



Original Article

Health status of child laborers in Nepal.

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Abstract:

Addressing child labor involves ensuring good health of existing child laborers in addition to reducing their number. To determine different physical and psychological health problems among child laborers in Nepal.

This study compares the status of health between Nepalese child laborers and school going children of similar age. Nineteen different kinds of labors were selected and the child laborers in those work sectors were included in the study. Two medical doctors examined the children individually, and a psychologist assessed the level of stress indicators among the child laborers. Thus, clinical and psychological assessment were done, and compared with the same among school going children.

A total of 313 child laborers and 200 school children were included in the study. Most of the laborers (82, 26.2%) were engaged in overland transportation and vehicle repair works. Child workers had significantly poor health status than the school going children, in term of pallor, absence of BCG vaccination, lack of de-worming, dermatitis, discharge from eyes, and ear – nose – throat problems. Two hundred eighty eight (92.1%) of the child workers had at least one psychological stress symptom.

The health status of child laborers is not satisfactory. Thus, measures to ensure quality health should receive priority while addressing child labor.

Key Words: Child, child labor, health status, psychological stress

Introduction

Nepal is a developing country in South Asia, with a total population of 28.3 million in 2007. Nepal is ranked 144th in Human Development Index (HDI) with a score of 0.553 and a GDP per capita (PPP US\$) of 1,049 [1].

Due to numerous socio-economic reasons, Nepal has a high number of child laborers. A national survey in 1996 reported that 2.6 million (42%) of 6.2 million children in Nepal between 5 and

14 years of age were working, mostly in agriculture (94.7%) [2]. The figure remained similar in 2008, with 33.9% of children in the same age group working as laborers [3]. Child labor is a problem not only in Nepal but in the whole world. International labor organization reported 218 million child laborers worldwide (age group 5 – 17) in 2004, more than half of them in the Asian-Pacific region [4].

So, the existing child laborers should be taken care of as a matter of urgency. These children should not be denied of any of their basic rights, health being one of them. A descriptive study of work places in Nepal reported a number of workplace hazards that make child labor hazardous and physically demanding [5].

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Under such work hazards, it is hard to believe that the child laborers have a healthy life. There is very limited data on different kinds of health problems among the child laborers.

Thus, this study was designed to assess the health status of the child laborers in certain regions of Nepal.

Methods

This is an analytical cross sectional study carried out from the fourth week of April till the end of May, 2010 as a continuation to situation analysis study that has been published elsewhere [5]. It was designed to examine and compare the health status of child laborers in Nepal with those of age matched school going children.

At first, a detailed review was conducted of all the published reports and articles on child labor in Nepal. Accordingly, 25 different kinds of work, which were reported to involve child labor in a large scale, were selected under convenience sampling. For each kind, one specific study center was chosen. In each of those centers, the employer was explained in detail about the study, its objectives, and methods assuring complete confidentiality. Some centers declined to participate in the study. Those work sectors included shoe factory, poultry farm, road-side circus team, grocery vendors and newspaper distributors. Finally, 19 study centers, representing different form of child labor (table 3), agreed for the study.

All the child laborers below or at the age of 16 were approached for their examination and interview. They were explained in details about the study and its purpose. They were informed that they could leave the study anytime if they wanted. Those who agreed were included in the study, which came out to be 313. For younger ones, who could not be expected to understand and make their decision, their guardians were approached and consent was obtained.

Two Nepal Medical Council registered medical doctors conducted thorough medical examination individually. The examination was guided by a pre-prepared format, which focused more on the likely health effects of occupational hazards (Table 1).

Those examinations were conducted in a separate room, with only the child and an examiner. Standard medical definitions and criteria were followed to make the assessment and evaluation. Later, their reports were put together and a consensual report was prepared.

Table 1 Clinical indicators of child health status

SN	Clinical Indicator
1.	History of Appetite
2.	History of De-worming
3.	BCG scar
4.	Pallor
5.	Lymphadenopathy
6.	Skin (Dermatitis) Hand Leg Neck Generalized
7.	Abdominal problems Distended abdomen Palpable liver Palpable spleen Palpable kidney Inguinal Hernia
8.	Eyes Conjunctivitis Lack of luster Bitot's spot Discharge from eye Infected eye lid
9.	Ear, Nose and throat Ear wax Pharyngitis Tonsillitis
10.	Extremities Calluses Varicose veins

After the clinical examination, a psychologist interviewed the children and looked for the presence of psychological stress (Table 2).

