

Impact of child care strategies on health and nutritional status of children in peri-urban Punjab

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■ **ABSTRACT** : The present study was undertaken to assess the impact of child care strategies on health and nutritional status of children in Peri-urban Punjab. The sample consisted of 920 children (aged 1-3 years) belonging to low socio-economic status families. The sample was further sub-divided into two sub-samples namely children of working mothers (n=460) and children of non-working mothers (n=460). The sample of children of working mothers was further sub-divided on the basis of the various child-care strategies observed for the care of the child during working mother's absence. Accordingly, four child-care settings were observed namely care by grandparents (n=200), siblings (n=160), adults other than grandparents (n=45) and anganwadi workers (n=55). Anthropometric measurements *i.e.* body weight (kg) and height (cm), head and chest circumference (cm) were taken of each child to assess his/her physical development and nutritional status of the infants. Nutritional status was assessed as per Gomez and Waterlow's classification. The results revealed that the physical development outcomes of children cared by non working mothers were significantly better than children cared by working mothers. Prevalence of Grade-II malnutrition was higher in children of working mothers. Situation was worst in cases where children were cared by preteen siblings.

■ **KEY WORDS** : Child care strategies, Working mothers, Socio-economic status

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Adequate nutrition during infancy and early childhood is fundamental to development of each child's human potential. The period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioural development. Longitudinal studies have consistently shown that this is the peak age for growth faltering, deficiencies of certain micronutrients and common childhood illnesses such as diarrhoea. Stunting which has occurred earlier is very difficult to reverse after a child attains the age of two years (Amosu *et al.*, 2011).

As the urban population in all developing regions grows over the next 20 years, governments and families will face unique challenges in their efforts to ensure the well-being of millions of children. They will have to take into account changes in women's roles and in strategies for child care (Engle, 2000). Traditionally, a women's place has been her home and a generation ago, her employment outside her home

was looked down by society. This situation has now changed and women have started seeking employment outside their homes (Basu and Basu, 1991). In many developing countries, poor women have multiple roles, and often their time constraints are so severe that their participation in income-generating activities results in reduced child care time, which in turn affects child health (Nakahara *et al.*, 2006). The effects of maternal employment on child welfare are of enormous importance to development policy as healthy child development and improved economic opportunity for women are two general goals of development agencies worldwide.

Family researchers and policy makers are concerned how mothers work outside home affects the development of child particularly in the disadvantaged strata of the society. In order to understand the effect of mother's work away from home on children's development, it is imperative to consider how the alternative systems of child care develop and what

are the different child care strategies used by working mothers and how these caregivers affect development of the child. Hence, the present investigation is an attempt to assess the impact of working status of the mother on one to three year old children's health and nutritional status of children with the following objectives:

- To ascertain various child care strategies used by working mothers of the children aged 1-3 years in the low socio-economic group.
- To compare the health and nutritional status of the children across different child care strategies used by working mothers with that of non-working mothers in low SES group.

■ RESEARCH METHODS

The present study was undertaken to assess the quality of child care strategies used by low SES families in the peri-urban Punjab. The study was conducted in the villages lying on the periphery of the Ludhiana and Jalandhar districts. The sample (n=920) for the present study consisted of children in the age group of 1 to 3 years and from the families belonging to low socio-economic status. The sample was selected by paying door to door visits in the villages by the investigators along with the Anganwadi worker. Firstly, all children in the village in the age range of 1 to 3 years were listed. Children belonging to BPL (Below poverty line) families were selected for the present investigation. The total sample consisted of 920 children. The sample was further subdivided into two sub-samples namely, children of working mothers (n = 460) and children of non-working mothers (n = 460). Anthropometric measurements *i.e.* body weight (kg) and height (cm), head and chest circumference (cm) were taken of each child to assess his/her physical development and nutritional status of the infants. Nutritional status was assessed as per the following classifications:

Weight for age :

Gomez classification:

- <60% weight for age : Grade III malnutrition
- 61-75% weight for age : Grade II malnutrition
- 76-90% weight for age : Grade I malnutrition

>90% weight for age : Normal.

Height for age:

Waterlow's classification:

- <85% expected height for age : Grade III malnutrition
- 85-90% height for age : Grade II malnutrition
- 90-95% expected height for age: Grade I malnutrition
- >95% expected height for age : Normal.

