

**SOCIO-ECONOMIC FACTORS AFFECTING BREASTFEEDING PRACTICE
AMONG HEALTHCARE WORKERS IN SHANDONG, CHINA**

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Abstract

Background: China has very low breastfeeding rate (29.25%) and healthcare workers are expected to play a central role protecting, supporting, and advocating breastfeeding. This study aims to investigate healthcare workers' breastfeeding practice and the socioeconomic factors affecting it.

Methods and Findings: This a descriptive retrospective cross-sectional study. There were ninety (90) healthcare working mothers in Shandong, China who participated in the study. Ironically, findings revealed that even promoters of breastfeeding have low adherence on breastfeeding (42%) in Shandong, China. Moreover, socioeconomic factors that affect breastfeeding practices for the first 24 months of child's life are age of mothers, length of service, monthly family income and number of children.

Conclusion: Even promoters of breastfeeding poorly adheres to the breastfeeding protocol and targeting the appropriate groups will be contributory to the success of breastfeeding campaign.

Keywords: Socio-economic Factors, Breastfeeding Practice, Healthcare Workers, China.

Introduction

There is a robust literature relating to healthcare professionals and breastfeeding but if healthcare workers themselves do not practice what it preaches, how well is the future of breastfeeding rate in the country. The World Health Organization (WHO) strongly recommends exclusive breastfeeding for 6 months extending to mixed breastfeeding up to 2 years of age or even [1]. Practicing breastfeeding has unquestionable myriad benefits to individual, family and nation at large. However, to date, China's breastfeeding rate is way below the target (29.25%) and they attributed it to easy access to commercial breastmilk alternatives and the deceptive marketing strategies of such goods [2]. Additionally, the lack of public awareness of the breastfeeding benefits, as well as deficiency of support from family and social communities, including medical institutions, are the reasons why most mothers favor breastmilk substitutes.

Breastfeeding is beneficial both for mothers and their babies. The breastmilk is natural perfect food for infants providing them with the nutrients they need to fight disease, grow, and develop stronger immune system. Likewise, lactating mothers gain numerous physical and emotional benefits from breastfeeding. In 1991, WHO in cooperation with United Nations Children's Fund (UNICEF) implemented a global effort of protecting and promoting breastfeeding by launching the Baby Friendly Hospital Initiative (BFHI) and healthcare facilities are eligible to seek BFHI accreditation. As early 20th century, China contributed to about one third of all the baby-friendly hospitals in the world at that time [3]. Corollary to the continued effort to protect and support breastfeeding, the National Programme of Action for Children in China raised the target of the national exclusive breastfeeding rate to 50% by 2020. Apparently, this target remains to be farfetched.

The mother-baby friendly healthcare facilities are deemed to practice the concept of breastfeeding support. It is a multidimensional support which includes the aspects of informational support, environmental support, practical support, and

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emotional support. Most of these breastfeeding supports are expected to be carried out by healthcare workers. Informational support through health education is a fundamental step employed by healthcare workers to effect change in breastfeeding. One of the standards to promote breastfeeding is make sure that healthcare professionals informed the pregnant women and their partners about the benefits of breastfeeding [4]. Contingent to the health education process is the preparation of the learning materials, the environment and the transmission of norms, values, and beliefs through role modelling. This forms the ‘hidden curriculum’ in health teaching and learning process described as ‘teaching by example’ and influencing learners in an unintentional and informal manner. That, when healthcare workers themselves practice breastfeeding could eventually have by influence on the desired change for lactating mothers. Hence, the purpose of this study is to determine the breastfeeding practices of healthcare workers in Shandong, China and the factors affecting it.

Methods

This study used retrospective cross-sectional design. The study used a two-part questionnaire, the first part was used to describe the socio-economic characteristics of the respondents which included age, educational attainment, occupational field, length of work service, monthly family income, and number child/children. The second part is an adopted questionnaire to describe the breastfeeding practice consisted primarily of a closed format dichotomous question (e.g., yes/no). There were 90 healthcare working mothers who participated in the study. They were recruited using convenience sampling following the given eligibility criteria of being employed in healthcare facility, in rank and file position, lactating mothers with babies more than two years old and less than 5 years of age, and willing to participate in the study. However, the study excluded those mothers diagnosed with anatomical, mental, and psychological breastfeeding problems, lactating mothers with a child with serious physical illness, working mothers with varied workplace and non-working when the baby was less than 2 years old. Sampling size is based on power analysis set at 0.80 at alpha level 0.50. The study protocol underwent institutional ethics review. The research protocol underwent institutional review and approval prior to conduct of the study.

