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Research Article

Impact of Nutrition Counseling on Diet Diversity Practices of Children (12 - 24 months) in Jaipur City

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Abstract

Introduction: Poor feeding practices directly or indirectly contribute to undernutrition, morbidity, and mortality in children. The reasons are not just the socioeconomic background but also the lack of knowledge and awareness about proper feeding practices. The present study was carried out in Jaipur City with the objective that improving knowledge would lead to improvement in diet diversity practices.

Methodology: The study was conducted on 107 mothers of children aged 12 - 24 months attending the vaccination clinic of JK Lon Hospital in Jaipur city. All the selected mothers were approached personally and WHO, 2010 scale was used to study their diet diversity practices at pre and post-stage. A child receiving four or more on this scale is considered to have adequate diet diversity. A structured intervention protocol was developed and used for intervention.

Results: In the pre-stage of the study the scores for dietary diversity were calculated to be 3.16 ± 0.98, 3.75 ± 1.52 and 4.42 ± 0.67 among boys of low, mid and high SES respectively, which increased to 3.38 ± 0.91, 4.17 ± 1.01 and 4.76 ± 0.62 out of 7 at post counseling. For girls the score increased from 3.11 ± 1.16 to 3.23 ± 1.25 in low SES, 3.55 ± 1.42 to 3.66 ± 1.22 in mid SES and 4.36 ± 1.03 to 4.76 ± 0.87 in high SES respectively. Irrespective of the increase in knowledge, the impact of the intervention was found to be statistically insignificant in all the three subgroups of girls from pre to post-stage. The difference in the mean score of boys and girls for both pre-stage and post-stage across SES was statistically significant using ANOVA at $p < 0.01$.

Conclusion: In India, feeding practices appear to be influenced by social, cultural, and economic factors. It is recommended to provide education to mothers and to strengthen the public health education campaigns so as to improve the positive practices which can, in turn, improve the health and well-being of the children.

Keywords: Diet Diversity; Feeding; WHO

Introduction

After all the technological developments, India struggles as a developing nation, and the major reason for it is the poor health of women and children. Suboptimal nutrition practices for young children remain a critical public health challenge. Poor feeding practices directly as well as indirectly contribute to undernutrition, morbidity, and mortality among young children. Complementary feeding starts when the child is of six months and inappropriate practices of complementary feeding can lead to problems like poor motor and mental development, stunting, frequent diarrhea, and

mental fatigue. These problems are caused due to the deficiency of micro and macronutrients in the complementary foods [1]. The reasons for deficiencies in diet are not just the socioeconomic status but also lack of knowledge and awareness about proper feeding practices among the families. The present study was planned and carried out in Jaipur City with the objective that improving knowledge about complementary food would lead to an improvement in diet diversity practices.

Aims and Objectives

- To assess the diet diversity practices during complementary of young children.
- To outline and implement an educational intervention program.
- To evaluate the impact of the intervention on diet diversity practices of young children.

Materials and Methods

The study was conducted on 107 mothers of children aged 12 - 24 months attending the vaccination clinic of JK Lon Hospital in Jaipur city. Mothers for the study were selected based on the age of the children (12-24 months) and their socioeconomic status which was calculated by using Tiwari and Kumar, scale [2].

Inclusion criteria

- Mothers living in Jaipur city
- Mothers willing to participate
- Mothers with children in the age group of 12 - 24 months
- Children without any health problem.

The study was conducted in three stages, that is pre-intervention, intervention, and post-intervention. All the selected mothers were approached personally and WHO, 2010 [3] scale was used to study their diet diversity practices at pre and post-stage. A child receiving four or more food groups out of seven on this scale is considered to have adequate diet diversity. A structured education intervention protocol was developed and used for intervention so as to make mothers aware of the benefits of diet diversity while complementary feeding the child.

