HEALTH STATUS OF CARPET WEAVING CHILDREN

S.K. Joshi
U. Sharma
P. Sharma
S.S. Pathak
S. Sitaraman
C.R. Verma

ABSTRACT

A cross-sectional study was undertaken to determine the health status of children engaged in carpet weaving factories of Jaipur City. Two hundred and ninety school going boys of similar socio-economic status served as controls. A higher prevalence of signs of nutritional deficiencies was observed in carpet weaving children. Analysis of the presenting complaints and the illness suffered in the past six months also revealed a significantly higher morbidity in these children. A statistically significant difference was also observed in anthropometric measurements of the two groups.

Keywords: *Morbidity,Nutritional assessment, Carpet weaving*

From the Department of Pediatrics, SirPadampat Mother and Child Health Institute, S.M.S.. Medical College, Jaipur.

Reprint requests: Dr. Pramod Sharma, 1 NA 7, Jawahar Nagar, Jaipur 302 004.

Received for publication: March 11, 1993; Accepted: November 8, 1993

Child labor has survived in the face of increasing industrialization mainly in the developing world. According to an estimate, in India alone there are over 20 million child workers(l), of whom one million are engaged in carpet weaving. In Jaipur City carpet weaving is a flourishing industry where poverty driven children flock for employment. This work force is exploited to toil for long hours under poor lighting and unhygienic conditions. Constant exposure to wool dust and the need for maintenance of a fixed posture has adverse influence on the health of these children. We studied the nutritional status of children working in such carpet weaving factories.

Material and Methods

The study group comprized of 110 boys working in 23 carpet weaving factories situated within a perimeter of about two kilometers from the walls surrounding Jaipur city on Purana Ramgarh Road. The factories were chosen on the basis of their easy approach and willingness of owners to allow us to carry out our study. More than 30 factory owners refused permission.

Children who were working continuously for most days of the month for the past six months were included in the study group. Two hundred and ninety school going children of similar age group and from the same neighborhood served as controls.

Each child was thoroughly interviewed about his present and past status of health and observations recorded in a pre-planned questionnaire. Whenever required, additional information was solicited from the parents, teachers or the employers. Anthropometric measurements were taken employing standard techniques as described by Jellife(2).

The level of personal hygiene was evaluated by a rating devised by Songra(3). This classifies children into four categories-poor, fair, good and excellent on the basis of the points scored in eleven items of day to day activities and general appearance (Dress, Footwear, Bath, Hair, Nail, Hand wash before meals, Teeth, Eyes, Tongue, Nose and Bowel habit).

The factories were considered overcrowded if the floor space available per child worker was less than 25 square feet.

Results

In the 23 carpet weaving factories studied, no girl was found working on a regular basis. Thus, the study group comprized of 110 weaving boys in the age group of 6-13 years with maximum number (17/110) being in the age group of 12-13 years. These boys had been in employment for a period ranging from 0.5 years to 6.5 years with a mean duration of 3.4 ± 1.5 years. The daily working hours varied from 10 to 14 years with short tea break(s) off and on.

While weaving, the boys were either seen squatting on a wooden plank or crouching for long hours. Overcrowding (in 20 out of 23 factories), improper ventilation and poor illumination (specially in factories set up in basements) were some of the environmental hazards that this work force had to cope with.

An evaluation of the level of personal hygiene showed that while 76.4% of carpet weaving children had 'poor' degree of hygiene, 23.6% had 'fair' hygiene. In the school going group of children, 94.8% had "fair" to "good" personal hygiene.

Weight and height of children in carpet weaving group were significantly lower ($p<0.05$) than that of their counterparts in the school going group in all age brackets except in two age groups of 6-7 years and 7-8 years. Chest circumference too showed a statistically significant difference ($p<0.05$) in the two groups of children *(Table I)*.

Headache (34.2%), backache (18.2%), lower limb pains (15.5%) and acute respiratory infections (26.4%) were present in significantly larger number of weaving children ($p<0.05$) than the school going ones. Signs of nutritional deficiency such as pallor, angular stomatitis, Bitot's spots were also observed with increased frequency ($p<0.05$) in carpet weaving children *(Table*

The immunization coverage of control group was BCG 60.7%, OPV and DPT 31.4%, measles 20.3% while the corresponding figures for the study group were only 20.9%, 3.6% and 0%, respectively. The first and second boosters of OPV, DPT/DT were administered in 18.6% and 2.8% children in control group, respectively but only in 0.9% and 0.1% in the study group.

Discussion

The complaints of backache and pain in lower limbs in children employed in carpet weaving factories can be attributed to the long hours spent by children in squatting on tips of their toes. Besides, constant gazing at their work in absence of proper illumination causes headache and blurring of vision. Conjunctival pallor was seen in 60.9% carpet weaving children, a finding also observed by Mattoo *et al.(4)*. But prevalence of pallor was also high in control group (45.7%) which can be attributed to overall lack of green leafy vegetables in the diet of Rajasthani children. A high prevalence of worm infestation due to poor personal hygiene may be a contributing factor.

