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Research paper

Impact of child labor in stone quarries on his health status in El- Minia city

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Abstract

Background: Child labor today represents the largest single cause of child abuse across the global. Most of it takes place in economically less developed countries and much is hidden.
Objectives: The aims of this study were to found out the nature and impact of child labor in the stone quarries on his health status and assess the work hazards associated with these concern.
Methods Design: A descriptive comparative design was used .Setting: at stone quarries in El-Minia city and two Governmental schools (primary and preparatory).
Sample: Study consisted sample of two groups: two hundred working children (studied group) and three hundred school children as control group.
Tools: Three tools were developed and utilized. Socio-demographic characteristics, assessment sheet, and Observation check list.
Results: It was found that the mean age studied group was 13.0± 1.2, compared to 12.0± 1.2for control group. More than half of studied group of studied group were working for the need to money and to share in family income. About two third of studied group exposed to different types of injuries during work in quarry. There was statistical significant difference between studied and control group groups regarding body mass index physical assessment and bad habits. Also the results of this study explored that most of studied group exposed to all items of work hazards.
Conclusion: It can be concluded that almost all working children in stone quarries were facing much health complains and working hazards.
Recommendations: Quarries owners should provide all working children with appropriate protective measures and trained them on methods of protecting themselves from work hazards.

Keywords: *Child; Health Status; Occupational Hazards; Stone Quarries; Students.*

1. Introduction

Children are the future leaders of our society and valuable assets. It is the duty of individual in a society to see that the dreams and rights of child are fulfilled (Manitham 2005). Undoubtedly, children must grow properly, be strong and healthy, and be sufficiently intelligent and skilled to be useful members of their communities. So no one can deny their rights to grow and develop in a healthy and normal manner, to benefit from social security including adequate nutrition, adequate housing, recreation, and medical services, as well as to receive education and be protected against all forms of neglect, cruelty and exploitation (Mahmoud 2004).
Child labor works against human rights and investment in human development, against the provision of decent work and against the reduction of poverty (International programme on the elimination of child labor (IPEC) 2002). Also child labor is an important global issue associated with poverty, inadequate educational opportunities, gender inequality and a range of health risks (Reggero et al., 2007).

Child labor is defined as work that impairs the health, disrupts the education, and violates the rights of children. According to International Labor Organization (ILO), approximately 250 million children between the ages of five and fourteen work worldwide (.Prudom 2006). These children currently under conditions that are considered illegal, hazardous, or extremely exploitative. Underage children work all sorts of jobs around the world usually because they and their families are extremely poor. Child labor can be found in nearly every industry. Large numbers of children work in agriculture, fishing, manufacturing, mining, quarrying, and domestic services. Some children work in illicit activities like the drug trade and prostitution or other traumatic activities such as serving as soldiers (Child labor public education project, 2002).
The number one factor that contributes to child labor is parental poverty. Another major factor is the need for supplementary income. Other contributing factors include landlessness of the family, family size, the presence of handicapped parents, and the acquisition of skills at an early age for better employment prospects

