

**Analyzing Elements of Postpartum Confinement and the Effect on Overall Health: An
Integrative Review**

Wei Shen Chu

Dr. Pamela Reis, PhD, CNM, NNP-BC, FACNM

East Carolina University College of Nursing

Abstract

Introduction: Postpartum confinement is a traditional postpartum custom in Chinese culture based on the theory of *Yin-Yang* (hot and cold). The purpose is to balance *yin* and *yang* energies after pregnancy, labor, and birth which is said to result in major loss of *yang*/heat. Postpartum confinement facilitates physiological and psychological postpartum healing through a combination of behavioral and dietary restrictions. The aim of this integrative literature review was to analyze elements of postpartum confinement and discuss the outcomes of the practice on women's health.

Method: PubMed and PsychINFO electronic databases were used to search for publications between 2016 and 2021. Search terms included postpartum and confinement. Whittemore and Knafli's integrative review guidelines were utilized to conduct the methodological review. Each article was assessed for level of research evidence.

Results: A total of 17 articles were included in the review. Five themes were discovered from the literature analysis: effect of postpartum confinement on postpartum depression (PPD) and postpartum anxiety (PPA); role of family, friends, and professional support; impact of nutrition; relevance of breastmilk and infant gut microbiota; and taking warm showers to alleviate discomfort.

Discussion: Different aspects of postpartum confinement were found to affect PPD/PPA in various ways, and adequate support is crucial in postpartum recovery. Postpartum confinement can be nutritionally beneficial to maternal and infant health. Measures such as warm showers should be encouraged to reduce postpartum fatigue. Based on these conclusions, health care providers should allow flexibility in combining traditional postpartum confinement practices with contemporary health care while also educating about any risks involved.

Introduction

Proper postpartum care is important in the recovery of health. Changes during pregnancy, labor, and birth can alter baseline health during and after the postpartum period. These changes include physiological changes due to hormone regulation, social changes of taking on a new role, and psychological changes related to mental health and well-being (American College of Obstetrics & Gynecology [ACOG], 2018). Postpartum care in the United States (U.S.) currently includes office visits between four to six weeks postpartum (Walker et al., 2019). However, an earlier and ongoing process for postpartum care, instead of a single appointment, is advised by the ACOG for close monitoring and optimal maternal and infant health (2018). This guideline is especially important for parents with comorbidities that impact postpartum recovery and risk for poor health.

The absence of postpartum follow up care is common in the U.S.; approximately 11% to 50% of individuals do not attend postpartum appointments (Zolot, 2021; Walker et al., 2019). Attendance among the economically marginalized is even lower compared to the national rate (Stuebe et al., 2020). Failure to attend postpartum appointments can typically be linked to inadequate health insurance coverage, Hispanic or Latinx ethnicity, being 20 years old or younger, and undergoing vaginal birth (Walker et al., 2019). Culture also affects the type of care received during the postpartum period such as conventional Western postpartum practices of

using ice packs for perineal pain, showering, consuming cold beverages, and ambulating after birth; all of which are considered unsafe in Southeast and East Asian cultures (Vo, 2021).

In Chinese cultures, many believe that participating in postpartum confinement, also known as *zuo yue zi* or “doing/sitting the month” will benefit postpartum recovery (Zheng et al., 2019). This traditional practice defines the one month after delivery as the postpartum period and requires the parent and infant to adhere to several behaviors or restrictions to allow the body to heal (Zheng et al., 2019). Other Asian countries like Japan, South Korea, Malaysia, and India also follow similar practices, but the details of practice vary (Teo et al., 2018).

The purpose of this integrative review was to synthesize the literature about postpartum confinement and the effects on postpartum people. The aim of this review was to analyze elements of postpartum confinement and discuss the outcomes of the practice on overall health.

Background

The basis for postpartum confinement is the Chinese Traditional Medicine theory of *Yin-Yang* or hot and cold (Zheng et al., 2019). The goal of postpartum confinement is to maintain the balance of *yin* and *yang* that becomes disrupted by pregnancy and the perinatal period. Maintaining *yin-yang* balance is believed to lead to good health, while an imbalance increases the chance of developing illnesses (Zheng et al., 2019). Following childbirth, the body is said to be in a state of having more *yin* due to extreme physical transformation and exhaustion (Ding et al., 2018). To make up for the imbalance and to prevent illness, it is recommended that the postpartum person avoid *yin* conditions, activities, and food, such as cold weather, cold water, or cold food, and seek more *yang* conditions, activities, and food, such as protein-rich meals such as fish soup and sesame oil chicken to strengthen the body (Zheng et al., 2019). Common postpartum confinement practices include staying indoors, avoiding strenuous activities, and bathing restrictions (Ding et al., 2018). ‘Cold’ foods such as raw fruits and vegetables, ice, ice cream, and duck are avoided to maintain body heat (Ding et al., 2018). ‘Hot’ foods such as ginger, eggs, chicken, pig trotter, internal organs, and brown sugar are consumed to replenish lost blood, ensure adequate breastmilk production, and prevent soreness and poor circulation (Ding et al., 2018). These postpartum traditions differ between cultures, countries, and families in terms of what practices are followed and avoided.

