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Women's opinions, beliefs, and practices towards using different medicinal plants for postpartum health problems care

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ABSTRACT

Objectives: The aim of this study is to evaluate Jordanian Women's opinions, beliefs, and practices towards using different medicinal plants for postpartum health problems care.

Method: A cross-sectional observational study was conducted on 300 mothers aged 18 years and above. A structured valid and reliable questionnaire was used for collecting personal, medical and nutritional related data including: gestational weight gain characteristics, the effect of delivery and breast feeding on postpartum weight gain and herbal tea consumption for the management of different postpartum health problems such as postpartum colic, flatulence, spasm, maternal bleeding, lactation and weight gain. The above data where collected through a personal interview by the trained investigators.

Results: Around 45% of participants were overweight or obese with average post-pregnancy BMI of 25.1±4.94 kg/m2. Majority of participants (84%) used one or more medicinal plants after delivery to control their postpartum health problems. The participants may seek herbal help mainly for maternal purposes such as decreasing post-delivery colic, flatulence and spasm (52.9%), treating maternal postpartum bleeding (41.7%) and lactation enhancement (41.0%). Conversely, only 9.0% of participants used herbals for weight control. The most commonly used herbals were cinnamon (49.0%), sage (42.0%), and anise (38.0%).

Conclusions: The potential risk of medicinal plant self-medication is high for managing postpartum complications that need a professional evidence-based practice recommendation.

Keywords: Phytotherapy, complementary and alternative medicine, postpartum health problems, gestational weight gain.

INTRODUCTION

Women after delivery are at high risk for postpartum maternal comorbidities[1] such as fatigue (>50%),[2] depression (6.5% - 12.9%),[3] gestational weight gain (20% - 40%) over recommended[4] in addition to constipation, lactation problems, pain, and others which developed during first few weeks of delivery and may extend up to 1 year.[1-7] Many Studies have reported the effectiveness of using medicinal plants alone or beside steam baths, diet and prescriptions in the management of such postpartum health problems.[8-10] Particularly, postpartum overweight and obesity, which is strongly related to increased gestational weight above what is recommended during pregnancy.[11-14] The later factor is a critical contributor to higher rates of obesity in women of reproductive age even among those with normal weight before pregnancy.[15,16] Studies have indicated that, gestational weight gain associated with long-term with obesity and weight gain after delivery.[2,17,18]. Healthcare professionals encourage

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postpartum managements of gestational weight gain and obesity prevention even during pregnancy.[1,4,6] A recent review found that, diet, exercise or both interventions during pregnancy could reduce risk of postpartum obesity by 20%.[4] However, women are regularly seeking traditional methods to control postpartum obesity.

There are many conventional treatment options for obesity management including low-calorie diet consumption, exercise regimen, pharmacological and bariatric surgical treatments.[19-21] The non-surgical management is generally a multicomponent behavioral therapy includes dietary changes by decreasing energy intake, increasing physical activity, and using different pharmacotherapies such as medication and complementary and alternative medicine (CAM). Options for weight management include medicinal plants,[19,22,23] acupuncture,[24,25] homeopathy,[26] and sleep therapy[27] also play a crucial role in body weight control.

Women are the largest consumers of healthcare resources, and this extends to their big utilization and strong believes in the effectiveness CAM such as the use of medicinal plants.[28-30] With regard to socio-demographics, CAM users are more likely to be educated and middle-aged females, better as they are more committed to practices of health care processes than males.[31-33] Furthermore, they preferred CAM alone or combined with conventional medical treatments as a first line therapeutic option for themselves or their families in managing many acute and chronic conditions.[34-36] Musculoskeletal problems, different types of pain, severe headaches/migraines, depression, insomnia, and stomach or intestinal illnesses were the most common condition treated with CAM.[32,37] In addition, women widely use medicinal plants to manage gynecological and obstetric problems.[8,36,38-40] Women perhaps feel comfortable using medicinal plants because of believes in their perceived safety, accessibility, and the widespread availability of information about them using Internet, TV, magazines and books.[30] On the other hand and based on misconception that medicinal plants are natural then they are safe products, women still use these plants during the period of pregnancy and lactation regardless of possible high risk on mother and fetus health during these critical periods,[35,38,39] keeping in mind that the published data regarding safety during pregnancy are very limited.[30] A number of medicinal plants have lately been investigated for obesity management. Many studies approved that medicinal plants are effective in obesity management such as ginger (*Zingiber officinale*),[41] green tea (*Camellia sinensis*),[42] cumin (*Cuminum cyminum*),[43] and cardamom (*Elettaria cardamomum*).[44]

