International Journal of Contemporary Pediatrics
Taran SJ et al. Int J Contemp Pediatr. 2015 Aug;2(3):188-195
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291
DOI: http://dx.doi.org/10.18203/2349-3291.ijcp20150525

Research Article

A study of health profile in children of working women in Indore

Shachi Jain Taran[1]*, Dharmendra Gupta[2], Sudhir Mehta[1], Susmit Kosta[3]

[1]Department of Pediatrics, Sri Aurobindo Medical College and PG Institute, Indore, Madhya Pradesh, India
[2]Consultant, Felix Hospital, Noida, Uttar Pradesh, India
[3]Central research Laboratory, Sri Aurobindo Medical College and PG Institute, Indore, Madhya Pradesh, India

Received: 12 May 2015
Revised: 16 May 2015
Accepted: 07 June 2015

***Correspondence:**
Dr. Shachi Jain Taran,
E-mail: shachitaran@yahoo.co.in

ABSTRACT

Background: The early childhood development is most crucial and the mother's care and attention is essential. The inevitable changes like women entering the work field have an effect on the child care and development. This study was done with an objective to study the health profile and its determinants in children of working women by interrogating the mother regarding common health problems of their children, breast feeding practices and immunization coverage of the children.
Methods: The data was collected through questionnaires that were named as the mother's schedule and the child schedule, which consisted of close-ended questions which were coded for an easy data entry. The mother's schedule looked at the information regarding the mother, like the caretaker during the mother's absence, the time which was spent with her child each day, etc. The Child schedule looked for information like whether the child was exclusively breast fed, its age in months when the weaning started, whether the government sponsored creche services were utilized, etc. It also included the anthropometrical measurements of the child like its current weight, current height and mid arm circumference, which were obtained by using standardized tools. For each schedule, a separate table was created in a relational basis in MS access, with suitable key fields to connect the information for the analysis.
Results: According to our study the major determinants of health of the children of working mother were type of family, family size, working hours of mother, type of mother's work and substitute care provider in the absence of mother. The prevalence of most of the diseases was also high in nuclear families, when substitute care was provided by elder siblings, very large and very small family size, long working hours of mother and when mother was working as non-skilled and semiskilled worker.
Conclusions: There is an adverse effect on the health of children those mothers are working.

Keywords: Child health, Working women, Immunization, Nutrition

INTRODUCTION

In developing countries, life is difficult for most of the families and survival is an ongoing challenge. In such situation women are called upon to supplement family income. So women have to play multiple role and their time constraints are so severe that their participation in income generating activities results in reduced time devotion to their children which in turn adversely affects child health.

Children are the future of the society and mothers are the guardian of the future. Hence to ensure sound foundation and secure future of any society, no child should be deprived of childhood, of physical growth, personal development, loving care and affection. Children till preschool age require most attention, as this is the period

of rapid growth and development and children of this age group (till 5 years) are most vulnerable to malnutrition and many other diseases. During this period children are most dependent on mother. So it is argued the maternal employment during this period would have major impact on overall growth and development of children.[1]

However, it is also seen that not only time constraint but also the socio economic, educational status and fertility (i.e. number of children a woman) affect the child care and hence can lead to child neglect which could be a predisposition factor leading to a chain of events which may generate health problems to such children.[2,3] There is however some instances where mother's employment has given a positive impact on health of children. This may be because women's employment increases overall income of a family which has an indirect good effect on child rearing, so the child health.[3] The other reason may be because women who are employed have more awareness about the health system and facilities provided by government and they are more independent to avail these facilities.

Till date majority of surveys and studies have shown the effect of environment, sanitation, health programs and immunization on health of children; but studies about the health and immunization status of children of working woman are very few. So this study was being conducted to find out various health problems including immunization status of children of working women and impact of maternal work and family on health status of such children. Our finding data support and help to recommend preventive major to such families for improvement of health status of children.

METHODS

This study was undertaken with an objective to study the health profile and its determinants in children of working women from August 2012 to August 2013. A total of 100 children of working mothers in the city of Indore were included in the study. The children below 5 year whose mother were working in mess, hospital (nurse, aaya), housemaids, professionals, teachers, working women visiting pediatrics OPD, women coming to school on parents teacher meeting, working women residing in various hostels were included in this study.