The collected data were analyzed using the t-test to observe the statistical significance of differences in the means of anthropometric measurements between children of working and non-working mothers.

■ RESEARCH FINDINGS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

Child care strategies:

It is evident from Table 1 that working mothers (n-460) used different child care strategies. Of the total 460 children of working mothers, 43.47 per cent children were looked after by grand parents and 34.78 per cent children were under sibling care. About 10 per cent children were looked after by other adults like aunt or by neighbourers and 11.95 per cent children were sent to Anganwadi when their mothers were away on work. Similar results have been reported by Klemesu *et al.* (2000) who also reported that of the mothers using child care services, 28 per cent used crèches and 61 per cent used alternate child care givers and 15 per cent of these child care givers were children between 6 and 15 years of age.

It is also heartening to note that most of these non-adult care givers are girls who drop out from schools in order to look after their younger siblings so that their mother can do productive work.

Physical development outcomes :

Physical development outcomes of girls in the age group of 13-36 months are presented in Table 2. Perusal of table revealed that girl children of mothers who remained at home were heavier and taller than their counterparts whose mothers work away from home and differences regarding

Table 1 : Distribution of children of working mothers across various child-care settings

Age group	Grand parents care	Sibling care	Adult care other than grand parents	Anganwadi cares	
13-18 months	90	25	-	-	
19-24 months	60	55	-	-	
25-30 months	30	60	25	-	
31-36 months	20	20	20	55	
Total	200	160	45	55	n = 460
Percentage	43.47	34.78	9.78	11.95	100

mean height and weight were statistically significant ($P < 0.05$) for all age levels. The mean values for head and chest circumference of children whose mothers were non-working were higher than children of working mothers and differences between the two groups were significant at 5 per cent level. The findings are in line with Yeleswarapu and Nallapu (2012) who reported that the children of unemployed mothers were heavier and taller than the children of employed mothers. Toyoma *et al.* (2001) also found that children of non-working mothers had significantly a greater height and weight.

Statistical differences in the mean values of anthropometric measurements of boys across different age groups and care settings are presented in Table 3. For different anthropometric measurements like weight, height, head and chest circumference, mean values of boys cared by mothers who remained at home were higher than their counterparts whose mothers worked outside home and statistically significant differences between the two groups

at all age levels were observed ($P < 0.05$). Similar results have been reported by Mittal *et al.* (2007) and Yeleswarapu and Nallapu (2012).

Nutritional status:

Boys:

Nutritional status of boys from Table 4 showed that 17.51 and 29.19 per cent boys who were cared by grandparents were in Grade II of malnutrition or weight for age and height for age. The distribution of children on the basis of weight for age revealed that 92.10 per cent of boys cared by Anganwadi worker and 78.83 per cent children in case of grand parents had Grade I malnutrition. On the basis of the classification based on height for age, 100 per cent children in the care of Anganwadi worker and 55.47 per cent cared by grand parents were suffering from Grade I malnutrition. Per cent of children (cared by grandparents) suffering from Grade II malnutrition on the basis of weight for age and height for age was 17.51 and 29.19, respectively.

Table 2 : Physical development outcomes : Statistical significance of differences in the means (\pm S.D.) of various anthropometric parameters of girls by age and care settings

Age *(in months)	Group	Weight (kg) Means \pm S.D.	t-value	Height (cm) Mean \pm S.D.	t-value	Head circumference (cm) Mean \pm S.D.	t-value	Chest circumference (cm) Mean \pm S.D.	t-value
Girls	Non-working	8.81 \pm 0.40	9.08*	71.81 \pm 2.35	4.89*	45.25 \pm 0.80	3.88*	44.24 \pm 0.90	2.38*
	Working	7.78 \pm 3.35		69.06 \pm 3.55		44.39 \pm 1.48		43.67 \pm 1.57	
13-18	Non-working	8.81 \pm 0.40	9.73*	76.39 \pm 2.02	6.24*	46.00 \pm 0.59	5.12*	45.60 \pm 0.75	7.80*
	Working	8.38 \pm 0.59		74.35 \pm 1.39		44.64 \pm 0.79		44.45 \pm 0.78	
25-30	Non-working	10.16 \pm 0.79	8.97*	79.63 \pm 2.24	5.23*	46.46 \pm 0.68	5.19*	46.74 \pm 0.77	3.83*
	Working	9.00 \pm 0.56		77.40 \pm 2.30		45.64 \pm 0.95		46.10 \pm 0.97	
31-36	Non-working	10.92 \pm 0.59	7.74*	83.47 \pm 1.98	4.04*	47.45 \pm 0.75	6.73*	48.33 \pm 1.07	5.93*
	Working	9.89 \pm 0.83		82.05 \pm 1.78		46.53 \pm 0.71		47.19 \pm 1.00	