TABLE I—*Comparision of Anthropometric Parameters (Mean ±SD) of Study and Control Group*

Age group	No. of children		Height (cm)		Weight (kg)		Chest circumference (cm)	
	Carpet weaving	Control	Carpet weaving	Control	Carpet weaving	Control	Carpet weaving	Control
6-7	5	38	112.5±4.5	115.0±5.6	18.0±1.1	18.7±2.0	50.4±1.2	51.8±2.2
7-8	8	37	116.9±5.2	120.4±7.7	19.3±7.0	20.6±2.9	51.4±1.6	54.0±3.0
8-9	11	37	120.6±6.0	124.9±6.5	20.1±2.2	22.2±2.6	52.9±2.5	55.2±2.8
9-10	14	39	122.6±6.3	128.2±7.4	21.1±1.6	23.2±3.2	53.4±2.8	56.0±3.2
10-11	11	39	127.9±6.0	133.7±9.9	21.2±2.4	24.9±5.1	53.9±3.4	56.4±3.7
11-12	16	30	134.7±5.7	139.3±7.5	25.6±1.4	28.0±3.7	56.0±3.1	58.8±4.3
12-13	17	29	136.6±6.7	141.0±6.9	26.3±3.5	28.8±3.8	56.1±4.1	59.0±3.5
13-14	13	23	139.9±8.1	146.9±8.9	28.9±4.0	32.5±5.9	58.8±3.6	62.3±4.7
14-15	15	18	144.2±8.8	151.9±9.6	30.3±5.2	36.7±7.2	61.3±3.5	65.3±5.5
Total	110	290						

TABLE II—*Nutritional Assessment and Morbidity in Carpet Weaving Children and Control*

Illness/signs of nutritional	Carpet weaving (n = 110)		Control group (n = 290)		p value
	deficiency				
	No.	%	No.	%	
Symptoms					
Headache	38	34.2	46	15.9	<0.001
ARI	29	26.4	44	15.2	<0.005
Backache	20	18.2	17	5.9	<0.001
Lower limb pains	17	15.5	15	5.2	<0.001
Pain abdomen	20	18.2	53	18.3	NS
Injury (during work or school)	19	17.3	35	12.1	NS
Conjunctivitis	10	9.1	16	5.5	NS
Signs					
Pallor	67	60.9	131	45.8	<0.005
Angular stomatitis	48	43.6	32	11.0	<0.001
Conjunctival xerosis	13	11.8	19	6.6	NS
Lustreless hair	9	8.2	7	2.4	<0.01
Atrophied papillae tongue	8	7.3	15	5.2	NS
Koilonychia nails	6	5.5	2	0.7	<0.005
Spongy gums	4	3.6	2	0.7	<0.05

NS = Not significant.

Symptoms of acute respiratory infections (ARI) including fever, cough and respiratory distress were seen in 10% of carpet weaving children and as many as 26.3% had a history of ARI in the past six months. Since it may be the initial manifestation of chronic bronchitis, asthma or byssinosis, the high prevalence of ARI in carpet weaving children should be viewed with a high degree of alarm and may need long term follow-up. Similar findings were recorded by Mattoo *et al.* (4).

None of the children in this study had features suggestive by byssinosis. This may be due to the fact that the average duration of exposure to carpet weaving in the present study was only 3.4 years. Gupta(5) reported that the minimum duration of exposure to cotton dust required to cause byssinosis is approximately 7 years.

Carpet weaving children were nutritionally deficient, had frequent illnesses and , showed growth retardation. The level of personal hygiene was 'poor', periodic medical evaluation non-existent and immunization coverage inadequate. Besides 10% children admitted to have a habit of smoking bidis/cigarettes. However, over and above the long working hours (10-14 hours/ day) in unfavorable environmental conditions made these children more susceptible to various infections and musculoskeletal problems. There was no provision of nutritional supplementation for these children.

This study shows the plight of carpet weaving children, the toll that this employment is taking on their health status highlights the need for frequent medical check-ups to detect such morbid factors.

REFERENCES

1. Banerjee SR. Child labour. Indian Pediatr 1990, 27: 3-6.
2. Jellife DB. The Assessment of the Nutritional Status of the Community. WHO Monograph Series No. 532, Geneva, World Health Organization, 1966, pp 50-69, 76-78.
3. Songra MR. A study to investigate the influence of socio-economic and environ mental factors on still births in hospitalized confinements. Thesis for the degree of Doctor of Medicine (Preventive and Social Medicine), University of Rajasthan, 1971.
4. Mattoo GM, Rauf A, Zutshi ML. Health status of school-aged children employed in carpet weaving in Ganderbal block. Br J Indust Med 1986, 43: 698-701.
5. Gupta MN. Review of byssinosis in India. Indian J Med Res 1969, 57: 1778.