The study was conducted by interrogating the mother regarding common health problems of their children, breast feeding practices and immunization coverage of the children and by examining the children. The information obtained recorded in pretested and predesigned proforma which included socio-economic status of the family, type of work, occupation of women, substitute care provider in the absence of mother, working hours per day of mother, family size and type of family, breast feeding and feeding history, nutritional intake, detailed history about common health problem of children of working women in past one year and present problems, immunization coverage of their children, siblings, behavioral problem, general and relevant systemic examination of their children.

RESULTS

Out of 100 children studied 54% were males and 46% were female. 87% of children were Hindus, 10% were Muslims and 3% were for other regions. About 50% of the children were from joint families and 50% from nuclear families. More than 50% of the children belonged to families of five or less than five members, One third from six or eight member families and very few (7%) from large families of nine or more than nine members (Table 1). Around two third of children (64%) belonged to socio-economic class II and III. The 81% of children were cared by father with some other adult care giver in the absence of mother.

Table 1: Distribution of children according to family type, size and Substitute care provider.

	Number	%
Family type		
Joint	48	48
Nuclear	52	52
Family size		
≤5 Members	57	57
6-8 Members	36	36
≥9 Members	7	7
Substitute care provider		
Father only	8	8
Father with adult care giver	81	81
Elder siblings (peers)	9	9
Creche	1	1
None	1	1

In 65% of children of working mother were fully immunized and only 7% unimmunized (Table 2), the percentages of immunized children were very high from National Data (43.5%). The immunization coverage was similar to national data for vaccines which were in government supply (BCG, DPT, OPV and Measles) while vaccines with high cost (Hep B, Hib, Chicken pox) had higher coverage rate in children of working mothers. This could be due to extra income providing to the family by maternal work and increased awareness of month. Full immunization coverage of children was very low (5.88%) in non-skilled mothers as compared to professional mother (91.66%) the difference was statistically significant ($p<0.001$) (Table 3). The immunization coverage of vaccines provided in government supply was also higher in class I children and lowest in class V children ($p<0.001$). This shows that money is not the only reason for non-immunization, there are other factors also like poor families support, time constraints, illiteracy, unawareness, social taboos, ignorance in these people.

Table 2: Distribution of coverage of various Immunization and vaccines (Multi response).

	Boys		Girls		Total	
	No.	%	No.	%	No.	%
Immunization category						
Fully immunized	35	64.1	30	65.21	65	65
Partially immunized	16	29.62	12	26.08	28	28
Unimmunized	3	5.55	4	8.69	7	7
Vaccine						
BCG	51	94.4	42	91.30	93	93
DPT	42	77.77	36	78.26	78	78
Polio	35	64.8	31	57.40	66	66
Measles	46	85.18	39	84.78	85	85
MMR	28	51.85	21	45.65	49	49
Hepatitis B	27	50	24	44.44	51	51
Hib	16	29362	20	43.47	36	36
Typhoid	9	16.66	10	21.73	19	19
Chicken pox	11	26.37	11	23.91	22	22

Table 3: Immunization start of children according to type of maternal work.

	Total No. of children	Fully immunized		Partially immunized		Unimmunized	
		No.	%	No.	%	No.	%
Mother's work							
Non-skilled worker	17	1	5.88	9	52.94	7	41.17
Semi-skilled worker	5	3	60	2	40	0	0
Skilled worker	5	3	60	2	40	0	0
Clerk, shopkeeper etc.	24	16	66.6	8	33.33	0	0
Semi professional	37	29	78.37	8	21.63	0	0
Professional	12	11	91.66	1	8.33	0	0
Socio economic class							
Class I	8	8	100	0	0	0	0
Class II	30	22	77.33	8	26.66	0	0
Class III	34	26	76.74	8	23.52	0	0
Class IV	17	6	35.29	10	58.82	1	5.88
Class V	17	6	35.29	10	58.82	1	5.88

In 66% of working mother the cause for early start of top feeding was their employment, so employment is a major barrier to breast feeding in working mothers (Table 4, 5). 25% of professional mother quit breast feeding within one month of birth of their child, while percentage of women in other jobs who left before one month was lower. About 92% of working women started top feeding their child before 6 months of age (the recommended period for exclusive breast feeding) Thus maternal employment considerably lowers the duration of exclusive barest feeding. In 11 out of 12 professional mothers started top feeding their children even before 3 months of age while only 58.82% of non-skilled mothers continued to breast feeding as this was the only way of nourishing their children.

