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Original Research Article

Maternal understanding and practices of breastfeeding and infant feeding in rural North Karnataka: a cross sectional study

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ABSTRACT

Background: Child-malnutrition is a critical global concern supported by substantial evidence. Recognizing optimal infant and young child-feeding practices as pivotal in combating malnutrition is crucial.
Methods: This was a cross-sectional study conducted through house-to-house survey in Ukkali and Shivanagi villages for period of 6 months from February 2018 to July 2018. A pretested-questionnaire was administered to 133mothers of 6 to 12-month-old children, collecting socio-demographic data, knowledge, attitudes, and practices regarding prelacteal, breastfeeding, and complementary-feeding.
Results: Knowledge gaps emerged, with only 50% understanding colostrum's importance. Limited awareness of exclusive breastfeeding (65%) and extended breastfeeding (31.57%) was observed. Prelacteal-feeding was widespread (52.63%), with sugar-water being a prevalent choice (21.8%). Most mothers (over 90%) opted for breastfeeding, yet timely initiation (27.6%) and exclusive-breastfeeding (30%) were suboptimal. Complementary-feeding initiation (15%) and minimum-meal-frequency adherence (13.3%) were low. Meal-diversity was deficient in over 60%.
Conclusions: Bridging knowledge gaps and promoting optimal-feeding-practices through targeted nutritional education is essential. This study underscores the importance of addressing misconceptions, enhancing early-breastfeeding, and ensuring proper complementary-feeding to improve child-health outcomes. Socio-demographic-factors must be considered when designing educational material and interventions in rural-settings.

Keywords: Breast feeding practice, Complementary-feeding, Maternal knowledge on infant feeding

INTRODUCTION

On a global scale, child malnutrition is a pressing concern supported by substantial statistical evidence.[1] Currently, 50.5 million children under5 years of age are wasted, with 17 million of them severely wasted. In addition, 150.8 million children (equivalent to 22.2%) are afflicted by stunting.[2] The severity of the issue is further underscored by the fact that nearly half of the deaths among children under 5 years of age in low and middle-income countries can be attributed to under-nutrition.[2]

Among all nations, India stands out with the highest number of children facing stunting (46.6 million) and wasting (25.5-million).[3] In comparison to African countries, India's undernutrition challenge is even more daunting, with 43% of its under-5 children being underweight, 39% experiencing stunting due to chronic malnutrition, and 21% grappling with wasting or severe wasting due to acute malnutrition and recurrent infections.[3]

Recognizing the vivacious role of optimal infant and young child feeding practices in combating malnutrition becomes paramount. Implementing appropriate feeding strategies could potentially save more than 820,000 children under 5 years old from the clutches of malnutrition annually. As children progress in age and activity, their energy demands escalate, necessitating the introduction of complementary foods to bridge this energy gap. Neglecting to address these requirements adequately can lead to stunted growth and wasting.[4]

Furthermore, it's essential to acknowledge that the quality and diversity of foods integrated into complementary feeding significantly contribute to the fight against malnutrition. In countries like India, grappling with a nutritional transition, the dual challenge of undernutrition and overnutrition emerges. Consequently, ensuring optimal practices of Infant and Young Child Feeding (IYCF) and initiating timely interventions take on a pivotal role. This is particularly critical for children below two years old to mitigate the risks of both stunting and obesity.[4]

Our study is designed with the purpose of comprehending the infant feeding practices adopted by mothers residing in the rural areas of north Karnataka. This study functions as a foundational assessment for an educational interventional initiative aimed at providing support to mothers in these rural regions.

METHODS

Study design

This was a cross-sectional study carried out over the period of 6 months from February 2018 to July 2018. The study conducted in two villages, Ukkali and Shivanagi, located in Karnataka's Vijayapura district, focused on interviewing mothers with infants aged 6-12 months through a door-to-door survey in a period of 1 month. Prior consent was obtained from participating mothers, who were briefed about the study's objectives. A total of 133 mothers were part of our research, while those with children younger than 6 months or older than 12 months, as well as those dealing with significant illnesses, were not included.