At Arab countries, few studies in gulf and Mediterranean regions investigated medicinal plant use for women health mainly during pregnancy in Oman,[45] Qatar,[46] Palestine,[47] Egypt,[48] but only one study from Saudi Arabia studied the use of medicinal plat during pregnancy and after delivery.[8] The studies revealed that between 22% - 82% of women have consumed medicinal plants during pregnancy and the most commonly used medicinal plants were peppermint, green tea, thyme chamomile, aniseeds, sage, fenugreek, ginger, and garlic.[39]

Here in the Hashemite Kingdom of Jordan (29°11 N 33°22 E) more than 49 plant families having more than 120 plant species are used in alternative medicine.[35] However, up to our knowledge, studies about medicinal plants usage for post-delivery health problems including obesity are also not available in Jordan as well as other Arab countries.

The connection between medicinal plant usage and maternal benefits that leads women to use these plants through generations based on their own believes and opinions is not well defined among Jordanian women. It is so important to know why women habitually do believe and use certain plants and what the benefits from their own point of view.

The aim of this study is to assess Jordanian women's opinions, beliefs, and practices towards using different medicinal plants for postpartum health problems care.

Methods

Study design

This cross-sectional observational study was conducted in Amman city; the capital of Jordan. Participants' recruitment was conducted during weekdays over a period of six months from March to August 2017. Participants' interviews were conducted in community nutrition clinics in Amman. The study protocol met the Declaration of Helsinki and Good Clinical Practices principles and was approved by the institutional review board at Balqa Applied University in Jordan.

Measures

A closed and open-ended questionnaire was used to explore Jordanian women's opinions, believes and practices towards using different medicinal plants phytotherapy in postpartum health complications. Data were collected through structured interviews conducted by three trained pharmacy students in their senior year.

Participants

A convenient non-random sampling approach was used to cover any women older than the age of 18 years who were able to speak Arabic and with full mental capacity and eligible for study entry. Participants were provided with information about the study and were invited to be interviewed while waiting for their clinic appointment. Women who agreed to participate had the research procedure, goals and methods explained to them and signed an informed consent. A signed written informed consent was obtained from each woman before participation in this study.

Procedure

This study adopted a survey methodology through structured interviews using validated anonymous questionnaire. For questionnaire development, a comprehensive literature review was conducted to ensure the content validity of the questions. Every effort was made during literature review to ensure content validity. Moreover, various drafts of the questionnaire were evaluated individually by two clinical pharmacists, two dietitians, one statistician and one sociologist in order to ensure face validity. This was followed by pilot testing and discussions to ensure clarity and overcome any ambiguities in the questions. The study was piloted on 30 educated and non-educated women before the official start of the definitive study where trained pharmacy students in their senior year were collect the data and help the participants.

Few questions were added or deleted accordingly and the data of the pilot part were excluded from the final analysis.

The questionnaire was in Arabic and consisted of several parts: the first one covered demographic data, obstetric characteristics data and some laboratory tests of the involved participants. These data were including age, body mass index (BMI), type of delivery method, random blood glucose (RBG) level, hemoglobin (Hb) level, vitamin B_{12} level and thyroid stimulating hormone (TSH) level. The next part of the questionnaire involved questions about the postpartum weight gain characteristics of recruited women; mainly the extent of weight gain and the methods used to retain to usual weight such as diet, physical activity or depending on lactation as a tool for weight reduction. Another part of the questionnaire assessed women's opinions and believes towards the effect of delivery and breast feeding on postpartum weight gain. The last part evaluated the habitual consumption of medicinal plants at least three times per week selected as herbal tea and they were also asked about the main indication of use for different postpartum health problems.

