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Dietary and behavioral practices in postpartum period among Saudi women in Kingdom of Saudi Arabia

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ABSTRACT

Background: Mostly, woman needs care during some periods of her life including the purpureum. It is a period that starts after delivery of placenta and last for the following 6 weeks. Her health can be improved for the rest of her life with proper care and nutrition during this period. *Aim:* This study aims to explore different dietary and behavioral customs among women in eastern region in KSA and how it will affect their health. *Methods:* A cross-sectional study was carried out in the eastern province of Saudi Arabia. Women who experienced surgical or medical difficulties throughout their period were excluded. Using a pre-constructed validated questionnaire to interviewed eligible women. Data collected included demographical data, dietary and behavioral practices and the source of the knowledge and practices and the social support. *Results:* The study questionnaire was completed by 459 females in total. Females' median ages were 26.7, 13.9 years, with ages ranging from 18 to more than 35 years. Their family's elderly female members (47.1%) were the most often cited information source, followed by health education initiatives (22.2%). 95.9% of the female participants-a total of 440-said they had assistance from their friends and family after giving birth. In 405 (92%), both the husband and the mother supplied support, followed by the husband by himself (38%; 167) and the housemaid (21.4%; 94). *Conclusion:* In conclusion, the findings in the study showed that most study females had received mistaken advice against adopting several healthy behaviors and eating routines during the postpartum period.

Keywords: Post-partum period, behaviors', dietary habits, practice, woman, Saudi Arabia.

1. INTRODUCTION

Woman naturally involved in caring also require care in some periods of her life, purpureum is one of these. It is a period that starts after delivery of

placenta and last for the following 6 weeks (Yeng-Ching et al., 2006). During this period women and babies are at the risk of serious complications. However, this period is often neglected by health professionals in both developing and developed countries. Over 60% of maternal deaths occur during the postpartum period in developing countries. About 70% of women do not receive any postpartum care. A good care and good diet during this period can have good effect on her health for rest of her life (Lippicott and Wilkins, 2007). Regarding the health care services the postpartum care for women is primarily provided inside the family and outside of healthcare facilities. Among the family members, it is known that women have a decisive participation in guidance, support and care towards the mother and the newborn. Mothers, mother's in-laws and traditional birth attendants provide postnatal care at home. They use various traditional practices during the care of postnatal patients regarding body hygiene, food, physical activity, sexual activity, temperature variation exposure and breast-feeding (Ngunyulu and Mulaudzi, 2009). Globally, it is acknowledged that most, if not all, civilizations adhere to specific customs and rules for the postpartum period, as it is assumed that the body needs healing after physiological changes that occurred during pregnancy and during process of childbirth (Eberhard-Gran et al., 2010). The dietary and lifestyle habits during the postpartum differ significantly among different countries and cultures (Kaewsarn et al, 2003). “Doing the month” or “sitting month”, is traditional practice among postpartum women which is well-accepted and obeyed in China and other Asian countries, such as Korea, Thailand and Singapore (Kim-Godwin, 2003; Chee et al., 2005). Women who are “doing the month” are advised to keep windows and doors closed and to spend all day in bed. They are allowed to eat hot foods (Eat abundance eggs or meat and consume vast quantities of daily millet gruel, brown sugar water and chicken soup) yet they are forbidden from eating any cold or raw foods since they believe that cold foods are not good through this period (Leung et al., 2005; Chan et al., 2000). All-Chinese population worldwide believes in this traditional practice of doing month. Chinese women who have moved to Australia, Canada or the United States continue to believe “doing the month” is very important (Callister et al., 2004). In western countries, women are encouraged to start physical exercises and eat a well-balanced diet (Artal et al., 2003). In contrast, in the Saudi culture, a postpartum female is treated as a sick patient for the first six weeks after her childbirth. A long list of food restrictions and work limitations is typically enforced on her (Piperata, 2008). For instance, a Saudi postpartum woman is not supposed to consume certain types of food such as cold foods and drinks. Also, new mothers are encouraged to consume more meat and hot soups, as well as dates and herbal supplementations (Hundt et al., 2000). So, different cultures all over the world are following different dietary and behavioral customs during purpureum so this study was conducted to explore different dietary and behavioral customs among women in eastern region in KSA and how it will affect their health.