Fok et al. (2016) examined postpartum confinement practices among three ethnic Asian groups: Chinese, Malay, and Indian. A cohort of 1,247 individuals was recruited from two hospitals in Singapore during the first trimester antenatal ultrasound to define general differences in confinement practices (Fok et al., 2016). Participants in the study were administered questionnaires about their diet during postpartum confinement compared to their usual diet, hygiene routines such as showering, type of caregiver assistance, going outdoors with or without their infant, and the use of massage therapy (Fok et al., 2016). The results revealed Chinese participants were more likely to participate in confinement practices (96.4%), hire confinement assistants (31.0%), and enforce hygiene restrictions (26%). Chinese (45.9%) and Indian (42.2%) participants were more likely to eat special confinement meals, while the use of massage therapy was more common among postpartum Malaysians (85.9%) (Fok et al., 2016).

Due to the extensive list of activities and restrictions that must be followed during postpartum confinement, experts called *yue sao* are sometimes hired. *Yue sao*, or “month moms” are home health workers that assist with meals and infant care to relieve the postpartum person from these duties and allow time for recovery (Zheng et al., 2019). This role is usually taken up by parents or parents-in-law, but for people that live far from relatives or do not have someone that can take over this role, *yue saos* would be employed. Another option used to simplify postpartum confinement is living in a postpartum confinement center where postpartum people can observe traditional practices while also receiving health care from dieticians, nurses, and doctors (Shao et al., 2018).

Currently, no comprehensive integrative reviews were found that researched several elements of postpartum confinement. This integrative review sought to consolidate the literature and increase awareness about this topic for health care providers and individuals involved in postpartum care.

Aim and Question

Aim

The aim of this integrative literature review was to analyze elements of postpartum confinement and discuss the outcomes of the practice on overall health. For the purpose of this review, journal articles about postpartum confinement that were published in English were considered.

Questions

1. What is postpartum confinement and the theory behind it?
2. What activities are common in postpartum confinement?
3. What are the traditionally reported benefits or detriments of the practice?

Methodology

An integrative review was conducted based on methodological strategies proposed by Whittemore and Knafl (2005) to examine publications on postpartum confinement and the effect on postpartum people. There are five stages to the integrative review method presented by Whittemore and Knafl (2005): problem identification, literature search, data evaluation, data analysis, and presentation. Integrative reviews allow the inclusion of methodologies ranging from experimental to non-experimental research and contribute to theory development and evidence-based practice (Whittemore and Knafl, 2005).

Search Strategy

A literature search was conducted using the online databases PubMed and PsychINFO. Literature published within five years from the search year (2016 and 2021) were selected. The time frame was chosen to ensure relevant and updated information was analyzed. Search terms included postpartum and confinement (see Table 1). Inclusion and exclusion criteria were based on questions posed for the review.

Table 1

Search Terms

Concept	Terms searched
Postpartum	Postnatal period, parturition, puerperium
Confinement	Traditional confinement, doing the month, postpartum confinement, traditions

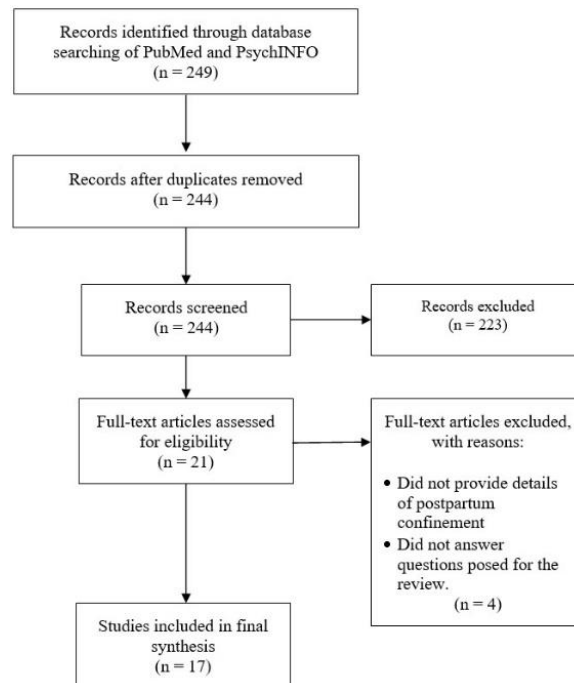
Screening

The search resulted in the identification of 249 articles considered for review (see Figure 1 for the data search process). Five duplicates were eliminated during the screening process resulting in 244 articles for review. Abstracts of remaining articles were evaluated based on these inclusion criteria: (a) published between 2016-2021, (b) in the English language, and (c) dissertation and academic journals.

