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Refugee Children in India: A Comparative Study

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Abstract A cross sectional survey was conducted to compare parent background, child rearing practices, nutritional and morbidity status of under-five children in two study populations located in Tamilnadu, India - a Tamil Refugee camp from Sri Lanka and a local Fishermen community. A total of 125 and 136 under-five children were contacted in the Refugee camp and the Fishermen community respectively. The literacy status of the Refugee camp parents (fathers = 92.8%, mothers = 89.6%) was higher than the Fishermen community parents (fathers = 77.2%, mothers = 72.0%). Mothers of the Refugee camp practiced significant longer duration of breastfeeding and earlier food supplementation. More than 90% of the under-five children were fully immunised and about 35% of them were found to be malnourished in both study populations. Fishermen community had significantly more number of children with pallor, lymphadenopathy, dental caries and respiratory infection. Under-five children of the Refugee camp have a better health status than the local Fishermen community which possibly is due to higher literacy status and better child rearing practices by the Refugee camp mothers.

Key words Fishermen; Refugee; Under-five children

Introduction

There are about 23 million Refugees in the world according to current estimates.[1] Many countries today face this increasing challenge of accommodating, adopting and providing for such afflicted populations with limited resources. Usually children being most vulnerable bear the brunt of such human catastrophes. The Universal Declaration of Human Rights Article 14 (1) states that "everyone has the right to seek and to enjoy in other countries asylum from persecution".[2] During the last decade more than two million children have been killed in conflict, with a further six million wounded and one million orphaned.[3]

One of the areas in the world where there has been continuous human ethnic conflict for many decades is Sri Lanka. Many Tamil Refugees from Sri Lanka have sought refuge in the southern state of Tamil Nadu in India. These Refugees have been rehabilitated in camps along the eastern coast of Tamil Nadu for more than two decades now. One such camp called 'Ceylon colony' is situated at Kizhuputtupati a rural coastal area in Villupuram district, which is about 7 km away from a new tertiary teaching hospital called Pondicherry Institute of Medical Sciences (PIMS). The local government has constructed houses in a well defined area situated about half a kilometer inward from the sea shore. The houses are joined with one another and are arranged in rows. Each house has two rooms with a small courtyard in the front. Handpumps have been installed for common use at regular intervals. The local government is also providing food material at subsidised rates. The Refugee camp has access to the government health centre

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services in the area which is free of cost.

For more than a decade a non-governmental organization (NGO) has been actively providing immunisation, food supplementation etc. especially to under-five children and pregnant women in this population. This NGO has constructed common public toilets at the periphery of the camp. Key members from the camp have been trained and they provide pre-school and primary school education. The Rural health centre attached to the Department of Community Medicine of Pondicherry Institute of Medical Sciences located at Koonimedu (3 km from the camp) is presently providing health services to this Refugee camp.

This Refugee camp is situated in very close proximity to the nearby Fishermen villages. These villages are present adjacent to the sea shore each of which have a common water supply system from a bore well connected to an overhead tank. Most of the people have seperate individual houses and practice open-air defaecation. The government primary health centre provides health services in these villages. Since this Refugee camp has been in existence for almost two decades it was decided to compare this Refugee camp with the nearby Fishermen community. Therefore the objectives of this study were: (1) to explore and compare parent background and child rearing practices in the study populations; (2) to assess and compare the nutritional and morbidity status of under-five children in the study populations; (3) to study the effect of parent background and child rearing practices with the health status of the child; (4) to compare the impact of the various social and health services provided to the study populations.

Materials and Methods

The study was conducted during the months of October-December 2003. The total population in the Refugee camp was 1,257 where under-fives were 142 (11.3%). Three adjacent Fishermen villages were chosen for comparison namely-Anichakuppam, Mudaliarkuppam and Nouchikuppam. The total population in this Fishermen community was 2,320 of which under-fives constituted 240 (10.3%). For the study, it was decided to include all children below the age of 5 years available at their homes and excluded school going children.