The medicinal plant use was evaluated by asking directly about the local name of the medicinal plant and a clear picture of each medicinal plant. The studied medicinal plants giving as common (*scientific*) names were; sage (*Salvia officinalis*), rosemary (*Rosmarinus officinalis*), cinnamon (*Cinnamomum verum*), thyme (*Thymus vulgaris*), ginger (*Zingiber officinale*), mint (*Mentha pipreta*), clove **(***Syzygium aromaticum***)**, common

silver nail root (*Paronychia argentea*), chamomile **(***Matricaria chamomilla***)**, anise **(***Pimpinella anisum***)**, cumin **(***Cuminum cyminum***),** cardamom **(***Elettaria cardamomum***)**, fenugreek **(***Trigonella foenumgraecum*), caravea **(***Carum carvi***)** and green tea (*Camellia sinensis*).

Statistical analysis

Data were coded and entered using Statistical Package for Social Sciences (SPSS©); Version 22.0) database for statistical analysis. Descriptive statistics with corresponding 95 % confidence intervals (CIs) were constructed. Differences between various groups were evaluated using the Pearson chi-Square correlation test and Fisher exact tests for categorical variables. *P* values less than 0.05 were considered statistically significant.

Results

Participants' characteristics

A total of 400 females were approached to participate in the study of which 300 were interviewed (response rate 75.0%). Table 1 summarizes demographic and obstetric characteristics of the study sample. The participants were females from 18 to 45 years with average postpartum BMI of 25.1 ± 4.94 kg/m^2 and normal average hemoglobin level of 12.6 ± 1.4 g/dL. Majority of participants (60%) had history of normal delivery method only and about 15% of participants had history of both normal delivery and caesarean section methods.

Table 1: Demographic and obstetric characteristics of the study sample (N=300)

Parameter	**N (%) or Mean (SD)**
Postpartum BMI (%)	
Under Weight	6 (2%)
Normal	154 (51.3%)
Over Weight	92 (30.7%)
Obese	48 (16.0%)
Type of delivery method	
Normal delivery	180 (60%)
Caesarean section	75 (25%)
Both	45 (15%)
Thyroid function test (TSH)	
Low	15 (5%)
Normal	267 (89%)
High	21 (7%)
B_{12} Level	
Deficient	24 (8%)
Normal	276 (92%)
Hemoglobin level (g/dL)	
Minimum	9.0

Parameter	N (%) or Mean (SD)
Average± SD	12.6 ± 1.4
Maximum	16.7
Random Blood Glucose (RBG)	
Minimum	58.0
Average ± SD	111.7 ± 42.4
Maximum	289.0

Most of participants (90%) suffered from postpartum weight gain where only half of them retained to their usual weight after one year of delivery. Around 62% of women gain around 1-10 Kgs after delivery which enforced them to one method or more such as special diet and/or physical activity to control her weight. Half of participants tried many methods to retain to their usual weight before pregnancy such as following self-planned diet (25.0%), increasing physical activity (9.0%) and seeking dietitian supervision (5.0%). Results are shown in table 2.

Table 2: Postpartum weight gain characteristics of the study sample (N=300)

	(%)
Suffering from postpartum weight gain	270 (90%)
Extent of weight gain	
1-5 kg	75 (25.0%)
6-10 kg	111 (37.0%)
11-15 kg	51 (17.0%)
16-20 kg	24 (8.0%)
>20 kg	9 (3.0%)
No weight gain	30 (10.0%)
Retain to usual weight after one year of delivery	150 (50%)
Methods used to retain to usual weight	
Self-planned diet	75 (25.0%)
Dietitian supervision	15 (5.0%)
Physical activity	27 (9.0%)
Lactation	33 (11.0%)

Participants' opinions and beliefs

A good percent of participants believes that both

frequent deliveries (62.0%) and breast feeding (53%) affect weight gain positively, but only 20% of the participants stopped breast feeding just in order to retain to their usual weight. On the other hand, around 11.0% of participants depend on lactation as a useful way in losing weight after delivery. Less than half of participants do believe that the gender of the baby has impact on the mother weight gain after delivery; in which they believe that male gender has higher impact on weight gain than female gender. Table 3 showed the opinions and believes of recruited women towards the effect of delivery and breast feeding on postpartum weight gain.