Publications were excluded if they discussed confinement in the context of COVID-19 or were about childbirth in species other than human. Several articles discussed pregnancy and labor strategies and interventions but did not address the questions proposed for the review. From the 244 articles identified, abstracts were reviewed, and 21 articles were determined to be eligible for the integrative review. After reading the full-text, four articles were removed due to the absence of focused discussion on effects of postpartum confinement activities. A total of 17 journal articles were included in this integrative review.

Figure 1

Data Search Process



Analysis

The final literature selected for the review included both theoretical and empirical work. Methods used in the final literature include cohort, cross-sectional, descriptive survey, phenomenological, longitudinal, randomized control trial, and pilot study designs. It should be noted that literature analysis becomes complex when multiple methodologies are involved (Whittemore and Knafel, 2005). Therefore, a critical appraisal tool was chosen to rate each article from Level I to Level VII (Ackley et al., 2008). Level of evidence is assigned based on the methodology used in the study and gives the study a “grade of recommendation,” with Level I as the strongest and Level VII having the least strength (Ackley et al., 2008).

The analysis stage involved reading abstracts and full articles, determining aptness for inclusion, and rating the level of evidence. The three questions posed for the review were used to guide the analysis of selected literature. Data from each article were organized into matrixes with seven sections: author/date, research questions, methodology, setting/sample, findings, level of evidence, and related element.

Results

Five themes were developed from the analysis of 17 journal articles about postpartum confinement practices. The first theme connects postpartum confinement with postpartum depression and anxiety. The second theme relates to the availability of family, friends, and professional support for parents who practice postpartum confinement. Nutritional practices of the postpartum confinement period is the third theme derived from the literature analysis. The fourth theme correlates breastmilk and infant gut microbiota composition with postpartum confinement. The fifth theme relates to comfort measures used during the postpartum confinement period such as warm showers.

Postpartum Depression and Anxiety

Most authors agreed that mood disorders such as depression and anxiety are highly prevalent during the postnatal period, and depressive symptoms can be reliably determined using the Edinburgh Postnatal Depression Scale (EPDS) and State-Trait Anxiety Inventory (STAI) (Cox et al., 1987; Spielberger et al., 1983). Authors also agreed that the causes of postpartum depression (PPD) involve a combination of complicated risk factors ranging from a history of untreated PPD, postpartum anxiety (PPA), and general mental illness to lifestyle changes related to diet, sleep, and physical activity. The prevalence of PPD, however, differs in the literature. Lin et al. (2019) stated that Asian and South American people had the highest postpartum depressive scores, while Ding et al. (2018 & 2020) stated in multiple works that PPD is rare in China because of postpartum social networks provided by family members. Two authors acknowledged a lack of education and resources in China to facilitate the identify and treatment of perinatal psychiatric disorders, emphasizing the need for PPD awareness (Ding et al., 2018; Peng et al., 2021).

Social support can be helpful for individuals with depression and anxiety, especially during the postpartum period. Postpartum persons must manage a major role change and adjust

to physical changes following childbirth. Ding et al. (2018) stated that social networks maintained during postpartum confinement help alleviate these new stressors by strengthening the person's self-esteem and providing emotional and material support. Additionally, practical support from family and friends to help with household chores and infant care facilitates physical recovery and mental wellness which reportedly provides protective effects against PPD (Guo et al., 2021). However, a cross-sectional study in China found no association between support from caregivers and the risk of PPD during postpartum confinement (Peng et al., 2021).

The presence of PPD has been implicated in self-efficacy and satisfaction with postpartum care. In a quantitative longitudinal study, Zheng et al. (2018) explored factors that influence maternal self-efficacy (MSE) among Chinese primiparous people. The authors found that postnatal depressive symptoms negatively affect MSE at six- and 12-weeks postpartum (Zheng et al., 2018). Furthermore, in a study of Chinese and Taiwanese postpartum individuals, Guo et al. (2021) found that dissatisfaction with postpartum confinement was positively correlated with EPDS scores and risk for PPD, although those with greater social support presented with fewer symptoms of PPD (Guo et al., 2021).

Dietary restrictions that potentially lead to changes in mental health during the postpartum confinement period were identified in the literature review and will be explored in the section about postpartum confinement nutrition.