A proforma designed for the purpose of the study was used to collect background information such as name, age, sex, fathers and mother's education, occupation and religion. Questions pertaining to immunisation, breastfeeding, food supplementation, illness in the past 6 months and health service utilisation were also included. Nutritional status was assessed by weight for age and using a checklist general and systemic examination was done.

The doctors and the health staff were initially trained in the Department of Community Medicine regarding the study, conduct of fieldwork and also uniformity of recording. Three teams consisting of one doctor and one health staff each conducted the fieldwork. In the Refugee camp 125 children could be contacted while in the Fishermen community 136 children were contacted.

The data collected was collated and analysed using EPI INFO – version 6. Statistical test used was Chi-square test.

Results

Age-sex Distribution

As seen in Table 1 both the study populations had similar age-sex distributions. However, the Refugee camp had more number of infants in comparison to the Fishermen community which had more children in the 4-5 years age group.

Religion

Among the under-five children in the Refugee camp 68%

Table 1 Age-sex distribution of under-fives in the study populations

Age in months	Refugee camp (n=125)		Fishermen community (n=136)	
	Male	Female	Male	Female
0-12	14	15	8	6
13-24	27	16	23	24
25-36	10	13	14	14
37-48	10	11	12	14
49-60	4	5	14	7
Total	**65**	**60**	**71**	**65**

(85) belonged to Hindu religion and 32% (40) of them were Christians whereas in the Fishermen community 97% (132) were Hindus, 1.5% (2) were Christians and 1.5% (2) were Muslims.

Education

There were 92.8% (116) literate fathers and 89.6% (112) literate mothers of under-five children in the Refugee camp. In comparison a lower literacy status was seen in the Fishermen community which had 77.2% (105) literate fathers and 72.0% (98) literate mothers.

Occupation

Mainly because of their Refugee status 92.8% (116) of the fathers of the under-five children in the Refugee camp did daily wage labourer work while 86.7% (118) of fathers in the Fishermen community were engaged in fishing. Almost all the mothers of the under-five children in both the study populations were housewives.

Immunisation Status

The Refugee camp had 92% (115) of the under-five children with complete immunisation for age while 7.2% (9) had partial immunisation and 0.8% (1) did not receive any immunisation. In the Fishermen community 97.8% (133) of the under-five children had complete immunisation for age with 2.2% (3) having partial immunisation.

Place of Immunisation

Government health services for immunisation was used by 76.0% (95) of the Refugee camp mothers while 24.0% (30) of them used private health agencies. In the Fishermen community 86.0% (117) of the mothers used Government health service and 13.9% (19) of them used private health agencies.

Breastfeeding

This information was gathered from mothers of under-five children who had already completed breastfeeding. There were 78 and 110 such mothers in the Refugee camp and Fishermen community respectively. Figure 1 shows that approximately 90% of the mothers in both the study populations breastfed their children upto 6 months. There is statistically significant difference at 1.5 years where 56.4% (44) of mothers continued breastfeeding in the Refugee camp in comparison to 40.9% (45) of mothers in the Fishermen community (χ^2=4.4, P=0.03, 95% confidence interval=1-3.5). Breastfeeding was continued upto 2 years by 21.7% (17) and 15.4% (17) of the mothers in the Refugee camp and the Fishermen community respectively. The median duration of breastfeeding was 1.5 years in the Refugee camp and 1 year in the Fishermen community.