later in life and inadequate education. (Prudom 2006, U.S. Department of Labor 2006).
Child labor is used in stone quarrying operations in many countries in Africa, Asia, and Latin America. Those children work without adequate protective equipment, clothing, or training. They blasting rocks, breaking up stones with pick axes and carrying and loading stones into trucks (U.S. Department of Labor 2004). Such work has an adverse impact on the health and development of these children (Parker 1997). The work is both strenuous and dangerous. These Children are at risk for various lung and skin diseases, loss of eyesight, and physical deformities or loss of a limb. Children frequently do not attend school and child illiteracy is common (Sekar 1997 & U.S. Department of Labor, (2004).
Three approaches to stop child la bor include: prevention, protection and rehabilitation. Regarding prevention, if child labor had a pusher, it ought to be poverty. Areas with high incidences of child labor always turn up to be poverty stricken. The issue becomes more complicated because parents ask their children to work. Sometimes, children themselves volunteer out of poverty (Miller & Kaufman 1998). Regarding Protection, children who are already working must be releases from child labor. In cases where releasing them is difficult or takes time, action should be made to make their life more tolerable and less hazardous. But children working in extremely hazardous work, in bonded labor, or in prostitution are the priority of rescue operation (Miller & Kaufman 1998). Rehabilitation, after being rescued from child labor, the children after being rescued from child labor, and the children with their families must be given adequate services and facilities so that they will not revert to child labor. Projects in areas where families allow their children to go to work can also become a preventive measure against would-be victims of child labor (Miller & Kaufman 1998).
Pilot projects of the International Labor Organization (ILO) have demonstrated that it is possible to eliminate child labor by helping quarrying communities organize cooperative or other productive units, improves the health, safety and productivity of adult workers and secure essential services such as schools, clean water and sanitation system (Somvia 2005)
The community health nurse plays an important role in stimulating the community awareness about the problem of child labor, to participate in its control and establish a national system of social security, health insurance, and work compensation to cover this sector of actually working children (Haggag 1995, Clark 1996, Stanhope & Lancaster 2002).
In view of her expanded role the community health nurse can assume manly roles while serving in different community health agencies, namely ambulatory care settings, schools, work places and particularly at work (Stanhope M & Lancaster 2000, Mahmoud 2004).
The community health nurse as health promoter in the areas of occupational and school health has to meet the preventive and primary health care needs of labored school children. Thus her preventive role can be provided according to three levels of prevention; primary, secondary and tertiary level of prevention (Hitchcock 1999, Niles & Mcewen 2001, Edelman & Mandle 2002, Alllender & Spradley 2005.
This study aimed to assess the nature of child labor in the stone quarries, Identify the impact of child labor in the stone quarries on his health status, and Assess the work hazards associated with child labor in the quarries sector.

2. Methodology

2.1. Design

A descriptive comparative design was used to explore the nature of child and impact of child labor in the stone quarries on his health status as well as work hazards associated with child labor in the quarries sector.

2.2. Setting

The present study was carried out in two different settings:
Stone quarries in El-Minia city and two Governmental schools (primary and preparatory) selected from the same previous setting. The total numbers of schools were 15, seven primary and eight preparatory.

2.3. Sample

Study sample consisted of two groups: two hundred working children (studied group) and three hundred school children as control group (62 students from primary and 238 students from preparatory school).).
Both studied and control groups selected by using quota sample technique
Criteria for selected studied group:

- Child's age ranged from 6 to less than 15 years.
- Working on regular basis i.e. full time.
- Not attending school beside work
- Duration of working must be more than one year.

2.4. Tools

Three tools were developed and utilized be the researcher to collect data based on review of literature.
Toole I- Socio-demographic characteristics: It was used to assess child's personal and family profile such as age, birth order and level of education, parent's education, job, family income, and its source, number of siblings, housing condition.
Tool II- Assessment sheet: it was contains from the following:
A- Physical assessment; includes assessment of various systems as integumentary, digestive respiratory, cardio and musculoskeletal systems as well as assessment of eyes.
B- Assessment of nutritional stats: it was assessed body mass index and skin fold thickness.
C- Health habits and practices: such as smoking or drug or alcohol abuse that may affect child health were assessed.
Tool III- Observation check list: it was developed to observe each child during his actual work to identify the occupational hazards, industrial safety measures.

2.5. Data collection procedure

1) Before the conduction of the study, a written permission was obtained from the Dean of Nursing Faculty at El-Minia University, and then official letter was submitted from Faculty of Nursing to the Governor of El-Minia to obtain his approval to collect the study data from the selected quarries. Official letter was issued from El-Minia Governor and addressed to the manger of quarries' project to obtain his approval to collect the study data. After approval of manger of quarries' project had obtained the official letter was submitted to nongovernmental association called Kretas Egypt which addressed this letter to Wadi El-Nile association which was responsible about quarries workers and which was arranged the meeting schedule with working children in each selected quarry. Each organizer in Wadi El-Nile association sectors or branches in villages in which the selected quarries located was informed about the time of visit and the purpose of the study to obtain her approval and cooperation in the preparation the selected children.
2) Approval obtained from the manger of El-Minia chest hospital to carry out chest x-ray for the study sample.
3) A written permission was obtained from the vice minister of education in El-Minia Governorate included his approval to visit the selected schools and then the approval was obtained from headmasters of each school to meet the selected children and collect the study data.
4) A pilot study was performed to evaluate, ensure the clarity, comprehensiveness and applicability of questionnaire. Also

to estimate the approximate time required for each child. It was carried out on thirty children from the quarry of Zawiet Sultan. This sample was excluded from total sample, and then the necessary modifications was done and then according to the results of the pilot study the final form was developed and used in data collection.

