

KNOWLEDGE AND PRACTICE OF GALACTOGOGUES CONSUMPTION AMONG BREASTFEEDING MOTHERS IN KUANTAN, PAHANG

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ABSTRACT

It is well recognize that breast milk give many benefits to the infants. The best nutrition for early months of growth for normal infants is exclusive breastfeeding as suggested by World Health Organization (WHO). Almost all reasons that have been documented for discontinuance of breast milk are perception of insufficient production of milk. In order to increase the amount of milk, many breastfeeding mothers take an effort to take supplement, known as galactogogues which been claimed to increase quality and quantity of breast milk. However, the exact effect of galactogogues is still questionable. This study aims to determine the association between the effects of galactogogues on milk production and socio-demographic data, period of breastfeeding, practice of complementary breastfeeding or exclusive breastfeeding, problem during breastfeeding and frequency of consumption. This is a cross-sectional study and 120 respondents were selected by using purposive sampling. The result showed there was a significant association between effect of galactogogues consumption on milk production and period of breastfeed, inadequate breast milk supply and frequency of consumption ($p < 0.01$). Food intake was the most significantly preferred as compared to herb and drug ($p < 0.01$). There was a significant association between knowledge and practice of galactogogues consumption among breastfeeding mothers in Kuantan ($p < 0.05$). In conclusion, knowledge of galactogogues consumption among breastfeeding mothers in Kuantan was good and the practice was prevalent among them.

Keywords: galactogogues, breastfeeding, Pahang, KAP

INTRODUCTION

Breastfeeding is considered the optimal source of nutrition for infants from birth to one year supported by the World Health Organization, (2017). According to American Academy of Pediatrics, (2012), Policy on breastfeeding recommends exclusive breastfeeding for six months, with continuation up to one year or longer (Forinash et al, 2012). Working Party of the Panel on Child Nutrition concluded that, there is absolute no healthier nourishment for normal infants throughout the first 24 months of growth compared to breast milk. Human breast milk is an absolute nutrient, species specific and is in a dynamic state which is tailor- made for the infant (Greer, 2019). According to Vass et al. (2019), breast milk is believed to be the optimal food source for infants through first 24 months of life. Besides that, infants who formula feed compared with those who breastfeed have higher rates of hospitalization for bacterial infections during the first 24 months of life (Forinash et al, 2012).

Many advance research have been done in order to understand the relationship between breastfeeding mothers' dietary and the effect on breastfeeding outcome (Bravi et al., 2016). The important significance of nutrition that can be related with lactation performance is that the mothers' nutrition gives a great impact on the physiological responses to milk production (Greer, 2019). Besides that, mothers' nutritional status also appears to influence fat concentration and thus the energy content of breast milk. It also affects fatty acid composition and immunological properties (Vass et al., 2019) Good lactation and excellent measure and feature of the milk production usually related with the nutrients that absorbed by breastfeeding mothers. Even though the

function of maternal dietary status on the effects of breastfeeding is still poorly understood, but in recent years, a research has proved the significant correlation between nutritional status of mothers and milk production (Bravi et al., 2016). However, mothers of premature newborns, illness of mother or child, adoption, surrogate motherhood, structural abnormalities such as inverted nipples and oral clefts, infection, pain, poor latching (Forinash et al., 2012) and insufficient milk production (Greer, 2019; Forinash et al., 2012) may have difficulty on giving a sufficient amount of breast milk to their baby. The causes in reduction of breast milk supply comprise of preterm delivery, maternal illness, anxiety, fatigue and emotional stress. Poor breast milk production is the most frequent cause of breastfeeding failure (Zappantis, 2012). Besides that, other potential problem include infant prematurity, failed or delayed lactogenesis II, induced lactation and relactation (Mannion, 2012).