Time of Food Supplementation

This information was collected from 110 and 128

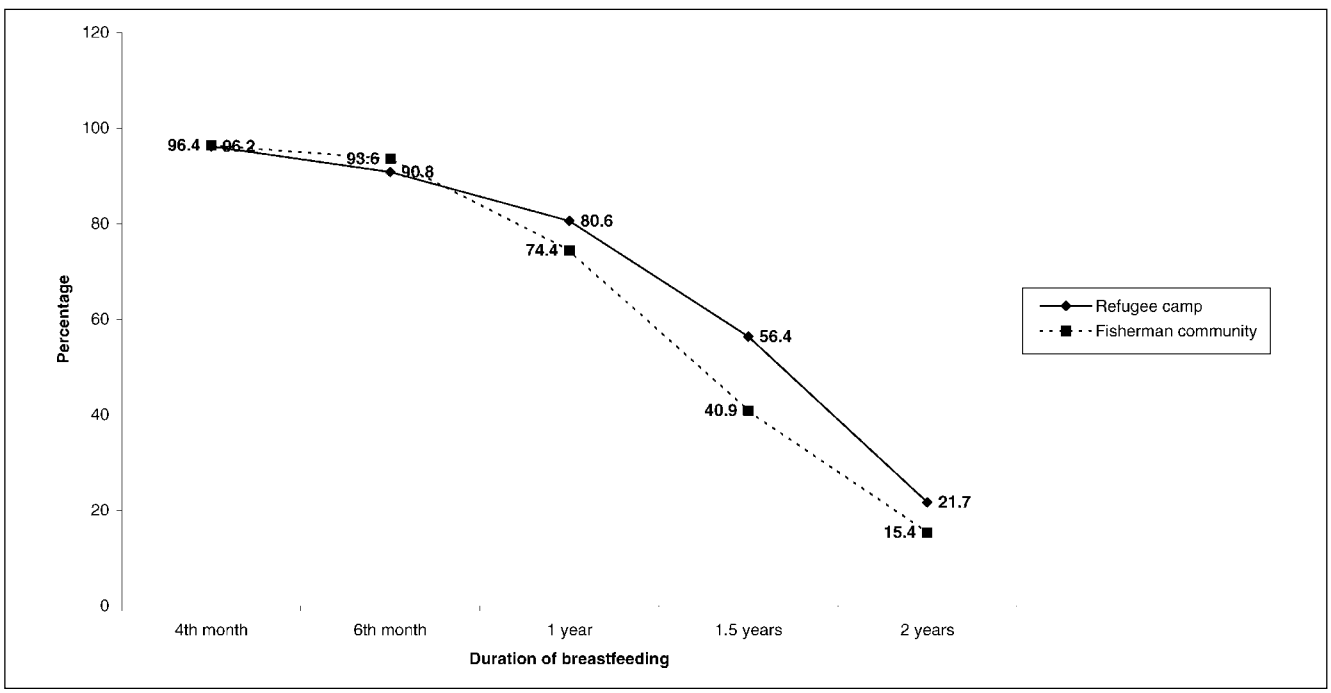

Figure 1 Comparison of continuation of breastfeeding.

mothers of under-five children from the Refugee camp and the Fishermen community respectively. Figure 2 shows 15.4% (17) and 10.1% (13) of the mothers started food supplementation before the 5th month which increased to 26.3% (29) and 34.3% (44) at the 5th month in the Refugee camp and the Fishermen community respectively. There appears a reversal at the 6th month where 65.2% (73) of the Refugee camp mothers were giving food supplementation as compared to 45.3% (58) of the Fishermen community mothers. This difference is statistically significant (χ^2=9.76, P=0.001, 95% confidence interval=1.36-4.18). The same trend continued till the 9th month (χ^2=9.52, P=0.002, 95% confidence interval=1.56-9.88). At the 1 year mark almost all the mothers in both the study populations were giving food supplementation.

History of Illness in the Past 6 Months

The most common illness among the under-fives during the past 6 months were fever, diarrhoea and respiratory infection. As shown in Table 2 both the study populations had similar rate of fever episodes (1.3/child/year). Diarrhoea episode rate in the Refugee camp (0.6/child/year) was also similar to the Fishermen community (0.5/child/year). The Fishermen community (2.2/child/year) had a higher episode rate for respiratory infection than the Refugee camp (1.7/child/year). As compared to the Refugee camp there were statistically significant more number of children with respiratory infection in the Fishermen community. The analysis of odds ratio was 2.8 (χ^2=9.05, P=0.002).

