

Association between Mother's Literacy and INFANT & Young Child Feeding (IYCF) Practices and Nutritional Status of Urban under 5 Year Children

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Aim: To assess the association of mother's literacy status with infant & young child feeding (IYCF) practices and nutritional status of urban under 5 year children.

Methods: A community based cross-sectional study was carried out among 356 urban children under 5 years from 30 randomly selected Anganwadi Centres (AWCs) in Hyderabad, during 2017-18. The information regarding infant & young child feeding (IYCF) practices was obtained from the mothers of under 5 year children. Anthropometric measurements such as height and weight of all the children were measured adopting standard procedures and using standard anthropometric equipment.

Results: About half of the mothers reportedly initiated breast feeding to their newborns within one hour of birth. The proportion of mothers fed pre-lacteals and colostrum to newborn was 35% and 96% respectively. A higher proportion of literate mothers (45.1%) exclusively breast fed their infants for the first 6 months as compared to their illiterate counterparts (32.9%). Significantly a higher proportion (63.3%) of literate mothers initiated complementary feeding to their infants soon

after completion of 6 months as against 50% in illiterate mothers ($p < 0.05$). The proportion of children with undernutrition i.e. underweight, stunting and wasting was 38.5%, 40.6% and 16.8%, respectively. The prevalence of underweight and stunting was significantly ($p < 0.05$) higher among the children of illiterate mothers as compared to literate mothers.

Conclusion: In general, mother's literacy was significantly associated with the IYCF practices as well as nutritional status of their children. Therefore, respective Governments should initiate appropriate measures to increase female literacy levels in India.

Keywords: IYCF; literacy status; breast feeding; complementary feeding; undernutrition.

1. INTRODUCTION

Nutritional well-being of a population is a reflection of the performance of National social and economic sectors and it is an indicator of the efficiency of national resource allocation [1]. Chronic poverty, illiteracy of women, deep rooted cultural and religious factors coupled with poor knowledge among mothers about infant & young child feeding (IYCF) practices have longstanding impact on growth and development of under 5 years children. Despite vast improvements in the country's agricultural production, economy and implementation of several national nutrition programmes, the prevalence of undernutrition continues to be a important problem of public health concern in India. As estimated by World Bank, the proportion of children with underweight was highest in the world, and is almost double that of Sub-Saharan Africa [2]. India is in serious hunger category where it ranked 94th amongst 107 leading countries in the Global Hunger Index (GHI) 2020 featured behind Nepal, Pakistan, Bangladesh a situation Report [3]. Similarly, the National Family Health Survey (NFHS-4) [4] reported the proportion of children with underweight and stunting was 36% and 38%, respectively.

Exclusive breastfeeding (EBF) during the first six months of infant's life as well as initiating the breast feeding within an hour of birth increases the chance to survive, thrive and develop to their full potential [5]. Likewise, three large scale trials carried out in Ghana, India and Nepal reported that the early initiation of breast feeding to the newborn was decrease the risk of neonatal mortality by 44% [6]. Suitable Infant & Young Child Feeding practices are vital for optimal growth, cognitive development, and overall well-being in early years of child's life and prevent under 5 mortality by 19% [7]. As reported by Beal et al, the most three leading causes of malnutrition among children include poverty, food insecurity, and illiteracy [8]. Thus, mothers' education plays very significant role in practicing

of appropriate IYCF practices [9] and poor literary among mothers was correlated with improper IYCF practices and eventually lead to malnutrition in children [10-12].

The data on association between mother's literacy and IYCF practices and nutritional status of children under 5 years residing in urban areas are not readily available in India. Hence, keeping this in view, a community based study was conducted in Hyderabad, with the objective to assess the association of mother's literacy with IYCF pattern and nutritional status of urban dwelling children under 5 years.

2. MATERIALS AND METHODS

A community based cross-sectional study was carried out among 356 urban children of 6 to 60 months of age in Hyderabad, Telangana during 2017-18. The children of under 5 were covered from the 30 Anganwadi Centres (AWCs) randomly selected in Hyderabad. Socio-demographic particulars of all children were obtained using pre-tested questionnaire. Similarly, the information regarding infant & young child feeding (IYCF) practices including time of initiation of breast feeding after birth, feeding colostrum and pre-lacteals, exclusive breast feeding and complimentary feeding practices was obtained from the mothers of under 5 year children. Anthropometric measurements such as height and weight of all the children were measured adopting standard procedures and using standard anthropometric equipment.

2.1 Statistical Analysis

Data were analysed using SPSS (Version: 21.0). Descriptive statistics such as mean, standard deviation (SD) and prevalence of various parameters were calculated. Chi-square test was performed to study the association between the literacy status of mother and IYCF practices as well as nutritional status of the children. The p-

value of <0.05 is considered as statistically significant.