Family, Friends, and Professional Support

One important aspect of postpartum confinement is the involvement of family members or other supportive caretakers. Postpartum people are usually cared for by a parent, parent-in-law, or a *yue sao* to assist them in following traditional postpartum confinement guidelines (Yeh et al., 2017). Yeh et al. (2017) interviewed 27 primiparous people regarding their care needs during the postpartum period. One of the four themes identified by the authors was the importance of being supported by family and friends. Participants reported that “the practical and emotional support” (p. 585) they received led to improved psychological and spiritual wellbeing and stronger extended family and relationships (Yeh et al., 2017). Zheng et al. (2019) found that satisfaction with postpartum confinement was attributed to familial support in meal prepping, household chores, and infant care which led to greater periods of rest and appreciation for the family member. While family support was identified as a strength in postpartum confinement well-being, Zheng et al. (2019) reported that dissatisfaction with postpartum confinement could be attributed to conflicts with the postpartum individual's parent-in-law. Conflicts typically consisted of discordance in the elder's advice and beliefs with the postpartum person's own desires (Zheng et al., 2019). An example of knowledge discordance is advice that may be given during breastfeeding. It is common for Chinese elders to believe that breastmilk is either not as nutritious or equally nutritious as formula, thereby devaluing the experience of breastfeeding for the postpartum individual (Wu et al., 2021).

Contemporary families tend to live in nuclear households apart from their extended families, making it difficult for parents or parents-in-law to provide postpartum care. As a result, postpartum support may be limited to hospital staff such as doctors, midwives, and nurses (Nan

et al., 2020). Professional support from hospitals may be the only available resource for postpartum parents, yet the amount of support provided may not be sufficient to meet the needs of postpartum individuals. enhancing the importance of providing sufficient postpartum care and teachings. In a phenomenological study of 28 primiparous people who had given birth in Xi'an City, Shaanxi Province within a year from their interviews, Nan et al. (2020) determined that maternal and child health care services that would contribute to the well-being of postpartum individuals are perceived as insufficient in satisfying the needs of primiparous people.

Other settings in which postpartum care is received are postpartum confinement centers. These centers allow postpartum individuals to practice postpartum confinement through services provided by staff that are well-versed in postpartum confinement dietary support, physical activities, and recommended restrictions (Foong et al., 2021). Such centers, however, do not always contribute to satisfactory postpartum care. Foong et al. (2021) compared aspects of breastfeeding in postpartum confinement centers in Penang, Malaysia to breastfeeding at home and found a gap in ways breastfeeding was supported. The authors found that although postpartum confinement centers supported breastfeeding, they had restrictive practices related to rooming-in, night-time feedings, and access to nurseries which contributed to obstacles experienced in breastfeeding.

In a study of 27 primiparous people in Taipei, Taiwan who stayed at a Postpartum Nursing Centers (PNC), Yeh et al. (2017) found that immigrants from mainland China practicing postpartum confinement reported receiving less social support than they felt they needed. Similarly, Chang et al. (2018) noted that Chinese and Taiwanese postpartum people found it difficult to adapt and practice postpartum confinement in locations that they newly emigrated to such as British Columbia and other Canadian provinces. Chang et al. (2018) compiled a list of reasons given for difficult adaptation and adherence to postpartum confinement practices that included financial constraints, the use of unregulated staff, and inconsistent support from health care providers. One participant in their study reported feeling judged and perceived of as dirty when refusing to take a shower, a practice typically avoided by parents participating in postpartum confinement (Chang et al., 2018).

Nutrition

A topic frequently discussed in the postpartum confinement literature is diet and nutrition. Chinese postpartum meals emphasize 'hot' foods to replenish lost *yang* energy (Zheng et al., 2019). While each dish and ingredient in the postpartum confinement diet has a rationale for inclusion, the overall goal of a postpartum confinement diet is to consume high-protein, high-calorie meals to facilitate lactation and physical recovery (Shao et al., 2018). For example, sesame oil chicken and braised pork knuckle are commonly consumed during the postpartum confinement period (Shao et al., 2018). Due to frequent consumption of fatty foods, excessive weight gain is a common issue among postpartum people practicing postpartum confinement. Shao et al. (2018) examined risk factors for postpartum weight retention (PPWR) and analyzed the effects of postpartum confinement on PPWR. The authors found that individuals who resided at postpartum confinement centers had lower 1-month PPWR than ones who stayed at home

(Shao et al., 2018). This difference may be attributed to the fact that postpartum confinement centers provide meals managed by dietitians (Shao et al., 2018).

A risk of over emphasizing a high-protein, high-calorie diet is nutritional imbalance. Hu et al. (2019) compared dietary intake of lactating women who were either residing at a postpartum confinement center (n = 30) or community dwelling (n = 92). The authors found that both groups had inadequate intake of vitamins A and C, calcium, dietary fiber, and thiamine. In addition, inadequate intake of selenium, magnesium, and iron was found in the community-dwelling group (Hu et al., 2019). Dietary deficiencies such as these can result in bone disorders, renal dysfunction, and increased cancer risk, highlighting the importance of nutritional awareness during the postpartum period.

