symptoms (anxiety, stress, and depression) were significantly lower in both the lavender and foot-bath group and lavender alone group after eight weeks of receiving the interventions as compared to their baselines. Adding the foot-bath did not significantly improve the effectiveness of the modality; the lavender cream alone produced the same beneficial effect. Schitter, Nedeljkovic, Baur, Fleckenstein, & Raio (2015) conducted a controlled pilot study to determine the safety of Passive Hydrotherapy (WATSU) and the pregnancy discomforts it could be useful in treating. WATSU (an acronym based on WAter and shiaTSU) is a therapy, which includes massaging acupuncture points in warm water. Relaxation was reported as the most frequent benefit of WATSU. The results of this study revealed an improvement in mental health and perceived stress reduction from baseline to after WATSU. WATSU has also been found to treat pregnancy-related musculoskeletal pain; however, participants report its mental health benefits most frequently. Riley and Drake (2013) conducted a systematic literature review to determine how prenatal yoga affects birth outcomes. This study showed that yoga reduces stress in pregnant women. Yoga increases a woman's confidence and

allows her to better deal with childbirth, thus reducing maternal depression and anxiety. Chen et al. (2017) conducted a prospective randomized control trial, which revealed that prenatal yoga reduces the stress hormone cortisol, thus reducing anxiety during pregnancy. Additionally, one study found a decrease in the amount of preterm deliveries, small for gestational age (SGA) babies, and intrauterine growth restriction among pregnant women in a yoga group (Narendran, Nagarathna, Narendran, Gunasheela, & Nagendra, 2005). Another study showed fewer infants born to mothers who practiced prenatal yoga had low APGAR scores (Rakhshani et al., 2012). Nwebube, Glover, & Stewart (2017) conducted a randomized control study, which showed that listening to specially composed lullabies about pregnancy during the prenatal period significantly reduced anxiety and depression symptoms among the participants. Schlegel, Whalen, & Williamsen (2016) conducted a retrospective analysis study to examine the use of integrative therapies for women with a high-risk pregnancy. The results of this study showed that anxiety decreased 83% with acupuncture therapy, 90% with guided imagery therapy, 91.25% with healing touch therapy, 70.9% with massage therapy, and 83.5% with reflexology therapy. The discussed literature explains various integrative modalities used to treat LBPP, N/V, and mental health concerns during pregnancy.

### **Research Questions**

This study aimed to address the following research questions:

1. Do pregnant women report the use of integrative therapies during pregnancy to treat common discomforts of pregnancy?
2. What integrative therapies do pregnant women use to alleviate their symptoms?
3. What integrative therapies are used to alleviate LBPP, N/V, and mental health concerns during pregnancy?

4. Is there a difference in the reported use of integrative therapies during pregnancy based on race/ethnicity, trimester, level of education, and/or age?

### **Methodology**

#### **Assessment**

A review of the literature highlighted the use of integrative therapies for common discomforts of pregnancy such as LBPP, N/V, and depressed mood or anxiety. A limitation of the studies reviewed was that participants were primarily Caucasian and well educated. Therefore, this study aimed to explore the use of integrative therapies for common discomforts of pregnancy among ethnically diverse women with emphasis on three of the most common discomforts of pregnancy: LBPP, N/V, and depressed mood or anxiety.

#### **Sample**

The sample included 31 pregnant women receiving prenatal care from Women's Birth & Wellness Center in Chapel Hill, North Carolina. Women of all races and trimesters receiving prenatal care at this facility were included in the study. Only those women who were unable to speak and read English were excluded from this study.

#### **Data Collection**

After Institutional Review Board (IRB) approval, a questionnaire was distributed to pregnant women who agreed to participate in the study. In addition to general demographics, the survey included questions pertaining to how the participants were currently treating their pregnancy-related discomforts and/or how they have treated their pregnancy-related discomforts in the past. Since the literature review revealed an emphasis on pregnant women using integrative therapies to treat musculoskeletal, gastrointestinal, and mental health concerns of pregnancy, the survey included questions related to using integrative therapies to treat symptoms

in these three specific areas during pregnancy. The literature review also revealed that most pregnant women who choose to use integrative therapies to treat their common discomforts are White, educated women. Therefore, the survey included questions about the participants' race/ethnicity, level of education, and current employment. Participants were asked about their current weeks gestation in order to draw conclusions about the difference in pregnancy-related discomforts and their treatments across trimesters. Finally, to obtain background information related to pregnancy-related gastrointestinal concerns, participants were asked about their diets and whether or not they were currently breastfeeding other children.