2. STUDY METHODOLOGY

Study design and participants

A cross-sectional study was conducted in Saudi Arabia's eastern province, from April 17, 2022, to June 22, 2022, to explore dietary and behavioral practices in postpartum period among Saudi women in eastern region in KSA and how it will affect their health. The minimum sample size was determined by the Richard Geiger equation to be 390 with a 95% confidence interval and a 5% margin of error. Women during puerperium at the last one year were included. Women with medical and surgical complications during their puerperium were excluded from the study to remove the bias.

Data collection method

A pilot study was carried out on 30 women who weren't study participants to ascertain the relevance of the questions and to detect any further problems peculiar to the sequence and clarity of the tool. Based on the pilot study's findings, the questionnaire was reconstructed and made ready for use to cover research objectives. After taking the informed consent women was interviewed and a pre-test questionnaire was filled. Each woman interviewed individually to collect the necessary data. The collected data was categorized, tabulated and made ready for analysis.

The questionnaire is composed of three parts:

The first part contained the demographical data, including name, age and number of children, residency, educational level and socioeconomic status.

The second part contained the dietary and behavioral practices including what they do and what they don't do in the first 6 weeks postpartum.

The third part contained the source of the knowledge and practices and social support.

Statistical analysis

After data were extracted, it was revised, coded and fed to statistical software IBM SPSS version 22 (SPSS, Inc. Chicago, IL). All statistical analysis was done using two tailed tests. P value less than 0.05 was statistically significant. Descriptive analysis based on frequency and percent distribution was done for all variables including female's bio- demographic data, socio-economic status, dietary and behavioral practices in postpartum period and social support for females during post-partum period. Also, source of study female's information regarding postpartum period dietary and behavioral practices was graphed. Cross tabulation was used to assess the association between dietary and behavioral practices in postpartum period by their age, children number and source of information. Relations were tested using Persons' chi-square test and exact probability test for small frequency distributions.

Ethical considerations

The Institutional Review Board (IRB) and the Research Ethics Committee of King Faisal University in Al-Ahsa secured the necessary ethical approval after all requirements have been met (KFU-REC-2022-OCT-ETHICS198). The study's objectives were briefly described in the questionnaire. Prior to data collection, participants' informed consent was obtained.

3. RESULTS

A total of 459 females completed the study questionnaire. Females' ages ranged from 18 to more than 35 years with mean age of 26.7 ± 13.9 years old. A total of 252 (54.9%) females had 2-4 children while 121 (26.4%) had more than 5 children and only 86 (18.7%) had 1 child. Exact of 434 (94.6%) females live in city and 335 (73%) had university level of education or higher and 107 (23.3%) had secondary level of education. As for socio-economic status, it was intermediate among 326 (71%) females, high among 118 (25.7%) females and low among 15 (3.3%) (Table 1).

Dietary and behavioral practice in Saudi women in Kingdom of Saudi Arabia during postpartum period, a total of 81.7% of the study females reported that they were advised to stay at home in a warm room during PP period and to wear heavy clothes and stay away from air conditioning and the cold weather in general, 73.4% think that they should have hot food and drinks during PP period to warm their body, 57.3% squeezed milk from the breast during the first 3 days after birth without giving it to your child, 46.4% were advised during PP period not to move, to rest completely and not to do any physical or sports activity, 30.5% were advised to abstain or reduce showering, while only 8.7% had sexual relation during the postpartum period (Table 2).

Source of study female's information regarding postpartum period dietary and behavioral practices, Saudi Arabia. The most reported source of information was their family elderly females (47.1%), followed by health education programs (22.2%), social media (14.2%), hospital / clinic (9.6%) and health care staff (7%) (Figure 1).

Social support for females during post-partum period, Saudi Arabia, exact of 440 (95.9%) females reported that they received support from those around them during the postpartum period. Support was provided by both husband and mother among 405 (92%), husband alone (38%; 167), Housemaid (21.4%; 94), Family nurse (8%; 35) while least reported source of support was family members (1.6%) (Table 3).

Dietary and behavioral practices among Saudi women in the Kingdom of Saudi Arabia according to their age during the postpartum period having hot food and drinks during PP period was significantly higher among females aged less than 35 years than others aged 35 years or more (77.1% vs. 66.9%, respectively; P=.017). Also, 65.5% of females less than 35 years squeezed milk from the breast during the first 3 days after birth without giving it to your child compared to 42.8% of others aged 35 years or more (P=.001). Having sexual relation during the postpartum period was reported by 6.5% of females aged less than 35 years versus 12.7% of others (P=.024) (Table 4).