Dietary influences on PPD and PPA during the postpartum confinement period were commonly noted in the literature. The synthesis and regulation of neurotransmitters and other brain functions that reduce mental health symptomology have been shown to be influenced by diet (Teo et al., 2018). Postpartum confinement often involves specialized and restrictive diets that include nutritional supplements. Teo et al. (2018), in a study of 490 multi-ethnic Asian people who were one month postpartum and living in Singapore, identified common ingredients incorporated in traditional Chinese postpartum confinement meals such as dried fruits and herbs, red meat and poultry, sesame oil, and vinegar. In their study, no association was found between diet and mental health among postpartum people consuming traditional Chinese postpartum meals (Teo et al., 2018).

Nutritional biomarkers that are associated with having protective effects against the development of PPD have been identified, such as riboflavin (vitamin B2), found in foods such as eggs, dairy products, meats, green vegetables, and grains; many of which are common in Chinese postpartum confinement meals (Mahabadi et al., 2020). In a cross-sectional study of 344 Taiwanese women at 6 to 8 weeks postpartum, Lin et al. (2019) found that low plasma vitamin B2/riboflavin and erythrocyte fatty acid (FA) levels may contribute to the development of PPD. In addition, vitamin D deficiency was found to be an additional factor in the risk for PPD (Lin et al., 2019). Lin et al. (2019) noted that vitamin D deficiency and insufficiency was high in both the PPD and non-PPD groups, which may be explained in part by the traditional practice of staying indoors during the postpartum confinement period, thereby leading to decreased exposure to sunlight and a high prevalence of vitamin D deficiency.

Breastmilk and Infant Gut Microbiota

Of the 17 journal articles eligible for inclusion, two studies were found that analyzed the effects of postpartum confinement on breastmilk microbiota and infant gut microbiota. In utero, a fetus receives nutrients and microbiota from the parent (Wang et al., 2019). A shift in microbiota continues after birth as maternal intake and behaviors influence the nutritional and bacterial constitution of breastmilk and contribute to the growth of infant gut microbiota (Wang et al., 2019). After determining the microbial composition of milk samples from people who practiced postpartum confinement in specialized centers and comparing it to samples from people who did not practice postpartum confinement, Chen et al. (2020) found that breastmilk

samples from individuals practicing postpartum confinement were comprised of a more diverse range of microbiota. In their study, samples from individuals in postpartum confinement centers were found to be more abundant in *Lactobacillus*- and *Bifidobacteria*-related bacteria, which are probiotics that help to strengthen infant gut microbiota (Chen et al., 2020). The authors, however, acknowledged the possibility of other factors influencing microbial composition in breastmilk, such as demographics and contact with the infant oral cavity during breastfeeding (Chen et al., 2020). Wang et al. (2019) followed a cohort of 62 Chinese women and their infants up to 6 months postpartum. The authors found that *Ruminococcus gnavus*, a bacterium associated with infectious diarrhea, was significantly less abundant in infants whose parent had stricter adherence to postpartum confinement practices. The literature supports that adherence to postpartum confinement practices may impact infant gut microbiota through mode of delivery, specialized diets, maternal hygiene practices, or activity restrictions that increase stress and the development of PPD (Chen et al., 2020; Wang et al., 2019).

Comfort Measures: Warm Showers

Avoidance of bathing and showering for the assumed purpose of retaining warmth and preventing blood clots is prevalent in traditional postpartum confinement practices (Withers et al., 2018). But in contemporary Chinese and Taiwanese cultures that embrace evidence-based health care practices, hygiene restrictions are becoming largely ignored and replaced with cleansing and comfort measures to reduce postpartum fatigue such as warm showers (Hsieh et al., 2017). Postpartum fatigue is well known to negatively impact maternal psychological health and maternal-infant attachment (Hsieh et al., 2017). Hsieh et al. (2017) studied the effects of warm showers on postpartum fatigue among Taiwanese people following vaginal birth. The authors used the 10-item Postpartum Fatigue Scale (PFS) to measure the degree of fatigue before and after warm showers. Results showed that PFS scores improved from their pre-shower to post-shower levels, leading to the conclusion that warm showers were effective in decreasing postpartum fatigue (Hsieh et al., 2017).

