

## BREASTFEEDING PREVALENCE AND CHILD FEEDING PRACTICES: KEY FINDINGS FROM SINGAPORE'S NATIONAL BREASTFEEDING AND CHILD FEEDING SURVEY 2021/22

Ms Charissa Lim, Ms Priscilla Li, Ms Chng Chee Yeong, Dr Chong Foong-Fong Mary, Dr Lee Yu Qi, Dr Chua Mei Chien, Dr Eunice Pang

### ABSTRACT

**Introduction:** The 2021/2022 National Breastfeeding and Child Feeding Survey is the third national-level study on breastfeeding and child feeding practices in Singapore. It aims to provide updated statistics on breastfeeding prevalence, from the previous 2011 National Breastfeeding Survey, and collect data on child feeding practices.

**Methods:** A total of 2,103 mothers with babies under two years old were recruited from the Immigration and Checkpoints Authority Birth Registry database. Respondents completed both online surveys and phone interviews relating to breastfeeding and child feeding practices. Univariate analyses were conducted to examine factors related to initiation and continuation of breastfeeding, alongside child feeding practices.

**Results:** The prevalence of mothers who have ever breastfed remained high at 97 percent, comparable with 2011 (96 percent). Compared to babies born in hospitals that are not certified with the baby-friendly hospital initiative (BFHI), babies born in BFHI-certified hospitals were more likely to be ever breastfed (98 percent vs 96 percent), breastfed within one hour of birth (65 percent vs 49 percent), and exclusively breastfed for the first two days after birth (43 percent vs 35 percent). Fifty-nine percent

of infants initiated complementary feeding between 6-7 months while 29 percent initiated between 4-6 months. Socioeconomic factors influenced both breastfeeding prevalence and the provision of adequate, diverse, and nutritious food to children. Factors include being an ethnic minority, having lower household income, and having lower maternal educational levels.

**Conclusion:** Despite improvements in breastfeeding prevalence from 2011, exclusive breastfeeding prevalence remains low. Moreover, disparities in child feeding practices were observed within lower socioeconomic segments. To optimise the impact of health promotion endeavours, initiatives focused on promoting breastfeeding and complementary child feeding practices should consider these aspects.

**Keywords:** breastfeeding, infant and child feeding, Baby-Friendly Hospital Initiative (BFHI)

SFP2024; 50(7): 36-40

### INTRODUCTION

The World Health Organization (WHO) recommends that infants should be exclusively breastfed for the initial six months of their lives, followed by continued breastfeeding with appropriate complementary foods for up to two years and beyond, as this practice offers a multitude of benefits for both mother and child.<sup>1</sup> The Health Promotion Board (HPB) of Singapore has been working with hospitals to integrate the recommendations outlined by WHO, encompassing the baby-friendly hospital initiative (BFHI), which is a global programme that promotes evidence-based maternity care practices to enable optimal feeding of the newborn.<sup>2</sup>

The 2021/22 National Breastfeeding and Child Feeding Survey (NBCFS) was the third national-level survey aimed at examining breastfeeding and child feeding practices in Singapore. The primary objective was to provide updated statistics on breastfeeding prevalence from the previous 2011 National Breastfeeding Survey (NBS), while the secondary objective was to collect and analyse data on child feeding practices.

### METHODOLOGY

The NBCFS was a cross-sectional study that was conducted from October 2021 to February 2022. A total of 2,103 mothers with babies under two years old, across all local ethnic groups, were recruited from the Immigration and Checkpoints Authority (ICA) Birth Registry database.

