



The Cost Implications of Not Exclusively Breast Feeding in Jamaica

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Abstract

Although breastfeeding is known to enhance nutritional wellbeing and overall health it is recognized that a trade-off exists between benefits and costs when mothers decide to maintain breastfeeding. This study examined whether the financial cost of not breastfeeding can be used as a powerful argument to promote breastfeeding. The prices of fresh milk, powdered milk and commercial formula were collected from popular supermarkets across four parishes in Jamaica. These prices were used to calculate the cost of replacement feeding for mothers who were partially and not breastfeeding during the first six months. Results show that households were spending between J\$10,500 and J\$73,000 on breast milk substitutes. For low income families this utilizes 14% to 65% of their salaries. The paper discusses the educational, workplace policy and food security implications and concludes that the financial benefits are profound.

Keywords: Exclusive breast feeding; Cost; Implications; Health policy; Jamaica

Introduction

Background

Breastfeeding is the best way of providing ideal food for the healthy growth and development of infants and toddlers. Breast milk is safe and clean and contains many functional components, including live cells and antibodies, which help to protect the infant against many common childhood illnesses [1]. For various reasons these benefits of breastfeeding are not fully utilized in Jamaica and around the world [2]. In fact, the costs of declining breastfeeding are biological, emotional and financial. This means that the traditional promotion of the 'breast is best' message may not arrest the declining rates if not accompanied by an understanding of the various barriers to breastfeeding. Studies are increasingly showing that environmental constraints influence maternal strategies for breastfeeding [3,4]. In addition, parental attitudes are crucial to breastfeeding outcomes [5-7]. This means that if breastfeeding rates are to improve the promotion must go beyond the public health 'breast is best' message and increase the benefits while reducing the costs.

Exclusive breastfeeding is recommended until the infant is around six months of age. Unfortunately, it is difficult for many mothers to breastfeed exclusively for six months because of the need to return to work after maternal leave expires. This study therefore calculated the costs of not breastfeeding at all and also not exclusively breastfeeding after 3 months. These costs and benefits should be critical in evaluating if the choice to not breastfeed is affordable and sustainable. The study is therefore important to health care workers, policy makers and especially to mothers and families because it quantifies the cost of not breastfeeding in Jamaica.

Significance

The significance of this study is located within a historical context. In 1970 a study of 300 babies showed that while 84% of mothers said that breast milk was the best food for babies, only 67% fed only breast milk at birth, with 5% being solely bottle fed with a breast milk substitute which rose to 48% at six months. Exclusive breastfeeding at six months was only 4% [8]. Another study showed a similar pattern of infant feeding and noted that the studies took place when poverty was high as the majority of women in study sample spent approximately 88% of their weekly salaries on food [9]. These observations imply that the decision criteria for the initiation of breastfeeding might be different from the reasons for its maintenance [10].

Since that early time Jamaica has signed onto and adopted the International Code for the Marketing of Breast milk Substitutes, which stipulates among other things that breast milk substitutes, should not be promoted to pregnant women and new mothers and that no free samples should be issued under any circumstances [11]. In 2011 a survey showed that only 23.8% of infants aged 0-5 months were being exclusively breastfed. In addition a significant proportion of infants were exclusively formula fed between 3 months and 6 months of age [12].

These relatively low exclusive breastfeeding rates are not unique to Jamaica as similar rates are found globally [2]. This raises the questions about why mothers across countries find it difficult to maintain exclusive breastfeeding even when they do not have to return to work. This study explored the possibility of using the cost of not breastfeeding as a major plank in promotional efforts in Jamaica.

Materials and Methods

The prices of the fresh cow's milk and powdered milk were obtained from retailers across four parishes in Jamaica – Kingston, Portland, St. Elizabeth and St. James during July 2015. Kingston and St. James are the two major urban parishes while Portland and St. Elizabeth are typical of the other parishes in Jamaica. The prices of various infant formulas were also collected from these popular supermarkets in the four parishes. The target age groups of these formulas were also recorded. Among these were regular formulations and also specialty formulations, indicating use in situations of gassiness, fussiness, excessive spit up and sensitive stomachs among other things. The costs of these replacement feeds targeted to infants from birth to six months old were used to obtain an average cost, which was further used to calculate the cost of feeding a non-breastfed child aged 0-6 months. Costs were calculated using the amounts of ingredients for replacement feed, as recommended by the Linkages Project, 2005 (Table 1). The cost of one feed was calculated for each option and then daily, weekly and monthly costs were calculated.

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Results

Costs of five brands of commercial infant formula were collected across the four parishes. Altogether 21 different infant formulas suitable for infants 0-6 months were identified. They were essentially three groups: Milk-based with an average cost of per gram of J\$3.92; Milk and Soy with cost of J\$4.10 per gram and Soy-based with cost of J\$3.10 per gram (Tables 1 and 2).