In order to compare the health status of the child laborers with school going children, 200 age matched students were selected from a school in Kathmandu valley. The whole procedure was repeated in the school children as it was done for the child laborers.

Odds Ratios and Fisher exact test was used to compare study variables among the two groups, keeping 95% confidence level. This study was ethically approved by the research department of Kathmandu Medical College, Kathmandu, Nepal.

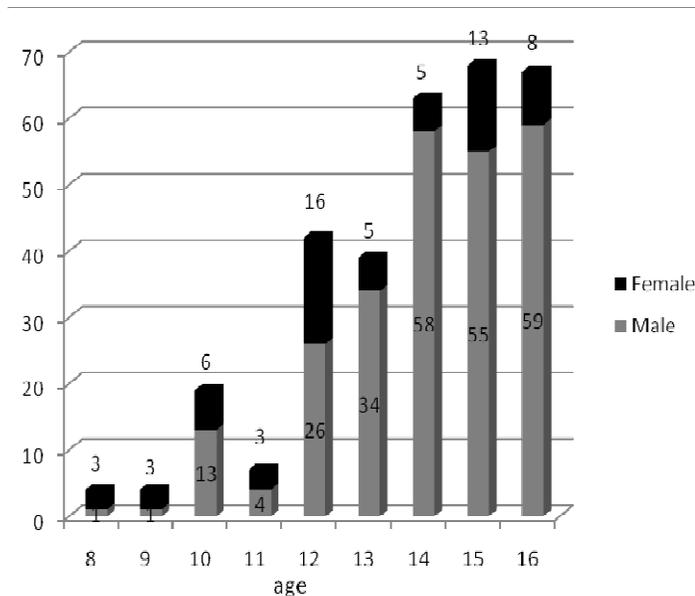
Table II Selected symptoms of psychological stress

SN	Symptoms of psychological stress
1.	A wish to change their jobs had they an opportunity to do so
2.	Anger at work
3.	Unhappiness at work
4.	Irritation / anxiety at work
5.	Sadness at work
6.	Constant headache
7.	Lethargic feeling at workplace
8.	Sleep disturbance
9.	Nervousness
10.	Suicidal feelings
11.	Sexual abuse

Results

Altogether, there were 313 participants in the study from 19 centers, with 251 (80.2%) males and 62 (19.8%) female children (Figure 1). Likewise, among the 200 school children, 118 (59%) were male and 82 (41%) were female. Socioeconomic status and hygienic status of the child laborers has been published separately [6].

Figure 1. Age and sex distribution of child laborers



Most of them were in between 10 to 15 years of age amounting to 69% of total children. Most of them (82, 26.2%) were engaged in overland transportation and vehicle repair works (Table 3).