Table 3: Opinions and believes of recruited women towards the effect of delivery and breast feeding on postpartum weight gain (N=300)

	(%)
Baby Gender impact on weight gain	
Yes	120 (40%)
Male	66 (22%)
Female	54 (18%)
No impact of gender on weight gain	180 (60%)
Effect of frequent deliveries on usual weight	
Yes there is effect	186 (62%)
Increase usual weight	162 (54%)
Decrease usual weight	24 (8.0%)
No effect	114 (38%)
Effect of breast feeding on weight gain	
Yes there is effect	159 (53%)
No effect	141 (47%)
Would you stop breast feeding to prevent weigh gain	
Yes	60 (20%)
No	240 (80%)

Herbals use

The participants were asked about 14 herbals regarding their use of these herbals in general. Majority of participants (84%) used one or more of the mentioned medicinal plants after delivery. The most commonly used herbals were cinnamon (49.0%), sage (42.0%), and anise (38.0%). While the least used herbals were fenugreek (10.0%), clove (10.0%) and rosemary (9.0%). The participants may seek herbal help mainly for maternal purposes such as decreasing postpartum colic, flatulence and spasm (52.9%), treating maternal postpartum bleeding (41.7%) and lactation enhancement (41.0%). On the other hand, only 9.0% of participants use herbals for weight control where overweight and obese participants used medicinal plants to control their weights more than others (p <0.05). Table 4 summarizes the significance of each

medicinal plant use for the management of different postpartum health problems.

Table 4: Correlation between medicinal plant commonly used and different postpartum health problems (N=300)

	Herbal common name	Enhance lactation	Relieve delivery colic, flatulence and spasm	Treat maternal postpartum bleeding	Weight control	Improve sleeping, mood and cognition
1.	**Sage**	< 0.001	< 0.001	< 0.001	< 0.001	0.278
2.	**Rosemary**	0.004	< 0.001	0.19	0.07	0.004
3.	**Cinnamon**	< 0.001	< 0.001	< 0.001	< 0.001	0.087
4.	**Common silver nail root**	0.003	< 0.001	0.16	0.041	0.009
5.	**Chamomile**	< 0.001	< 0.001	0.007	0.012	< 0.001
6.	**Clove**	< 0.001	< 0.001	0.421	0.722	0.978
7.	**Anise**	< 0.001	< 0.001	0.07	0.005	0.015
8.	**Thyme**	< 0.001	< 0.001	0.005	0.669	0.845
9.	**Ginger**	0.001	< 0.001	0.06	0.002	0.669
10.	**Cumin**	< 0.001	0.002	0.162	0.017	0.871
11.	**Mint**	< 0.001	< 0.001	0.272	0.006	0.143
12.	**Cardamom**	< 0.001	< 0.001	0.037	0.783	0.084
13.	**Fenugreek**	0.91	0.037	0.001	0.382	0.03
14.	**Green Tea**	0.111	< 0.001	0.502	< 0.001	< 0.001

Discussion

Regardless of increasing medicinal plant consumption worldwide;[28,29,34,36] safety issues especially among mothers in postpartum period still warranted extra caution.[38] Little information is available about the use of medicinal plants in postpartum health care in neither Arab world in general nor Jordan in particular. In addition, no previous studies highlight the maternal opinions, beliefs and practices towards using different commonly known medicinal plants for these complications.