* indicate significance of value at $P=0.05$, all significant differences are in favour of non-working mothers

Table 3: Physical development outcomes : Statistical significance of differences in the means (\pm S.D.) of various anthropometric parameters of boys by age and care settings

Age *(in months)	Group	Weight (kg) Means \pm S.D.	t-value	Height (cm) Mean \pm S.D.	t-value	Head circumference (cm) Mean \pm S.D.	t-value	Chest circumference (cm) Mean \pm S.D.	t-value
Boys	Non-working	9.47 \pm 0.55	5.72*	76.99 \pm 0.55	4.86*	46.87 \pm 1.32	4.66*	45.52 \pm 0.62	2.75*
	Working	8.83 \pm 0.63		74.56 \pm 2.08		45.92 \pm 0.77		45.19 \pm 0.76	
13-18	Non-working	10.02 \pm 0.66	3.61*	81.00 \pm 1.71	2.00*	47.16 \pm 1.00	2.24*	47.05 \pm 1.02	3.92*
	Working	9.60 \pm 0.57		78.44 \pm 9.52		46.20 \pm 0.81		46.36 \pm 0.87	
25-30	Non-working	10.78 \pm 0.56	5.95*	83.21 \pm 1.37	2.36*	47.98 \pm 0.91	5.92*	49.36 \pm 1.23	5.98*
	Working	9.99 \pm 0.82		80.24 \pm 9.69		47.01 \pm 0.82		47.60 \pm 1.28	
31-36	Non-working	11.68 \pm 0.58	2.47*	85.38 \pm 2.52	2.14*	48.71 \pm 0.87	4.17*	50.96 \pm 1.22	12.97*
	Working	10.67 \pm 0.49		82.18 \pm 2.02		48.12 \pm 0.77		47.19 \pm 1.07	

* indicate significance of value at $P=0.05$, all significant differences are in favour of non-working mothers

Nutritional status of boys from Table 3 showed that a very few children had normal nutritional status (12.60% on the basis of weight for age and 31.30 per cent on the basis of height for age classification) even in the non-working mothers category. Majority of them were suffering from Grade I malnutrition both for weight for age (72.60%) and height for age (60.85).

Girls:

Perusal of Table 5 revealed that girls in both groups were suffering from malnutrition but this percentage was higher in case when girls were taken care of by preteen siblings and had significantly lower weight for height than those taken care by adults. Out of the girl children who were cared by grandparents, about 50 per cent were suffering from Grade II malnutrition (both weight for age and height for age). Situation was worst when girl children were taken care by siblings. In this group 72.11 per cent were suffering from Grade II malnutrition (weight for age) and 53.84 per cent children were suffering from long-term height for age malnutrition. The findings of the present investigation are in agreement with the results reported by Nakahara *et al.* (2006). They found that peer child care was associated with an increased risk of malnutrition among children of working mothers. Similar trend was observed in case of girls in age group of 19-24 months. Nutritional profile of the girls (aged 31-36 months) showed that 100 per cent girls (Anganwadi care) were suffering from Grade I malnutrition while the opposite picture was observed in case of girls taken care by siblings and adults other than grandparents. The findings of the present investigation are in agreement with Vaida (2013) who reported mild degree of malnutrition in the children (3+ age group) of employed mothers. In these care setting

majority of the girls were suffering from Grade II malnutrition (Table 5). Nutritional profile of the girls of non-working mothers revealed that majority of them are suffering from Grade I malnutrition. The distribution of children on the basis of weight for age revealed that only 6 per cent children in the non-working category had normal nutritional status and 10 per cent children had normal nutritional status on the basis of height for age classification. Nakahara *et al.* (2006) also found that unavailability of adult child care support was associated with increased risk of malnutrition among children of both non-working mothers and working mothers.