3. RESULTS AND DISCUSSION

Three hundred and fifty six children were covered for this study and of them, 43.5% of children were delivered by caesarean section. About half of the mothers reported that they have commenced breast feeding to their newborn during first hour of child birth and 35% of mothers reportedly fed pre-lacteals such as honey, milk and glucose water to the their newborns. A majority (96.1%) of mothers reportedly fed colostrum to their newborns. Initiation of breast feeding to the new-born within one hour of birth was significantly ($p < 0.05$) different with the literacy status of the mother, where a higher proportion of illiterate mothers (57.4%) initiated them within one hour as compared to literate mothers (49%). However, such difference was not observed with respect to the feeding colostrum and pre-lacteals ($p > 0.05$). Though statistically not significant ($p > 0.05$), the

proportion of mothers exclusively breast fed their infants for the first 6 months was higher among literate mothers (45.1%) as compared to their illiterate counterparts (32.9%). However, significantly a higher (63.3%) proportion of literate mothers initiated complementary feeding to their infants soon after completion of 6 months as against 50% in illiterate mothers ($p < 0.05$). Likewise, children who received vitamin A supplementation and supplementary feeding programme was significantly ($p < 0.05$) different with the literacy status of the mother (Tables-1&2).

The proportion of children with undernutrition i.e. underweight, stunting and wasting was 38.5%, 40.6% and 16.8%, respectively. The proportion children with underweight (52.2%) and stunting (51.5%) was higher ($p < 0.05$) among the children of illiterate mothers, as against the children of literate mothers (35.2%, and 38%). Similarly, a higher proportion of children of illiterate mothers had wasting (23.5%) as against 15.1% among children of literate mothers ($p > 0.05$).

Table 1. Distribution (%) of mothers of < 5 Yr children by Literacy Status and IYCF Practices

Particulars		n	Percentage
Literacy Status of Mother	Illiterate	70	19.7
	1 st – 5 ^t Class	38	10.7
	6 th – 7 th Class	146	41.9
	Intermediate	41	11.5
	Graduate & above	58	16.3
Type of Delivery	Normal	201	56.5
	Caesarean	155	43.5
Recording of Birth Weight of the Newborn	Yes	345	98.0
	No	11	2.0
Time of initiation of Breast Feeding (hrs)	Immediately	123	34.6
	<1 hr	56	15.7
	1-3 Hrs	87	24.4
	4-24 Hrs	5	16.0
	≥2 days	33	9.3
Feeding of Pre-Lacteals	Yes	123	34.6
	No	233	65.4
Type of Pre Lacteals being given	Honey	89	25.0
	Plain water	0	0.0
	Glucose water	7	2.0
	Cow/Buffalo milk	23	6.5
	Foster Mother's milk	0	0.0
	Others	4	1.1
	NA*	233	65.4
Feeding of Colostrum	Yes	342	96.1
	No	14	3.9

*NA: Not Applicable

Table 2. Association of mother's literacy status with IYCF practices and nutritional status of under 5 year children

Particulars (N)	Variable	Illiterate	1-5 Std	6-10 Std	≥10+2	Literate	Pooled	p-value
Initiation of BF	Within 1hr	57.4	73.7	53.0	33.3	49.0	50.6	0.000
Colostrum (356)	Fed	92.9	97.4	96.6	97.0	96.9	96.1	0.489
Pre-lacteals (356)	Fed	34.3	21.1	38.9	33.3	34.6	34.6	0.222
EBF* (356)	First 6 months	32.9	39.5	42.3	51.5	45.1	42.7	0.177
Initiation of CF [□]	Soon after 6 m	50.0	55.3	60.4	70.7	63.3	60.7	0.041
Vitamin A	Received	80.0	92.1	85.9	70.7	81.5	81.2	0.006
ICDS SF [‡]	Received	77.1	84.2	88.6	60.6	78.3	78.1	0.000
Underweight (353)	<-2SD	52.2	31.6	39.6	29.9	35.2	38.5	0.009
Stunting (352)	<-2SD	51.5	31.6	43.0	33.0	38.0	40.6	0.043
Wasting (352)	<-2SD	23.5	15.8	14.1	16.5	15.1	16.8	0.096

*EBF: Exclusive Breast Feeding. CF[□] Complementary Feeding. [‡]SF: Supplementary Feeding

This study, perhaps for the first time carried out exclusively with the objective to assess the association between maternal literacy and IYCF practices and nutritional status of the urban dwelling children of under 5 years in Hyderabad. WHO and UNICEF recommend commence of breast feeding to newborn within an hour of birth and continuation of exclusive breast feeding for the first six months of infant's life [13]. In the present study, about 51% of mothers initiated breast feeding to their new-born within one hour of child birth and it is higher than the corresponding figure reported for the urban Patiala, Punjab (25%) and urban Allahabad (45.2%) [14, 15] as well as the figures reported by the NFHS-4 (41.5%) [4] and UNICEF (41%) [5] as well as by Meshram et al. (36%) [16] for India. While a national survey carried out in 2014 reported that the practice of early initiation of breast feeding increased from 24.5% in 2006 to 44.6% in 2014 [17].