Results and Discussion

Table 1 reflects the diet diversity practices among children of 12 - 24 months as practiced by their mothers in the pre and the post-stage of intervention. The intake of milk and milk products was present among all the children in this age group in both pre and post-intervention. The consumption of cereals, roots, and tubers increased from 77.7% to 83.3% boys of low SES, 76.4% to 92.1% of mid-SES, and 90.4% to 95.2% of high SES respectively, whereas it remained unaltered in girls of all the three SES. The number of children eating pulses remained the same from pre to post-intervention in the low SES whereas increased from 71.4% to 76.1% and 80% to 92% in boys and girls of high SES. Percentage of boys eating Vitamin A-rich fruits and vegetables increased from 22.2% to 27.7% in low SES, 64.7% to 70.5% in mid-SES, and 80.9% to 85.7% in high SES respectively. Among girls, the increase was only in low SES from 23.5% to 29.4% whereas was constant in mid and high SES. The intake of other fruits and vegetables was increased in 5.6%, 5.8%, and 5.1% boys and 6%, 11.1%, and 18% girls of low, mid, and high SES post-education intervention. Intake of flesh meat was absent in children of low SES in both the stage of data collection. The percent of boys who ate eggs increased from 0% to 11% in low SES, 5.8% to 11.7% in mid-SES, and 14.2% to 19% in high SES among girls also the increase was observed from 0% to 5.8% in low SES and 8% to 16% in high SES post-intervention.

The diet diversity score as represented in table 2 reflects the diet diversity practices among children aged 12-24 months in low, mid, and high SES. In the pre-stage of the study the scores were calculated to be 3.16 ± 0.98, 3.75 ± 1.52, and 4.42 ± 0.67 among boys of low, mid, and high SES which increased to 3.38 ± 0.91, 4.17 ± 1.01, and 4.76 ± 0.62 out of 7 during the post-stage of intervention. The difference in the mean score of boys for both pre-intervention and post-intervention across SES was statistically significant using ANOVA at $p \leq 0.01$. The values have increased for every group post-intervention but the difference in means was found to be statistically nonsignificant in all the three subgroups of boys from pre to post-intervention. For girls, the score increased from 3.11 ± 1.16 to 3.23 ± 1.25 in low SES, 3.55 ± 1.42 to 3.66 ± 1.22 in mid-SES, and 4.36 ± 1.03 to 4.76 ± 0.87 in high SES. Irrespective of the increase in knowledge, the impact of the intervention was found to be statistically insignificant in all the three subgroups of girls from pre to post-intervention. The difference in the mean score of girls also for both pre-intervention and post-intervention across SES was statistically significant using ANOVA ($p < 0.01$).

The score of boys was found to be better than that of girls in all the SES groups. Similar results were reported in a cross-sectional

S. No.	Age	12-24 months (N = 107)															
		Food Frequency Practices Pre								Food Frequency Practices Post							
	Gender	Boys (N = 56)				Girls (N = 51)				Boys (N = 56)				Girls (N = 51)			
	SES	Low SES (N = 18)	Mid SES (N = 17)	High SES (N = 21)	Chisq	Low SES (N = 17)	Mid SES (N = 9)	High SES (N = 25)	Chisq	Low SES (N = 18)	Mid SES (N = 17)	High SES (N = 21)	Chisq	Low SES (N = 17)	Mid SES (N = 9)	High SES (N = 25)	Chisq
		% (N)	% (N)	% (N)	p value	% (N)	% (N)	% (N)	p value	% (N)	% (N)	% (N)	p value	% (N)	% (N)	% (N)	p value
1.	Regular intake of Milk and milk products	100 (18)	100 (17)	100 (21)	1.000	100 (17)	100 (9)	100 (25)	1.000	100 (18)	100 (17)	95.23 (20)	0.428	100 (17)	88.88 (8)	100 (25)	0.093
2.	Daily consumption of Soft diet (Regular Home cooked food)	83.33 (15)	70.58 (12)	90.47 (19)	0.278	76.47 (13)	77.77 (7)	92 (23)	0.333	44.44 (8)	52.94 (9)	57.14 (12)	0.624	29.41 (5)	55.55 (5)	64 (16)	0.075
3.	Avoiding Processed Food/ baby food	16.66 (3)	0 (0)	19.04 (4)	0.338	17.64 (3)	0 (0)	24 (6)	0.292	16.66 (3)	23.52 (4)	33.33 (7)	0.780	5.88 (1)	22.22 (2)	32 (8)	0.01**
4.	Avoiding Chocolates and candies	72.22 (13)	70.58 (12)	66.66 (14)	0.560	47.05 (8)	44.44 (4)	72 (18)	0.05*	44.44 (8)	35.29 (6)	57.14 (12)	0.644	23.52 (4)	55.55 (5)	64 (16)	0.01**
5.	Avoidance of Junk Food	88.88 (16)	100 (17)	80.95 (17)	0.362	82.35 (14)	88.88 (8)	84 (21)	0.258	61.11 (11)	100 (17)	85.71 (18)	0.04*	88.23 (15)	77.77 (7)	96 (24)	0.288
6.	Regular intake of Fruits	83.33 (15)	76.47 (13)	95.23 (20)	0.05*	70.58 (12)	100 (9)	88 (22)	0.04*	66.66 (12)	94.11 (16)	95.23 (20)	0.067	47.05 (8)	100 (9)	96 (24)	0.00**
7.	Regular intake of Vegetables	88.88 (16)	70.58 (12)	85.71 (18)	0.462	52.94 (9)	77.77 (7)	84 (21)	0.233	83.33 (15)	88.23 (15)	85.71 (18)	0.637	64.70 (11)	77.77 (7)	100 (25)	0.03*