Table 2*References Matrix*

Author/ date	Research question(s)	Methodology	Setting/sample	Findings	Level of evidence	Related element
Chen et al. (2020)	What is the comparison of milk microbiota composition between “doing-the-month” and “non-doing-the-month” milk samples?	Pilot study	41 milk samples were collected from postpartum confinement centers and 46 milk samples were collected from non-postpartum confinement centers in Taiwan	“Doing-the-month” can be associated with diverse range of microbial composition in milk. This practice may lead to high chances of <i>Lactobacillus</i> and <i>Bifidobacteria</i> in milk samples. This practice also had more bacterial species or Archaea in milk samples.	II	Breastmilk and Infant Gut Microbiota
Cheng et al. (2018)	What are the experiences of Chinese and Taiwanese people with practicing “ <i>zuo yue zi</i> ” (4-6 weeks postpartum) in British Columbia, Canada?	Qualitative descriptive study	13 immigrant participants from urban obstetrical clinics in British Columbia (countries of origin include China, Hong Kong, and Taiwan)	Immigrant postpartum participants found it difficult to adapt and practice “ <i>zuo yue zi</i> ” in new countries. Reasons for difficult adaptation and implementation were financial constraints, unregulated paid helpers, and varying support from health care providers.	VI	Family, Friends, and Professional Support
Ding et al. (2018)	Are traditional “doing the month” practices	Case study and opinion article	33-year-old primiparous	Combination of counseling, education,	VII	PPD/PPA

Author/ date	Research question(s)	Methodology	Setting/sample	Findings	Level of evidence	Related element
	effective in improving postpartum depression in China?		person from Shanghai Mental Health Center, Shanghai, China	and “doing the month” practices improved the patient’s postpartum depression symptoms.		
Ding et al. (2020)	How common is PPD in people that follow “ <i>zuo yue zi</i> ” practices? What is the relationship between traditional Chinese practices and PPD development?	Cohort study	4663 participants were examined from 2013-2016 in the Shanghai Birth Cohort Study	Not all of the activities of “doing the month” protects against PPD development. Slept 6 hours or less = higher risk. Opened house windows most of the time = decreased risk of PPD development.	IV	PPD/PPA
Foong et al. (2021)	What are current practices and areas for potential improvement in breastfeeding support in CC? Does the place of confinement have any effect on breastfeeding?	Cohort study	187 participants from postnatal wards of six hospitals in Penang, Malaysia.	No difference in breastfeeding was discovered based on postpartum setting. However, differences exist in the way CCs were supporting breastfeeding.	IV	Family, Friends, and Professional Support
Guo et al. (2021)	What is the association between adherence to traditional Chinese postpartum practices	Cross-sectional study	955 postpartum people in obstetric clinics in Hunan Province of China between	Moderate and low adherence to postpartum practices was associated with higher EPDS scores.	VI	PPD/PPA

Author/ date	Research question(s)	Methodology	Setting/sample	Findings	Level of evidence	Related element
	and PPD among postpartum people?		September 2018 to June 2019 (632 from Maternal and Child Health Care Hospital [MCHH] in Changsha and 323 from other municipalities).	Low adherence to housework-related and social activity restrictions was associated with having PPD symptoms.		
Hsieh et al. (2017)	How effective are warm showers on relieving Taiwanese people of postpartum fatigue after vaginal birth?	Quasi-experimental study	358 people were recruited from two northern Taiwanese hospitals through convenience sampling	The pretest mean fatigue scores for the experimental group was 14.50 compared to the control group mean score of 13.98. The posttest mean fatigue scores were 11.79 for the experimental group and 12.49 for the control group.	III	Warm Showers
Hu et al. (2019)	What is the comparison between intake of Shanghainese people during the traditional confinement period and the recommended postpartum nutritional intake?	Cohort study	122 participants were recruited while they stayed at a Maternal Care Center (MCC) in Shanghai	Fruit, vegetable, bean, tuber, and milk intakes were lower than the recommendations. Over 70% of the participants failed to meet the Estimated Average Requirement (EAR) for calcium.	IV	Nutrition

Author/ date	Research question(s)	Methodology	Setting/sample	Findings	Level of evidence	Related element
				Notable proportion of all participants failed to meet the EAR for vitamin C, thiamin, and riboflavin. Dietary fiber intakes were low.		
Lin et al. (2019)	What is the relationship between nutritional status and postpartum depression symptoms at 6-8 weeks postpartum?	Cross-sectional study	344 Taiwanese postpartum people from Shin Kong Wu Ho-Su Memorial Hospital's OBGYN clinic	PPD development may be affected by plasma vit B2 levels and erythrocyte FA composition. These two nutrients may have protective effects on PPDS.	VI	PPD/PPA
Nan et al. (2020)	What are the Chinese primiparous people's views on professional services, barriers to accessing professional support, and expectations and preferences for the delivery of health care services?	Descriptive phenomenological study	28 participants from two community health centers in Xi'an City, Shaanxi Province	Current maternal and child health care services are insufficient and does not meet the needs of primiparous people.	VI	Family, Friends, and Professional Support
Peng et al. (2021)	What is the relationship between the main caregivers of the postpartum person	Cross-sectional study	1,325 postnatal people from Shenzhen Maternity and	The findings of the study does not support any associations between main caregivers and risk	VI	PPD/PPA

