

LH Wu 胡麗霞
 YH Cheng 鄭養鴻
 CP Lee 李之朋
 SYC Chong 莊婉珍

An exploratory study examining breastfeeding practices among mothers in a maternity hospital in Hong Kong

Key Messages

1. Mothers in the breastfeeding group were more knowledgeable about and held more positive attitudes towards breastfeeding than those in the infant formula group.
2. Previous breastfeeding experience influences current breastfeeding practice, including choice and duration of feeding method.
3. Mothers who do not need to breastfeed their babies during work hours quit breastfeeding earlier than those who do need to breastfeed during work hours. The need to breastfeed the baby while working may not be a factor in ceasing to breastfeed.
4. Having a job is not a crucial factor in the choice between breastfeeding or/and use of infant formula.

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School of Nursing, The Hong Kong Polytechnic University

LH Wu

Department of Community Medicine and Unit for Behavioural Sciences, University of Hong Kong

YH Cheng

Department of Obstetrics and Gynaecology, Queen Mary Hospital

CP Lee

Kwong Wah Hospital

SYC Chong

HCPF project number: 257104

Principal applicant and corresponding author:

LH Wu

School of Nursing, The Hong Kong Polytechnic University, Hung Hom,

Kowloon, Hong Kong SAR, China

Tel: (852) 2766 6322

Fax: (852) 2364 9663

E-mail: hscandy@inet.polyu.edu.hk

Introduction

The breastfeeding (BF) rate in Hong Kong has increased from 26.8% in 1987 to 33.5% in 1997, then 56.8% in 2001.^{1,2} Even though breast milk is the best food for newborns, the BF rate in Hong Kong is relatively low compared with other major cities.^{3,4} Local studies have suggested that the reasons Hong Kong women do not choose BF include smoking and caesarean section.⁵ This study aimed to examine the existing patterns of BF among mothers in a maternity hospital in Hong Kong. The objectives were to collect information from mothers on their knowledge of, attitudes to, and practice of BF, and to investigate their reasons for introducing infant formula (IF). Facilitators and barriers to pursuing BF were explored.

Methods

Study design

This was a longitudinal study with the main survey taking place from 1 February to mid-April 2000, in a maternity hospital in Hong Kong. Both BF and IF mothers were interviewed face to face using a structured questionnaire, which was available in English or Cantonese according to the preference of the mother. All BF mothers were then invited to take part in a telephone follow-up at around the 4th week, 8th week, and 24th week postnatally done to assess their BF status. The inclusion criteria for the participants were: having a Hong Kong identity card and giving birth to a full-term baby (37 gestational weeks) without significant medical problems. The definition of the feeding terms for this study were defined as (over the preceding 24 hours): (1) BF: baby was fed with breast milk only (can include water); (2) mixed feeding: baby was fed with breast milk and IF; and (3) IF: baby was bottle fed with IF only.

Study instruments

A structured questionnaire was developed based on the existing literature and consultations with obstetricians, BF consultants, and maternity nurse specialists. The variables were: knowledge of and attitudes toward BF, and existing feeding practices. A short questionnaire was designed for the telephone follow-up interview with mothers to assess current BF status and reasons, where applicable, for termination.

The questionnaires (postnatal and follow-up) consisted of two types of questions: (1) closed-ended questions seeking socio-demographic data and information concerning their knowledge of and attitudes to BF and their feeding practices; (2) open-ended questions exploring opinions on barriers to and facilitators of BF practice. The questionnaires were sent to four experts (BF consultants and maternity nurse specialists in Hong Kong) to validate the content and feasibility of the questions, which were then pilot-tested on 20 women. Knowledge of BF was measured by 18 questions. Ten questions were asked to assess attitudes towards BF. Existing feeding practices, including feeding methods, and the reasons for choosing BF or IF were explored.