This was a 2-phase survey that was developed based on the World Health Organization-United Nations International

MS CHARISSA LIM  
Policy, Research & Surveillance Department  
Health Promotion Board

MS PRISCILLA LI  
Policy, Research & Surveillance Department  
Health Promotion Board

MS CHNG CHEE YEONG  
Policy, Research & Surveillance Department  
Health Promotion Board

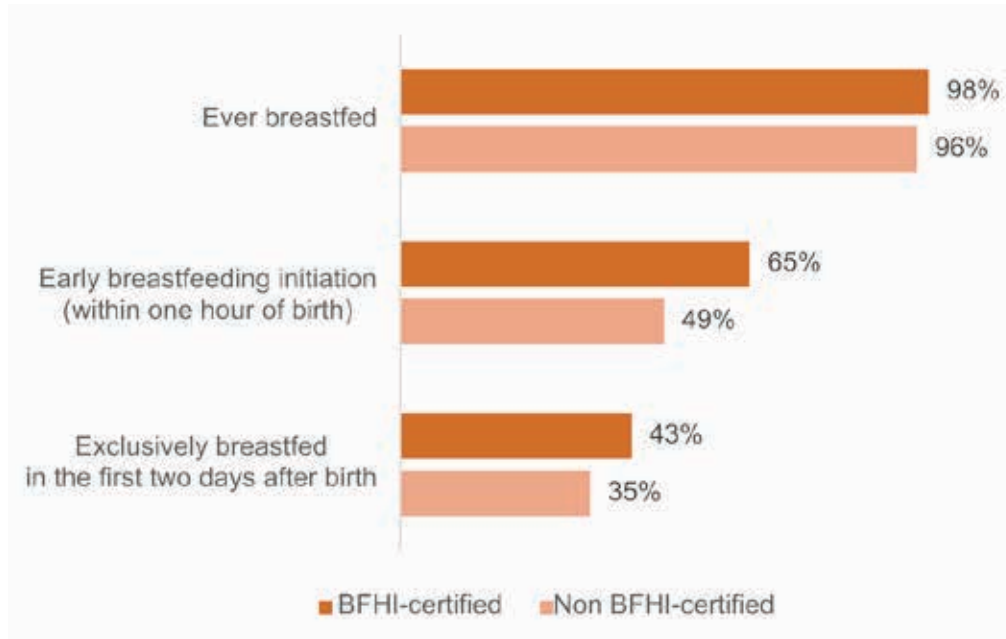
DR CHONG FOONG-FONG MARY  
Saw Swee Hock School of Public Health  
National University of Singapore

DR LEE YU QI  
Singapore Institute for Clinical Sciences  
Saw Swee Hock School of Public Health  
National University of Singapore

DR CHUA MEI CHIEN  
Department of Neonatology  
KK Women's and Children's Hospital

DR EUNICE PANG  
Policy, Research & Surveillance Department  
Health Promotion Board

**Figure 1: Prevalence of breastfeeding between BFHI and non BFHI-certified hospitals**



Children’s Emergency Fund (WHO-UNICEF) Infant and Young Child Feeding (IYCF) practices indicators for assessing infant and young child feeding practices.<sup>3</sup> In the first phase, mothers completed online surveys on questions related to breastfeeding practices and demographics. The second phase was conducted via phone interviews to retrieve data on child feeding practices.

Data were analysed using Stata 14.2 (StataCorp, College Station, TX). Survey data were weighted in accordance with the sampling frame using the raking technique to ensure that the sample was representative of the wider local population. Percentages of breastfeeding prevalence, types of breastfeeding practices, and child consumption patterns were presented. Variables that were selected for weighting were ethnicity, hospital type (private or public), and date of birth (in predetermined periods). Univariate analyses were conducted using nominal coded variables to examine factors influencing the initiation and continuation of breastfeeding, alongside practices related to child feeding.

## KEY FINDINGS

### Prevalence of Breastfeeding Upon Delivery of Baby

Ninety-seven percent of mothers ever breastfed their babies at some point, and this prevalence was comparable to 2011 NBS (96 percent). Babies born in BFHI-certified hospitals were more likely to be ever breastfed (98 percent vs 96 percent), experience early initiation of breastfeeding (65 percent vs 49 percent), and be exclusively breastfed for the first two days after birth (43 percent vs 35 percent) (refer to **Figure 1**).

