



Breast-feeding intention, initiation and duration among Hong Kong Chinese women: A prospective longitudinal study

Wenru Wang, PhD, RN (Assistant Professor)^a, Ying Lau, PhD, MN, BN (Hon), BSc, IBCLC, RM, RN (Assistant Professor)^{a,*}, Aloysius Chow, BPsy (Hon) (Research Assistant)^a, Kin Sin Chan, PhD, M. Phil, BSocSci (Hon) (Assistant Professor)^b

^a Alice Lee Centre for Nursing Studies, Yong Loo Lin School of Medicine, National University of Singapore, Level 2, Clinical Research Centre, Block MD 11, 10 Medical Drive, Singapore 117597, Singapore

^b Faculty of Social Sciences and Humanities, the University of Macau, Macau Special Administration Region (SAR), China

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ABSTRACT

Objectives: to (1) estimate the breast-feeding intention, initiation and duration rate; (2) identify the reasons to initiate and wean breast feeding and (3) explore predictors of breast-feeding duration.

Design: a prospective longitudinal study

Setting: antenatal clinics of five regional hospitals from four clusters in Hong Kong

Participants: a population-based sample of 2098 women in the second trimester of pregnancy was recruited with a systematic sampling method.

Measurements: three different sets of self-administered questionnaires were used to measure the breast-feeding intention, initiation and duration, demographic, socio-economic, obstetric, complications of pregnancy and intrapartum variables at three time points. Reasons for initiating and weaning breast feeding, the formal and informal supportive resources of participants during breast feeding were collated at the third time points.

Findings: the rates of artificial feeding and breast feeding were 41.1% and 58.9%, whereas breast-feeding intention and initiation rates were 85.3% and 67.0%, respectively. The breast-feeding duration rates were 11.1%, 10.3%, 10.7% and 26.7%, for the 'within < 1 week', '1–3 weeks', '> 3–6 weeks' and '> 6 weeks' groups. The common reasons for initiating breast feeding were that breast feeding is beneficial for both the baby (89.8%) and mother (39.7%). Reasons for weaning breast feeding were insufficient breast milk (32.7%), tiredness and fatigue (39.7%) and return to work (29.6%). Partner, relatives and nurse midwives were important supportive resource during breast feeding. Ordinal logistic regression analysis identified five predictive factors of breast-feeding duration. Participants who were working part-time or were housewives ($p=0.037$), had monthly family income of < HK\$10,000 ($p=0.034$), more than one child ($p=0.001$), positive breast-feeding intention ($p=0.001$) and early breast feeding within the first hour ($p<0.0001$) were more likely to have longer breast feeding than their counterparts.

Conclusion: mothers in Hong Kong do not meet the recommendation of the international standards for breast feeding. Understanding of reasons for initiation, weaning and predictors of breast-feeding duration can help nurse midwives to develop and customise effective strategies to promote and encourage breast feeding.

Implications for practice: the findings are important for a process-oriented breast-feeding training programme for nurse midwives. New strategies should be implemented for prolonging breast-feeding duration among perinatal women.

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Introduction

The advantages of breast feeding have been well established including physical, psychosocial, economic and environmental benefits (Cornall, 2011). According to the United Nations Fund for Children (UNICEF), optimal infant breast feeding should be initiated within the first hour of birth, exclusive breast feeding continue for six months

and appropriate complementary feeding should commence after the sixth month together with breast feeding for at least two years (UNICEF, 2009). Some advantages of longer breast-feeding duration for mothers are improved bone strength (Chapman, 2012) and lower risk of breast cancer (Nagata et al., 2012); while better academic achievement (Oddy et al., 2011) and lower risk of obesity (McCrory and Layte, 2012) are some reported advantages for children who are breast fed.

However, the global average duration of exclusive breast feeding is less than six months and the proportion of women who breast feed until their infant is six months old is dismally low

* Corresponding author.

E-mail addresses: nurly@nus.edu.sg, lauying37@gmail.com (Y. Lau).

at only 36% (WHO, 2009). Approximately 75% of mother–baby dyads do not meet the UNICEF recommendations for optimal breast feeding (Evans et al., 2011; O'Connor et al., 2011; Stuebe and Bonuck, 2011). In Hong Kong, over 80% of mothers initiate breast feeding (Baby Friendly Hospital Initiative Hong Kong Association, 2011), but only 6% of them were exclusively breast feed during the first three months (Tarrant et al., 2010). A better understanding of the reasons for breast-feeding initiation (Taleb et al., 2012; Loof-Johanson et al., 2013) and weaning (Ho and McGrath, 2011; Olang et al., 2012) will facilitate nurse midwives to develop effective and customise effective strategies to promote and encourage breast feeding.

Breast-feeding duration depends on multiple factors associated with mother, infant, and a supportive environment. Demographic, socio-economic, obstetric and intrapartum interventions factors have been linked to breast-feeding duration in the recent papers (Meedya et al., 2010; Thompson et al., 2011; Inoue et al., 2012). In addition, it has been found that mothers in hospitals that are encouraged to breast feed within the first hour of birth (Tarrant et al., 2011) together with the presence of nurse midwives who actively promote breast feeding during the perinatal period (Kervin et al., 2010) will have a longer breast-feeding duration.