Results

Study shows that almost half of the respondents belong to 30-40 years old (48 %); 20-30 years old (45%) and the remaining two percent (2%) are ages 40-50 years old. When it comes to educational attainment, more than half of the respondents are

bachelor’s degree holder and higher (56.67%) and 43.33% obtained high school diploma. Moreover, majority of the respondents are nurses (31.11%); followed by doctors (26.67%), while ancillary services like laboratory technician, radiologist or pharmacists comprise of 23.33% and 18.89% of the respondents comes from rear-service department. When it comes to length of work service, majority of the respondents served for 5-10 years (46.67%), while almost half of them served for less than five (5) years (41.11%), and 12.22% rendered service for more than 10 years. Furthermore, most of the respondents have an average monthly income of around 32,700 CNY 46 (51.11 percent) while 44(48.89 percent) receive higher than the average monthly family income. Lastly, majority of the respondents 57(64.04 percent) respondents have only child while 33 (35.96 percent) have two (2) children.

Although healthcare workers are promoters of breastfeeding, table 1 shows that most of respondents practiced mixed feeding with breast milk (57.78%) while less than half (42.22%) practiced exclusively breastfeeding and good to note that nobody (0%) practiced replacement feeding or receiving no breast milk on the first six months of life of their child.

Moreover, during the child’s 7th-24th month of age, all the respondents stopped exclusive breast feeding. Still, more than half of the respondents (52.22%) practiced mixed feeding with breast milk while 47.78% transitioned to replacement feeding receiving no breast milk.

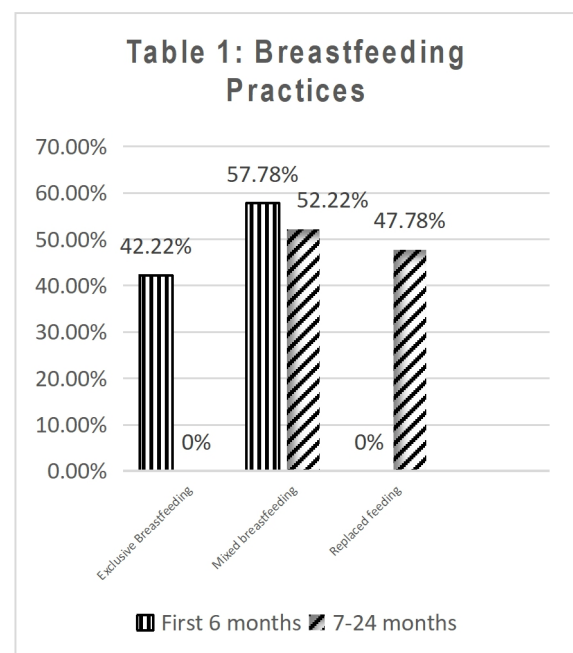


Table 2: Factors Affecting Breastfeeding Practice

Socio-economic factors	Breastfeeding Practice									
	0-6 months					7-24 months				
	Exclusive Breastfeeding	Mixed Feeding	Replaced Feeding	X ²	Critical value	Exclusive Breastfeeding	Mixed Feeding	Replaced Feeding	X ²	Critical value
Age										
20-30 years	37	7	0			0	3	41		
30-40 years	1	43	0	*61.86	9.49	0	42	2	*33.99	9.49
>40 years	0	2	0			0	2	0		
Educational Attainment										
-High School and lower										
	25	15	0	5.12	5.99	0	3	41	5.86	5.99
-Bachelor's Degree and higher										
	13	37	0			0	42	2		
Occupational Field										
-Doctor										
	7	17	0			0	14	10		
-Nurse										
	15	13	0			0	12	16		
-Rear Service Personnel										
	8	13	0	3.46	12.59	0	12	9	1.55	12.59
-Ancillary Services										
	8	9	0			0	9	8		
Length of Work Service										
<5 years										
	25	12	0			0	3	41		
5-10 years										
	13	27	0	*14.43	9.49	0	42	2	*18.46	9.49
>10 years										
	0	11	0			0	2	0		
Monthly Family Income										
-Average										
	36	8	0			0	5	39		
-Higher than Average										
	2	44	0	*55.33	5.99	0	42	4	*57.60	5.99
Number of Children										
1-Child										
	37	20	0			0	16	41		
2-Children										
	1	32	0	*32.81	5.99	0	31	2	*36.34	5.99