5) Every child was interviewed individually by the researcher in selected in which the selected quarries located. Interviews were done in the morning or in the afternoon according to the status of work of child to obtain the necessary information, measure anthropometric measurements and performing the physical assessment for each child. A simple explanation of purpose of the study was done by the researcher to children to gain their cooperation. The length of time needed for interviewing of each child ranged from 30-40 minutes. An average of ten children /day was interviewed during the visit. In each school explanation of the purpose of the research was done to the headmaster of each school to gain their cooperation. The researcher met the students according to their spare time (the classes were either with an absent teacher or had extra curriculum activities). The purpose of the study was explained in simple manner for students in each selected classes to gain students' cooperation.

3. Results

3.1. Participant's demographics

500 children participated in the study. (200 studies and 300 controls. Table (1) shows the demographic characteristic of the participants. It was found that the mean age by year of studied group was 13.0± 1.2year compared to 12.0± 1.2 for control group. 16.5% and 40.0% respectively of studied group were in primary and preparatory education; while 43.5% of them were dropout the education, compared to (20.7% and 79.3% respectively) of control group were in primary and preparatory education. Also the results revealed that about one quarter (25.0%) of both studied and group their birth order was the first compared to (30.8%) of control group.

Also table (1) shows that more than half (59.3%) of studied group their fathers were illiterate, compared to less than half (45.7%) of control group their fathers were illiterate. There was statistical significant difference between studied and control group regarding the father's education. As regard father's job this table shows that more than half of studied group their fathers were unskilled workers, with statistical significant difference between studied and control group regarding the father's job.

(83.3%) of studied group their mothers were illiterate, while, compared to (74.7%) of control group their mothers were illiterate

Regarding to the family income it was found that (70.5%) of studied group their family income was 130 pound and more. Also table (1) revealed that (29.5%) of studied group their family contains six members, compared to (30.7%) of control group

Moreover, more than two fifths (41.0%) of studied group their houses consisting from four rooms, compared to one fifth (20.0%) of control group croup, while (13.5%) of studied group their houses were consisting from more than five rooms, compared to more than two fifths (40.7%) of control group. Regarding to the type of house building it was found that more than three quarters (77.0%) of studied group their houses were built from limestone bricks (white stone), compared to (70.3%) of control group.

According to the reasons of child living with one parent it was observed that (90.0%) of studied group were living with their mothers due to death of father, compared to (46.7%) of control group, while (10.0%) of studied group were living with their fathers due to death of mother, compared to (53.3%) of control group.

Concerning to the socio-economic status it was found (71.5%) of studied group had low social standard, compared to more than half (52.0%) of control group. There was statistical significant difference between studied and control group regarding the socio-economic status (p=0.000).