In 46% children had behavioral problems. Thumb sucking was most common among behavioral problems being 19%, followed by pica 9%, irritability 6% and least common was stranger anxiety and aggressiveness, 1% each (Table 6). There was no significant (p value >0.05) difference between prevalence of behavioral problems in children of joint families (41.66%) and nuclear families (50%). Behavioral problems were minimum in families of 6-8 members (38.38%) and maximum in large families of ≥9 members (87.71%). This difference was statistically significant (p value <0.005). On comparing the prevalence of behavioral problems among children of mothers who worked ≤6 hours/day and mother who worked ≥10 hours/day, the prevalence of behavioral problems was higher in children of mothers who worked ≥10 hours/day 62.5%, against 38% in ≤6 hours/days (Table 7). Though the difference was statistically not significant (p value >0.05). There was no significant (p value >0.05) difference in prevalence of behavior problems among different categories of maternal work.

Behavioral problems were 62.5% when substitute care was given by father only, 44.44% when father with an adult care giver and 33.33% when by elder siblings. Behavioral problems were maximum when children were brought up by father only.

Table 4: Distribution of children according to total duration of breast feed and maternal work.

Mother's worker	Total children	0-1 months		2-3 months		4-5 months		6-12 months		>12 months	
		No.	%	No.	%	No.	%	No.	%	No.	%
Non skilled worker	17	0	0	1	5.88	1	5.88	3	17.64	12	70.58
Semi-skilled worker	5	1	20	0	0	1	20	0	0	3	60
Skilled worker	5	0	0	0	0	1	20	1	20	3	60
Clerk, shopkeeper etc.	24	3	12.5	2	8.33	0	0	11	45.83	8	33.33
Semi professional	37	2	5.40	6	16.21	4	10.81	9	24.32	16	43.24
Professional	12	3	25.0	1	8.33	1	8.33	4	33.3	3	25

Table 5: Distribution of children according to maternal work and time of start of top feed.

Mother's worker	Total children	0-3 months		3-6 months		>6 months	
		No.	%	No.	%	No.	%
Non skilled worker	17	10	58.82	4	23.52	3	17.64
Semi-skilled worker	5	3	60	2	40	0	0
Skilled worker	5	4	80	0	0	1	20
Clerk, shopkeeper etc.	24	18	75	5	20.83	1	4.16
Semi professional	37	29	78.37	6	16.21	2	5.40
Professional	12	11	91.66	0	0	1	8.33

Table 6: Distribution of behavioral problem among children (Multi response).

Behavioral problems	Boys		Girls		Total	
	No.	%	No.	%	No.	%
Breath holding spell	2	3.70	2	4.34	4	4
Pica	3	5.55	6	13.04	9	9
Temper tantrum	2	3.70	3	6.52	5	5
Hyperkinetic behavior	1	1.85	1	2.17	2	2
Thumb sucking	6	11.11	13	28.26	19	19
Irritable	3	5.55	3	6.52	6	6
Short temper	1	1.85	1	2.17	2	2
Stammering	2	3.70	0	0	2	2
Aggressiveness	1	1.85	0	0	1	1
Stubbornness	3	5.55	2	4.34	5	5
Strange anxiety	1	1.85	0	0	1	1

In 52% children of working mothers were underweight (weight for age) according to IAP classification. Similarly nuclear families had high prevalence of underweight as compared to joint families. The difference was statistically significant (p value <0.05). In very large families of >9 members 71.42% children were underweight, 56.14% children of <5 member families were underweight while only 41.66% children of 6-8 members family were underweight. Working 6 hours or less was not associated with higher percentage of underweight (38%) while working >10 hours had higher prevalence of underweight (75%). Working hours of mother had significant effect on child nutrition (p value <0.02).

