

A Study to Assess the Prevalence and Determinants of Malnutrition among Under Five Children Residing in the Selected Community of Ambala District, Haryana

Research Article

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Abstract

Background: Under- Five children are the most vulnerable group in the community. They are at a risk for getting various diseases such as Diarrhea, pneumonia, malnutrition, which may lead to childhood mortality. It was aimed to bring down the Under-five mortality to 25 per 1000 live birth under SDG whereas; in India the mortality rate of under-five was recorded at 41.9% (NFHS-5 (2019-21)). Malnutrition is the major risk factor towards mortality and morbidity among under five-year children. It makes child more susceptible for infectious diseases by affecting the immune system. It delays the physical, intellectual, cognitive as well as psychomotor growth of a child. Hence, the present study was undertaken with the objectives to identify the malnourished children in the selected community and identify the determinants of malnutrition.

Methods: A descriptive research design was used for the present study. Subjects were comprised of children (1-5 years) and their mothers residing in Gola and Adhoya village of District Ambala. Total 446 subjects were enrolled in the study by using total enumeration sampling technique. Prior to the data collection ethical permission was obtained from faculty of Nursing MMDU, Mullana and written informed consent was taken from mothers of under-five children. Data was collected by home to home survey from September 2020 to May 2021. Interview schedule was used to collect the Socio- demographic data of Child and mothers of under-five children. Nutritional status of children assessed through WHO weight for age chart.

Results: Results of the study shows that Less than half (41%) of children were in the age group of 1 to 3 years. Less than two-third (61%) study subjects were male and 39% were females. In the study, most of the under five children were fully immunized. More than half (52%) were having normal nutritional status whereas 48% were found to be malnourished. In the present study, the level of nutritional status was found to be highly significant (< 0.0001) with age of child, gender, immunization status, exclusive breast feeding, birth weight, timing of initiation of complementary feeding, age of mother, mothers' educational status, occupation and socio-economic status of family, at 0.05 level of significance.

Conclusion: In the present study, prevalence of malnutrition was 48%. Factors like age, gender of the child, exclusive breast feeding, birth weight, timing of complementary feeding, economic status of the family, maternal age, education, occupation have influence on nutritional status of the child. Improvement of maternal education will improve the nutritional status of the child. Some strategies to combat malnutrition should be made at local levels and these strategies can be used by nurses and other health professionals working in community.

Keywords: Under-five children; Health status; Malnutrition

Introduction

Under- Five children constitute the most vulnerable segment of community. Children especially under five are prone for various health issues such as Diarrhea, pneumonia, malnutrition, which may ultimately lead to childhood mortality. Under the flagship of SDG, it was aimed to bring down the Under-five mortality as low as 25 per 1000 live birth whereas, in India as per NFHS-5 (2019-21) the

mortality rate among under five was recorded at 41.9%.¹ Malnutrition is one of the major risk factor toward mortality and morbidity among under five year children. As per the National Family Health Survey (NFHS)-5 (2019-21), 32.1 per cent children below five years are underweight, 35.5 per cent are stunted and 19.3 per cent are wasted in the country [1] Malnutrition affects the child's ability to grow normally. It makes child more susceptible for infectious diseases

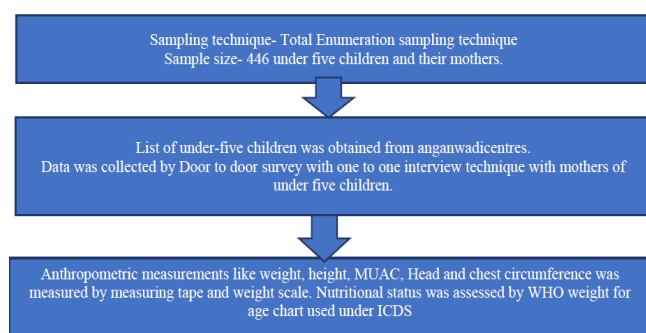
by affecting the immune system. It delays the physical, intellectual, cognitive as well as psychomotor growth of a child.

Various factors such as birth weight, exclusive breast feeding, timely initiation of complementary feeding can affect the growth and development of a child. According to WHO breast feeding should be initiated within half an hour in vaginal delivery and within 2 hours in caesarean section [2]. As per IYCF guidelines complementary feeding should be initiated after completion of 6 months along with breast feeding [3]. Nutritional status of children remains normal till 6 months when baby is on exclusive breastfeeding. Failure in timely initiation of complementary feeding can lead to malnutrition. Either mother initiates the complementary feeding too early or too late.[4] It is important to identify the under five children in community for various health issues so, that timely intervention can be used to manage the cases. Hence, the present study was undertaken with the objectives to identify the malnourished children in the selected community and identify the determinants of malnutrition.