Galactogogues is an initiative taken to enhance breast milk supply as there are many acknowledge benefits of continued breastfeeding for the infant and mother (Shawahna et al., 2018). Moreover, for those who never delivered a baby, it is biologically possible to lactate by taking galactogogues. Even though there are many option for herb and pharmaceutical galactogogues that have evidence following their ability to enhance milk supply, peer-reviewed studies have confirmed that their efficiency and safety are poor. As pharmaceutical science and research advanced have proved that for certain prescription drug, there are more serious adverse effects preclude their use of galactogogues (Asztalos, 2018). In handling issue of difficulty in breastfeeding, clinicians should provide recommendations in using non-pharmacologic methods to increase breast milk supply (ABM Protocol, 2011). According to Forinash et al. (2012), non-pharmacological methods should be primary step to enhance milk production. All breastfeeding mothers should be educated on breastfeeding techniques, including latching, positioning, and length of feeding, since these factors can significantly affect breastfeeding. If non-pharmacologic methods fail to enhance production of milk, clinicians should recommend drugs or herbs. Drugs and herbs have some clinical evidence of their usefulness in increasing breast milk production in lactating women and they appear to be safe for the breastfeeding infant. However, both medications lack strong evidence to support efficiency and the exact effect is still questionable (Asztalos, 2018). Thus this study is important to know the effect of galactogogues consumption and mothers population in Kuantan. Besides that, this survey provides knowledge and overview on galactogogues effect prior to further deliberation on the efficacy of galactogogues in the laboratory.

Therefore, the objective of this study is to determine the association between the effects of galactogogous and socio-demographic factors and identification of the most preferred type of galactogogous consumption among mothers in Kuantan, Pahang. Moreover, the association between knowledge and practice of galactogogous consumption will be revealed.

METHODOLOGY

Participants

This was cross-sectional study with purposive sampling and 120 mothers were selected. Participation of mothers in the study was voluntarily and written informed consent was obtained. Mothers aged between 20 - 40 years old and had breastfed experience were included. The exclusion criteria were mothers with smoking and failure to complete questionnaire.

Instrumentation

The questionnaires consist of 61 questions which were divided into four sections arranged as Section A, Section B, Section C and Section D. The Section A presents questions about the sociodemographic status of the respondents while Section B concentrates on general breastfeeding experience which covers the option of breastfeeding whether breast milk or formula milk, the duration of breastfeeding and the problem face during breastfeed. Section C comprised of question about galactogogues consumption experience which covers the type of galactogogues consumed whether the mothers take food, herb or drug, form of galactogogues taken by mothers, frequency of galactogogues consumption, brand of galactogogues taken, and effect of galactogogues on milk production, side effect and the importance of the galactogogues. Finally, Section D consists of questions on assessment on breastfeeding and galactogogues. It was developed by using both Malay and English Languages and pilot study was conducted with Cronbach's alpha was 0.81.

Data Analysis

Data was collected and quantitatively analyse using Statistical Package for the Social Science (SPSS) version 2.4. Chi-square test was used to determine the association between effects of galactogogues on milk production and socio-demographic, period of breastfeeding, practice of breastfeeding with breast milk only or with breast milk and formula milk, inadequate breast milk supply, problem during breastfeeding and frequency of consumption among mothers in Kuantan. Whereas, in identifying the most preferred type of galactogogues consumption among mothers in Kuantan, Mc Nemar test was used. Moreover, Chi-Square test was used to determine the association between knowledge and practice of galactogogues consumption among breastfeeding mothers in Kuantan. For the Chi-Square test, the data must meet the assumption by cell with an expected count less than 5 must be < 20%. The minimum expected count must be ≥ 1 . If the assumption was violated, the Fisher's exact probability test can be used. The data showed statistical significance relationship with p-value <0.05.

RESULTS

Socio-demographic profile

One hundred and twenty-six breastfeeding mothers were non randomly selected to participate in the survey. However, six of them were excluded as they do not match the inclusion criteria. A total of 120 completed respond were collected an analyse representing all breastfeeding mothers in Kuantan area, and resulting in response rate of 100%. Mean age of the mothers was 36.85 ± 10.25 years, with minimum age of 20 years and maximum age is 50 years. Table 1 shows the socio-demographic profile of the mothers.