Table 7: Behavioral problem and maternal work.

Mother's worker	Total children		Behavioral problems			
			Present		Absent	
	No.	%	No.	%	No.	%
Non skilled worker	17	17	10	58.82	7	41.18
Semi-skilled worker	5	5	3	60	2	40
Skilled worker	5	5	2	40	3	60
Clerk, shopkeeper etc.	24	24	7	29.16	17	70.83
Semi professional	37	37	18	48.64	19	51.36
Professional	12	12	6	50	6	50

Mother who was non-skilled workers had higher percentage of undernourished children as compared to professional mother. The difference was statistically significant (p value <0.05). If substitute care is giver by elder sibling, percentage of children having underweight was high (100%) as compared to care given by father with some adult care giver (44.44%), the difference was significant (p value <0.05).

Clinical signs of anemia were present in 52% of children. The lower prevalence of anemia as compared to other studies, National data (79.2%) UP data (85.1%) may be because in the present study only clinical criteria for detection of anemia was taken. The prevalence of other diseases like worm infestation 28%, skin disease 10%, teeth & gum disease 15%, lymph nodes & tonsils 23%, vitamin A deficiency 6%, hypopigmented hair 14%, ear problems 7%, systemic illness 10% & other disease was 8% (Table 8). Prevalence of anemia was high (65.38%) in children of nuclear families as compared to joint families (37.5), this difference was statistically significant (p value <0.001). Prevalence of most of the diseases was also high in children of nuclear families as compared to joint families. Prevalence of anemia was higher in very large families >9 members, 71.42%) as compared to small families 52.63% in <5 member families and 47.2% in 6-8 member families. Prevalence of vitamin A deficiency, worm infestation, dental problems, lymphadenopathy, hypopigmented hair and subcutaneous tissue were higher in very large families of >9 members. Prevalence of anemia and most of the diseases was also high when mother's working hours exceeded 10 hours/day ,as compared to less than 6 hours/day of mother 's work ,through the difference for anemia was statistically not significant (p value >0 .05). Prevalence of anemia was higher in children of non-skilled mothers (88.23%), as compared to children of professional mother (16.66%), the difference was statistically significant (p value <0.001). Similarly Prevalence of most of the diseases was higher in children whose mothers were non-skilled and semiskilled workers as compared to other jobs. Prevalence of anemia was higher when substituted care was provided by elder siblings alone (88.8%) as compared to care provided by father with adult care giver (44.4%). The difference was statistically significant (p value <0.02). Similarly most of the health problems were lowest in children who were cared by father with some adult care given and highest when elder sibling substituted for mother. Incidence of acute respiratory tract illness and diarrhea was very high 348 and 259.63 per 100 child-years in children of working mother as compared to other studies. So we concluded that Prevalence of most of the diseases was also high in nuclear families, when substitute care was provided by elder siblings, very large and very small family size, long working hours of mother and when mother was working as non-skilled and semiskilled worker. In another words we can say that these were the factors which had adverse effect on the health of children of working mothers.

Table 8: Maternal work and disease (Multiple responses).

	Non skilled worker		Semi-skilled worker		Skilled worker		Clerk, shopkeeper etc.		Semi professional		Professional	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Anemia	15	88.23	5	100	3	60	13	54.1	14	37.8	2	16.66
Systemic illness	4	23.52	0	0	0	0	0	0	2	5.40	0	0
Worm infestation	9	52.94	3	60	1	20	4	16.66	9	24.3	2	16.66
Vitamin deficiency	3	17.64	0	0	1	20	1	4.16	1	2.7	0	0
Dental problem	7	41.17	0	0	0	0	2	8.33	4	10.81	2	16.66
Tonsils & lymph nodes	9	52.94	0	0	3	60	3	12.5	7	18.91	1	8.33
Ear problems	4	23.52	0	0	0	0	3	12.5	0	0	0	0
Hypo pigmented hair	6	35.29	0	0	1	20	3	12.5	4	10.81	0	0
Ski & sub cutaneous tissues	4	23.52	1	20	0	0	3	12.5	2	5.40	0	0