Author/ date	Research question(s)	Methodology	Setting/sample	Findings	Level of evidence	Related element
	during “doing-the-month”? What is the association between each type of caregiver and risk of PPD?		Child Health Hospital in China	of PPD during “doing-the-month.”		
Shao et al. (2018)	What are risk factors and groups at high risk of PPWR? What are effective strategies that can help achieve the optimal PPWR?	Cohort study	461 participants who gave birth at a medical center in northern Taiwan between March 2014 and March 2016.	Control of Gestational Weight Gain (GWG) and engagement in exclusive breastfeeding may help to reduce PPWR. Excess PPWR is associated with long-term weight gain and is unfavorable to long-term health. People who stay at PNCs have a lower 1-month PPWR than those who stay at home.	IV	Nutrition
Teo et al. (2018)	What are characteristics of dietary patterns during confinement period in multi-ethnic Asian cohort? What is the association between	Cohort study	490 multi-ethnic Asian people living in Singapore	Four dietary patterns were identified: Traditional-Chinese-Confinement (TCC) diet, Traditional-Indian-Confinement (TIC) diet, Eat-Out diet, and Soup-	IV	PPD/PPA

Author/ date	Research question(s)	Methodology	Setting/sample	Findings	Level of evidence	Related element
	“confinement diet” and postpartum depression (PPD) and anxiety (PPA)?			Vegetables-Fruits (SVF) diet. TIC diet was inversely associated with symptoms of PPD. SVF diet showed protectiveness of PPA symptoms.		
Wang et al. (2019)	What are the effects of adherence to Chinese traditional postpartum practices on infants’ gut microbiota at 6 months postpartum? What are the influence of early life events on the infant’s gut microbiota (antibiotic exposure, consumption of probiotics, delivery mode, and feeding type)?	Cohort study	50 parent-infant dyads were recruited from an obstetric outpatient clinic in a tertiary hospital of Wuhan University in Wuhan, Hubei Province, China.	<i>Ruminococcus gnavus</i> was significantly less abundant in infants whose parent had a better adherence to the traditional postpartum practices of “doing the month.” Infants receiving the probiotic, <i>Clostridium-butyricum</i> , during the first month to prevent jaundice after delivery had a significant dominance of <i>Escherichia/ Shigella</i> , a Gram-negative pathogen.	IV	Breastmilk and Infant Gut Microbiota
Yeh et al. (2017)	What are the care needs of modern Taiwanese people who	Qualitative descriptive study	27 primiparous people who stayed at a public	Four themes were identified: the need to increase energy to gain	VI	Family, Friends, and

Author/ date	Research question(s)	Methodology	Setting/sample	Findings	Level of evidence	Related element
	practice “doing the month” at a PNC or other formal healthcare settings?		hospital-based Postpartum Nursing Centers (PNC) in Taipei, Taiwan.	more yang force, the need to internalize parenting, the need to be supported by family and friends, and the need to be understood.		Professional Support
Zheng et al. (2018)	What are factors that influence MSE among Chinese primiparous people in mainland China? What is the influence of “Doing the Month” on MSE during the first three months postnatally?	Quantitative longitudinal study	420 primiparous people from three hospitals in Xiamen City, Fujian Province in South-East China	Primiparous people’s MSE is positively influenced by social support and satisfaction with “Doing the month.” Postnatal depression symptoms negatively impact MSE.	IV	PPD/PPA
Zheng et al. (2019)	What are the satisfaction levels of Chinese primiparous people who observed “doing the month”? And what are their reason(s) for satisfaction or dissatisfaction?	Descriptive survey	416 questionnaires had usable data out of the 420 distributed to Chinese primiparous people from three hospitals in Xiamen City, China	Health professionals that provide care in China or care for Chinese people in other countries could be more aware of ways to customize health care to fit traditional postpartum practices of “doing the month.”	VI	Family, Friends, and Professional Support

Discussion

Postpartum confinement is a traditional Chinese custom that dates to the Song dynasty, over 1000 years ago (Zheng et al., 2019). With modern lifestyles and advancements in health care, adaptations to this tradition are necessary to ensure safety and fittingness with contemporary society. This integrative review examined 17 journal articles about the effects of postpartum confinement on the health of postpartum people. Using this research method allows for an analysis of numerous articles that cover the diverse practices of postpartum confinement.