### **Data Analysis**

A non-experimental, descriptive survey design was used to describe the demographic characteristics of the participants and their responses to a survey that inquired about their use of integrative therapies during pregnancy.

## **Results**

### **Demographic Data**

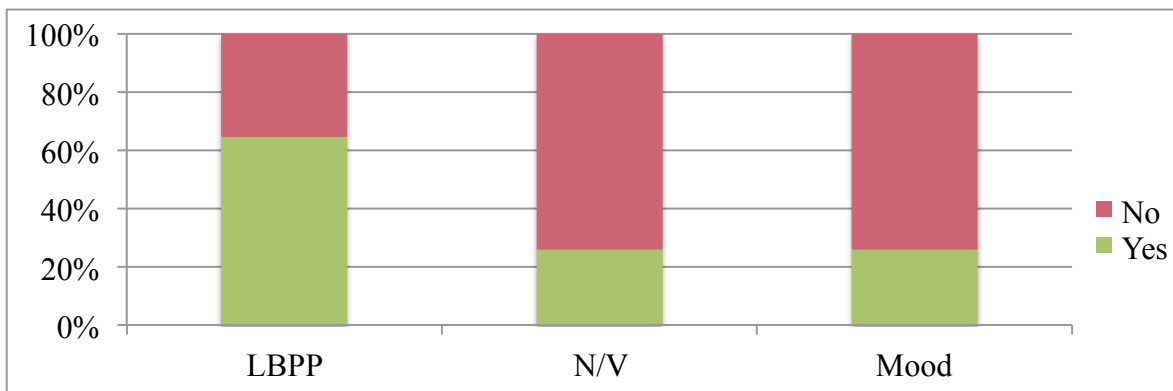
Out of 31 participants, 2 (6.5%) were within the ages of 21-24, 3 (9.7%) were within the ages of 25-27, 5 (16.1%) were within the ages of 28-30, 11 (35.5%) were within the ages of 31-34, 7 (22.6%) were within the ages of 35-38, and 3 (9.7%) were within the ages of 39-41. Participants' races are as follows: 24 (77.4%) White, 6 (19.4%) Black, and 1 (3.2%) Other. Most (93.5%) participants reported having had at least some college education. There were 10 (32.3%) participants who reported currently working full-time, 10 (32.3%) participants who reported currently working part-time, and 11 (35.5%) participants who reported currently not working at all. Most of the participants were currently in their third trimesters. Table 1 depicts the participants' current weeks' gestation.

Table 1

*Participants' reported current weeks' gestation*

<b>Weeks' Gestations</b>	<b><i>n</i></b>	<b>%</b>
1-12	2	6.5
13-26	5	16.1
27-35	9	29.0
36-40	13	41.9
41+	2	6.5

Figure 1 shows the percentage of participants who reported using integrative therapies to treat LBPP, N/V, & depression/anxiety. Of the three focused areas of common discomforts during pregnancy (LBPP, N/V, depressed mood/anxiety), most (64.5%) participants in this study reported using integrative therapies to treat LBPP [Figure 1]. Eight (25.8%) participants reported using integrative therapies to treat N/V and mood disturbances. Figure 2 shows the integrative therapies participants reported using to alleviate LBPP, N/V, and mood disturbances during pregnancy.



*Figure 1.* Have you ever used integrative therapies to treat...? Figure 1 represents the percentage of participants who reported using integrative therapies to treat LBPP, N/V, and mood disturbances.