Table 1 Socio-demographic data of the participants

Characteristics	Number (n=120)	Percentage
Age (year)		
• 20-30	47	39.2
• 30-40	67	55.8
• 40-50	6	5
Weight (kg)		
• (30-40)	11	9.2
• (40-50)	16	13.3
• (50-60)	43	35.8
• (60-70)	27	22.5
• >70	23	19.2
Height (cm)		
• 100-130	3	2.5
• 130-150	22	18.3
• 150-170	95	79.2
Health Status		
• Healthy	12	93.3
• Illness/Medication	8	6.7
Academic Status		
• Secondary School	22	18.3
• Diploma/Degree	84	70.0
• Master/Phd	14	11.7
Employment Status		
• Unemployed	36	30.0
• Employed	84	70.0
Number of Children		
• 1	33	27.5
• 2	51	42.5
• 3	17	14.2
• 4	13	10.8
• >4	6	5.0

Knowledge of Galactogogues Consumption

Descriptive data for each question of knowledge section are represented in Table 2. All respondents agreed that breast milk strengthen infant's body system and give positive effect on baby's growth and development. However, for knowledge regarding colostrum the percentage of agree and disagree is fairly reasonable.

Table 2 Distribution of scale regarding knowledge of galactogogues consumption among participants (n=120)

Result (score)	n (%)
Good (25-38)	70 (58.3)
Moderate (13-25)	50 (41.7)
Poor (0-13)	0 (0.0)

Association between types of galactogogous consumption

The second objective of this study is to identify the association between types of galactogogues consumption among mothers in Kuantan, Pahang as shown in Table 3 and 4.

Table 3 Association between food, herb and drug using Mc Nemar’s test

		Drug		p - value	
		Yes n(%)	No n(%)		
Food	Yes	8(8.6)	47(50.5)	< 0.001	
	No	3(3.2)	35(37.6)		
			Herb		< 0.001
	Yes	22(23.7)	33(35.5)		
No	5(5.4)	33(35.5)			

Table 4 Association between herb and drug using Mc Nemar’s test

		Drug		p- value
		Yes n(%)	No n(%)	
Herb	Yes	7(7.5)	20(21.5)	0.020
	No	6.1%	62(66.7)	

Table 3 and 4 show the Mc Nemar’s test for prevalence of the most preferred type of galactogogues consumption among breastfeeding mothers in Kuantan. The result indicate that food was the most significantly preferred as compared to herb (p <0.001) and drug (p <0.001). A part from that, the findings also shows herb was significantly second most preferred type of galactogogues as compared to drug (p = 0.020).

Association between knowledge and practice of galactogogues consumption among breastfeeding mothers in Kuantan, Pahang

Table 5 depicts the chi-square test for association between knowledge and practice of galactogogues consumption among breastfeeding mothers in Kuantan. The results showed that there was a significant association between knowledge and practice of galactogogues consumption among breastfeeding mothers in Kuantan (p = 0.020).

Table 5 Association between knowledge and practice of galactogogues consumption among breastfeeding mothers in Kuantan.

Knowledge Assessment	Practice of galactogogues consumption		Total	Chi-Square Statistic (df)	p-value
	Yes n(%)	No n(%)			
Moderate	44 (47.3%)	6 (22.2%)	50	5.42 (1)	0.020
Good	49 (52.7%)	21 (77.8%)	70		
Total	93 (100.0%)	27 (100.0%)	120		

Chi-square test for independent (with Fisher’s exact test*) indicated that there was statistical significant association between knowledge and practice of galactogogues consumption (p < 0.05) among breastfeeding mothers in Kuantan.

DISCUSSION

Breast milk is liquid gold, and just like gold, can be hard to come by. Breastfeeding is considered the optimal source of nutrition for infants in the first few months of life (American Academy of Pediatrics, 2012). Working Party of the Panel on Child Nutrition concluded that, there is absolute no healthier nourishment for normal infants throughout the first 24 months of growth compared to breast milk. Human breast milk is an absolute nutrient and species specific (Knoppert, 2013). Moreover, it benefits infants in reducing morbidity, enhance immunity, improved function of retinal, increased cognitive development, reduced diabetes prevalence and lowered risk factor for cardio-respiratory infection (Donovan, 2012)

However, certain mothers might have difficulty in achieving adequate supply of milk due to insufficient milk production (Anderson, 2013), structural abnormalities such as inverted nipples and oral clefts, infection, pain, poor latching (Forinash et al.,

2012), poor sucking, infrequent feedings, premature newborns, illness of mother or child, adoption, and surrogate motherhood (Vass, 2019). The prevalence of lactation insufficiency may be as high as 15% in newly lactating mothers (Donovan, 2012). Therefore in some cases, galactogogues is an initiative taken to enhance breast milk supply (Flanders, 2012) when physiological are only partially effective (Hale, 2007). Moreover, it is biologically possible to lactate by taking galactogogues for those who never delivered a baby. Even though there are many option for herb and pharmaceutical galactogogues that have evidence following their ability to enhance milk supply, peer-reviewed studies have confirm that their efficiency and safety are poor (Forinash et al., 2012). Moreover, the exact effect of galactogogues is still questionable.

