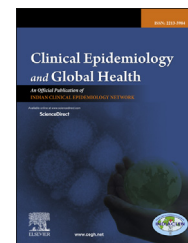




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Original Article

Prevalence of under nutrition in under-five tribal children of Melghat: A community based cross sectional study in Central India



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ABSTRACT

Objective: Under nutrition has chronically remained a major public health problem among tribal children population in India. The present study aimed to estimate the prevalence of various forms of under nutrition in 'under five' children in Melghat – a difficult to reach, hilly, forest area of Maharashtra in Central India using different standards.

Methods: A community based cross-sectional study was conducted in Dharni & Chikhaldara blocks in tribal area of Melghat over a period of two months. A representative sample of 2926 under-five children from randomly chosen 33 villages in two blocks was selected with cluster sampling. Information on various demographic and anthropometric characteristics (e.g. age, sex, height, weight) of study subjects was collected in a pre-designed proforma by trained tribal female village health workers (VHWs). Under nutrition was assessed by using Standard WHO criteria like stunting, underweight, wasting, and IAP grades; alone and in combination. Crude and adjusted prevalence estimates accounting for clustering effect were obtained along with 95% Confidence Intervals.

Results: Out of total 2926 U5 children, 1006 (34.4%) were severely stunted, 547 (18.7%) were SUW and 209 (7.1%) were SAM, and 199 (6.8%) were severely under nourished (grade III–IV) according to IAP standards. However, when various WHO criteria & IAP gradations were applied in combination, more number 2241 i.e. (76.59%) of the U5 children in Melghat were found to be severely or moderately under nourished. by one or more standards.

Conclusion: Very high prevalence of severe stunting, severe underweight and severe acute malnutrition was found in tribal U5 children population in Melghat. A combination of more than one criteria may be useful in tracking more number of under nourished children in tribal communities, which otherwise would be missed by any single criterion alone. The study findings will be helpful in planning prevention and planning of programmes that would focus more on populations most affected.

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1. Introduction

Globally, under nutrition remains one of the leading cause of morbidity and mortality among children contributing to 60% of deaths in under-five (U5) children population.^{1,2} The prevalence of underweight children in India is among the highest in the world, and is nearly double that of Sub-Saharan Africa with dire consequences for morbidity, mortality, productivity and economic growth.³

The 2011 Global Hunger Index (GHI) Report ranked India 15th, amongst leading countries with hunger situation. India is placed amongst the three countries, where the GHI between 1996 and 2011 went up from 22.9 to 23.7⁴ Prevalence of under nutrition amongst children still remains alarmingly high in rural and urban communities in India; but it has been particularly reported much higher in tribal populations. An earlier study (2004) conducted in tribal area of Melghat not only showed high (>75%) prevalence of under nutrition (by IAP classification grade I–IV) in U5 children⁵ but also revealed higher (>100/1000 live births) under-five child mortality rate (USMR). Prevalence of severe under nutrition in U5 children (by IAP classification) was found high, i.e. 9.6% in another study (2004) from same setting.⁶

Despite the fact that under nutrition has been a major public health problem among tribal children population, scarce data and little information about prevalence and types of under nutrition is available from this part of India, which is experiencing unusually high infant mortality year after year.⁷ Complete, reliable and valid data regarding prevalence of under nutrition may help in planning and designing effective strategies on important health and nutrition related outcomes in this under privileged and weaker section of the society.

The present study attempts to estimate the prevalence of various forms of under nutrition in U5 children in Melghat area by different standards.

2. Methods

Melghat is a difficult-to-reach, hilly, forest area in the state of Maharashtra, Central India, having population of around 2,80,000 scattered over 320 villages, of which vast majority are tribal. Most of the tribal are small farmers or agricultural labourers, living below poverty line.^{8,9}

A community based cross-sectional study with one-stage cluster sampling method was conducted in Dharni & Chikhaldara blocks in tribal area of Melghat over a period of 2 months (i.e. August–September, 2012) by MAHAN trust. Sample size ($n = 3074$) was estimated assuming prevalence of under nutrition in the tribal community = 20%,⁶ relative precision = 10%, confidence interval = 95%, and Design effect = 2.

Sampling frame comprised of all U5 children from 320 villages in two study blocks. Villages i.e. clusters were the primary sampling units and once the village got selected then all U5 children residing in the selected village were included in sample, except a few who could not be contacted despite seven consecutive visits or had migrated outside the study area temporarily (≥ 6 months). The number of U5 children per village was variable, depending on village

population size. (Table 1 shows village wise distribution of the children.)

Number of villages included in the study sample was decided as per the sample size requirement. A random sample of 33 selected villages was found to be sufficient to fulfil sample size requirement. Thus, our study sample finally included 2926 U5 children from 33 selected villages having usual resident (de-facto) population of >28,000 inhabitants. For sampling purpose, Dharni block was divided into five regions (East, West, North, South and Central). Six villages from each of the five regions of Dharni block and three villages from Chikhaldara block were selected randomly by lottery method.

Written informed consent was sought from the villagers during Gram-sabhas (Village meetings) organized in each of the selected village in the study sample. House to house survey was under-taken by trained tribal female VHWS. Total 5554 households from 33 villages were surveyed, around 7.06% of households were missed due to non-availability during seven consecutive visits (which includes four visits by VHWS, two by supervisors & one by program manager), in each village in two months study period.

Baseline Information on a representative sample of 2926 U5 children on various demographic and anthropometric characteristics (e.g. age, sex, height, weight) was collected in a

Table 1 – Cluster-wise distribution of children.

Sr. No.	Village name	No. of children	Children <5 months
1	Kobdadhana	63	4
2	Padidam	71	7
3	Katkumbh	63	9
4	Kasaikheda	101	7
5	Kinnikheda	22	2
6	Khamda	24	3
7	Kokmar	35	2
8	Chitri	46	4
9	Tarubanda	71	2
10	Keli	100	4
11	Kot	29	0
12	Bhiroja	84	7
13	Kara	137	4
14	Nanduri	117	6
15	Baspani	117	2
16	Pohra	72	7
17	Didamda	65	2
18	Berdaballa	148	13
19	Lawada	150	15
20	Ghota	98	3
21	Jampani	40	1
22	Dabhiya	28	0
23	Hirabambai	162	12
24	Kawalazhiri	112	8
25	Rabang	71	5
26	Dhodra	93	3
27	Mansudhavdi	100	5
28	Mogarda	111	7
29	Dharakot	67	1
30	Tatra	73	2
31	Gadgamalur	161	13
32	Zhilangpati	114	8
33	Dharanmahu	181	18
	Total	2926	186

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