Similarly, about 96 % of the mothers in urban areas of Hyderabad fed colostrums, the first secretion of milk rich in protective nutrients to their new born, which is higher as compared to the figures reported by Randhawa et al for the city of Patiala (43%) [14] and their rural counterparts (85.4%) in India [18] and Bangladesh (90%) [19]. Likewise, administration of pre-lacteals is not advisable for any newborn and exclusive breast feeding should be practiced for the first six months of infant's age. In this present study, about 35% of mothers fed pre-lacteals to their newborns which is higher than the figures reported by the NNMB in India (24.7%) [18] and lower as compared to 50.8% in urban Patiala [14] and 63.8% in urban slums of Gwalior [20].

Similarly, only about 43% of the mothers reportedly practiced exclusive breast feeding to their infants for the first six months which is lower than the figures reported by Meshram et al (50%) [16] and NFHS-4 (54.9%) [4] for India as well as the corresponding figure reported in urban Patiala, Punjab (47%) [14] and higher than the figures reported in urban slums of Gwalior (7.8%) [20], urban Allahabad (23.5%) [15] and slums of Dibrugarh (41%) [21]. There is a rapid growth in infant's height and weight during his first year of life. Therefore, after 6 months of age only breast milk is not sufficient to meet his daily requirements of nutrients, henceforth complimentary feeding should be initiated soon after completion of 6 months of age along with continued breast feeding until 2 years or over. The proportion of mothers initiated complementary feeding to their infants soon after completion 6 months was about 61%, while the corresponding figures reported for their rural counterparts in India was about 79% [4].

In the present study, the proportion of urban under 5 year children with undernutrition, in terms of underweight, stunting and wasting was 38.2 %, 40.2 %,16.6 %, respectively and the prevalence of the same in this present study was relatively lower as compared to the figures reported for their rural counterparts by the NFHS-4 and the NNMB [4,18].

3.1 Association

According to the results obtained in the present study, a significant association ($p>0.05$) was observed between the mother's literacy status and different variables, such as initiation of breast feeding within one hour of delivery, initiation of complementary feeding soon after

completion of 6 months, receipt of supplementary feeding and massive dose vitamin A as well as prevalence of underweight and stunting (Table-2).

In this present study, initiation of breast feeding within one hour of delivery was significantly ($p < 0.05$) higher among illiterate mothers as compared to literate mothers. However, in contrast, several studies in India reported that higher literacy status of mothers was positively associated with timely initiation of breast feeding after delivery [22, 23, 24]. Though statistically not significant ($p > 0.05$), the proportion of mothers exclusively breast fed (EBF) for the first 6 months to their infants was higher among literate mothers (45.1%) as compared to their illiterate counterparts (32.9%). Similar observation was reported by few Indian studies [25, 26], while few western studies reported even negative association between the mothers literacy and practice of EBF for first 6 months [27, 28, 29]. However, many studies reported positive association where the proportion of literate mothers practicing appropriate EBF was significantly ($p < 0.05$) higher as compared to illiterate mothers in Central and North-Eastern States in contrast to Southern states in India [30], urban Patiala [14], Gujarat [31], rural Mysore [32] and urban slums of Nagpur [33]. The initiation of complementary feeding to the infants soon after completion of 6 months was significantly higher among literate mothers as compared to illiterate mothers ($p < 0.05$). Similar observation was reported by the studies carried out in Central India [34] and South India [35].

Likewise, the proportion of children with underweight and stunting was significantly ($p < 0.05$) higher among the children of illiterate mothers as compared to literate mothers. Similar observation was reported by many studies. Thus, several studies reported that the increased level of mother's education was associated with decreased prevalence of child's undernutrition [36, 37, 38, 39].

4. CONCLUSIONS

In general, in this present study, mother's literacy was positively correlated with appropriate IYCF practices as well as nutritional status of their children. Therefore, it is imperative to take appropriate measures to improve the female literacy through free and compulsory education as well as to improve school enrolment and prevent school drop-outs among girl child. It is

reiterated that the community in general and women of reproductive age group in particular should be imparted health and nutrition education for adoption of appropriate IYCF practices through behaviour change communication (BCC) for the prevention and control of undernutrition and its impact on morbidity and mortality among under 5 year children.

ETHICAL APPROVAL

The study was approved by the NTR University of Health Sciences and the ethical clearance was obtained from the Institutional ethical review board, National Institute of Nutrition (NIN), Hyderabad.

CONSENT

As per international standard, parental written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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