DISCUSSION

This was a small observational study. The study was initiated to know the status of health profile in children of working women. The results are really eye opening and give serious indications to think about health & social issues of working women families. Breast feeding is the first fundamental right of every child. Breast milk is only one of the sources of nutrition freely available to the new born babies from mother and is an adequate nutritional food up to the baby's age of six months and protects the baby from various diseases. World Health Organization (WHO) recommends exclusive breast feeding for the first 6 months (at least for first 4 months).[4]

Kearny et al.[5] found that women, who planned to work after giving birth to their children, anticipated and experienced shorter duration of breast feeding then those who planned to remain at home. Haider et al.[6] studied 238 working mothers with children less than 30 month of age, 20% exclusively breastfed in first month, 13% in second month and 2% in fifth of employment. Median age of starting complimentary feeding was 41 days (range 1-210 days) preparatory to resuming work. Chen et al.[7] in their study on 998 working women found that 66.9% of women breastfed initially during their maternity leave with an average of 56 days. Despite the provision of lactation room in work place only 10.6% mother continued to breast feed after returning to their work. In a

study conducted by Kimbro[8] it was seen that in low income group women, timing of quitting breast feeding and returning to work are closely and powerfully linked and mother in administrative and manual position quit earlier than others.

Blau[9] in his household survey on working mother found that increase in women's education and formal sector wages will improve child nutrition and decrease their fertility, while increase in informal sector wages will improve nutrition in their children but have little impact on fertility. Toyama et al.[10] in their study on 274 children age of five, with working mother, found that children of mother working in formal sector (domestic service and other traditional household jobs) were at risk of malnutrition. Nakahara et al.[11] studied on 150 children, 10-24 month of age from waiting list of 17 day care center and found that unavailability of adult child care support was associated with increased risk of malnutrition among children of both working and non-working mothers. Peer children care was not significantly associated with child malnutrition among children of non-working mother but it was associated with increased risk of malnutrition in children of working mothers. Barglow et al.[12] found that repeated daily separation experienced by infant whose mother was working full time constitutes a risk factor for the development of insecure avoidant infant mother attachment.

Manfra et al.[13] in their study on preschool children of single present parent family revealed that greater hours of employment were related to high achievement and mental processing scores. Less discrepancy between actual and desired work was related to higher achievement, mental processing, language scores and lower behavior scores. So they concluded that concerns about negative effect of maternal employment on young children may be over stated especially in low income single mother families. Nomaguchi[14] in their article [Data from the Canadian National Longitudinal Survey of children and youth (N=1248)], showed that maternal employment during the previous year specially full time employment was related to care by non-relatives, longer hours in school setting, fewer mother-child interactions and at age 2 and 4. Controlling for these mediators, maternal employment was related to children's lower hyperactivity, more pre-social behavior and less anxiety at age 4, although little relationship was found at age 2. These results indicate that preschooler may benefit from maternal employment but benefit may be offset by long hours of non-parental care and fewer positive mother-child interactions.

Perry et al.[15] in their study entitled "child immunization coverage in zone 3 of Dhaka city: the challenge of reaching impoverished household in urban Bangladesh", revealed that for mother who did not work for money, the coverage increased from 52% to 65% as the number of field worker contact raised from 0-2 to 3-4, while among working mothers a similar increase in field worker's contact was associated with an increase in coverage from 26% to 60%.

Rabee et al.[16] showed that heavy maternal work load and longer labor time in field are associated with lower energy intake and less frequent feed of children. Hussain et al.,[17] revealed that children of working women had 65% more chance of heaving diarrhea then children of non-working mother. According to a survey conducted by National Nutrition Monitoring Bureau (1981, India)[18] 85 % children have body weight below normal standard. Of those 5% suffered from severe malnutrition.