Data-collection

Data collection involved a structured questionnaire, validated beforehand, to gather sociodemographic details (such as age, religion, maternal education, occupation, and income). Additionally, information on breastfeeding initiation and duration, prelacteal feeding, practices related to introducing complementary foods, minimum meal frequency, and dietary diversity in children were recorded based on established criteria. To evaluate the socioeconomic status, we used a modified version of Prasad's classification adjusted for per capita monthly income, placing individuals in distinct groups. Definitions for exclusive-breastfeeding, dietary frequency, and dietary diversity were adhered to WHO guidelines.[6]

Statistical-analysis

The study determined a projected proportion of babies not receiving colostrum at 15.4%.[7] With a 95% confidence level and a 6% absolute precision, the anticipated sample size for mothers with children aged 6-12 months was calculated to be 132, employing a specific formula for sample size determination.

$n= z^2 p*q/d2$

Where, Z= Z statistic at α level of significance, d2 = Absolute error, P= Proportion rat, q= 100-p.

Data input and statistical computations were carried out using MS-Excel and SPSS version 14.0 for Windows. Percentages were applied in analysing the results. Maternal age, religion, socioeconomic status, maternal education, and feeding practices were considered as independent variables for the analysis.

RESULTS

A total of 133 mothers whose children were within the age range of 6 to 12 months. The study's findings indicate that roughly 3% of the mothers with enrolled children were below 18 years of age, while the majority fell within the 20 to 25 years age group. About 25% of the mothers had not received formal education, and half of the participants identifying as Hindu in terms of their religion. The prevailing occupation among mothers was homemaking. Additionally, a notable proportion of the mothers were classified under the low socio-economic category, as determined by the Modified BG Prasad classification (Table 1).

In our investigation, a distinct gap became evident in maternal awareness concerning colostrum. Only half of the participants displayed sufficient understanding of colostrum feeding. Furthermore, a majority of mothers (>65%) demonstrated limited recognition of the significance of exclusive breastfeeding for the initial 6 months. However, a considerable number of mothers (31.57%) possessed the knowledge of breastfeeding until the child reaches 2 years. These observations emphasize the imperative for targeted nutritional education to enhance maternal comprehension of critical breastfeeding aspects (Table 2).

Regarding early infant feeding practices, a significant majority of children (52.63%) received Prelacteal feed shortly after birth in our study. Among the various types of Prelacteal feeds administered in our study area, sugar water stood out as the most prevalent, accounting for 21.8% of cases. These findings illuminate prevalent early infant feeding practices in our studied population (Table 3).

Table 1: Demographic and socio-economic profile of the mothers.

Demographic and socio-economic profile	No. of mothers (133)	Percentage (%)
Age of mother (years)		
<18	3	2.25
18- 20	49	36.84
20- 25	72	54.13
25-30	8	6.01
30-35	1	0.75
Mean age at marriage	19.94±2.24	
Education status of mother		
Illiterate	34	25.56
Basic education (1-10th std)	66	49.62
Secondary education	27	20.30
Graduate	6	4.51
Religion		
Hindu	73	54.88
Muslim	60	45.11
Occupation		
Home maker	93	69.92
Agricultural labors	24	1
Daily wage labors	11	8.2
Govt worker	4	3.0
Business	1	0.7
Socio-economic classification		
Class I-class II	-	-
Class III	38	28.57
Class IV	74	55.63
Class V	21	15.78

Table 2: Knowledge of mothers on breastfeeding practice.