Dietary and behavioral practices among Saudi women in the Kingdom of Saudi Arabia according to number of children they had during the postpartum period. Having hot food and drinks during PP period to warm body was significantly higher reported among 81.8% of females with 5 children / more compared to 57% of others with 1 child (P=.001). Also, 61.5% of females with 2-4 children squeezed milk from the breast during the first 3 days after birth without giving it to child compared to 50% of others with 1 child (P=.049) (Table 5).

Dietary and behavioral practices among Saudi women in the Kingdom of Saudi Arabia according to source of information during the postpartum period, exact of 54.2% of females who had information from family elderly were advised not to move, to rest completely and not to do any physical or sports activity compared to 37.6% of others who reported for health care staff/facility (P=.004). Also, 67.7% of females who had information from other sources squeeze milk from the breast during the first 3 days after birth without giving it to child compared to 60.1% of others who had information from health care staff / program (P=.048) (Table 6).

Table 1 Bio-demographic data of study females, Saudi Arabia

Bio-demographic data	No	%
Age in years		
18-35	293	63.8%
> 35	166	36.2%
Number of children		
1 child	86	18.7%
2-4	252	54.9%
5+	121	26.4%
Residence		
City	434	94.6%
Village	25	5.4%
Educational level		
Below secondary	17	3.7%
Secondary	107	23.3%
University / above	335	73.0%
Responder socio-economic status		
Low	15	3.3%
Intermediate	326	71.0%
High	118	25.7%

Table 2 Dietary and behavioral practices in Saudi women in kingdom of Saudi Arabia during postpartum period

Practice items	Yes		No	
	No	%	No	%
Had hot food and drinks during PP period to warm your body as its your attitude	337	73.4%	122	26.6%
During the postpartum period, you were advised to stay at home in a warm room, wear heavy clothes, and stay away from air conditioning and the cold weather in general?	375	81.7%	84	18.3%
During the postpartum period, you were advised not to move, to rest completely, and not to do any physical or sports activity?	213	46.4%	246	53.6%
During the postpartum period, were you advised to abstain or reduce showering?	140	30.5%	319	69.5%
Regarding breastfeeding, did you squeezed milk from the breast during the first 3 days after birth without giving it to your child?	263	57.3%	196	42.7%
Was there a sexual relation during the postpartum period?	40	8.7%	419	91.3%

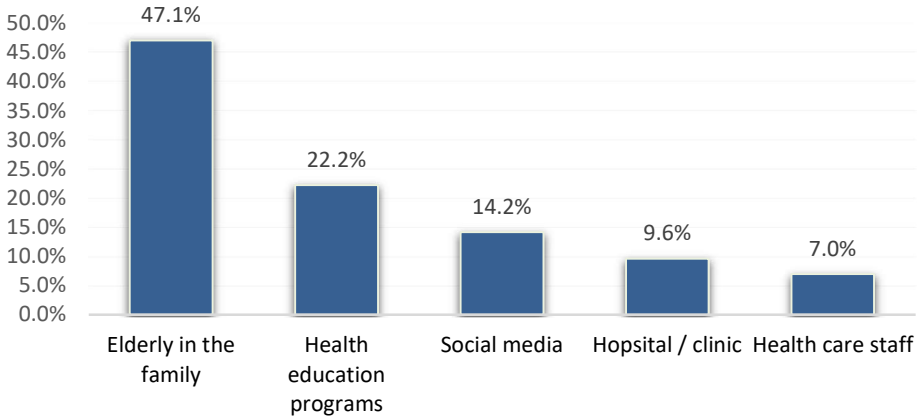

Figure 1 Source of study female's information regarding postpartum period dietary and behavioral practices, Saudi Arabia

Table 3 Social support for females during post-partum period, Saudi Arabia

Support	No	%
Did you receive support from those around you or were you alone during the postpartum period?		
Yes	440	95.9%
No	19	4.1%
If yes, who provided support for you?		
Mother & husband	405	92.0%
Husband	167	38.0%
Housemaid	94	21.4%
Family nurse	35	8.0%
Sister	33	7.5%
Friends	14	3.2%
Family	7	1.6%

Table 4 Dietary and behavioral practices among Saudi women in the kingdom of Saudi Arabia according to their age during the postpartum period