Conclusion :

It could be concluded from the findings that the condition of the children in low socio-economic strata was poor. It is evident from the results that the physical development outcomes of children cared by non-working mothers were significantly better than children cared by working mothers. Prevalence of Grade-II malnutrition was higher in children of working mothers. Situation was worst when children were taken care by siblings.

Recommendation :

On the basis of results of the study, the following recommendations can be made for research and extension system in field of child development:-

- It is highly recommended that day care centers should be opened in the villages for the proper care of the children of working mothers.
- The community should be sensitized about the needs of a day care centre in view of the results of the present study.

Table 4 : Anthropometric assessment of nutritional status of boys across various child-care settings

Nutritional status of girls	Grand parents		Siblings		Anganwadi workers		Non-working mothers	
	Weight for age	Height for age	Weight for age	Height for age	Weight for age	Height for age	Weight for age	Height for age
Normal	3.64	16.05	-	-	7.99	-	12.60	31.30
Grade-I	78.83	55.47	92.90	100	92.90	100	72.60	60.85
Grade-II	17.51	29.19	-	-	-	-	14.78	7.82
Grade-III	-	-	-	-	-	-	-	-

All figures are in percentage

Table 5: Anthropometric assessment of nutritional status of girls across various child-care settings

Nutritional status of girls	Grand parents		Adults other than grand parents		Siblings		Anganwadi workers		Non-working mothers	
	Weight for age	Height for age	Weight for age	Height for age	Weight for age	Height for age	Weight for age	Height for age	Weight for age	Height for age
Normal	-	3.17	-	2.22	-	-	-	-	6.08	10.00
Grade-I	50.79	44.44	31.11	41.11	27.87	46.14	100	100	83.47	53.47
Grade-II	49.20	50.79	68.88	56.66	72.11	53.84	-	-	14.78	36.52
Grade-III	-	-	-	-	-	-	-	-	-	-

–These centers should be equipped with appropriate play materials.

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■ REFERENCES

- Amosu, A. M., Atolumah, N.O.S., Thomas, M. A., Olanrewaju, M. F. and Degun, A.M.** (2011). Child care practices and the nutritional status of working mothers in day care centers in Oshun state, Nigeria. *Ann. Biol. Res.*, **2**(5):140-148.
- Basu, A.M. and Basu, K.** (1991). Women's economic roles and the child survival. The case of India. *Health Trans. Rev.*, **1**: 1-20.
- Engle, P.L.** (2000). Urban women: Balancing work and child care In: Garrett, J.L. and Marie, R. (eds.) Achieving urban food and nutrition security in the developing world. Focus3.*IFPRI*. Washington D.C.20006-1002.
- Klemesu, M. A., Ruel, M. T., Maxwell, D.G., Levin, C.E. and Morris, S.S.** (2000). Poor maternal schooling is the main constraint to good child care practices in Accra. *J Nutr.*, **130** (6) : 1596-1607.
- Mittal, A., Singh, J. and Ahluwalia, S.K.** (2007). Effect of maternal factors on nutritional status of 1-5 year old children in urban slum population. *Indian J. Commu. Med.*, **32** : 264-267.
- Nakahara, S., Poudel, K.C., Lopchan, M., Poudel-Tandukar, K., Jimba, M. and Wakai, S.** (2006). Availability of childcare support and nutritional status of children of non-working and working mothers in urban Nepal. *Am.J.Hum.Biol.*, **18** (2) : 169-181.
- Toyama, N., Wakai, S., Nakamura, Y. and Arifin, A.** (2001). The mother's working status and the nutritional status of the children who were under the age of 5 in an urban low income community, in Surabaya, Indonesia. *J. Trop. Pediatr*, **47**(3):179-181.
- Vaida, N.** (2013). Impact of maternal occupation on health and nutritional status of pre-schoolers. (In Srinagar city). *IOSR J. Humanities & Soc. Sci.*, **7**(1):9-12.
- Yeleswarapu, B.K. and Nallapu, S.S.** (2012). A comparative study on the nutritional status of the pre-school children of the employed women and the unemployed women in the urban slums of Guntur. *J. Clin. Diagn. Res.*, **6**(10): 1718–1721.

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