	No. of mothers (133)	Percentage (%)
Knowledge on colostrum		
Yes	63	47.36
No	70	52.63
Knowledge on exclusive breast feeding		
Yes	42	31.57
No	91	68.42
Knowledge on the duration of breastfeeding		
Till 1 year	44	33.08
1-2 years	47	35.33
More than 2 years	42	31.57

In our investigation, an overwhelming majority of mothers (over 90%) opted for breastfeeding their infants. Primary reasons for not breastfeeding were attributed to inadequate breast milk secretion. Concerning breastfeeding initiation, a substantial percentage of mothers (54.8%) commenced breastfeeding within 1 to 6 hours of childbirth. A smaller segment (27.6%) adhered to the recommended practice of early initiation, within the initial hour post-delivery. Only 30% of mothers practiced exclusive breastfeeding for the initial 6 months, while approximately half refrained from feeding their child during periods of sickness. These insights spotlight significant aspects of breastfeeding practices among our study population (Table 3).

Table 3: Distribution of mothers as per child feeding practices followed.

	No. of mothers (133)	Percentage (%)
Prelacteal feeds given		
Yes	42	31.57
No	61	45.86
Types of prelacteal feeds given to children		
Sugar water	29	21.80
Honey	14	10.52
Animal milk	11	8.27
Water	7	5.26
Breastfeeding practices		
Time of initiation of breast feeding		
Within hour	36	27.06
1-6 hours	73	54.88
7-24 hours	13	9.77
Not breast fed	11	8.27
Colostrum given mothers	****Excluded non breastfed**	
	No. of mothers (123)	**Percentage (%)**
Yes	70	52.63
No	53	39.84
Exclusively breast feeding		
Yes	40	30.07
No	83	62.40
Breast feeding child during sickness		
Yes	**55**	41.35
No	**68**	51.12
Initiation of complementary foods		
Less than 6 months	8	6.01
6 months	18	13.53
7-12 months	71	53.38
Not yet started	37	27.81
Minimum meal frequency		
Correct	18	13.53
Not correct	117	87.96
Minimum Meal diversity		
Four food groups	53	39.84
Not -included 4 food groups	80	60.15

Furthermore, a disconcerting revelation emerged regarding complementary feeding initiation. A minority (less than 15%) of mothers initiated complementary feeding at the prescribed 6-month mark. Predominantly, mothers deferred the introduction of complementary

feeding, with a higher proportion (between 7 to 12 months of age) initiating this practice. Moreover, a noticeable portion (about 27.8%) of mothers had not yet introduced complementary feeding during the study period (Table 3).

Significant concerns about feeding practices were highlighted, as a substantial portion (87%) mothers did not adhere to the recommended minimum meal frequency. Furthermore, many mothers approximately around 60% of them did not meet the minimum requirements for meal diversity. These findings underscore the necessity for targeted nutritional education to enhance the adoption of timely initiation and suitable practices of complementary feeding within our study population (Table 3).

DISCUSSION

In the discussion phase of our study, several significant aspects warrant thoughtful consideration. The findings unveiled critical insights into maternal knowledge and practices related to infant and young child feeding, shedding light on prevalent trends and areas demanding targeted interventions.

Socio-demographic profile

The rural region of north Karnataka is characterized by prevalent challenges such as illiteracy, early marriage, and early pregnancy, as noted in previous studies [8]. Aligning with the latest National Family Health Survey-4 (NFHS-4), approximately 27% of girls in India are married before reaching 18 years of age. In our study, a majority of mothers (>50%) fell within the age bracket of 20 to 25 years. The mean age at marriage was around 19.94±2.24. The prevailing occupation among the majority of mothers was homemaking. A study by Chandrik et al (2015) conducted in Vijayapura district yielded similar findings, reinforcing the socio-demographic trends in this region.[9] Furthermore, a quarter of the mothers in our study were found to be illiterate, mirroring results from CNNS 2016-2018.[10] Maternal education holds significance in enabling effective child care practices that subsequently foster child growth and development.[11] It is plausible that low levels of education contribute to a higher proportion of homemakers among the mothers in our study. In line with this, over 50% of mothers were classified under class IV socio-economic category, a trend echoed in the study conducted by Vijayalakshmi et al.[12]