Methodology

A descriptive research design was used for the present study. Accessible population was comprised of children (1-5 years) and their mothers residing in Gola and Adhoya village of District Ambala. Firstly, list of under-five children was taken from anganwadi centers. Total 446 subjects were enrolled in the study by using total enumeration sampling technique. Prior to the data collection ethical permission was obtained from faculty of Nursing MMDU, Mullana and written informed consent was taken from mothers of under-five children. Interview schedule was used to collect the Socio-demographic data of Child and mothers of under-five children. Assessment of the anthropometric measurement weight, height, MUAC, chest and head circumference were done with the help of weight scale and measuring tape. Nutritional status of children assessed through weight for age chart. Immunization status of child was checked with their Maternal and Child Protection Card (MCP). Data was collected by home to home survey from September 2020 to May 2021.

Flow diagram for data collection procedure-



Results

Table 1 shows the socio-demographic profile of under-five children. Less than half (41%) of children were in the age group of 1 to 3 years whereas one third (35%) were infants. Less than two-third (61%) study subjects were male and 39% were females. In the study,

Table 1: Socio-demographic profile of under five children N=446.

S.No.	Demographic variables	Frequency (n)	Percentage (%)
1	Age		
1.1	0- 1 year	156	35
1.2	1-3 years	183	41
1.3	4-5 years	107	24
2	Gender		
2.1	Male	272	61
2.2	Female	174	39
3	Immunization status		
3.1	Immunized	330	74
3.2	Not immunized	116	26
4	Nutritional status		
4.1	Normal	233	52
4.2	Malnourished	213	48
5	Exclusive Breast feeding		
5.1	Yes	423	95
5.2	No	23	05
6	Birth weight (kg)		
6.1	< 2.5	134	30
6.2	2.5-3.5	198	44
6.3	>3.5	114	26
7	Timing of starting complementary feeding		
7.1	Before 6 months	178	40
7.2	At 6 months	192	43
7.3	7-8 months	76	17

most of the under five children were fully immunized and Near to one fourth (26%) were not fully immunized. More than half (52%) were having normal nutritional status whereas 48% were found to be malnourished. Maximum subjects i.e. 95% were exclusively breastfed for six months. In the present study, 30% of under-five were born with birth weight of less than 2.5 kgs followed by 44 % were with 2.5 to 3.5 kgs birth weight. Complementary feeding in 40 % of children were started before 6 months whereas only 43% of children was given complementary diet at 6 months.

Table 2 depicts the socio-demographic profile of mothers of under-five children. Near to one-third (35%) of mothers were in the age group of 25-28 years whereas near to one fourth i.e.23% were between 29-32 years. In the present study, more than one fourth (27%) of mothers attended high school and 16 % were non-literate. Near to one third (32%) of mothers were graduates. Most of the mothers (83%) of mothers were housewives. 33% of mothers were belongs from middle class whereas only 12% were from lower class.

Table 3 shows the chi-square association of nutritional status of under five children with their socio-demographic profile. In the present study, the level of nutritional status was found to be highly significant (< 0.0001) with age of child, gender, immunization status, exclusive breast feeding, birth weight, timing of initiation of complementary feeding at 0.05 level of significance.

Table 4 shows the chi-square association of nutritional status of under five children with socio-demographic profile of mothers of under-five. In the present study, the level of nutritional status was found to be highly significant (< 0.0001) with age of mother, mothers' educational status, occupation and socio-economic status of family at 0.05 level of significance.

Table 2: Socio-demographic profile of mothers of under five children N=446.

S.No.	Demographic variables	Frequency (n)	Percentage (%)
1	Age		
1.1	20-24 years	88	20
1.2	25-28 years	157	35
1.3	29- 32 years	105	23
1.4	33-36 years	96	22
2	Educational Status		
2.1	Non literate	74	16
2.2	Primary	84	19
2.3	Middle School	26	06
2.4	High School	119	27
2.5	Graduation/Post graduation	143	32
3	Occupation		
3.1	Housewife	370	83
3.2	Private employee	36	08
3.3	Government employee	12	03
3.4	Self employed	28	06
4	Socio-economic status (per capita income in Rs.) (as per BG Prasad scale, 2017)		
4.1	Upper class	45	10
4.2	Upper middle class	88	20
4.3	Middle class	148	33
4.4	Lower middle class	112	25
4.5	Lower class	53	12

Table 3: Chi square showing association of Nutritional status with Demographic Characteristics of Under-5 Children N=446.