Table 1: Participant Demographic Data

Items	Studied Group No. 200	%	Control Group No. 300	%
Personal Data Of Studied Sample				
Child's Age				
8-12years	60	30.0	62	20.7
13-14 Years	140	70.0	238	79.3
Mean ± Sd	13.0 ± 1.2		12.9 ± 1.2	
Child's Education				
Primary	33	16.5	62	20.7
Preparatory	80	40.0	238	79.3
Drop Out Education	87	43.5	0	0
Child's Birth Order				
First	50	25.0	92	30.8
Second	43	21.5	61	20.3
Third	34	17.0	49	16.3
Fourth	31	15.5	49	16.3
Fifth	14	7.0	22	7.3
Sixth And More	28	14.0	27	9.0
Family Profile Of Studied Sample				
Father's Education				
Illiterate	108	59.3	134	45.7
Read And Write (Elementary)	33	18.1	67	22.9
Intermediate	36	19.8	78	26.6
High Education (University)	5	2.8	14	4.8
P-Value	0.03			
Father's Job				
Unskilled Worker	101	55.5	108	36.9
Skilled Worker	72	39.6	118	40.3
Business	9	4.9	67	22.8
Total	182*	100.0	293**	100.0
P-Value	0.000			
Mother's Education				
Illiterate	165	83.4	218	74.7
Read And Write (Elementary)	25	12.6	42	14.4
Intermediate	5	2.5	29	9.9
High Education (University)	3	1.5	3	1.0
Mother's Job				
Housewife	174	87.9	270	92.5
Working (Unskilled)	21	10.6	14	4.8
Employee	3	1.5	8	2.7
Total	198*	100.0	292**	100.0
Continue Table (1)				
Family Income				
90 > 110 Pound	2	1.0	1	0.3
110>130 Pound	57	28.5	55	18.3
130 And More	141	70.5	244	81.4
Source Of Family Income				
Father	53	26.5	217	72.4
Both Parents And Their Sons	10	5.0	40	13.3
Father And His Sons	110	55.0	29	9.6
Sons Only	21	10.5	11	3.7
Mothers And Her Sons	6	3.0	3	1.0
P-Value	0.000			
Number Of Siblings				
One Sibling	1	0.5	1	0.3
Two Siblings	4	2.0	19	6.3
Three Siblings	38	19.0	61	20.3
More Than Three Siblings	175	78.5	219	73.0
Family Size				
Four Members	18	9.0	22	7.3
Five Members	47	23.5	68	22.7
Six Members	59	29.5	92	30.7
Seven Members	44	22.0	71	23.7
More Than Seven Members	32	16.0	47	15.6
Housing Condition				
House Lord	188	94.0	293	97.7
Flat Lord	3	1.5	0	0
Rent The Flat	7	3.5	7	2.3
Live With Some Relatives	2	1.0	0	0
Numbers Of Rooms				
Three Rooms	37	18.5	18	6.0
Four Rooms	82	41.0	60	20.0
Five Rooms	54	27.0	100	33.3
More Than Five Rooms	27	13.5	122	40.7

Type Of House Building				
Red Bricks	13	6.5	28	9.3
Green Bricks	33	16.5	61	20.3
White Stone	154	77.0	211	70.3
With Whom The Child Living				
With Both Parents	180	90.0	285	95.0
With His Father	2	1.0	8	2.7
With His Mother	18	9.0	7	2.3
Reasons Of Child Living With One Parent				
Father's Death	18	90.0	7	46.7
Mother's Death	2	10.0	8	53.3

3.2. Nature of child labor in quarry

Table (2) illustrates the nature of child labor in quarry it was found The mean duration of work was 26.1 ± 9.18.Regarding to the reasons of child working it was found that around half of were working for the need to money and to share in family income.

According to the nature of child work in quarry it was found that more than two fifth (43.5%) of studied group were exchange the limestone bricks, followed by those who are modifying separator way and on stone crushers they constituted. Concerning the reasons for choosing this work , more than half (52.5%) of them reported that they work in quarry because it's available and the only chance. However, the majority of children (73.5%) were worked 10 hours per day and receiving one hour break during working hours. Also most of them were taking a weekly day off. Results also explore that more than half (53.1%) of studied group hadn't any pre-placement training before starting the work in quarry.

Also this table revealed that around two third (69.0%) of studied group were not joining to another work before quarry work.

Table 2: Nature of Child Labor in Quarry

Items	No 200	%
Duration Of Working		
18 Month	66	33.0
24 Month	74	37.0
36 Month	47	23.5
48 Month	13	6.5
Mean ± Sd	26.1± 9.18	
Reasons Of Child Working		
Need To Money	58	29.0
School Failure	5	2.5
Share In Family Income	47	23.5
Like To Work	31	15.5
The Job Is Better Than Education	2	1.0
Parents' Wishes	12	6.0
Educational Difficulties	22	11.0
Working With Your Father	5	2.5
Others	18	9.0
Nature Of Work		
Modifying Separator Way	30	15.0
Exchange Limestone Bricks	87	43.5
On Stone Crushers	36	18.0
Loading Stone Into Trucks	4	2.0
Modifying Cutter Way	8	4.0
Powder Shaking	5	2.5
More Than One Specialty	30	15.0
Reasons For Choosing This Work		
Likes To Work In Quarry	27	13.5
Requiring No Qualification Or Special Skills	12	6.0
It's The Available And Only Chance	105	52.5
Having Knowledge About Quarry Work	21	10.5
Others	35	17.5
Hours Of Work		
8 Hours/Day	53	26.5
10 Hours/Day	147	73.5
Rest Break/Day		
Half An Hour	26	13.0
An Hour	174	87.0
Continue Table (2)		
Taking Weekly Days Off		
One Day	195	97.5
Two Days	5	2.5
Past Experience About Quarry's Machines		
Yes	4	2.0
No	196	98.0
Pre-Placement Training (No = 196)		
Yes	92	46.9
No	104	53.1
Length Of Training Period (No = 92)		
Less Than One Week	53	57.6
One Week	37	40.2
Two Weeks	2	2.2
Child's Wage Per Week		
90 Pound	15	7.5
100 Pound	12	6.0
120 Pound	62	31.0
150 Pound	80	40.0
180 Pound	31	15.5
Methods Of Spending Child's Wage		
Spending All On Him Self	46	23.0
Spending On Him Self And His Family	138	69.0
Spending All On His Family	16	8.0
Joining To Another Work Before This Work		
Yes	62	31.0
No	138	69.0
Type Of Previous Work (No = 62)		
Farming	39	62.9
Care Repair	1	1.6
Grocery	5	8.1
Carpenter Workshop	6	9.7
Building	9	14.5
Car Keeper	2	3.2