Table III Child workers in different types of work centres

SN	Work sector	Number of child labourers (%)	Most common clinical finding (x/y, %)*	Most common psychological symptom (x/y, %)*
1.	Domestic work	28 (8.9)	Enlarged tonsils, Ear wax, Palpable liver and spleen, Dermatitis, No history of de-worming, Pallor (28/28, 100%)	A wish to change work (20/28, 71.4%)
2.	Stone crushing	29 (9.3)	No history of de-worming (26/29, 89.7%)	A wish to change work (22/29, 75.9%)
3.	Scavenging and rag picking	26 (8.3)	No history of de-worming (25/26, 96.2%)	Irritation and Headache (22/26, 84.6%)
4.	Overland transportation	34 (10.9)	Ear wax (27/34, 79.4%)	A wish to change work (26/34, 76.5%)
5.	Construction work	16 (5.1)	No history of de-worming (16/16, 100%)	A wish to change work (13/16, 81.3%)
6.	Portering	13 (4.2)	Palpable liver, spleen and kidney (13/13, 100%)	Anger (12/13, 92.3%)
7.	Hotel and restaurant	28 (8.9)	No history of de-worming (20/28, 71.4%)	Sadness (21/28, 75%)
8.	Metal casting and finishing	8 (2.6)	Palpable liver, spleen and kidney (7/8, 87.5%)	A wish to change work (4/8, 50%)
9.	Wood work	12 (3.8)	Pallor, Ear wax (8/12, 66.7%)	Anger (8/12, 66.7%)
10.	Agriculture	20 (6.4)	Ear wax (15/20, 75%)	A wish to change work (16/20, 80%)
11.	Brick kilns	4 (1.3)	No BCG scar, Pallor, No history of de-worming, Palpable liver, spleen and kidney, Discharge from eyes, Ear wax (4/4, 100%)	A wish to change work, Sadness (2/4, 50%)
12.	Vehicle repair and service	48 (15.3)	No history of de-worming and ear wax (27/41, 65.9%)	A wish to change work (27/48, 56.3%)
13.	Embroidering	5 (1.6)	No history of de-worming, enlarged cervical lymph nodes (5/5, 100%)	Unhappiness, Headache (4/5, 80%)
14.	Painting	7 (2.2)	Palpable spleen, kidney and Ear wax (7/7, 100%)	A wish to change work, Anger (5/7, 71.4%)
15.	Carpet factories	10 (3.2)	Palpable liver, spleen and kidney (10/10, 100%)	A wish to change work, Headache (7/10, 70%)
16.	Metal work	11 (3.5)	No history of De-worming (11/11, 100%)	A wish to change work, Sadness (7/11, 63.6%)
17.	Tyre treading, resoling and related	2 (0.6)	No BCG scar, No history of de-worming (2/2, 100%)	Headache, Nervousness (1/2, 50%)
18.	Beverage manufacturing	9 (2.9)	No history of de-worming (9/9, 100%)	Sadness (5/9, 55.6%)
19.	Hair cut	3 (1.0)	No history of de-worming (3/3, 100%)	A wish to change work, Sadness, Nervousness (1/3, 33.3%)
	Total	313 (100%)		

*y represents those who work in that particular work sector and x represents those among "y" who have the clinical symptom

On clinical examination, we found different abnormalities, the commonest ones being skin, eye, nose and throat problems (Table 4). The child workers had a relatively poor health status compared to the school going children.

Table IV Comparison between child laborers and school children

Clinical Indicator	School Children	Child Workers	Odds ratio	95% Confidence interval	P value
Poor Appetite	46	7	0.08	0.03 – 0.18	<0.0001
De worming never or before 6 months	102	240	3.16	2.12 – 4.71	<0.0001
No BCG scar	12	161	16.59	8.61 – 32	<0.0001
Pallor	20	144	7.67	4.12 – 14.31	<0.0001
Lymphadenopathy	20	37	1.21	0.68 – 2.15	0.5668
Skin (Dermatitis)	11	121	10.83	5.66 – 20.72	<0.0001
Hand	3	90	26.50	7.95 – 106.49	<0.0001
Leg	1	14	9.3	1.27 – 191.43	0.0194
Neck	3	6	1.3	0.32 – 5.25	1.0000
Generalized	4	11	1.78	0.52 – 6.67	0.4688
Abdominal problems					
Distended abdomen	8	22	1.87	0.82 – 4.28	0.2179
Palpable liver	0	92	-	-	<0.0001*
Palpable spleen	0	105	-	-	<0.0001*
Palpable kidney	0	96	-	-	<0.0001*
Inguinal Hernia	0	4	-	-	0.1602*
Eyes					
Conjunctivitis	2	0	-	-	0.1515*
Lack of lustre	0	2	-	-	0.5233*
Bitot's spot	0	5	-	-	0.1619*
Discharge from eye	73	36	0.23	0.15 – 0.36	<0.0001
Infected eye lid	0	3	-	-	0.2943*
Ear, Nose and throat					
Ear wax	128	233	1.64	1.12 – 2.41	0.0132
Pharyngitis	18	77	3.29	1.90 – 5.69	<0.0001
Extremities					
Calluses	15	65	3.23	1.78 – 6.12	<0.0001
Varicose veins	0	1	-	-	1.0000*

These working children were subjected to a lot of psychological stress as we found a high prevalence of the stress indicators (Table 5). The commonest symptom was “A wish to change their job had they an opportunity to do so” (207, 66.1%). There were only 25 (7.9%) child workers (20 male and 5 female) who did not complain of even a single feature of psychological stress, 10 (40%) of them were in vehicle repair works. The rest (288, 92.1%) with 231 male (80.2%) and 57 (19.8%) female, had at least one symptom of stress.