### Prevalence of Breastfeeding Across Varying Age Groups of Children

Although a large proportion of mothers ever breastfed their child at some point, a lower prevalence of both exclusive and partial breastfeeding was observed among mothers with older children.

While 46 percent of mothers surveyed exclusively breastfed their infants aged 0-3 months, this prevalence was lower for mothers with infants aged 4-5 months (35 percent). Only 3 percent of mothers surveyed were exclusively breastfeeding their 6-month-olds. This marks a positive improvement compared to the 2011 NBS, where only 1 percent of mothers exclusively breastfed their 6-month-olds.

We noted that half of mothers (51 percent) continued to partially breastfeed their children aged 6-24 months. For mothers with older children aged 12-24 months, the proportion was 43 percent.

### Prevalence of Breastfeeding Across Socioeconomic Demographics

From **Table 1**, we observed that across ethnic groups, mothers of Indian ethnicity were less likely to feed their younger infants (<6 months) exclusively with breast milk. The prevalence of exclusive breastfeeding for younger infants was higher for households with higher income, as well as mothers with higher educational levels.

Similarly, mothers of Indian ethnicity were less likely to continue breastfeeding beyond 12 months. The prevalence of partial breastfeeding for older children was also higher for mothers with higher educational qualifications.

**Table 1: Weighted percentages of breastfeeding (%) across sociodemographic factors, e.g., by ethnicity, household income, maternal education**

Prevalence of breastfeeding across socioeconomic demographics (%)				
Ethnicity	Indian	Malay		Chinese
<6 months (exclusive)	32%	38%		41%
12-23 months (continued)	29%	40%		46%
Household income	Below S\$4,000	S\$4,000-S\$9,999		≥S\$10,000
<6 months (exclusive)	36%	38%		41%
12-23 months (continued)	45%	42%		45%
Highest maternal education	Secondary and below	Post-secondary	University	Postgrad
<6 months (exclusive)	29%	32%	44%	43%
12-23 months (continued)	24%	41%	45%	66%

**Table 2: Weighted percentages of minimum dietary diversity and unhealthy food consumption (%) across sociodemographic factors, e.g., by ethnicity, household income, maternal education**

Prevalence of unhealthy food consumption across socioeconomic demographics for children aged 6-23 months (%)				
Ethnicity	Indian	Malay		Chinese
Meeting Minimum dietary diversity	83%	86%		87%
Unhealthy food consumption	65%	78%		51%
Household income	Below S\$4,000	S\$4,000-S\$9,999		≥S\$10,000
Minimum dietary diversity*	84%	87%		87%
Unhealthy food consumption <sup>^</sup>	67%	66%		45%
Highest maternal education	Secondary and below	Post-secondary	University	Postgrad
Minimum dietary diversity	91%	83%	87%	92%
Unhealthy food consumption	76%	68%	53%	51%

\*Minimum dietary diversity refers to the consumption of foods and beverages from at least five out of eight defined food groups during the previous day (i.e., breast milk; grains, roots, tubers, and plantains; pulses, nuts, and seeds; dairy products; meat products; eggs, vitamin A-rich fruits and vegetables; and other fruits and vegetables)

<sup>^</sup>Unhealthy food consumption refers to the consumption of selected sentinel unhealthy foods that are high in sugar, salt, or fat, during the previous day

## MOTIVATORS AND BARRIERS TO BREASTFEEDING

The top motivation for breastfeeding was the mother's knowledge of breast milk being healthier for their baby (94 percent), while the top barrier to breastfeeding was perceived insufficient milk supply (53 percent). These findings were similar to the 2011 NBS.

Mothers also identified two other key motivators: the belief that breastfeeding enhances bonding (83 percent); and its potential for aiding postpartum weight loss (57 percent).