3.3. Injury resulting from working in quarry

Table (3) clears the distribution of studied group according to the injury resulting from working in quarry it was found that less than two third (64.5%) of studied group exposed to injury during work in quarry. (60.5%) their injuries were resulting from falling of heavy limestone and (10.8%) of them their injuries were resulting from electrical cause, while (28.7) of them their injuries resulting from using unsafe machines. Moreover, (44.2%) exposed to injury in their toes and legs. Regarding to the effect of injury it was found that more than three quarters (75.2%) of them who exposed to injury, these injuries needed hospital admission.

Table 3: Injury Resulting from Working in Quarry

ITEMS	NO = 200	%
Exposure to injury		
Exposed	129	64.5
Not exposed	71	35.5
Causes of injury		
Falling heavy stone	78	60.5
Electrical cause	14	10.8
Using unsafe machines	37	28.7
Site of injury		
Fingers and hand	48	37.2
Head	3	2.3
Toes of foot and legs	57	44.2
More than one site	21	16.3
Effect of injury		
Hospital admission	97	75.2
Permanent disability	21	16.3
Lost part from body	11	8.5

3.4. Physical assessment

Table (4) shows the distribution of studied sample according to the physical assessment it was found that There was statistical significant between study and control group for all items of physical assessment with p- value 0.000

Table 4: Distribution of Studied Sample According to the Physical Assessment

Items	Studied Group No. 200	%	Control Group No. 300	%
Integumentory System				
* Skin				
Normal	1	0.5	197	65.6
Itching	9	4.5	6	2.0
Dry Skin	29	14.5	14	4.7
Cracked Skin	4	2.0	2	0.7
Previous Scar	36	18.0	13	4.3
Laceration	9	4.5	9	3.0
Pallor Skin	9	4.5	38	12.7
More Than One	103	51.5	39	13.0
* Hair				
Normal	161	80.5	284	94.7
Hair Falling	20	10.0	6	2 .0
Others	19	9.5	10	3 .3
* Nails				
Normal	124	62.0	289	96.3
Platynchia	76	38.0	11	3.7
*Teeth				
Normal	87	43.5	198	66.0
Mottled Teeth	25	12.5	38	12.7
Decayed Teeth	63	31.5	51	17.0
Missed Teeth	9	4.5	1	0.3
More Than One	16	8.0	12	4.0
* Gum				
Normal	181	90.5	298	99.3
Spongy, Bleeding, Spots	19	9.5	2	0.7
* Tongue				
Normal	152	76.0	291	97.0
Fissured Tongue	48	24.0	9	3.0
Digestive System				
Normal	105	52.5	251	83.7
Vomiting	10	5.0	7	2.3
Anorexia	18	9.0	3	1.0
Diarrhea	12	6.0	10	3.3
Colic	39	19.5	26	8.7
More Than One	16	16.0	3	1.0
Respiratory System				
* Chest				
Normal	12	6.0	223	74.3
Cough	35	17.5	33	11.0
Cough With Sputum	71	35.5	34	11.3
Dyspnea	12	6.0	0	0
Chest Pain	6	3.0	1	0.3
Asthma	6	3.0	0	0
More Than One	58	29.0	9	3.0
* Nose				
Normal	43	21.5	221	73.7
Nasal Obstruction	51	25.5	33	11.0
Continuous Influenza	4	2.0	17	5.7
Epistaxis	13	6.5	7	2.3
Nasal Breathing	5	2.5	1	0.3
Continuous Catarrhal	31	15.5	0	0
Wheezing	20	10.0	0	0
Nasal Discharge	24	12.0	8	2.7
More Than One	9	4.5	13	4.3
Musculoskeletal System				
Normal	12	6.0	248	82.7
Backache	77	38.5	22	7.3
Muscle Twitching	48	24.0	21	7.0
Sprains	3	1.5	2	0.7
Fatigue	15	7.5	3	1.0
More Than One	45	22.5	4	1.3
Cardiovascular System				
Normal	158	79.0	282	94.0
Slow Heart Rate	5	2.5	2	0.7
Rapid Heart Rate	32	16.0	13	4.3
Weak Pulse	5	2.5	3	1.0
Eye				
Normal	85	42.5	241	80.3
Blurred Vision	19	9.5	17	5.7
Excessive Tearing	24	12.0	10	3.3
Redness	52	26.0	15	5.0
Impaired Sight	5	2.5	9	3.0
More Than One	15	7.5	8	2.7