Table V Psychological assessment of child laborers

SN	Psychological symptoms	Number (%)	Most common work sector (x/y, %)*
1.	A wish to change their jobs had they an opportunity to do so	207 (66.1%)	Scavenging and rag picking sector (21/26, 80.77%)
2.	Anger at work	163 (52.1%)	Portering (12/13, 92.31%)
3.	Unhappiness at work	131 (41.9%)	Embroidering (4/5, 80%)
4.	Irritation / anxiety at work	128 (40.9%)	Scavenging and rag picking sector (22/26, 84.6%)
5.	Sadness at work	138 (44.1%)	Hotel and restaurant sector (21/28, 75%)
6.	Constant headache	110 (35.1%)	Scavenging and rag picking sector (22/26, 84.6%)
7.	Lethargic feeling at work-place	105 (33.5%)	Stone crushing (16/26, 61.54%)
8.	Sleep disturbance	111 (35.5%)	Metal work (6/11, 54.5%)
9.	Nervousness	90 (28.8%)	Domestic work (13/26, 50.0%)
10.	Suicidal feelings	28 (8.9%)	Stone crushing sector (4/22, 18.18%)
11.	Sexual abuse	3 (0.9%)	Beverage manufacture (2/5, 40.0%)

*y represents those who work in that particular work sector and X represents those among y who have the psychological symptom

Discussion

The child laborers have relatively poor health status than the school going children. Of all the clinical problems, lack of de-worming (240, 76.7%) was the most common problem seen among child laborers while ear wax (128, 64%) was the most common finding among school going children. Among the psychological features, "A wish to change job if they had an opportunity" was the most common one (207, 66.1%).

There were 144 (46%) child workers with clinically diagnosed anaemia, 121 (38.7%) with dermatitis, 36 (11.5%) with discharge from eyes, 233 (74.4%) with ear wax, 77 (24.6%) with pharyngitis, 65 (20.8%) with calluses and more than 100 with some kind of abdominal problems. Another study among Nepalese child workers in carpet factories reported headache (44.2%), stomachache (32.7%), cough (13.5%) and back pain (15.4%). On examination, they found anemia among 11.5%, palpable lymph nodes among 13.5%, vertigo among 42.3%, skin allergies among 5.8%, scabies among 5.8%, tonsillitis among 7.7%, and carpal tunnel syndrome among 13.5% of the working children [7]. Similarly, a Nigerian study reported that out of 225 child workers studied, 15% had URTI, 12% had skin infection, 19% had musculoskeletal disorders and 21% had fever [8].

The clinical examination was preceded by few questions which would reflect the general health status of the child – appetite and history of de-worming. Child laborers had an odds of 3.16 (CI = 2.12 – 4.71 at 95% confidence level) not having properly and timely de-wormed compared to school going children. Two hundred and nine (66.8%) of them had never been de-wormed, while 31 (9.9%) had been de-wormed before six months. Most of these children happened to be brick kiln and construction workers, domestic child laborers and scavenging and rag pickers. These children live away from home, with no one to take care of them. At the age they are and with little education they have, they cannot be expected to have proper de-worming at regular interval. In addition, they have to work in unhealthy conditions which put them in more vulnerable position. Things are better for school children, who have their family to look after them and in addition, there are mass de-worming campaigns in schools, which also keep them in the safe zone. Without proper de-worming, the chances of getting infested is very high, as World Health Organization (WHO) reported 37.7 million high intensity nematode infestation in South East Asia in 2004 [9]. Likewise, a 1996 survey in several districts in Central and Mid-western development regions of Nepal also showed that 65% of children were infected

with hookworm, followed by 21% with round worm and 19% with whipworm [10]. The WHO report also showed that the coverage of school going children with anti helminthes treatment is only 22% in Nepal [9]. The child laborers work in hazardous and unhealthy environment, and also miss out de-worming campaigns. So they get infested with worms and they transmit them to others, finally resulting to a high prevalence of helminthes infestations as shown by surveys. The only way to break this chain is to get the child workers de-wormed. The significance of huge number of not-de-wormed child workers is also evidenced by the finding that child workers had an odds of 7.67 (CI 4.12 – 14.31) for being anemic than the school children. Intestinal manifestation with helminthes is closely associated with nutritional deficiency, blood loss, mal-absorption and anemia as a study in Tanzania showed high prevalence (68%) of intestinal helminthes mostly hook worms and also a high prevalence (79.6%) of anemia in the same group of school children [11].