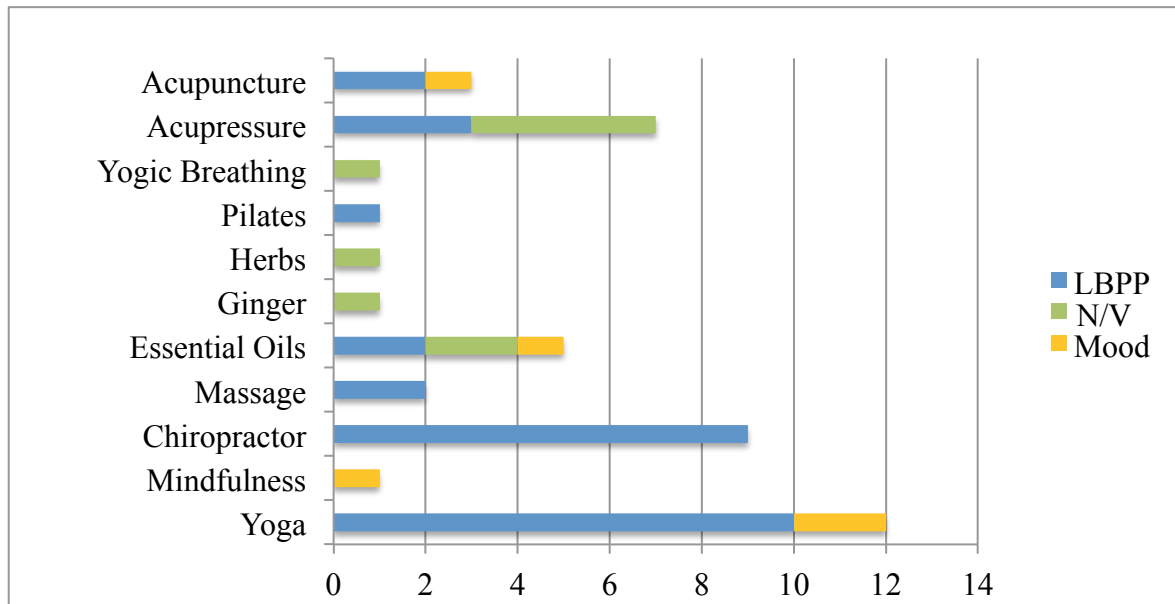


Figure 2. Therapies used for low back and pelvic pain, nausea and vomiting, and mood disorders during pregnancy. Figure 2 represents the number of participants who reported using various integrative therapies to treat LBPP, N/V and mood disturbances during pregnancy.

**Low Back and Pelvic Pain**

The two most commonly reported integrative therapies used to treat low back and pelvic pain during pregnancy included yoga (32.3%) and chiropractic services (29.1%). Eleven (35.5%) participants reported never having used integrative therapies to treat low back and pelvic pain during pregnancy.

**Nausea and Vomiting**

Acupressure (12.9%) was the most commonly reported integrative therapy used to treat nausea and vomiting during pregnancy. Twenty-three (74.2%) participants reported having never used integrative therapies to treat nausea and vomiting during pregnancy. Two (6.5%) participants reported currently breastfeeding another child. The diets participants reported consuming are depicted in Table 2.

Table 2

*Participants' reported diets*

<b>Diet</b>	<b><i>n</i></b>	<b>%</b>
Vegan	1	3.2
Vegetarian	3	9.7
Omnivore	23	74.2
Other	4	12.9

**Stress, Anxiety, and Depression**

The two most commonly reported integrative therapies used to treat mood disturbances during pregnancy included meditation/yoga (6.5%) and herbs (6.5%). Twenty-three (74.2%) participants reported having never used integrative therapies to treat mood disturbances during pregnancy.

**Other Common Discomforts of Pregnancy**

In addition to LBPP, N/V, and mood disturbances, participants were asked about what other discomforts they have experienced during pregnancy [Table 3]. Heartburn (22.6%) and fatigue (16.1%) were the most commonly reported other discomforts of pregnancy. Thirteen (41.9%) participants reported experiencing no other common discomforts during pregnancy.



Table 3

*Frequency of other reported common discomforts of pregnancy*

<b>Common Discomfort</b>	<b><i>n</i></b>	<b>%</b>
Heartburn/ Reflux	7	22.6
Constipation	2	6.5
Foot Pain/ Swelling	2	6.5
Sciatica	3	9.7
Restless Leg Syndrome	2	6.5
Vaginal Pain/ Pressure	1	3.2
Insomnia	3	9.7
Breast Pain	2	6.5
Carpal Tunnel	1	3.2
Abdominal Pain	1	3.2
Fatigue	5	16.1
None	13	41.9

**Disclosure to Provider**

When asked if their midwives were aware of the integrative therapies they were currently using, 19 (61%) participants responded “yes,” 1 (3.2%) participant responded “no,” 6 (19.4%) participants responded “not sure,” and 5 (16.1%) participants responded “N/A.” Seven (22.6%) participants reported that they had used integrative therapies during pregnancy without notifying their healthcare providers.