Health Service Utilisation

This information was collected from 114 and 128 mothers from the Refugee camp and the Fishermen community respectively. For the illnesses to the under-fives 40.4% (46) of the mothers in the Refugee camp used private health agencies, 38.6% (44) used Government health service and 21.0% (24) used local nonqualified practitioner. In comparison 60.2% (77) of Fishermen community mothers used Private health agencies, 19.5% (25) used Government health services and 20.3% (26) used local nonqualified practitioner. Regarding health service utilisation we find that Refugee camp mothers utilised both the government health centre services which is free of cost and the private health agencies equally. However in comparison the Fishermen community mothers used the private health agencies more frequently probably because of better economic status.

Nutritional Status

As shown in Table 3 the Refugee camp had 65.6% (82) normal weight for age under-five children, 21.6%

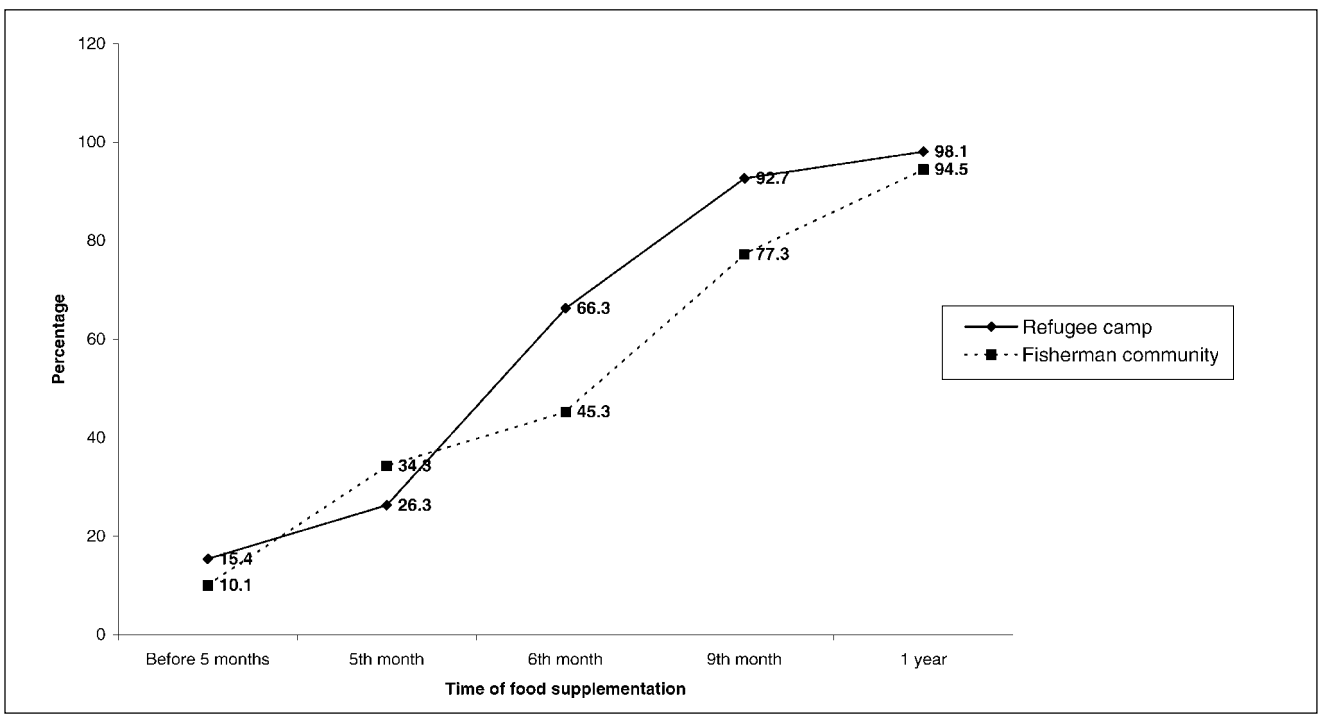

Figure 2 Comparison of time of food supplementation.