WHO database on child growth showed that prevalence of stunting among pre-school children in south East Asia has progressively fallen from 47% in 1990 to 26.7% in 2010.[19] Rao et al.[20] in their study on tribal preschool children (total 1022 children) found high prevalence of under nutrition (2SD below normal), in terms of underweight 61.6%, stunting (51.6%) and wasting (32.9%). Rao et al.[20] in their study on tribal preschool children in Madhya Pradesh, revealed prevalence of anemia to be 86.7% and out of these 71.1% had moderate to severe anemia. The prevalence of anemia was similar in boys and girls and clinical sign of anemia were present in 51.9% of children. Singh et al 2014 showed the highest prevalence of anemia among preschool children in Bihar (77.9%), followed by Uttar Pradesh (74%), Madhya Pradesh (74%), Chhattisgarh (72.1%), Rajasthan (70.6%), and Jharkhand (70.5%).[21]

Awasthi et al.[22] in their study on preschool children, found that annual incidence rate of respiratory tract illness in per 100 child year is 167. Rao et al.[20] in their study on tribal preschool children in Madhya Pradesh found that a total of 12.4% children were suffering from upper respiratory tract infections.

Of India's more than 2.3 million annual deaths among children, about 334000 are attributable to diarrheal diseases.[23] Awasthi et al.[22] in their study on morbidities in preschool slum children in Lucknow, found that annual incidence rate of diarrhea in per 100 child year was 79.9. Agarwal et al.[24] in their study on affluent class school girl of Bombay found that vitamin A deficiency was present in 8.1% of girl in primary sections. Rao et al.[20] in their study on morbidities of tribal preschool children showed that vitamin A deficiency in the form of Bitot's spot was recorded in 16 (1.6%) children. Agarwal et al.[24] in their study on school girl of affluent class of Bombay showed that 61% of girl of primary section had dental caries.

Usha et al.[25] in their study the prevalence of behavioral problems in preschool children found that refusal to food, over sensitivity, restlessness and stubbornness were the most frequent behavioral problems, whereas stammering, jealousy and stealing were among least common problems. According to the study conducted by Anselmi et al.[26] on 634 children 4 years of age, the prevalence of behavior problems was 24%.

Singh et al,[27] found that out of total children (122) studied among age 12-59 month, only 52.2% were fully immunized, 45.1% were partially immunization, vaccine coverage for BCG was 95.9%, measles 57.4% and for primary doses DPT was 85% and for booster doses of DPT was 63.04%. Bhat et al.[28] in their study on sibling of hospitalized children, found that 43.83% were fully immunized, 25.32% partially immunized and 30.85% were totally unimmunized. Bhatia et al.[29] observed that among children 12-23 month of age, fully immunized children were 72.23%, partially immunized 22.99% and unimmunized were 4.64% in rural and urban slum areas of Chandigarh. Overall coverage of various vaccines was BCG 93.09%, DPT1/OPT1 = 93.97%, DPT2/OPV22 = 90.57%, DPT3/OPV3 = 85.92% and measles 76%. No sex wise difference was noticed in the study. Awasthi et al.[22] in their study found that incidence rate of skin diseases was 30.6 per 100 child year.

CONCLUSION

In India like other countries proportion of working mothers is increasing day by day. The reason for women to work may be different in different socio-economic classes but the problems in children are similar. The following steps may help to improve the health of children of working mothers. The whole family and in particular husband should provide proper support (both physical and emotional) to working mothers. They should help women in the care of the child. Child care should not be the whole sole responsibility of mothers only. Promotion of joint family system, as seen in our study joint families had positive effect on health of children. Family planning should be followed by couples and promoted by IEC programs. Working mothers should preferably do part time job during first five years of their children because during this period children are most dependent on mothers. Working mothers should be given paid maternity leave both in private and government sector. There should be formal child care facilities by government sponsored programs for working mothers. Crèches /day care centers at work-place should be made available to the mothers who are working. Worksite lactation room should be provided to the working mothers. Breast feeding breaks in between long working hours, will help the women for exclusive breast feeding. Training programs for expectant working mothers to use breast pumps, breast milk storage and child care should be started in advance. Employers should give some relaxation in duty schedule to mothers whose children are less than five years and especially to lactating mothers .Colleagues should also co-operate with the working mothers for care of their young children. Facility of good day care centers even in small cities should be ensured by government and NGOs.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

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Cite this article as: Taran SJ, Gupta D, Mehta S, Kosta S. A study of health profile in children of working women in Indore. Int J Contemp Pediatr 2015;2:188-95.