### **Discussion**

The purpose of this research was to (1) explore the published literature regarding the use of integrative therapies during pregnancy for LBPP, N/V, and depressed mood or anxiety, and (2) to survey ethnic and racially diverse pregnant women receiving prenatal care at a birth center in North Carolina about their use of integrative therapies to alleviate common discomforts of pregnancy, including LBPP, N/V, and depressed mood or anxiety.

The results of this study supported that women are using integrative therapies to relieve their common discomforts of pregnancy. To relieve LBPP during pregnancy, many women reported using chiropractic services, which was consistent with the literature review (Sinclair et al., 2014). Riley and Drake (2013) and Chen et al. (2017) concluded that yoga reduces stress and anxiety in women. However, the results of this study revealed that most women who practiced yoga did so to relieve LBPP as opposed to mood disturbances. The review of literature did not reveal the use of acupuncture to relieve N/V symptoms during pregnancy. However, most of the participants in this study who reported using acupuncture did so to relieve N/V symptoms during pregnancy.

Holden, Gardiner, Birdee, Davis, & Yeh (2015) concluded that half of the participants in their study did not disclose the use of integrative therapies to their healthcare providers. In this study, 1 (3.2%) participant reported that her healthcare provider was currently unaware of the integrative therapies she was currently using during pregnancy, and 6 (19.4%) of participants in this study reported they were currently unsure whether or not their healthcare providers were aware of their current use of integrative therapies during pregnancy. Seven (22.6%) participants in this study reported that they had used integrative therapies during pregnancy in the past without notifying their healthcare providers.

This underreporting of integrative therapy use to healthcare providers could be attributed to multiple reasons: (1) some integrative therapies may not be considered invasive (for example, mindfulness, yogic breathing), and one may not feel the need to disclose such activities; (2) a woman may have participated in certain integrative therapies before she got pregnant, and these therapies are part of her normal lifestyle; and (3) healthcare providers may not be asking about the use of integrative therapies during pregnancy, so women may not be prompted to disclose their participation in such activities. All of these reasons should be considered, and more research is needed to determine the reasons some pregnant women do not disclose the use of integrative therapies to their healthcare providers.

### **Implications**

The findings of this research were used to understand what integrative therapies women are using to alleviate common discomforts of pregnancy, including low back pain and pelvic pain, nausea and vomiting, and mental health concerns during pregnancy. The results add to the body of knowledge about differences in the reported use of integrative therapies during pregnancy based on race and ethnicity, trimester of pregnancy, and other demographic characteristics.

### **Limitations**

Limitations of this study include that 77.4% of participants were White, 93.5% of participants reported having had at least some college education, and there was a small sample size. Additionally, 24 (77.4%) participants were currently in their third trimester of pregnancy; however it cannot be concluded that most integrative therapies were used during participants' third trimesters of pregnancy because participants were not asked to specify which integrative therapies they used during each trimester. Furthermore, responses such as "essential oils" and

“herbs” were generic and did not specify what types of essential oils/ herbs were used and how they were administered (for example, ingestion, topical, or diffusion). Further research is needed to determine what types of essential oils and herbs women are using to alleviate common discomforts of pregnancy. Lastly, this study only looked at integrative therapies pregnant women used to relieve their common discomforts; the effectiveness of these modalities was not evaluated. The small sample size did not allow for correlational analyses to investigate the relationship between integrative therapy use in pregnancy and race/ethnicity and weeks’ gestation. Further research is needed to draw conclusions on the differences in integrative therapies used to relieve common discomforts of pregnancy across different races, educational levels, and trimesters. Lastly, further research is needed to determine why pregnant women choose to or choose not to use integrative therapies to relieve their common discomforts.

### **Conclusion**

This study was designed to explore the integrative therapies pregnant women are using to relieve their common discomforts of pregnancy. The findings revealed that LBPP was the discomfort of pregnancy most commonly treated by integrative therapies. Participants most commonly reported using yoga and chiropractic services to treat LBPP, acupuncture to treat N/V, and meditation and herbs to treat depressed mood and anxiety. There is a need for increased discussion between healthcare providers and pregnant women regarding integrative therapies to encourage disclosure of use during pregnancy.

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