Results

Overall breastfeeding rates and socio-demographic information

Of the 761 women who gave birth during the study period, 470 (62%)

Table 1. Analysis of variance (ANOVA) of differences between breastfeeding (BF), infant formula (IF), and mixed feeding (mixed) groups on basic knowledge, specific knowledge, and problem management

Group	Basic knowledge Mean (SD)	Specific knowledge Mean (SD)	Problem management Mean (SD)
BF	0.82 (0.12)	0.85 (0.13)	0.56 (0.20)
IF	0.73 (0.19)	0.70 (0.21)	0.34 (0.23)
Mixed	0.86 (0.14)	0.85 (0.14)	0.50 (0.22)
Total	0.82 (0.17)	0.80 (0.18)	0.45 (0.24)
ANOVA	F(2,468)=36.4*	F(2,468)=42.7*	F(2,468)=29.4*

* P<0.001

Table 2. Analysis of variance (ANOVA) of differences between breastfeeding (BF), infant formula (IF), and mixed feeding (mixed) groups on attitudes

Group	Mean score of knowledge Mean (SD)	Positive attitudes towards BF Mean (SD)	Negative attitudes towards BF Mean (SD)
BF	0.75 (0.12)	2.01 (0.54)	3.83 (0.45)
IF	0.59 (0.17)	2.33 (0.44)	3.23 (0.58)
Mixed	0.74 (0.13)	2.09 (0.44)	3.43 (0.56)
Total	0.69 (0.16)	2.16 (0.46)	3.39 (0.58)
ANOVA	F(2,467)=55.76*	F(2,467)=15.71*	F(2,467)=15.25*

* P<0.001

participated in the study. Exclusive BF (n=26) and mixed feeding mothers (n=296) accounted for 42% (322/761) of the respondents. Among the 322 BF and mixed feeding mothers interviewed initially, 178 (55%) were successfully followed up by telephone: 77 (43%) quit BF during the first 4 weeks; then 26 (15%) quit BF during the 5th to 8th week. The last telephone follow-up, done when the baby was over 24 weeks, found that 59 (33%) mothers quit BF during the 9th to 24th week, ie when the baby was 3 to 6 months old. As a result, only 16 (9%) mothers continued BF beyond 24 weeks.

Among the 470 mothers interviewed, 80% were Chinese, 54% were 21 to 30 years old, 93% had secondary schooling, 15% were housewives, 79% lived in private housing, 57.4% had their first delivery, 84% had vaginal or assisted deliveries; 26 (6%) chose exclusive BF, 296 (63%) adopted mixed feeding, and 148 (31%) chose IF only. The age differences between those choosing BF, mixed feeding, and IF were not statistically significant. Educationally, 3.8% of the BF respondents had primary schooling or below, compared with 3.4% in the mixed feeding group and 14.2% in the IF group. Nearly half (47%) of the respondents from the mixed feeding group had their own flat in private housing. Breastfeeding mothers had a higher caesarean section rate (38.5%) than the other groups.

Knowledge of breastfeeding

Most (92%) mothers agreed that breast milk was more nutritious than IF (correct statement). Some respondents had incorrect information about BF that was worth noting: 87 (19%) mothers believed IF was more easily digested and absorbed than human milk; 283 (60%) mothers believed that, IF was better for the baby's gastrointestinal tract, readily digested and absorbed; 107 (23%) mothers believed that IF contained immunoglobulin to keep the baby healthy;

73 (16%) mothers thought that IF could minimise the incidence of allergy in baby; 59 (13%) mothers agreed that IF caused less neonatal infection; 220 (47%) mothers agreed that a hepatitis B carrier mother should not breastfeed her baby. All were incorrect statements.

Respondents also showed weak knowledge about the management of BF problems: 279 (59%) mothers believed that BF should be stopped immediately if the breasts were infected; 200 (43%) mothers believed that when a nipple became cracked, the only solution was to stop BF. All were incorrect statements.

When BF knowledge differences between the BF, IF, and mixed feeding groups were examined, it was found that there were significant differences between the groups, both in separated sections (basic knowledge, specific knowledge, and problem management) and in the combined index (level of knowledge). Post-hoc (least significant difference [LSD]) tests showed that the mothers in the BF and mixed feeding groups were significantly more knowledgeable than mothers in the IF group (P<0.01, Table 1).