Practice	Age in years				p-value
	18-35		> 35		
	No	%	No	%	
Had hot food and drinks during PP period to warm your body as its your attitude	226	77.1%	111	66.9%	.017*
During the postpartum period, you were advised to stay at home in a warm room, wear heavy clothes, and stay away from air conditioning and the cold weather in general?	245	83.6%	130	78.3%	.158
During the postpartum period, you were advised not to move, to rest completely, and not to do any physical or sports activity?	132	45.1%	81	48.8%	.440
During the postpartum period, were you advised to abstain or reduce showering?	94	32.1%	46	27.7%	.328
Regarding breastfeeding, did you squeeze milk from the breast during the first 3 days after birth without giving it to your child?	192	65.5%	71	42.8%	.001*
Was there a sexual relation during the postpartum period?	19	6.5%	21	12.7%	.024*$

P: Pearson X^2 test $: Exact probability test

** P < 0.05 (significant)*

Table 5 Dietary and behavioral practices among Saudi women in the kingdom of Saudi Arabia according to number of children they had during the postpartum period

Practice	Number of children						p-value
	1 child		2-4		5+		
	No	%	No	%	No	%	
Had hot food and drinks during PP period to warm your body as its your attitude	49	57.0%	189	75.0%	99	81.8%	.001*
During the postpartum period, you were advised to stay at home in a warm room, wear heavy clothes, and stay away from air conditioning and the cold weather in general?	65	75.6%	211	83.7%	99	81.8%	.241
During the postpartum period, you were advised not to move, to rest completely, and not to do any physical or sports activity?	41	47.7%	122	48.4%	50	41.3%	.423
During the postpartum period, were you advised to abstain or reduce showering?	22	25.6%	83	32.9%	35	28.9%	.401
Regarding breastfeeding, did you squeeze milk from the breast during the first 3 days after birth without giving it to your child?	43	50.0%	155	61.5%	65	53.7%	.049*
Was there a sexual relation during the postpartum period?	6	7.0%	20	7.9%	14	11.6%	.415$

P: Pearson X^2 test *$: Exact probability test*

** P < 0.05 (significant)*

Table 6 Dietary and behavioral practices among Saudi women in the kingdom of Saudi Arabia according to source of information during the postpartum period

Practice	Source of information regarding post-partum period						p-value
	Health care staff / program		Family elderly		Others		
	No	%	No	%	No	%	
Had hot food and drinks during PP period to warm your body as its your attitude	128	71.9%	156	72.2%	53	81.5%	.278
During the postpartum period, you were advised to stay at home in a warm room, wear heavy clothes, and stay away from air conditioning and the cold weather in general?	143	80.3%	180	83.3%	52	80.0%	.693
During the postpartum period, you were advised not to move, to rest completely, and not to do any physical or sports activity?	67	37.6%	117	54.2%	29	44.6%	.004*
During the postpartum period, were you advised to abstain or reduce showering?	47	26.4%	69	31.9%	24	36.9%	.236
Regarding breastfeeding, did you squeeze milk from the breast during the first 3 days after birth without giving it to your child?	107	60.1%	112	51.9%	44	67.7%	.048*
Was there a sexual relation during the postpartum period?	15	8.4%	17	7.9%	8	12.3%	.531$

P: Pearson X^2 test *$: Exact probability test*

** P < 0.05 (significant)*

4. DISCUSSION

In postpartum, new changes are obligatory for the woman to familiarize to the baby's care routine and slowly return to the pre-gravid physiological and ordinary life. Consequently, women become more vulnerable to physical and psychological problems

(Hammoudeh et al., 2009; Woolhouse et al., 2014). It is unbearable to separate postpartum from the experience of motherhood. The changes that begin in puerperium, aiming to restore a woman's body to a non-pregnant state and preparing it to motherhood also comprise alterations in her brain structure, which can grant adaptive rewards to motherhood, such as making it easier for a mother to identify her child's needs (Hoekzema et al., 2017). The postpartum dietary and lifestyle habits are not similar among countries and cultures (Woolhouse et al., 2014; Rice, 1999). In western countries, mostly women are stimulated to eat a healthy and balanced diet including all food items and associated with physical exercises during this period (Artal et al., 2003).