*Decision: reject null hypothesis if computed χ^2 is greater than the critical value @ alpha level 0.05

The table 2 shows there is disparity in breastfeeding practice when grouped according to age from birth to two years of their breastfeeding children. Age was found to be significantly different with computed $\chi^2=61.86$ during the first 6-month period and $\chi^2=29.43$ during the 7th month to two years of age of feeding which are both greater than critical value (9.49) at alpha level 0.05. The result further shows that during the first six months, the working mothers in the younger group (20-30 years) are more likely to comply with exclusive breastfeeding compared with middle and older adult lactating groups who practice mixed feeding when they return to healthcare workplace.

Although non-bachelor's degree holders adhered more to exclusive breastfeeding, result shows that educational attainment is not a factor that influence breastfeeding practice for the first 24 months of life of the child. Also, even if nurses are more adherent

with exclusive breastfeeding compared with other healthcare workers, statistically, occupational fields do not influence the in the breastfeeding practice both for the exclusive and extended periods. However, length of service is a factor that affects practice and duration of breastfeeding. Healthcare workers who is serving for less than five years are more likely to practice exclusive breastfeeding during the first six months of the child but more inclined to shift to replacement feeding after six months. While those between 5-10 years of service are practicing mixed breastfeeding and more likely to sustain it until the second year of their child.

Also, monthly income of the family influences breastfeeding practices of the healthcare workers. Those who belong to average income earners are more likely to practice exclusive breastfeeding during the first six months of the child but more inclined to stop breastfeeding afterwards. While

those with higher income are practicing mixed breastfeeding and more likely to sustain until 24th month of their child. Number of children is another factor that affects breastfeeding practice of healthcare workers. Those with single child are more likely to practice exclusive breastfeeding during the first six months of the child though in turn more likely to substitute breastfeeding thereafter. While those with second child are practicing mixed breastfeeding and more likely to keep up with it until 24th month of their child.

Discussion

Breastfeeding Practice

Breastmilk is the best milk for infants. It is economical, fresh, safe, clean, readily available and contains antibodies which help protect against many common pediatric health concerns. It provides all the necessary nutrients that the infant needs for the six months of life, and it continues to provide up to second year of life. Also, literature states that breastfed children perform better on intelligence tests, are less likely to be overweight or obese and less prone to diabetes later in life. Aside from the many child's benefits from breastfeeding, the mother also receives numerous advantages from breastfeeding her child like physiological, emotional, and economical benefits. Breastfeeding plays vital to a child's lifelong health, mothers' health, and reduces costs for health facilities, families, and governments at large.

Though the breastfeeding rate in China gradually increases over the years, still most cities and provinces failed reach the national target of 'exclusive breastfeeding' [5]. This supported by the result of this study that even healthcare workers who are supposed to be advocates of breastfeeding adhered to exclusive breastfeeding up to 42.22% only. Though it is good to note that nobody (0%) practiced replacement feeding or receiving no breast milk on the first six months of life of their child.

The WHO highly endorses exclusive breastfeeding without any additional food or water for the first six months of infant age. Subsequently, introducing supplementary foods at six months and sustaining breastfeeding until the age of 24 months is highly encouraged. Sadly, during the child's 6th-24th month of age, all the mothers ceased exclusive breast feeding. Though, more than half of the respondents (52.22%) continued mixed feeding with breast milk, still almost half (47.78%) of the healthcare mothers transitioned to replacement feeding receiving no breast milk. According to WHO breastfeeding all babies during the first two years would save almost a million lives children

under age 5 annually [6]. This percentage posts hefty threat to nutrition, development, health, and life of under 5-years old children in China.

Socio-economic factors affecting breastfeeding

In this study, we identified various socio-economic factors to have a significant association with the practice of breastfeeding among healthcare workers in Shandong Province, China. Findings show that disparity in breastfeeding practice is evident with age group from birth to two years of their children. The result further shows that during the first six months, the working mothers in the younger group (20-30 years old) are more likely to comply with exclusive breastfeeding compared with middle and older adult lactating groups who practice mixed feeding when they return to healthcare workplace. This may be attributed that young healthcare working mothers had a good knowledge about the benefits of exclusive breastfeeding to both mothers and offspring [7]. In support, younger mothers belong to millennial generation who are most inquisitive generation and have higher tendency to explore information about breastfeeding via online. With the growing awareness of young mothers brings more positive attitude towards optimal breastfeeding feeding practices [8].