On the flip side, two other prominent barriers cited by mothers were: the challenges of resuming work commitments (27 percent); and struggling with achieving proper latching (25 percent).

## CHILD WEANING PRACTICES

Twenty-nine percent of infants initiated complementary feeding between 4-6 months, where mothers introduced solid foods alongside breast milk or formula. More than half of infants (59 percent) initiated complementary feeding between 6-7 months of age. Within this group, nearly half (49 percent) were given commercial baby food, with snacks (i.e., puffs and rice crackers) being the most popular choice among mothers. Nearly all infants (98 percent) had commenced complementary feeding by eight months.

## FACTORS INFLUENCING CHILD'S DIET

### Socio-Economic Status and Dietary Intake

Among children aged 6-23 months, mothers of ethnic minority and of lower socioeconomic status (i.e., household incomes <S\$4,000) were less likely to meet the minimum dietary diversity and demonstrated higher tendency to provide their child with unhealthy foods, e.g., sugary, salty or high-fat foods, and less fruit and vegetables (refer to Table 2).

### Age of the Child and Sugar-Sweetened Beverages Consumption

Older children tended to have higher consumption of sugar-sweetened beverages: 6 in 10 older children (19-23 months), compared to 1 in 3 children (13-18 months), and 1 in 10 children (6-12 months). Overall, the top three sugar-sweetened beverages consumed were juice drinks, malted drinks, and yoghurt drinks (refer to Figure 2).

## KEY RECOMMENDATIONS

Recognising the higher breastfeeding statistics observed in BFHI-certified hospitals, HPB acknowledges the significance of prioritising BFHI practices, with emphasis on the implementation of the Ten Steps to Successful Breastfeeding, within all healthcare institutions. This encompasses essential practices such as providing comprehensive breastfeeding education to mothers, promoting skin-to-skin contact immediately after birth with early breastfeeding initiation, advocating rooming in of the mother and baby both day and night, and facilitating access to experienced lactation consultants. Of note, it is a requirement for baby-friendly hospitals to provide active support to ensure correct latching techniques and to ensure that all new mothers are taught breast massage and hand expression of breast milk within six hours after delivery. These combined efforts have the potential to effectively support mothers in breastfeeding exclusively during the postpartum period and be confident in maintaining lactation after hospital discharge.

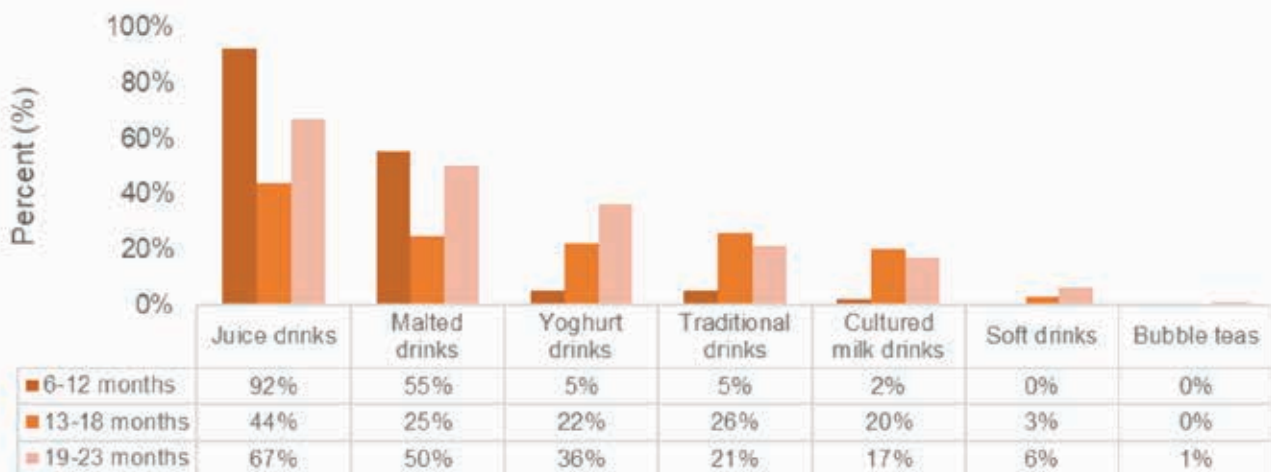
It is crucial to address maternal concerns pertaining to inadequate milk supply. This could involve combining a diverse range of informative resources available through online and offline channels, as well as incorporating practical demonstrations offered within pre/postnatal programmes. Timely referrals of mothers to lactation consultants and support groups in the first few days after birth can better equip mothers in understanding the physiology underlying breast milk production and to manage breastfeeding difficulties early. In addition, they can learn effective techniques to stimulate and establish a healthy milk supply, bolstering confidence in their ability to assess the adequacy of their infant's milk intake, thus alleviating anxieties.