Based on the findings of this study, it has been revealed that the knowledge of galactogogues consumption of breast feeding mothers in Kuantan was at a satisfactory level. More than half of the breastfeeding mothers in Kuantan have good knowledge on galactogogues consumption which is 58.3%. Meanwhile, almost half of them had moderate knowledge which is 41.7%. None of them has poor knowledge. Apart from that, the practice of galactogogues consumption of breastfeeding mothers in Kuantan is highly prevalent. This may be due to information and consultative services provided to the breastfeeding mothers by community, clinic, hospital, and other healthcare settings (Mortel, 2013). Besides that, urban area of study setting lead to more exposure and reference on health education and has a great access to technology such as an internet.

The major finding of this research is the association between the effects of galactogogues consumption on milk production and socio-demographic, period of breastfeeding, practice of breastfeeding with breast milk only or with breast milk and formula milk, inadequate breast milk supply, problem during breastfeeding and frequency of consumption. It has been revealed that, the effect of galactogogues consumption on milk production was significantly associated with period of breastfeed ($p = 0.039$), inadequate breast milk supply ($p = 0.039$) and frequency of consumption ($p = 0.026$). The findings from this study identical to the research done by Knoppert, 2013, where inadequate breast milk was significantly associated with effects of galactogogues consumption. Moreover, mothers with high breastfeeding self-efficacy were significantly more likely to be breastfeeding and doing so exclusively compared to mothers with low breastfeeding self-efficacy (Mannion, 2012). Study conducted by Donovan in 2012, found that, milk production efficacy influenced and regulated by genetic heritage, age, parity, nutritional status and dietary intake.

From the responds of breastfeeding mothers in Kuantan, it can be summarize that it is unlikely that the effect of galactogogues consumption on milk production associated with age, health status, academic status, employment status, number of children, practice of breastfeeding with breast milk only or with breast milk and formula milk and problem during breastfeeding. In contrast with the finding of Holmes (2011), they discovered that the practice of formula milk consumption in hospitals has been linked with low production of breast milk. Another study that opposed this finding stated that, as compared to mothers who do not use formula milk, mothers who use formula milk had significantly lower self-efficacy (p -value < 0.05) (Mannion, 2012). One of the finding revealed that problem during breastfeed does not significantly associated with effect of galactogogues consumption. Lack of support from husband/family and nursery are among the problem that might occur during breastfeed. In addition, the most common reasons bottle-feeding was chosen instead of breast milk included mother's perception of father's attitude and return to work. Besides, one of the factors that encourage continues breastfeeding is family support (Flanders, 2012). Moreover, one of the finding from this study related with study done in Ferrara, Italy by Chierici (1999), found that mothers who lives under poor economic circumstances and in adequate living conditions do not necessarily produce less milk.

Common herbs and foods used as galactogogues are numerous and varied including almonds, anise, asparagus, borage, caraway, chaste tree fruit, chicken soup, cilantro, coconut, coriander, cumin, dandelion, dill, fennel, fenugreek, garlic, ginger, hops, lettuce, marshmallow root, millet, mushrooms, nettle, oat straw, papaya, pumpkin, red clover, red raspberry, rice, sage, seaweed soup, sesame seeds, sunflower seeds, thistles, and vervain (Shahwana, 2019). It has been shown that food was the most significantly preferred type of galactogogues as compared to herbs ($p = < 0.01$) and drugs ($p = < 0.01$). Apart from that, the finding shows that herbs was significantly second preferred type of galactogogues as compared to drug ($p = 0.02$). The possible reason for this finding is food most easily available and be consume more comfortably as compared to herbs and drugs where the taste is commonly bitter and have a strong smell. Moreover, mothers in Kuantan choose to consumed food compared to herbs might be because herbs have its own consequences. Study conducted in University Science Malaysia, Penang found that herbs are not non-toxic just because they are natural. Medicinal herbs may contain powerful, pharmacologically active compounds (Hussin, 2001). However, herbs are more preferred by mothers in Kuantan as compared to drug due to side effect of drugs. Women may prefer to take herbal supplements because they consider them safer compared to pharmaceutical products. Besides that, drug was found the least preferred type of galactogogues due to its malignancy of side effect which are somnolence, lack of energy and motivation, giddiness, stomach cramping and many more (Asztalos, 2018).