The present study noticed a high percent (84%) of medicinal plants consumption among participants for different postpartum health problems. When we compared the results in the current study, with that of a neighboring country such as Saudi Arabia[8] we found that although there are comparable results between Jordanian women (9.0%) and Saudi women (7.7%) regarding using medicinal plants for postpartum weight management, there is different prevalent regarding traditional use of medicinal plants for treating other postpartum health problems. In our study, medicinal plants were mainly used for decreasing postpartum colic, flatulence and spasm (52.9%), treating postpartum bleeding (41.7%) and for lactation enhancement (41.0%). However, and according to a study by Al-Ghamdi *et al*. (2017) a lower prevalence of such medicinal plants consumption for the mentioned postpartum health problems (2.8% to decrease bleeding, 6.5% to increase lactation and 25.1% to relieve pain) has been shown.[8] The reasons behind these differences may be due to different study population and sample size, the traditional and cultural believes among both population may also different in this regards between gulf (Saudi Arabia) and Mediterranean (Jordan) region.

In a previous Asian study by Manderson *et al*. (2003) ginger and cumin were used to control postpartum bleeding in a recipe of boiled rice and vegetables.[49] However, our results were inconsistent with that finding; as women consumption of ginger and cumin to treat postpartum bleeding were insignificant (p>0.05). The Asian life style and culture may contribute for these results. On the other hand, participants in our study strongly believed and consumed medicinal plants such as ginger, cumin and green tea (p = 0.002, 0.017 and <0.001 respectively) in order to manage postpartum obesity. This result is comparable to what is approved in the literature for the efficacy of ginger and cumin in obesity management.[41-43]

According to the current study, more than 40% of mothers used medicinal plants to enhance lactation. This is consistent with a previous study in Jordan concluded that, employed mothers tend to frequently used medicinal plants to treat minor health problem and seeking health benefit during lactation period not only for themselves but for their infants too as they strongly believed in medicinal plant efficacy and safety.[35] Other studies have also shown prevalent use of medicinal plant among lactating women.[38,39] In present study, the most commonly used medicinal plants were cinnamon (49.0%), sage (42.0%) and they were significantly (p<0.05) associated with all studied postpartum complication except for improve sleeping, mood and cognition (p>0.05). Studies were in disagree with our findings,[38,50,51] as these plants were shown to have adverse effects on breastfeeding such as cinnamon may cause cramps and diarrhea in infants, while sage may reduce the milk production.[50,51] Nevertheless, the safety of medicinal plants use by childbearing women and infants is questionable because the published data in this era is scarce, diverse and inconclusive.[30,52-54] Those plants, were used based on traditional thought, believes or previous experience of friends and relatives without seeking the health care professional advise because they think that medicinal plants are safe and effective.[28,38] This study showed that (53%) of participants believed that breastfeeding leads to weight gain, but even though only 20% of the participants stopped breast feeding just in order to retain to their usual weight. On the other hand, around 11.0% of participants depend on lactation as a useful way in losing weight after delivery. Although the benefit of breastfeeding on baby development, health and immunity well known in the literature,[55-57] its impact on maternal

postpartum weight is still inconclusive.[58-60] For instance, in a systematic review highlights the difficulties of evaluating the association between breastfeeding and weight change in an observational research, Neville *et al*. (2014) have found that many studies showed no or little association between breastfeeding and postpartum weight change.[60] The increase hunger in addition to sleep deprivation and decrease activity of the mothers while nursing are suggested reasons for this finding.[61,62] On other hand, Jarlenski *et al*. (2014) in this regard reported a positive association in a study found that mothers who exclusively breastfed for more than three months lose about 1.5 kg in the first and they have higher probability (6%) to return to their pre-pregnancy weight than non-exclusively breastfeeding mothers do.[59] The possible causes behind these results are the increased energy expenditures, hormonal changes, the duration and frequency of breastfeeding on maternal weight in postpartum period.

In this study, many participants (40%) do believe that the gender of the baby has impact on the ability of the mother to gain weight after delivery in which they believe that male gender (22.0%) has higher impact on weight gain than female gender (18.0%). This result is in agree with a recent study, which is conducted in the University of Georgia's College of Agricultural and Environmental Sciences in The United States of America looked at data from the Centers for Disease Control and Prevention and involved over 46 million births covering a 23-year period. The study found that a lower gestational weight gain is more associated with female gender baby.[63] According to the author, the possible justification for this result is the higher metabolic demands associated with male gestation.[63]

In present study, more than (60%) of participants believe that both frequent deliveries (multiparous) positively affect postpartum weight. This is in accordance with a study by Paulino *et al*. (2016) who reported high prevalence obese or overweight (62.5%) among multiparous women.[64] Regardless of the significant higher BMI among multiparas, the researchers also noticed an inverse correlation between parity and the total postpartum weight.[64] These findings support the important of obtaining a healthy weight before and during pregnancy through adapting a healthier lifestyle related to nutrition and physical activity.