Keeping concordance with less frequency of de-worming, child workers had more abdominal problems than the school children. Distended abdomen, palpable liver, spleen, kidney and inguinal hernia were the features noticed. Among them, only distended abdomen is not significantly higher among the child laborers. The abdominal problems were seen more on the same work sectors where de-worming was less frequent – brick kilns, domestic works, scavenging and rag picking along with others. Although abdominal distension could be a feature of worm infestation, a direct relation between lack of de-worming and palpable kidney, spleen and inguinal hernia is hard to establish. Likewise, four cases of inguinal hernia were seen among workers in stone crushing and overland transportation, while none of the porters showed any features of hernia.

On the contrary to the poorer health status among child workers, they have better appetite than the school going children. However, the influence of family environment and media should also be considered while making this comparison. May be due to proper care from parents, the school going children never have to stay hungry, they may be overfed. Since, they have never had to experience hunger, they might have reported that they do not feel like eating. While, child workers have to earn themselves and prepare own meal, and most of the times have to stay hungry whole day. That may be the reason they do not complain of reduced appetite. Likewise, having access to all sorts of media, school going children are influenced more by media and are attracted more to junk foods and children in well off families are usually pampered, thus, they lose appetite for normal home-

made foods. There is less data on what kind of food school children prefer in our part of the world. But, studies in other regions show they prefer junk foods. A study among 456 Irish school children aged up to 12 showed that 48.6% of all food items eaten in schools were junk foods. Those given money to buy their own food preferred to buy junk foods [12]. Likewise, another study in south Africa reported that predefined “unhealthy” foods brought to school outnumbered “healthy” ones by 2 to 1 and among students who purchased food at school, 70.0% purchased no healthy items, whereas 73.2% purchased two or more unhealthy items [13]. Thus, school going children do not have a healthy eating habit, which might have reduced their appetite for home made food.

It was noted that more child workers than school children were likely to have missed a BCG vaccine (OR - 16.59, CI 8.61 – 32). In numbers, 161 (51.4%) of child workers did not receive BCG shots. This finding fits well with the fact that Nepal has a BCG-coverage of only 87% in 2008 [14]. These child laborers could be very important source of information for the government to trace out the areas in Nepal which are lagging behind in terms of vaccine coverage. The home villages of these child workers should definitely have low vaccine coverage as evidenced by the absence of BCG scar among these child workers.

More child workers (11.8%) than school children (10%) had palpable lymph nodes, but not by a significant margin. Dermatitis was significantly more common among child workers than school children (OR 10.83, CI 5.66 – 20.72). Child workers have to stay in constant exposure to irritants, chemicals, which are often the cause of dermatitis. Dermatitis was most commonly present in workers involved in domestic works (28/28, 100%), brick kilns (4/4, 100%), construction works (10/16, 62.5%), scavenging and rag picking (61.5%), and metal casting (6/8, 75%). A study in the USA has also shown a significant role of occupation in dermatitis. Of 5839 patients studied, 19% were occupation related. Of the occupational cases, 60% were allergic and 32% were of irritant origin [15]. The same might hold true in our study as workers in construction sites, scavenging and metal castings are constantly exposed to various kinds of irritants and allergens. As with the US study, our study also found hands as the primary body part involved among all cases of dermatitis (90/121, 74.3%). But, the high incidence of dermatitis among domestic workers was unexpected and a possible explanation could not be found.

A study of work place hazards in Nepal found air borne contaminants (dust, smoke, fumes, mist, and vapors), poor illumination at

work site among other work place hazards [5]. Accordingly, more cases of eye problems were expected among child workers than the school children. But, on the contrary, conjunctivitis and discharging eyes were found significantly more among school children than the child workers. However, child workers showed more eyes with Bitot's spots, infected eye lids and luster less eyes, though not in a statistically significant magnitude. But, there is a distinct difference in these two sets of clinical features, one set more frequent among child workers while the other set more frequent among school children. The set of features more common among child workers included Bitot's spots and luster less eyes, which are usually the features of Vitamin A deficiency along with some local ocular causes [16]. On the other hand, features more common among school children were discharge from eyes and conjunctivitis, which are mostly of infectious origin [16]. Thus, this difference in the set of clinical features fits well with the two groups of study population; one (child workers) more likely to suffer nutritional deficiency, while the other (school children) more likely to have infectious condition. The students are in the same class room, and they stay together. So, the chance that the infection spreads to all of them at the same time is higher.