Table 2 shows the average costs of replacement feeding using commercial formula, full fat milk powder and liquid cows' milk. A child exclusively breastfed for the first six months will cost the household zero dollars for the child's food. This study assumes no extra cost to feed the breastfeeding mother. Table 2 indicates that not breastfeeding during the first six months can cost a Jamaican household between J\$20,416 with milk powder and J\$73,268 with commercial formula

over those six months. Fresh and powdered milk are not recommended as substitutes because of their lower nutritional value, and sometimes not well tolerated by some children. This means that the recommended commercial formula is a very expensive option in Jamaica.

Fortunately in Jamaica the vast majority of mothers exclusively breast fed from birth but by three months the rate drops to about 35% [12]. If a child is exclusively breastfeeding for the first 3 months and partially breastfeeding (75% energy requirement) from month 4, then the average cost for the first six months is J\$10,532 with commercial formula (Table 3). The variation in cost of formula feeding is from J\$8,943 in Portland to J\$12,375 in St. James. In summary, these results show that for the first six months, exclusively breastfeeding a child for 3 months (partially thereafter) costs J\$10,532 whereas not breastfeeding at all costs J\$73,268 (Tables 3 and 4).

| Age (months) | Number of feeds and daily milk requirements | Amount of cow (fresh or UHT), goat, or camel milk (per feeding) | Amount of powdered full-cream milk (per feeding) | Amount of commercial formula (per month) |
|--------------|--|---|--|--|
| 0-<1 | 8 feeds/day × 60 ml/feed Total: 480 ml/day | 40 ml milk + 20 ml water + 4 g sugar | 5 g milk + 60 ml water + 4 g sugar | 4 × 500 g tins |
| 1-<2 | 7 feeds/day × 90 ml/feed Total: 630 ml/day | 60 ml milk + 30 ml water + 6 g sugar | 7.5 g milk + 90 ml water + 6 g sugar | 6 × 500 g tins |
| 2-<3 | 6 feeds/day × 120 ml/feed Total: 720 ml/day | 80 ml milk + 40 ml water + 8 g sugar | 10 g milk + 120 ml water + 8 g sugar | 7 × 500 g tins |
| 3-<4 | 6 feeds/day × 120 ml/feed Total: 720 ml/day | 80 ml milk + 40 ml water + 8 g sugar | 10 g milk + 120 ml water + 8 g sugar | 7 × 500 g tins |
| 4-<5 | 6 feeds/day × 150 ml/feed Total: 900 ml/day | 100 ml milk + 50 ml water + 10 g sugar | 12.5 g milk + 150 ml water + 10 g sugar | 8 × 500 g tins |
| 5-<6 | 6 feeds/day × 150 ml/feed Total: 900 ml/day | 100 ml milk + 50 ml water + 10 g sugar | 12.5 g milk + 50 ml water + 10 g sugar | 8 × 500 g tins |

Table 1: Recommended replacement feeding options for infants 0-6 months old LINKAGES Project 2005.

| Age | Average Cost | | |
|-------------------|------------------|------------------|--------------------|
| | Fresh Milk | Milk Powder | Commercial Formula |
| 0-1 month | 2,704.88 | 2,252.84 | 7,326.86 |
| 1.1-2 months | 3,550.16 | 2,956.85 | 10,990.28 |
| 2.1-3 months | 4,057.32 | 3,379.26 | 12,822.00 |
| 3.1-4 months | 4,057.32 | 3,379.26 | 12,822.00 |
| 4.1-5 months | 5,071.65 | 4,224.07 | 14,653.71 |
| 5.1-6 months | 5,071.65 | 4,224.07 | 14,653.71 |
| 0-6 months | 24,512.96 | 20,416.34 | 73,268.55 |

Table 2: Average cost of complete replacement feeding, using three different milk options, across 4 parishes in Jamaica.

| Age | Portland | St. James | Kingston | St. Elizabeth | Average cost |
|--------------|----------|-----------|-----------|---------------|--------------|
| 0-1 month | 0 | 0 | 0 | 0 | 0 |
| 1.1-2 months | 0 | 0 | 0 | 0 | 0 |
| 2.1-3 months | 0 | 0 | 0 | 0 | 0 |
| 3.1-4 months | 2,721.97 | 3,766.46 | 3,262.47 | 3,071.10 | 3,205.50 |
| 4.1-5 months | 3,110.82 | 4,304.53 | 3,728.53 | 3,509.83 | 3,663.43 |
| 5.1-6 months | 3,110.82 | 4,304.53 | 3,728.53 | 3,509.83 | 3,663.43 |
| 0-6 months | 8,943.21 | 12,375.52 | 10,719.53 | 10,090.76 | 10,532.36 |

Table 3: Average monthly cost (J\$) of replacement with commercial formula (25% energy requirement) after 3 months.

| Month | Minimum wage (J\$) | Cost for partial breastfeeding | | Cost for exclusive replacement feeding | |
|-------|--------------------|--------------------------------|----------------|--|----------------|
| | | Cost (J\$) | % minimum wage | Cost (J\$) | % minimum wage |
| 0-1 | 22,400 | 0 | 0 | 7,326.86 | 32.7 |
| 1-2 | 22,400 | 0 | 0 | 10,990.28 | 49.1 |
| 2-3 | 22,400 | 0 | 0 | 12,822.00 | 57.2 |
| 3-4 | 22,400 | 3,205.50 | 14.3 | 12,822.00 | 57.2 |
| 4-5 | 22,400 | 3,663.43 | 16.4 | 14,653.71 | 65.4 |
| 5-6 | 22,400 | 3,663.43 | 16.4 | 14,653.71 | 65.4 |

Table 4: Monthly cost of not breastfeeding as a percentage of minimum wage.