The current study aimed to assess dietary and behavioral practices in Saudi women in kingdom of Saudi Arabia during postpartum period. The study revealed that vast majority of the study females (81.7%) were advised to stay at home in a warm room during PP period and to wear heavy clothes and stay away from air conditioning and the cold weather in general, while less than three-fourths (73.4%) think that they should have hot food and drinks during PP period to warm their body. Over fifty percent of the females (57.3%) squeezed milk from the breast during the first 3 days after birth without giving it to your child, but less than half of them (46.4%) were advised during PP period not to move, to rest completely and not to do any physical or sports activity which is against worldwide recommended guidelines (Mottola, 2002; Davies et al., 2018). The ACOG, (2002) cleared novel approvals and rules for exercise during pregnancy and the postpartum period. Regular exercise is endorsed for female's overall health benefits. Pregnancy is recognized as a special period for behaviors adjustment and not considered a condition for incarceration. It is now known that habits practiced during pregnancy mostly influence a women's condition during lifetime. Initially, the reference proposes a conceivable role of exercise in the management and evaluation of gestational diabetes. Additionally, the recommendations encourage exercise for inactive women and those who have obstetric or medical complications, but only after receiving a medical evaluation and clearance (Blair et al., 1992). The study also revealed that less than one-third of the females were advised to abstain or reduce showering, while only 8.7% had sexual relation during the postpartum period. Having hot food and drinks during PP period was significantly associated with young age and having more than 1 child. Other faulty behaviors' including lack of activity and preferring rest, avoid bathing and avoiding breast feeding for first few days may be explained by that most of the study females gained their information from other elderly family staff or social media. The role of health care staff and facilities in providing proper information was very restricted among the study sample. This was clear as females who had their information from health care staff/facility showed better dietary and behavior practices. Similar poor practices were reported by Liu et al., (2006) as 18% of the participants had no vegetables, 75.7% of people never drank milk and 78.8% consumed no fruit. Additionally, the participants continued to choose not bathing, cleaning their teeth or washing their hair. Two days after giving delivery, nearly half of the women didn't leave their beds. The average amount of time they spent in bed during this time was 18.0 hours. A third of them did not participate in any outside activities during that time. Also, in Australia, Pligt et al., (2016) found that only 8.6 % of women committed guidelines for combined fruit and vegetable intake. Totally, mean physical activity time was 350.9 ± 281.1 min/week. Time spent walking was 251.97 ± 196.78 min/week and 63.2 % of women were adhering to the recommendations for physical activity. In Singapore, Teh et al., (2021) reported that majority participants had low risk perception of future diabetes and their diet and physical activity after delivery were suboptimal due to various influences. In Saudi Arabia, Hoekzema et al., (2017) showed that the combination of herbs like ginger (zingiber officinale), hilba (fenugreek) and black seeds (nigella sativa) was used by 65.9% of the women during puerperium. Furthermore, women frequently ignored various fruits and vegetables (33.89%). Also, 11% of women rejected cold drinks, whereas 16.5% of women refused eggs. Another study conducted in Saudi Arabia found that 3.3% of the study participants had incomplete understanding of post-partum nutrition, whereas, 28.3% of participants had excellent or borderline nutritional habits during the early post-partum period and about one-fifth of them (19.3%) had dangerous dietary behaviors' (Hafez and Yakout, 2010).

5. CONCLUSION

In conclusion, the study revealed that most study females were incorrectly advised against many healthy practices and dietary habits during their post-partum period. Among these faulty behaviors was that to stay at home in a warm room, squeezing milk from the breast during the first 3 days after birth without giving it to the child, not to move, to rest completely and not to do any physical or sports activity. Also, to abstain or reduce showering, while engaging in sexual activity was limited during the postpartum period. On the other hand, high percent were advised to have hot food and drinks during PP period to warm their body. Also, the study revealed that the role of health care staff and facilities in providing proper information was very restricted among the study sample where their families played the main role in providing them with information. Health education programs and campaigns should be initiated to improve public awareness regarding healthy and faulty behaviors' during post-partum period and health care staff in PHCCs should pay more effort in this area.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