Table 2 Illness among under-five children in the past 6 months

Illness	Study population	Total no. of children	Total no. of episodes (6 months)	Episoderate	No. of children with illness	No. of children without illness	Odds ratio
Fever	Refugee Camp	125	168	1.3/child/year	75	50	0.8
	Fisherman community	136	183	1.3/child/year	89	47	
*Respiratory infection	Refugee Camp	125	219	1.7/child/year	91	34	2.8
	Fisherman community	136	294	2.2/child/year	120	16	
Diarrhoea	Refugee Camp	125	75	0.6/child/year	34	91	0.9
	Fisherman community	136	68	0.5/child/year	39	97	

* statistically significant difference odds ratio χ^2=9.05, P=0.002, 95% confidence interval=0.17-0.71

Table 3 Nutritional status of under-five children

Weight for age	Refugee camp (n=125)	Fishermen community (n=136)
Normal	82 (65.6%)	88 (64.7%)
Mild malnutrition	27 (21.6%)	35 (25.7%)
Moderate malnutrition	13 (10.4%)	11 (8.1%)
Severe malnutrition	3 (2.4%)	2 (1.5%)
Total	**125 (100%)**	**136 (100%)**

(27) children with mild malnutrition, 10.4% (13) with moderate malnutrition and 2.4% (3) with severe malnutrition. The Fishermen community had a similar finding with 64.7% (88) normal weight for age under-five children, 25.7% (35) with mild malnutrition, 8.1% (11) with moderate malnutrition and 1.5% (2) with severe malnutrition.

Morbidity Profile

General and systemic examination was done to the under-fives in both the study populations. Table 4 shows only the major findings where the Fishermen community in comparison to the Refugee camp had more number of under-five children with pallor, lymphadenopathy, dental caries, and crepitations on respiratory examination. This finding was statistically significant.

Discussion

Two types of comparisons will be discussed together – (i) between the two study populations and (ii) between the study poplutions with other study populations in India. The Refugee camp had a similar age and sex distribution as the nearby local Fishermen community. The literacy status of the Refugee camp parents (fathers=92.8%, mothers= 89.6%) was higher than the Fishermen community parents (fathers=77.2%, mothers=72.0%). This shows that the parents in the Refugee camp were probably from urban areas or from a more literate background in Sri Lanka. The parents in both the study populations had better literacy status as compared to the studies done in India by Gupta et al[4] in a rural area where 96.7% of mothers were illiterate and Panda et al[5] where half the fathers were illiterate in an urban slum.

The Fishermen community had 97.8% fully immunised under-five children whereas the Refugee camp had 92% fully immunised. The main source of immunisation is the government health service for both the study populations while the rest has been contributed by the private health agencies. National Family Health[6] survey reports that 58% of children aged 12-23 months were fully immunised. Kar et al[7] and Panda et al[5] found 69.3% and 27% fully immunised children respectively in their studies. The under-five children in the study populations seem to have a much better immunisation status than the children in the studies cited.

Table 4 Morbidity status of under-five children

MORBIDITIES	Refugee camp (n=125)	Fishermen community (n=136)
GENERAL		
Pallor*	9 (7.2%)	30 (22.0%)
Angular stomatitis	2 (1.6%)	6 (4.4%)
Lymphadenopathy**	4 (3.2%)	17 (12.5%)
EAR, NOSE, THROAT		
Enlarged tonsils	7 (5.6%)	2 (1.5%)
Ear discharge	10 (8%)	6 (4.4%)
DENTAL		
Carries tooth***	15 (12%)	45 (33.0%)
RESPIRATORY SYSTEM		
Crepitations****	28 (22.4%)	59 (43.4%)
SKIN		
Pediculosis	7 (5.6%)	4 (2.9%)
Pyoderma	2 (1.6%)	6 (4.4%)
Scabies	3 (2.4%)	7 (5.1%)
Tinea	3 (2.4%)	2 (1.5%)