The factors such as geographical location of the community involves in the study might contribute to the difference in preferred types of galactogogous. Study conducted in Tumpat, Kelantan found that the use of herbal supplement was common (52.4%) among mothers in Tumpat district (Rahman, 2009). Meanwhile study done in Indonesia found that married women were more likely to use herbal supplement daily (Supardi, 2011). In addition, in developing country, the scientific method of treatment might not be primary option. For example, in India, herbal formulations are preferred as treatment option due to lesser side effects and low cost (Modak, 2007). This is primarily because of the general belief that herbal drugs are with lesser side effects besides being cheap and locally available. In contrast, drugs are more preferred as primary health care in develop country. In United States, scientific methods became more advanced and preferred, and the practice of botanical healing was dismissed as quackery (Winslow, 2017). Since galactogogues also available in the form of snack or cookies, this might be one of the reasons why herb and drug are less preferred by Malaysian specifically among Kuantan's mothers. In contrast, Shahwama (2019) has revealed that the most preferred type of galactogogues is herbs which are fennel and fenugreek seeds. Besides geographical factor, difference range of age might also contribute to the difference in preferred types of galactogogous. However, in this study

age does not have relevant with choosing galactogogues type since 95% of respondent lies within the same range of age which is 20-40 years old.

One of the findings which emerged from this study is the association between knowledge and practice of galactogogues consumption among breastfeeding mothers in Kuantan. The result illustrated a significant association between knowledge and practice of galactogogues consumption among breastfeeding mothers in Kuantan ($p = 0.02$). It can be concluded from this finding that respondents who more engaged in galactogogues consumption were more likely to demonstrate knowledge as assessed on the survey. The parallels of the findings in this study and the previous findings of a study by Mannion & Mansell (2012), where the general consensus of their study was reported low milk supply may be alleviated by modifying maternal self-efficacy through skill improvement and knowledge development. Literally, they found higher education associated with higher consumption of galactogogues. Moreover, since Kuantan is urban area, thus it is easy for mothers to acquired knowledge regarding the effectiveness of galactogogues through magazine, internet and health care unit. Thus, mothers might get influence with the interesting and promising advertisement and tend to search about the galactogogues. Practice of galactogogues consumption become higher when more knowledge and information regarding its effectiveness being exposed to the breastfeeding mothers without considering its side effects.

By having an effort to increase rate of breastfeeding through the consumption of galactogogous, this step will be able to reduce mortality rate of infants which meets the fourth goal of the eight Millennium Development Goals (MDGs). One of the MDG's goals is to reduced child mortality. The United Nations Millennium Development Goals are eight goals that all 191 United Nations Member States have agreed to try to achieve by the year 2015, signed by world leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women. Study done in Malaysia by Habicht (1988), found that without piping system, Malaysian infants who did not breastfeed were five times more likely to die after one week of age than those who breastfed, when other significant factors affecting infant mortality were taken into account.

CONCLUSION

Study on knowledge and practice of galactogogues consumption among mothers in Kuantan, Pahang had revealed that the knowledge of galactogogues consumption among breastfeeding mothers was at a satisfactory level. More than half of the mothers had a good knowledge while almost half of them had moderate knowledge of galactogogues consumption. Moreover, the practice was highly prevalent among them. Apart from that, this study indicated that period of breastfeed; inadequate breast milk supply and frequency of consumption have influenced practice of galactogogues consumption among mothers in Kuantan. Whereas, it was found that the association between the effect of galactogogues consumption of milk production and socio-demographic data, practice of breastfeeding with breast milk only or with breast milk and formula milk and problem during breastfeeding does not exist. The result from this study illustrated that knowledge of galactogogues consumption has significant relationship with practice of galactogogues.

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