It negates the report given by Center for Disease Control and Prevention (CDC) that 8 out of 10 younger mothers aged 20 to 29 years are less likely to ever breastfeed than mothers aged 30 years or older [9]. It further contradicts the result of another study which showed the older working mothers are practicing more breastfeeding because they have lesser worries and pressure than the younger family [10].

Moreover, study shows that length of work service was found to be significantly affecting the duration and practice of breastfeeding. Although length of service coincide with varying working hours are different and slight differences in salary and remuneration, these differences do have a significant impact on the mother's breastfeeding practice. This finding supports that study in Taiwan that years of employment were correlated to breastfeeding. That almost half of those who had worked for ten or more years in the company did not initiate breastfeeding. Mothers who were employed for ten or more years had the lowest continuation rate of breastfeeding [11].

Also, findings revealed that monthly family income posts significant difference in the breastfeeding practice of the working mother during the first six months and 7-24 months. It can be deduced that average income earning mothers are more likely to practice exclusive breastfeeding but more like to

practice replaced feeding on the 7th-24th month compared with higher income earners who sustained mixed feeding practice from 0-24th month. The average income mothers choose to practice exclusive breastfeeding may be tied up with health and economic reasons. Breastfeeding is natural and best for the infant, it improves the health of the mother and child, it is easy to do, and it can enhance the mother-child bonding and it is free of cost. Nonetheless, this research does not support the findings that mothers with higher household income who are employed are more likely to breastfeed [12]. This can be attributed to existence of strong commercial campaigns that sell milk formula and financial power of working mothers to purchase milk powder. Mothers from higher family income group can afford popular commercial brands, good reputation, and relatively higher prices reflective of their status symbol. While higher price milk powder will add a great financial burden to average income working mothers, consequently, they are more inclined to choose exclusive breastfeeding. This finding supports the claims that early supplementation with formula milk is related to being in a high-income group [13].

Additionally, study shows that breastfeeding practice both during exclusive and extended periods vary significantly with having one or two children. It can be deduced that during the first six months, healthcare working mothers with one child are more likely to practice exclusive breastfeeding practice while mothers with two children practice mixed feeding. This study supports to claims that more than half of mothers with two children breastfeed for less than 6 months, and only one out of ten of mothers with two children breastfeed for more than one year [14]. However, we found out that mothers with one child are more likely to practice replaced feeding after six months than those mothers with two children. According to WHO, premature weaning is common among one-child mothers, and the average breastfeeding time is far below the recommended breastfeeding duration. This phenomenon is more prominent among professional women. Mothers who returned to work within months of having their child find it tough and time consuming to pump milk at work. Making it difficult to continue to breastfeed if they don't have support. Also, studies show that the approval and encouragement of co-workers is one important factor that promotes the duration and success of breastfeeding. Tending for the child and making breast milk takes up a lot of energy. Even more, if the mother has other children and responsibilities, the more they may feel drained to breastfeed that contributes to premature weaning.

Furthermore, study show that mothers with two children managed to continue mixed breastfeeding from 0-24th month. Mothers with previous experiences on breastfeeding can serve as role models for new mothers by sharing their stories, including the difficulties they come across and how they sustained extended breastfeeding.

Conclusion

Despite the effort of the Chinese government, the exclusive breastfeeding practice of working mothers remains to be low (42.22%) for infant under 6 months and only 52.22% of them practice extended breastfeeding up to two years. That, healthcare workers who should be playing as breastfeeding promoters and role models themselves are relatively poorly adhering to the program.

Socioeconomic factors such as age, length of work service, family income and number of child/children affect the breastfeeding practice among healthcare working mothers. As the unconditional second-child policy rolls out in China, the current deficient and unsatisfactory rate of breastfeeding practice may subsequently deteriorate. Findings of this study call focus on appropriate target groups in breastfeeding education planning to achieve the national goal to its most possible level.

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Conflict of Interest

The authors declared no conflict of interests.

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