Statistically significant difference

* χ^2=10.18, P=0.001; 95% confidence interval=0.11-0.63

** χ^2=6.41, P=0.01; 95% confidence interval=0.06-0.74

*** χ^2=15.19, P=<0.001; 95% confidence interval=0.13-0.55

**** χ^2=11.98, P=<0.001; 95% confidence interval=0.21-0.67

The median duration of breastfeeding by mothers of the Refugee camp was 1.5 years which is higher than 1 year found in the Fishermen community . The present study shows that 56.4% and 40.9% continued breastfeeding at 1.5 years which declined to 21.7% and 15.4% at 2 years by mothers in the Refugee camp and Fishermen community respectively. In contrast to this finding Narayanan et al[8] found 100% of mothers were breast feeding at 2 years in the adjoining rural areas of Pondicherry. Kaur et al[9] found 92% of mothers continued to breast-feed upto 15 months in rural Maharastra in comparison to 60% of urban mothers. Findings similar to this study by Puri et al[10] found 29% of mothers' breast feeding beyond 2 years. Kapil et al[11] found the median duration of breast feeding to be 16 months and the continued breast feeding rate of 1 year to be 0.84 and at 2 years to be 0.58.

Food supplementation was given to under-five children by 15.4% and 10.1% of the mothers before the 5th month, 26.3% and 34.3% at the 5th month; 65.2% and 45.2% at the 6th month; 92.7% and 77.3% at the 9th month; 98.1% and 94.5% at 1 year in the Refugee camp and the Fishermen community respectively. Solids and semi-solids were introduced in 15% of rural infants in the 6-9 months age group in the study by Kaur et al.[9] Puri et al[10] found 4.2% of the mothers giving food supplementation in 5th month, 50% in the 9th month, 74.8% in the 12th month and 90% in the 2nd year. Chaudhuri et al[12] found that no mother introduced semi-solid in 1 year in a Muslim community. Therefore both the study populations of the present study had given food supplementation earlier than found in the other studies cited.

The episode rates of fever and diarrhoea in both study populations were found to be similar. However respiratory infection episode rate is more in the Fishermen community (2.2/child/year) as compared to the Refugee camp (1.7/child/year). This finding is supplemented by the finding of significantly more number of children with respiratory crepitations on examination in the Fishermen community however the reason for this needs further study. The rates of fever, diarrhoea and respiratory infection of this study are much higher than that found by Siddhu et al.[13] Studies on diarrhoea incidence by Anand et al[14] found 2.88±1.28 episodes/child/year. Patnaik et al[15] found the annual episode to be 1.8 per child. Singh et al[16] found 2.27 episodes of diarrhoea per child per year. Regarding respiratory infection Singh et al[17] found 3.67 episodes/child/

year and Narain et al[18] found 8.2/1000 annual incidence of visits to hospital. All these studies cited have higher rates than the study populations.

The nutritional status of both the study populations was similar with 34.4% under-five children being malnourished in the Refugee camp and 35.3% in the Fishermen community. The Refugee camp had 21.6% mildly malnourished, 10.4% moderately malnourished and 2.4% severely malnourished children. The Fishermen community almost similarly had 25.7% mildly malnourished, 8.1% moderately malnourished and 1.5% severely malnourished children. The Refugee camp under-five children have benefitted by the longer duration of breastfeeding along with earlier food supplementation and also further by the food made available by the local government and the NGO. This is reflected by the equal nutritional status of both the study populations. The nutritional status of children in both study populations seems better than the children in the studies cited below probably due to better child feeding practices and availability of food. Panda et al[5] found first degree malnutrition in 33.7% of children; second degree malnutrition in 34.6% and severe malnutrition in 19%. Mishra et al[19] found 23.5% with first degree malnutrition. 30.7% with second degree malnutrition and 20.2% with severe malnutrition. Bhalani et al[20] found 40.5% of children having first degree malnutrition and 22.4% having second and third degree malnutrition respectively. The Refugee camp has lesser number of children with morbidities in comparison to the Fishermen community children. This finding needs further study as it is difficult to postulate the reasons for this difference with the available data.

Many similar and contrasting findings were identified with respect to the study variables in both the study populations. The Refugee camp parents were more literate and also the mothers had practiced longer duration of breastfeeding and earlier food supplementation when compared with their Fishermen community counterparts. The under-five children of both the study populations had a similar nutritional status however the Refugee camp children had significantly lesser number of morbidities. This finding shows that higher literacy along with better child rearing practices are major factors that have led to the better health status of the Refugee camp under-five children.