Child feeding practices - prelacteal feeds

Our investigation sheds light on the prevailing practices of infant feeding, revealing that approximately 31.5% of children were administered prelacteal feeds shortly after birth. This observation closely corresponds to the findings of a study conducted in Uttar Pradesh by Manasa et al (40.1%).[13] Conversely, a study carried out by Shravanan et al. (2011) within the same region reported a notably higher prevalence (60.2%) of prelacteal feeding practices among mothers.[14] This divergence could potentially be attributed to a higher proportion of literate mothers in our study. Among the prelacteal feeds commonly administered in our study, sugar water and honey were predominant. Parallel observations were reported in studies conducted by Srividya et al (Mandya district) and Yadavannar et al (Vijayapura District).[15,16]

Breastfeeding practices

Our findings unveiled that more than 70% of mothers initiated breastfeeding within 6 hours of childbirth, aligning with Junaid et al study which reported a 74.2% initiation rate within 6 hours.[17] While the IYCF guidelines stress breastfeeding initiation within the first hour after birth, only 27.06% of mothers in our study adhered to this practice. This figure falls below the reported statistics (47.9%) for Vijayapura district in the BF & IYCF report card 2019.[10] Exclusive breastfeeding during the initial 6 months was embraced by 30.7% of mothers, mirroring the findings (34.5%) from Basu et al study on rural mothers.[18] However, our outcomes lag behind the BF & IYCF report card 2019 for Karnataka (56.6%).[10] The rationale behind the lower rates of Exclusive Breastfeeding (EBF) could be attributed to mothers' beliefs that infants under 6 months necessitate additional fluids, a perspective particularly widespread during the summer season.

Additionally, our study highlighted that over 50% of mothers provided colostrum to their infants, mirroring akin results (43% and 47%) reported by Gupta et al and Yadav et al.[19,20]

Complementary-feeding-practices

The nutritional requirement of a child shift around 6th month, necessitating the introduction of weaning foods to meet their energy needs, a principle supported by existing literature.[21] Neglecting this transition beyond the 6-month mark could impede infant growth.[22] Our findings indicate that 53.3% of children aged 7 to 12 months had received complementary feeding, aligning with the BF & IYCF report card 2019. Around 30% of mothers deferred the introduction of complementary feeding due to concerns about their child's digestion. Other factors contributing to delayed initiation included lack of awareness, misconceptions, and cultural beliefs. Aggarwal et al study in Delhi also highlighted similar reasons for delayed complementary feeding practices.[23] Addressing these misconceptions requires educational interventions. Thus, imparting accurate information on contemporary guidelines for infant and young children feeding practices to mothers along with caregivers remains vital.[24]

Meal frequency and diversity

Regarding dietary diversity, children's consumption of various food items significantly impacts their nutritive status. The establishment of minimum required dietary-

diversity was based on the varity of food-groups consumed by the index child, considering seven internationally recommended food groups by WHO. This practice ensures sufficient intake of essential nutrients and promotes health and nutrition.[25,26] Our baseline study indicated that only 39.8% of mothers included more than four food groups in their child's diet, a trend similar to findings (42.6%) by Istiyaq et al in Uttar Pradesh.[27] Similarly, a study by Dabar et al (Delhi) reported a higher rate (50.7%) of minimum meal frequency than our study.[28] Regional disparities, differences in maternal education levels, socio-economic class, and the age group of children might explain these variances. Infants below 12 months usually require more frequent breastfeeding, potentially contributing to the variations in complementary feeding frequencies.

CONCLUSION

In conclusion, our study elucidates the socio-demographic characteristics and feeding practices prevalent in rural north Karnataka. This study's discussion underscores the need for targeted nutritional education to bridge knowledge gaps and enhance optimal infant and young child feeding practices. Addressing misconceptions, promoting early initiation of breastfeeding, emphasizing the significance of colostrum, and encouraging timely and diverse complementary feeding are imperative to ensure better child health outcomes. Furthermore, considering the impact of socio-demographic factors on feeding practices is vital when designing effective interventions for improving infant and young child feeding practices in rural settings.

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