S.No.	Demographic variables	Nutritional status		$\chi^2(df)$ p value
		Normal	Malnourished	
1	Age			
1.1	0- 1 year	105	51	21.8 (2) 0.0001
1.2	1-3 years	81	102	
1.3	4-5 years	47	60	
2	Gender			
2.1	Male	162	110	14.9 (1) 0.0001
2.2	Female	71	103	
3	Immunization status			
3.1	Immunized	203	127	43.7 (1) <0.00001
3.2	Not immunized	30	86	
4	Exclusive Breast feeding			
4.1	Yes	227	196	6.6 (1) 0.009
4.2	No	06	17	
6	Birth weight (kg)			
6.1	< 2.5	56	78	9.1 (2) 0.01
6.2	2.5-3.5	116	82	
6.3	>3.5	61	53	
7	Timing of starting complementary feeding			
7.1	Before 6 months	80	98	21.5 (2) 0.00002
7.2	At 6 months	124	68	
7.3	7-8 months	29	47	

Table 4: Chi square showing association of Nutritional status with Demographic Characteristics of Mothers of Under-5 Children N=446

S.No.	Demographic variables	Nutritional status		$\chi^2(df)$ p value
		Normal	Malnourished	
1	Age			
1.1	20-24 years	46	42	43.8 (3) <0.00001
1.2	25-28 years	93	64	
1.3	29- 32 years	71	34	
1.4	33-36 years	23	73	
2	Educational Status			
2.1	Non literate	06	68	116 (4) <0.00001
2.2	Primary	25	59	
2.3	Middle School	23	03	
2.4	High School	84	35	
2.5	Graduation/Post graduation	95	48	
3	Occupation			
3.1	Housewife	205	165	9.3 (3) 0.02
3.2	Private employee	12	24	
3.3	Government employee	04	08	
3.4	Self employed	12	16	
4	Socio-economic status (per capita income in Rs.) (as per BG Prasad scale, 2017)			
4.1	Upper class	32	13	14.3 (4) 0.006
4.2	Upper middle class	51	37	
4.3	Middle class	79	69	
4.4	Lower middle class	45	67	
4.5	Lower class	26	27	

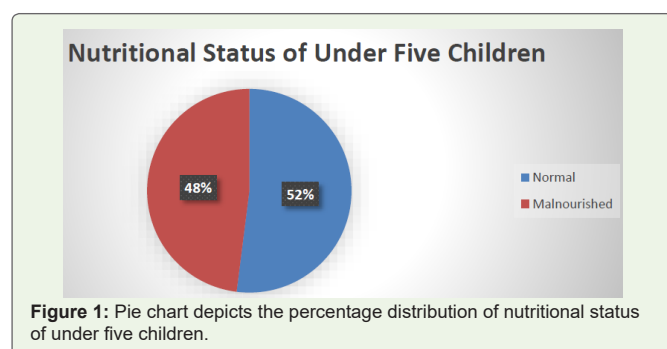
Discussion

Many socio-demographic characteristics of the child and mother are associated with the presence of malnutrition. In the present study, Age of child, gender, birth weight, immunization status, exclusive breast feeding and time of initiation of complementary feeding was found to be significantly associated with nutritional status of under-five children. The results of the present study, was found to be consistent with a study conducted in urban and rural areas of Maharashtra, India [5].

As per the recommendation of WHO, exclusive breastfeeding for first 6 months of life is crucial for optimum growth, development, and health of a child. Exclusive breastfeeding up to 6 months acts as a protective factor against underweight among under five. It is an important determinant for nutritional status of a child. In the present study, duration of exclusive feeding is found to be significantly associated with nutritional status of child. This finding was supported by other studies [6].

It is well known that socioeconomic status is one of the important determinants of the wellbeing of children and health. Lower the socioeconomic status higher is the risk of under nutrition. A supportive study done in India reveals that family with low economic status have a significant association with under nutrition [7].

Another important factor affecting underweight was maternal education. Mother is a universally first caregiver for the child and hence mother's education matters. Educated mothers are more aware of the health services available. It was observed that low maternal education was a risk factor for under nutrition among under five children. In present study maternal education is significantly associated with



nutritional status of child. This finding was in line with other studies. [8-10] According to Infant and feeding practices, the idea time to start complementary feeding is at 6 months. Early or late initiation of complementary feeding put a child at risk of malnutrition. In current study timing of initiation of complementary feeding is also one of the major determinants for under nutrition among under-five children. This result is consistent with a study conducted in Chandigarh among under-five children [4].

Conclusion

On the basis of results of study, it was recommended that the children having malnutrition should be identified in the community and feeding practices should be assessed time to time for identifying the major causes contributing to malnutrition. Community health nurses and other health professional working in community should educate, motivate and reinforce the mothers of under five children for giving exclusive breast feeding, timely initiation of complementary food. Some strategies to combat malnutrition should be made at local levels and these strategies can be used by nurses and other health professionals working in community.

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