REFERENCES AND NOTES

1. ACOG Committee. Exercise during pregnancy and the postpartum period. Obstet Gynecol 2002; 99:171–3.
2. American College of Obstetricians and Gynecologists. Exercise during pregnancy and the postpartum period: ACOG technical bulletin number 189. Int J Gynecol Obstet 1994; 45(1):65-70.
3. Artal R, Toole MO, White S. Guidelines of the American college of obstetricians and gynecologists for exercise during pregnancy and the postpartum period. Br J Sports Med 2003; 37:6-12.
4. Blair SN, Kohl HW, Gordon NF. How much physical activity is good for health? Annu Rev Publ Health 1992; 13:99–126.
5. Callister LC. Doing the month: Chinese postpartum practices. Glob Health Nurs 2006; 31:390.
6. Chan SM, Nelson EA, Leung SS, Cheung PC, Li CY. Special postpartum dietary practices of Hong Kong Chinese women. Eur J Clin Nutr 2000; 54:797-802.
7. Chee CY, Lee DT, Chong YS, Tan LK, Ng TP, Fones CS. Confinement and other psychosocial factors in perinatal depression: A transcultural study in Singapore. J Affect Disord 2005; 89:157- 66.
8. Davies GA, Wolfe LA, Mottola MF, Mac-Kinnon C, Arsenault MY, Bartellas E, Cargill Y, Gleason T, Iglesias S, Klein M, Martel MJ, Roggensack A, Wilson K, Gardiner P, Graham T, Haennel R, Hughson R, Mac-Dougall D, Mc-Dermott J, Ross R, Tiidus P, Trudeau F. SOGC Clinical Practice Obstetrics Committee, Canadian society for exercise physiology board of directors. Exercise in pregnancy and the postpartum period. J Obstet Gynaecol Can 2018; 40(2): e58-65.
9. Eberhard-Gran M, Garthus-Niegel S, Garthus-Neigel, K, Eskild A. Postnatal care: A cross-cultural and historical perspective. Arch Womens Ment Health 2010. doi: 10.1007/s00737-010-0175-1
10. Hafez SK, Yakout SM. Early postpartum dietary practices among a group of Saudi women. J Am Sci 2010; 6(11):990-8.
11. Hammoudeh W, Mataria A, Wick L, Giacaman R. In search of health: Quality of life among postpartum Palestinian women. Expert Rev Pharmacoecon Outcomes Res 2009; 9:123–132. doi: 10.1586/erp.09.8
12. Hoekzema E, Barba-Müller E, Pozzobon C, Picado M, Lucco F, García-García D, Soliva JC, Tobeña A, Desco M, Crone EA, Ballesteros A, Carmona S, Vilarroya O. Pregnancy leads to long-lasting changes in human brain structure. Nat Neurosci 2017; 20:287–296.
13. Kaewsarn P, Moyle W, Creedy D. Traditional postpartum practices among Thai women. J Adv Nurs 2003; 41(4):358-66.
14. Kim-Godwin YS. Postpartum beliefs and practices among non-Western cultures. MCN Am J Matern Child Nurs 2003; 28:74-78.
15. Leung SK, Arthur D, Martinson IM. Perceived stress and support of the Chinese postpartum ritual doing the month. Health Care Women Int 2005; 26:8-10.
16. Liu N, Mao L, Sun X, Liu L, Chen B, Ding Q. Postpartum practices of puerperal women and their influencing factors in three regions of Hubei, China. BMC public health 2006; 6 (1):1-7
17. Mottola MF. Exercise in the postpartum period: Practical applications. Curr Sports Med Rep 2002; 1(6):362-8.
18. Ngunyulu RN, Mulaudzi FM. Indigenous practices regarding postnatal care at Sikhunyani village in the Limpopo province of South Africa. Afr J Nurs Midwifery 2009; 11(1):48–64.
19. Rice PL. What women say about their childbirth experiences: The case of Hmong women in Australia. J Reprod Infant Psychol 1999; 17:237–253.
20. Teh K, Quek IP, Tang WE. Postpartum dietary and physical activity-related beliefs and behaviors among women with recent gestational diabetes mellitus: A qualitative study from Singapore. BMC Pregnancy Childbirth 2021; 21(1):1-2.

21. Pligt PVD, Olander EK, Ball K, Crawford D, Hesketh KD, Teychenne M, Campbell K. Maternal dietary intake and physical activity habits during the postpartum period: Associations with clinician advice in a sample of Australian first-time mothers. BMC Pregnancy Childbirth 2016; 16(1):1-0.
22. Woolhouse H, Gartland D, Perlen S, Donath S, Brown SJ. Physical depression in the first 12 months postpartum: Results of an Austrialian nulliparous pregnancy cohort study. Midwifery 2014; 30:378–384.
23. Yeng-Ching ER, Lorraine F, Walker. Postpartum maternal health care in the United States: A critical review. J Perinat Educ 2006; 15(3):34–42.
24. Kim-Godwin YS. Postpartum beliefs and practices among non-western cultures. MCN Am J Matern Child Nurs 2003; 28(2):74–78. doi: 10.1097/00005721-200303000-00006