The minimum wage in Jamaica in 2015 was J\$5600 per week, totaling J\$22,400 per month. Table 4 shows that a minimum wage earner would spend at least 14% of the monthly income to feed the infant alone if the mother partially breastfeeds. The percentage dramatically increases to 32% and further to 65% of income by month, if the recommended commercial formula is used exclusively. These results show the relatively high level of spending on infant feeding when breast milk is not utilized.

Discussion

Exhorting mothers to breastfeed because “breast is best” seems not to be a sufficient strategy to improve rates when based on health reasons only. Promoters of breastfeeding must therefore evaluate the benefits versus the costs of breastfeeding. Infant feeding requires extensive time and energy and many mothers report having both positive and negative feelings about breast feeding [13,14]. This study argues that the cost implications of not breastfeeding can be a compelling argument in breastfeeding promotion campaigns in Jamaica and elsewhere.

Implications for breastfeeding counseling

It is well known that breast milk is sufficient to provide all the necessary nutrients for the first six months of life [1]. The composition of breast milk is also sufficient to provide satiety. At present, the major factor which influences mothers’ decisions on feeding their babies is to satisfy hunger. During infancy, the primary concern of mothers was the infants’ satiety and the ability of breast milk (or other milk or foods) to ensure this satiety [15]. This points to the need for more consistent and comprehensive breastfeeding counseling, which will equip mothers with the ability to recognize signs of hunger in babies, signs of satiety and also to empower women to practice those habits which keep up and even increase milk supply over those which inhibit lactation [16]. Counseling efforts must demonstrate consistently that there are ways to ensure that infants 0-6 months old can be adequately fed without supplementation. In addition, this study shows that the household can save upwards of J\$10,000 in months 4-6 in cases of partial breastfeeding or over J\$73,000 in cases of exclusive replacement feeding for ages 0-6 months.

Implications for workplaces

The practice of early weaning in Jamaica occurs mainly due to employment obligations. Under the Maternity Leave Act of Jamaica, women are allowed 12 weeks of maternity leave (and up to 14 under special circumstances), of which 8 weeks are paid [17]. In preparation for the impending separation, many infants are weaned off breast milk and introduced to a breast milk substitute. This study shows that this incurs with an additional food expense of up to J\$42,129 for months 4-6 if commercial formula is exclusively used.

The cost saving alone is sufficient justification for the implementation of mother-friendly workplaces in countries such as Jamaica where maternity leave legislation does not coincide with the recommended duration for breastfeeding. Mother-friendly workplaces provide the environment for mothers to maintain exclusive breastfeeding for the 6 months and to continue breastfeeding thereafter if they choose to do so. Mother-friendly workplace characteristics include:

- Private and comfortable rooms exclusively for milk expression
- Special designated refrigerators for storage of expressed breast milk
- Special consideration for time allowed for breast milk expression

- Nurseries (where possible and feasible)

Not only will mothers be able to save money but they will also continue to reap the numerous health and emotional benefits of breastfeeding, which will also enhance their output at work.

Implications for household food security

Food availability, access and utilization are three main pillars of food security. Lactation guarantees the availability of foods because it occurs naturally as a result of pregnancy and continues post-partum. Access to safe and nutritious foods is influenced by physical, economic and socio-cultural circumstances. Breastfeeding can directly impact the access to foods through the physical proximity of the infant to the food source and also the relationship between breastfeeding and the financial strength of a household for the duration of breastfeeding. This study shows that money saved during this period, from not purchasing any commercial infant formula (J\$73,000) can be put to other use in the household such as securing food for other members of the household, transportation to and from work or school or covering household utilities, all of which have significant impact on the future wellbeing of the household. For low income families, the high cost of formula, in particular, can affect utilization. This occurs because the added financial burden is sometimes eased by “stretching” the formula – mixing the formula with more water than recommended. Although satiety may be achieved the nutrient density of each feed is reduced, leading to sub-optimal nutritional status. Depending on the extent of the stretching, growth of the infant may be affected. This study shows that a low-income family can spend about 15% of income on feeding an infant even if the mother is breastfeeding. This rate rises towards 65% if the recommended commercial formula is used exclusively. This level of spending can therefore negatively impact the composition of the formula feed and also the food security of other members of the household.

Implications for breast feeding promotion

Future studies will determine whether the combination of health and cost perspectives will help to increase breast feeding rates across the globe.

Conclusion

It is well known that breastfeeding confers health and other nutritional, mental, and emotional advantages to the mother and child over replacement feeding. But breastfeeding is more than a health issue and mothers cite pragmatic reasons for their deviation from breastfeeding [18]. This study concludes that the financial benefits are profound and can be among the most pragmatic and compelling reasons to continue breast feeding.

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