Attitudes towards breastfeeding

A total of 373 (79%) mothers agreed that BF was the responsibility of the mother; 446 (95%) mothers agreed that BF could increase the baby's sense of security; 102 (22%) mothers agreed BF was embarrassing; 264 (56%) mothers agreed that BF made mothers tired. Old-fashioned and "embarrassing" were considered negative attitudes, while increasing bonding and promoting mothers' satisfaction were regarded as positive attitudes. When the differences in attitudes toward BF between the BF, IF and mixed feeding groups were examined, there were significant differences in positive and negative attitudes towards BF. Post-hoc (LSD) test revealed that the BF and mixed feeding groups had

Table 3. Analysis of variance (ANOVA) of differences between breastfeeding (BF), infant formula (IF), and mixed feeding (mixed) groups on duration spent on BF the previous baby

Group	Duration spent on BF previous baby Mean (SD) [months]
BF	6.67 (3.08)
IF	3.81 (3.13)
Mixed	6.1 (2.66)
ANOVA	F(2,117)=7.47*

* P<0.001

significantly more positive attitudes than the IF group did (P<0.01). The BF group had significantly fewer negative attitudes than the mixed feeding group, who in turn had significantly fewer negative attitudes than those in the IF group (P<0.001, Table 2). The more positive attitude found in those who chose BF suggests that it is important to promote BF in the community in order to improve women's attitudes to BF.

Further analyses showed that: (1) mothers in the BF group considered BF less embarrassing and tiring than those in the mixed feeding group; (2) mothers in the BF group considered BF more satisfying and pleasant, more convenient, and more likely to promote bonding than those in the IF group; (3) mothers in the IF group considered BF more embarrassing and old-fashioned than mothers in the BF and mixed feeding groups; (4) mothers in the IF group considered BF more tiring than those in the BF group; (5) mothers in the IF group were less likely to agree that BF is the mother's responsibility, that BF increases the baby's sense of security, promotes mother-child bonding, and is satisfying and pleasant than those in the mixed feeding group; (6) however, mothers in the IF group agreed more frequently that BF can increase the baby's sense of security than mothers in the BF group (P<0.05). No significant differences among these three groups on money, time and energy savings were observed.

Practice of breastfeeding

Two hundred (43%) respondents had had at least one delivery/child before. Among them, 120 had experienced BF and 48 quit BF before the child was 1 month old; 69 (58%) had a good experience with BF. There was a significant difference among the three groups on the duration spent on BF their previous babies. The post-hoc (LSD) test showed that mothers in the BF and mixed feeding groups both spent a longer time BF their previous babies than those in the IF group did (P<0.01, Table 3).

Reasons why breastfeeding mothers introduced infant formula and discontinued breastfeeding

Of the 470 respondents, 296 (63%) mothers gave both human milk and IF to their babies because they believed they had insufficient breast milk. This was the most important reason for adding IF.

Breastfeeding: contextual meaning, facilitators and barriers to pursuing breastfeeding

Breast milk is considered the best nutrition for all infants.² Most mothers held a positive attitude towards BF. More than half of our overall respondents chose BF for their next pregnancies and would recommend BF to their friends and relatives. In short, BF was highly acceptable and respondents were motivated to consider BF when they were pregnant. Mothers believed certain foods and drinks improve breast milk production eg milk, soup, papaya, fish, and even water. Like many other local and international studies, this study found that management of BF problems is a main reason for quitting BF.^{1,5}

Insufficient breast milk was reported as the most important barrier to successful BF in the postnatal wards (n=141, 30%). Likewise, in the follow-up interviews, the main reason for quitting BF in the first month of the baby's life was insufficient breast milk (n=26, 34%). For BF mothers who ceased around week 5 to week 8, the main reason was to work (n=19, 73%). Work was also the main reason for mothers ceasing BF when the babies were between 3 to 6 months old. However, work might not be the true reason for all BF mothers to quit BF. Mothers who did not need to breastfeed during working time stopped BF significantly sooner than those who needed to ($t=9.671$, P<0.001). A significant barrier for BF was difficulty in managing BF problems. Mothers with difficulties stopped BF significantly sooner than those without difficulty ($t=3.315$, P<0.001).