Although many studies have been conducted to investigate the associations between these factors and breast-feeding duration, inconsistent associations have been reported such as household income (Mandal et al., 2012; Chen et al., 2013), parity (Akter and Rahman, 2010; Dennis et al., 2013), mode of delivery (Bezerra et al., 2012; Mazumder and Hossain, 2012), use of opiate or epidural analgesia during labour (Woods et al., 2012; Yousefshahi et al., 2012), and complications of pregnancy (Cordero et al., 2012; Nicklas et al., in press). Since many factors are still inconclusive and not well examined in detail, further investigation is required.

A limited numbers of studies about breast feeding have been conducted in Hong Kong and these studies mainly investigate intrapartum intervention (Bai et al., 2013) and hospital practices (Tarrant et al., 2011). The possible predictors of the breast-feeding duration of mothers in Hong Kong remain unclear. It is therefore important to identify the factors that may influence breast-feeding duration, so that effective breast-feeding promotion policies and counselling activities can be developed and implemented. This current study examined factors such as demographic, socio-economic, obstetric, intrapartum characteristics and complications of pregnancy in relation to breast-feeding duration. These factors were selected because they are modifiable through healthcare facility policies, professional and peer support, clinical interventions and education, public health efforts, and community resources (Taleb et al., 2012; Wen et al., 2012; Bai et al., 2013) and are of important interest to nursing practice. The current study aims to address the following research questions:

1. What are the rates of breast-feeding intention, initiation and duration in five hospitals in Hong Kong?
2. What are the reasons women have to initiate and wean breast feeding?
3. What are the demographic, socio-economic, obstetric and intrapartum predictors associated with breast-feeding duration?

Methods

Design and sample

A prospective longitudinal research design was used to collect data at three different time points. This design has been used to establish the relationships, direction and magnitude of study

variables (Burns and Grove, 2009). The systematic sampling method was adopted to enhance the representativeness of the sample (Kao et al., 2011) and increase the generalisation of the findings (Kao et al., 2011). It is estimated that every year, 120,000 women attend the antenatal outpatient clinics located in the five hospitals where the recruitment took place (Hospital Authority, 2010). Assuming a previous prevalence rate of breast-feeding duration in a local study (Tarrant et al., 2010), a minimum of 2000 participants were required to gain a 95% confidence interval for the study estimates with a width of $\pm 2\%$ (Johnson and Wichern, 2007). Dividing 120,000 by 2000, a sampling interval of 60 was obtained and, starting with the random number 19, every 60th woman thereafter was recruited. Hence the sample consisted of cases numbered 19, 79, 139, 199 ... 120,019 (Kao et al., 2011). In this study, a total of 2365 Chinese women from five hospitals in Hong Kong were invited to participate over a period of 12 months. From this group, 2098 women completed the questionnaire. The inclusion criteria were Chinese childbearing women with a single fetus attending the antenatal clinics of the five hospitals in the second trimester of pregnancy. The exclusion criteria were: (1) twins pregnancy, (2) carrying fetal malformations, (3) severe personal or family psychiatric or medical history, (4) not able to provide consent, and (5) breast surgery patient.

Measurement

Three sets of questionnaires were developed based on information and data from the literature review (Meedya et al., 2010; Thompson et al., 2011; Inoue et al., 2012). The first set of questionnaires recorded the demographic and socio-economic information (i.e. age, educational level, marital status, employment status, monthly family incomes). In addition breast-feeding intention was measured using a self-administered questionnaire. Two responses were used to indicate the intention of feeding (i.e. 'breast feeding (exclusive breast feeding or/and partial breast feeding)' versus 'bottle feeding').

The second set of questionnaires recorded complications of pregnancy (i.e. gestational diabetes mellitus (GDM), gestational induced hypertension (pre-eclampsia), antenatal bleeding (placenta praevia or abruptio placentae), threaten abortion, nausea and vomiting, swelling in pregnancy, malposition of fetus (breech or transverse), abnormal amino fluid (polyhydramnios or oligohydramnios), headache and dizziness, congenital abnormality, thalassaemia, sexual transmitted diseases or others).

The third set of questionnaires consisted of obstetric and intrapartum data (i.e. number of pregnancies, number of babies, mode of delivery, opioid pain medication or epidural analgesia, duration of labour and duration of gestation). In addition, breast-feeding initiation and duration were measured with a self-administered questionnaire. Whether breast feeding was initiated within the first hour of birth was reported by the mother (i.e. 'yes' versus 'no'). Duration of breast feeding was divided into five groups (i.e. 'never breast feeding', '< 1 week', '1–3 weeks', '> 3–6 weeks' and '> 6 weeks'). The list of possible reasons and supportive resources for initiating and weaning breast feeding were also recorded in the third set of questionnaires.

Data collection

Ethical approvals that complied with the Declaration of Helsinki were obtained from the Institutional Review Boards from five hospitals (i.e. from four clusters in Hong Kong). The first set of questionnaires was collected during the first 12 months of the study at the antenatal clinics (i.e. 1st–12th month), the second set of questionnaires was collected during the next 12 months at the antenatal clinics (i.e. 13th–24th month) and the third set of

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