8.	Avoiding Tea/Cold Drinks/ Packaged juices	72.22 (13)	94.11 (16)	95.23 (20)	0.05*	88.23 (15)	88.88 (8)	100 (25)	0.216	72.22 (13)	94.11 (16)	90.47 (19)	0.132	64.70 (11)	88.88 (8)	92 (23)	0.194
9.	Regular intake of Healthy Liquid	0 (0)	17.64 (3)	0 (0)	0.076	11.76 (2)	11.11 (1)	8 (2)	0.685	0 (0)	11.76 (2)	28.57 (6)	0.01**	11.76 (2)	11.11 (1)	24 (6)	0.422
"Figures in parenthesis depicts frequencies, *Statistically significant at 5% level, **Statistically significant at 1% level"																	

Table 1: Food frequency practices in mothers of children (12 - 24 months) in pre and post intervention.

Age	**12-24 months (N = 107)**							
Gender	**Boys (N = 56)**				**Girls (N = 51)**			
SES	**Low SES (N = 18)**	**Mid SES (N = 17)**	**High SES (N = 21)**	**ANOVA**	**Low SES (N = 17)**	**Mid SES (N = 9)**	**High SES (N = 25)**	**ANOVA**
Pre-Mean	3.167	3.765	4.429	0.00**	3.1176	3.5555	4.36	0.00**
SD (±)	.9852	1.5219	.6761		1.1663	1.4240	1.0360	
Post- Mean	3.389	4.176	4.762	0.00**	3.235	3.667	4.760	0.00**
SD (±)	.9164	1.0146	.6249		1.2515	1.2247	.8794	
t value	.690	.926	1.747		.290	.176	1.483	
p value	.970	.708	.161		.771	.860	.275	
"*Statistically significant at 5% level, **Statistically significant at 1% level"								

Table 2: Mean scores for diet diversity practices of children (12 - 24 months) at pre and post intervention.

study conducted on 164 mothers with children below two years of Lubombo region in Eswatini. The diet diversity score was found to be associated with the gender of the children [4].

The difference in mean scores between the three SES groups was found to be statistically significant using ANOVA in both boys ($p < 0.01$) and girls ($p < 0.01$). Similar findings were reported by Contreras., *et al*. 2015 in a cross-sectional study conducted among 5000 houses with children aged 0-35 months in Nicaragua. It was found that the socio-economic conditions and family education played an important role in increasing dietary diversification and thus helping in preventing stunting and morbidity among children [5].

Similar results were found in a cluster randomized control trial study in Ghana 16 clusters were identified and 8 were given nutrition education intervention. This study also concluded that post-intervention there was an improvement in the diet diversity score and thus the nutritional status of the children in the study group when compared to the control group [6].

Conclusion

The availability, acceptability, and affordability were found to be a constraint in improvements in dietary diversification, specifically foods of animal origin. In our nutrition education intervention, we found that well-planned, short, simple, focused messages based on locally available food items delivered with little empathy can do a

lot of improvement even in weaker sections of society. Nationwide campaigns and education drives to change nutrition-related are the need of the hour to match the requirements of the children.

Ethical Approval

The study is approved by the Departmental Ethics Committee, Department of Home Science, University of Rajasthan, Jaipur.

Acknowledgment

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