The government health agency along with the private health agency has been able to immunise most of the children in both study populations. The mothers of both the study populations have utilised both the government and the private health services for illnessess to their children. The active functioning of the NGO and the support provided by the local government has further played a key role specifically in providing a better residential environment and also in better nutrition to the Refugee camp. The Refugee population has received special attention and treatment in this regard which in some ways the Fishermen community lacked.

The present study populations have many parameters which are better than the other study populations compared with in the discussion section of this study. This again points towards the good work done by the local government, NGO, government health agencies and the private health agencies in this area. However this finding has to be treated with caution as the most of the studies cited in this paper were conducted in different time periods much earlier than the present study.

The limitation of this study could be the non-inclusion of the school going under-five children.

References

1. UNHCR. Statistics. http://www.unhcr.ch/statist/main.htm, 2001.
2. Kinzie JD, Boehnlein JK, Leung PK, Moore LJ, Riley C, Smith D. The prevalence of posttraumatic stress disorder and its clinical significance among Southeast Asian refugees. Am J Psychiatry 1990;147:913-7.
3. UNICEF. The state of the world's children. Oxford: Oxford University Press, 1996.
4. Gupta SD, Sharma R, Gupta OP, Joshi S. A study of feeding patterns in rural preschool children. Indian J Pediatr 1979;46: 232-36.
5. Panda P, Benjamin AI, Zachariah P. Health status of under-fives in a Ludhiana slum. Health and Population-Perspectives and Issues 1993;16(3&4):133-41.
6. International Institute for population sciences, Bombay, Population Research centre, Institute of Economic growth, Delhi, National Family Health Survey (Delhi), 1993. Delhi 1995.
7. Kar M, Reddaiah VP, Kant S. Primary immunization status of children in slum areas of south Delhi-The challenge of reaching urban poor. Ind J Comm Med 2001;26:151-4.
8. Narayanan I, Puri RK, Dhanabalan M, Rao DC, Fernandez A, Balakrishnan S. Some infant feeding and rearing practices in a rural community in Pondicherry. Indian Pediatr 1974;11: 667-71.
9. Kaur P, Kaur N. Breast feeding practices in Varanasi district (U.P.). Indian J Public Health 1996;40:52-3.
10. Puri RK, Kumar GA, Khanna KK, Rao DC. Infant feeding and its effect on growth and development of children. Indian J Pediatr 1976;43:361-7.
11. Kapil U, Verma D, Narula S, et al. Breast-feeding practices in Schedule Caste communities in Haryana state. Indian Pediatr 1994;31:1227-32.
12. Chaudhuri RN, Chatterjee B. An exploratory study on infant feeding and weaning practices of a Muslim community settled

at Calcutta. Indian J Public Health 1991;35:16-8.
13. Siddhu CM, Srivastava BC. Health status of infants and preschool children in different sociocultural groups. Indian J Public Health 1970;14:39-48.
14. Anand K, Sundaram KR, Lobo J, Kapoor SK. Are diarrheal incidence and malnutrition related in under five children? A longitudinal study in an area of poor sanitary conditions. Indian Pediatr 1994;31:943-8.
15. Patnaik SK. Diarrhoeal diseases in children--a survey in east Godavari District of Andhra Pradesh. J Commun Dis 1990;22: 43-6.
16. Singh J, Gowriswari D, Chavan BR, et al. Diarrhoeal diseases amongst children under five. A study in rural Alwar. J Commun Dis 1992;24:150-5.
17. Singh MP, Nayar S. Magnitude of acute respiratory infections in under five children. J Commun Dis 1996;28:273-8.
18. Narain JP, Sharma TD. Acute respiratory infections in Kangra district: magnitude and current treatment practices. Indian J Pediatr 1987;54:441-4.
19. Mishra RN, Mishra CP, Sen P, et al. Nutritional status and dietary intake of preschool children in urban slums of Varanasi. Ind J Comm Med 2001;26:90-3.
20. Bhalani KD, Kotecha PV. Nutritional status and gender differences in the children of less than 5 years of age attending ICDS Anganwadis in Vadodara City. Ind J Comm Med 2002; 27:124-9.