Conclusions

The study highlights the use of medicinal plants among Jordanian females for managing postpartum gestational weight gain and other postpartum health complications based on traditional thought or previous experience of friends and relatives or even self-experience.

Many female connected postpartum obesity with infant gender, type and frequency of delivery and they tried many methods to retain for their normal weight this beliefs and behavioral practice were not relays on evidence-based practice.

Our results put spotlight on the urgent need for national strategies to educate and increase the awareness degree about medicinal plants efficacy and safety especially in childbearing mothers and infants. Managing postpartum complications based on evidence-based practice, through training programs and workshops by health care professionals, maternity care center and community workers focusing on the potential risk of self-medication.

Statement of Ethics

The study protocol met the Declaration of Helsinki and Good Clinical Practices principles.

Disclosure Statement

The authors have no conflicts of interest to declare.

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Author Contributions

The authors of the manuscript have equal contributions to the study design, work, analysis and interpretation of data, drafted the work and revised it, approved the final version to be published. The authors agreed to be accountable for the accuracy or integrity of any part of the work.

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آراء ومعتقدات وممارسات النساء تجاه استخدام النباتات الطبية المختلفة لرعاية المشاكل الصحية بعد الولادة

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ملخص

الأهداف: الهدف من هذه الدراسة هو تقييم آراء ومعتقدات وممارسات المرأة الأردنية تجاه استخدام النباتات الطبية المختلفة لرعاية المشاكل الصحية بعد الولادة .

الطريقة: أجريت دراسة رصدية مقطعية على 300 أم تتراوح أعمارهن بين 18 سنة وأكثر. تم استخدام استبيان منظم وصالح وموثوق لجمع المعلومات الشخصية والطبية والغذائية بما في ذلك خصائص زيادة الوزن أثناء الحمل ، وتأثير الولادة والرضاعة الطبيعية على زيادة الوزن بعد الولادة واستهلاك الشاي العشبي لإدارة المشاكل الصحية المختلفة بعد الولادة مثل مغص ما بعد الولادة ، انتفاخ البطن ، تشنج ، نزيف الأم ، الإرضاع وزيادة الوزن من خلال مقابلة شخصية من قبل المحققين المدربين.

النتائج: كان حوالي 45٪ من المشاركات يعانون من زيادة الوزن والسمنة بمتوسط مؤشر كتلة الجسم بعد الحمل 25.1 ± 4.94 كجم / م 2. استخدم غالبية المشاركين (84٪) واحدًا أو أكثر من النباتات الطبية بعد الولادة للسيطرة على مشاكلهم الصحية بعد الولادة. قد يطلب المشاركون المساعدة العشبية بشكل رئيسي لأغراض الأم مثل تقليل المغص وانتفاخ البطن والتشنج بعد الولادة (52.9٪) ، وعلاج نزيف ما بعد الولادة (41.7٪) وتعزيز الرضاعة (41.0٪). بالمقابل ، فقط 9.0٪ من المشاركين يستخدمون الأعشاب للتحكم في الوزن. أكثر الأعشاب استخداما هي القرفة (49.0٪) والمريمية (42.0٪) واليانسون**38.0**) ٪.(

الخلاصة: يوصى بشدة بإدارة رعاية المشكلات الصحية بعد الولادة بناءً على الممارسة القائمة على الأدلة ، مع التركيز على المخاطر المحتملة للتطبيب الذاتي.

الكلمات الدالة: العلاج بالنباتات ، الطب التكميلي والبديل ، المشاكل الصحية بعد الولادة، زيادة الوزن بعد الولادة.

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