Data gathered in this review showed varying opinions on the effects of postpartum confinement and PPD/PPA. Ding et al. (2018) cited the positive effects of postpartum confinement on PPD that come from emotional support from family members. Others, however, found that the lack of physical activity, limited exposure to the outdoors, and lack of support or assistance with postpartum care leads to increased risk for stress and PPD (Wang et al., 2019). Other perspectives on PPD and PPA included examination of dietary practices during postpartum confinement. Lin et al. (2019) provided support for nutritional biomarkers such as plasma vitamin B2 and erythrocyte FA as protective against the development of PPD. However, it is unclear if Vitamin D deficiency is directly or indirectly linked to PPD since the lack of sun exposure because of prohibited outdoor activity may lead to vitamin D deficiency, which in turn increases the risk of PPD (Lin et al., 2019). Further research is needed that focuses on the effects of outdoor and activity restrictions on PPD related to postpartum confinement.

Support during the postpartum period is helpful for coping with new stresses of peoplehood. Family members were identified as being the most helpful during postpartum confinement because they were most likely to meet the needs of postpartum parents. Dissatisfaction with postpartum confinement can occur within the family if ideas and beliefs among family members and the postpartum individual do not align (Zheng et al., 2019). Inconsistencies were found when comparing the support provided by health care professionals in hospitals and postpartum confinement centers to the current practice, lack of knowledge, and insensitivity in the facilities (Foong et al., 2021). Future research about the effectiveness of postpartum confinement education for postpartum professionals and experts can help identify ways to fill the gap.

Specialized postpartum confinement diets have been found to be less of a concern for postpartum weight retention for individuals residing in postpartum confinement centers, even if the diet consists of mostly fatty foods (Shao et al., 2018). This is possibly because dietitians manage in these centers manage postpartum confinement meals. Meals that are meant to be beneficial for postpartum recovery can, however, lead to nutritional imbalance of vitamin A and C, calcium, dietary fiber, and thiamine and therefore should be monitored or supplemented (Hu et al., 2019). Future research should focus on comparison of cholesterol levels before and after one month of traditional postpartum confinement meal consumption.

A few studies were reviewed that explored microbiota in breastmilk and infant gut microbiota. Postpartum confinement has been correlated with increased probiotics in breastmilk that are beneficial in infant gut microbiota such as *Lactobacillus* and *Bifidobacteria* (Chen et al.,

2020). These probiotics assist in moderation of the immune system and absorption of nutrients (O'Callaghan & van Sinderen, (2016). *Bifidobacteria* are one of the first microbes to colonize the human gastrointestinal tract. (O'Callaghan & van Sinderen, 2016). *Ruminococcus gnavus*, usually present in individuals with infectious diarrhea was less prevalent in individuals who participated in postpartum confinement practices (Wang et al., 2019). More evidence is needed to appropriately counsel individuals about the potentially beneficial effects of postpartum confinement on infant gut microbiota.

Warm showers are now a common practice among postpartum confinement people. This practice would typically be prohibited according to traditional guidelines. However, Hsieh et al. (2017) found that people who experienced postpartum fatigue benefited from warm showers as indicated by PFS scores that declined after taking a warm shower kept at 40-43°C for 20 minutes (Hsieh et al., 2017). More research is needed to understand the impact of hydrotherapy on postpartum fatigue.

A limitation of this study is that only a few articles (n=17) were found that met the inclusion criteria, and varying conclusions about the impact of postpartum confinement were noted. Most research articles included participants residing in China and Taiwan, making it difficult to generalize findings to Western countries with different approaches to postpartum care. However, the increase in Asian immigrants living in the U.S. leads to an expanding presence of culturally-influenced postpartum practices in Western health care facilities (Vo, 2021). Therefore, health care providers are encouraged to become educated about cultural differences in postpartum care such as postpartum confinement and other culturally relevant practices. Counseling about postpartum confinement should include discussions about potential risks of the practice. Risks of practicing postpartum confinement is related to the restriction of physical activity required by the tradition. Sedentary lifestyles may lead to cardiovascular and musculoskeletal deconditioning and the development of blood clots in the extremities (Wang et al., 2019). It can also lead to vitamin D deficiency due to the lack of sunlight exposure during the month (Lin et al., 2019). Breastfeeding skills may not be properly established if the practice requires limited contact time between the parent and infant (Foong et al., 2021).

Conclusion

This integrative review explored postpartum confinement and the effects of this practice on overall health. From this literature review it can be concluded that aspects of postpartum confinement affect PPD/PPA in varying ways; adequate support from professional and non-professional caregivers is crucial in postpartum recovery; postpartum confinement can be nutritionally beneficial to parent and infant health; and warm showers should be encouraged to reduce postpartum fatigue. Based on these conclusions, health care providers should allow flexibility in combining traditional practices with modern health care while also educating risks involved.

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Conflict of Interest

The Authors declare that there is no conflict of interest.

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