Discussion

The BF rate in the postnatal ward in this study was 42.3%. Taking into consideration the high drop-out rate and the 62% response rate in the main survey, we believe that many mothers try to initiate BF in the hospital but gradually quit BF due to circumstances encountered after bringing the baby home.

In this study, 96.1% of BF mothers and 96.6% of mixed feeding mothers had secondary school or above educational levels. Fewer (85.8%) of the IF mothers had secondary education or above. This supports other studies showing socio-demographic factors affect women's choice of BF.⁶ In this study, 62% of BF mothers and 63% of mixed feeding mothers were first-time mothers while this was so for only 47% of the IF feeding mothers. This echoed other studies finding that more first-time mothers choose BF.⁷ Interestingly, both the BF (39%) and mixed feeding (20%) groups had higher caesarean section rates than the IF group (13%). Caesarean section might not affect mothers' choice of BF in the hospital. The intention to BF may play a role in affecting such a decision.⁶

Knowledge of breastfeeding

There were significant differences between the BF, IF, and mixed feeding groups in their knowledge about BF, both in separated sections (basic knowledge, specific knowledge,

and problem management) and in the combined index of level of knowledge. Post-hoc (LSD) tests showed that mothers in the BF and mixed feeding groups were significantly more knowledgeable than mothers in the IF group ($P < 0.01$). Most mothers showed limited knowledge about management of BF problems, eg sore and cracked nipple management. This echoed previous findings by Hong Kong BF studies showing that mothers lacking the knowledge and skills to handle BF difficulties quit BF early.

Attitudes towards breastfeeding

Generally, all mothers showed positive attitudes towards BF; BF and mixed feeding mothers had significantly more positive attitudes than the IF mothers did. Likewise, mothers in the BF group had significantly fewer negative attitudes towards BF than mothers in the mixed feeding group, who had significantly fewer negative attitudes than those in the IF group. It is possible that wider knowledge may improve attitudes towards BF.

Breastfeeding: facilitators and barriers

Most mothers had a positive attitude towards BF and BF talks in the antenatal clinics were considered helpful. Like many other local and international studies, we found management of BF problems was the main reason for quitting BF. Work is perceived as a barrier to BF in Hong Kong mothers but work may not stop mothers who want to breastfeed their babies.

Limitations of the study

Mothers choosing IF were less likely to participate in the study, biasing the sample and rendering it unrepresentative. Other limitations included convenience sampling at only one research site, small sample number, and the huge loss to follow-up. Therefore, these results are not representative and

any conclusions made are only tentative and for hypothesis generation in future studies.

Recommendations

Future studies on BF in Hong Kong should target ways to improve sustainability of BF, especially means of handling BF difficulties. Fear of insufficient milk and problems like sore nipples are common. Workshops and health education programmes demonstrating specific skills could effectively increase knowledge about managing BF problems. The effectiveness of such workshops and programmes should be studied.

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References

1. Leung GM, Ho LM, Lam TH. Breastfeeding rates in Hong Kong: a comparison of the 1987 and 1997 birth cohorts. *Birth* 2002;29:162-8.
2. Baby Friendly Hospital Initiative Hong Kong Association. World Breastfeeding Week 2002 Press Conference. The Baby Friendly Hospital Initiative Hong Kong Association Newsletter. January 2003.
3. Vandenas Y. Myths and facts about breastfeeding: does it prevent later atopic disease? *Acta Paediatr* 1997;86:1283-7.
4. Gartner LM, Morton J, Lawrence RA, et al. Breastfeeding and the use of human milk. *Pediatrics* 2005;115:496-506.
5. Tarrant M, Dodgson JE, Tsang Fei S. Initiating and sustaining breastfeeding in Hong Kong: contextual influences on new mothers' experiences. *Nurs Health Sci* 2002;4:181-91.
6. Leung TF, Tam WH, Hung EC, Fok TF, Wong GW. Sociodemographic and atopic factors affecting breastfeeding intention in Chinese mothers. *J Paediatr Child Health* 2003;39:460-4.
7. Lowee T. Breastfeeding: what happens during the first 12 months? *Breastfeeding Review* 1994;2:487-90.