At a community level, there is a need to address greater support for breastfeeding mothers at the workplace and for targeted efforts to increase promotion of breastfeeding practices and appropriate complementary feeding practices among vulnerable groups, including those of the lower socio-economic strata. This includes highlighting the importance of appropriate weaning timing to encourage mothers to continue breastfeeding their infants up to six months.

## CONCLUSION

Despite improvements in breastfeeding prevalence since 2011, exclusive breastfeeding prevalence is still low. Furthermore, there are disparities in child feeding practices among the various socioeconomic segments. HPB remains committed to conducting outreach and engagement initiatives to raise awareness among parents about the significance and benefits of breastfeeding. Collaboration with community partners, such as Association for Breastfeeding Advocacy (Singapore) (ABAS), Breastfeeding Mother Support Group (BMSG), hospitals, and polyclinics, will continue to be a key aspect of our efforts to promote breastfeeding in accordance with the WHO guidelines,

Figure 2: Intake of sugar-sweetened beverages by age groups



emphasising on the importance of exclusive breastfeeding for the first six months of life. Additionally, HPB will extend its efforts to provide guidance to parents to promote appropriate complementary feeding practices for children to ensure their nutritional needs are met as they grow. HPB will continue with its public education and outreach efforts via social media, as well as develop strategic partnerships with community partners and healthcare institutions to reach more parents through more convenient and accessible touchpoints. HPB will also work with schools through the Healthier Meals in Preschools Programme (HMPP) and Healthy Meals in Schools Programme (HMSP) to empower these institutions to provide healthier meals for students, and thus help students cultivate healthy eating habits from young.

## **DISCLOSURES**

There are no competing interests or funding to be declared.

## **ACKNOWLEDGEMENTS**

This research was a joint effort between Health Promotion Board, Association for Breastfeeding Advocacy (Singapore), and Saw Swee Hock School of Public Health. We would like to express appreciation to Clinical Associate Professor Chua Mei Chien for leading in the design and conduct of the study and Associate Professor Mary Chong and Dr Lee Yu Qi for their valuable contributions in survey analysis. Additionally, we extend our thanks to the dedicated team of interviewers who conducted the fieldwork. Above all, we remain deeply appreciative of the mothers who generously volunteered their time to take part in this study.

## **REFERENCES**

1. World Health Organization & United Nations Children's Fund (UNICEF). Advocacy strategy: breastfeeding advocacy initiative, for the best start in life [Internet]. World Health Organization; 2015. Available from: <https://iris.who.int/handle/10665/152891>
2. World Health Organization & United Nations Children's Fund. Implementation guidance: protecting, promoting, and supporting breastfeeding in facilities providing maternity and newborn services: the revised Baby-friendly Hospital Initiative 2018. World Health Organization; 2018. Available from: <https://www.who.int/publications/i/item/9789241513807>
3. World Health Organization & United Nations Children's Fund. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. World Health Organization; 2021. Available from: <https://www.who.int/publications/i/item/9789240018389>