Among the ear-nose-throat problems; ear wax, and pharyngitis were evaluated. Child workers had higher frequency of all these conditions. Meanwhile, cases of breathing difficulties, wheezes, severe cough were not found in the study, even though many of the work sectors like brick kilns, overland transportation, stone crushing, vehicle repair, carpet factories, and agriculture contain respiratory hazards such as dust particles, fibers and smoke. This may be because these respiratory conditions are serious health problems and thus the ill children did not come to work and were missed out of the study – the healthy workers effect.

Likewise, calluses were significantly more frequent among child workers (OR 3.23, CI 1.78 – 6.12). This is reasonable as workers have more physical work to do than the school going children. Among the child workers, they were more common among children in stone crushing (17/29, 58.6%). This is likely as they have to break and crush stone whole day with their hands and a hammer.

For the psychological assessment of the child workers, a set of clinical symptoms were prepared by a psychologist. These symptoms represent the ones which are more likely to be prevalent among working people. Two hundred eighty eight (92%) of the child workers had at least one psychological problem. This is

a very high number and it clearly depicts how stressful the works are. Similarly, a French study also looked into psychosocial status of a group of employees. It also found that the prevalence of job strain reached 22% and was associated with high level of work dissatisfaction and a desire and intent to change job positions [17]. However, this was conducted among adults and this used a Job Content Questionnaire developed by Karasek.

The most common symptom was "A wish to change job". This is likely considering the huge number of work place hazards [5] and low income [6]. The main purpose of labor is to earn, make a living and provide for his family. If that is not fulfilled, it is obvious to have a desire to seek a better job. In addition, poor and unhealthy working condition also adds to this desire. But, the tragedy lies in the fact that none of the work sectors is better than the other. Each work sector has its own share of hazards, difficulties and complications. Thus, there seems no answer to the worker's search for a better job.

There were 28 child workers who had suicidal feelings, which is a very serious issue and it portrays how severe the level of stress can get to.

Thus, we found that the child workers have relatively poor health status than the school children. On the top, they have tremendous mental stress. Under such weak physical and mental condition, they cannot be expected to work well, which leads to low productivity and low economic gain. On the other hand, owing to poor health condition, they would have to spend extra money on their health care. This would add extra burden to the child worker as well as the society fueling the same vicious cycle, which makes the child to work more. Thus, the first step towards child labor control should be – to address the condition and health status of the existing child workers.

For proper care of the child workers health status, the study suggests to start immediate de-worming campaigns for these children in the first place. Vitamin A should be supplemented with the de-worming campaign. The home address of these child workers should be traced and the coverage of BCG vaccine assessed, so that if it is low, extra effort could be put on those areas. Next, while working, they should be encouraged to use protective equipments like gloves, masks so that they could protect themselves from respiratory complications as well as skin conditions like dermatitis.

Besides, the employers should be persuaded to provide adequate work facilities to the child workers like paid leaves, proper

medical check-ups, timely and reasonable salary, so that there is no added stress to the workers.

The study has some shortcomings as well. It had to leave out some work sectors, which did not agree to participate into the study. This might have limited the reach of the study to all the workers. Next, only one work place or industry was taken for one type of occupation, which might not represent that occupation in Nepal. But, since the study focused more on child worker than the work he or she does, this particular factor should not have influenced the outcome of the study. However, the work sectors could not be compared with each other as they had different number of workers, which would make the comparison unfair. Likewise, the health status determination was solely based on clinical examination and no laboratory investigations were done, which might have limited the confidence on the exact medical diagnosis of the clinical features noted. However, the strong aspect is two medical doctors conducted the examination individually and reached a final consensus, which definitely provides better judgment. At last, the psychological assessment could not be compared with the school children as many of the stress symptoms used in the study did not apply to them.

Conclusions

The health status of working children is comparatively poor than that of school going children. The major health problems include lack of de-worming, low BCG coverage, anemia, and skin lesions. These children also have a high level of mental stress as indicated by different stress symptoms. Proper care of existing child workers should be taken as a first step towards elimination of child labor.

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