p- Value 0.000

3.5. Anthropometric measures

Table (5) shows the distribution of studied sample according to the body mass index it was found that There was statistical significant difference between studied and control group groups regarding body mass index (p = 0.01).

Table 5: Distribution of Studied Sample According to Their Anthropometric Measures

Items	Studied Group No. 200	%	Control Group No. 300	%
Body Mass Index				
Under Weight	19	9.5	14	4.7
Normal	1 50	75.0	252	84.0
At Risk	17	8.5	24	8.0
Over Weight	14	7.0	10	3.3
P-Value	0.01			

Items	Studied Group Mean ± Sd	Control Group Mean ± Sd	T-Test
Skin Fold Thickness	.82 ± .39	.95 ± .54	0.004
Mid Arm Circumference	20.3 ± 2.3	19.5 ± 2.9	0.006

3.6. Bad health habits

Table (6) shows the distribution of studied sample according to the bad health habits it was found that (31.5%) of studied group were smokers, compared to (5.7%) of control group. There was statistical significant difference between studied and control group groups regarding the practice of smoking habit (p=0.000).
According to the addiction it was found that (11.0%) of studied group were addicted, while no one of control group were addicted. Moreover, more than half (54.5%) of studied group were drug abused and (45.5%) of them used others things as plants which called tatora.

Table 6: Comparison between Studied and Control Group According to Their Bad Health Habits

Items	Studied Group No.= 200	%	Control Group No.= 300	%
Smoking				
Smoker	63	31.5	17	5.7
Non Smoker	137	68.5	283	94.3
P-Value	0.000			
Duration Of Smoking				
One Year	18	28.5	7	41.2
Two Years	34	54.0	10	58.8
Three Years And More	11	17.5	0	0.00
Type Of Smoking				
Cigarette	60	95.2	17	100.0
Shesha	3	4.8	0	0.00
Number Of Cigarette Per Day				
Four Cigarettes	8	10.0	3	17.6
Eight Cigarettes	14	23.3	4	23.5
Ten Cigarettes	14	23.3	8	47.1
Fifteen Cigarettes	21	35.0	2	11.8
Twenty Cigarette	5	8.4	0	0.00
Addiction				
Addicted	22	11.0	0	0.00
Not Addicted	178	89.0	0	0.00
Type Of Addiction				
Drug Abuse	12	54.5	0	0.00
Others	10	45.5	0	0.00

3.7. Work hazards

Table (7) shows the distribution of studied group according to the exposure to occupational hazards and their work environment and the presence of personal protection equipment. These results explored that most of studied group exposed to all items of work hazards and these are a serious indicators, that all children who are working at quarries setting may be exposed to many injuries or diseases.

Table 7: Distribution of Studied Group According to Their Exposure to Work Hazards

Items	No 200	%
Physical Hazards		
Bad Odors	200	100.0
Poor Lighting	178	89.0
Poor Ventilation	200	100.0
Excessive Heat	200	100.0
Excessive Cold	200	100.0
Mechanical Hazards		
Use Of Sharp Tools	196	98.0
Use Of Unsafe Machines	196	98.0
Chemical Hazards		
Use Of Chemicals	200	100.0
Dust	200	100.0
Psychosocial Hazards		
Emotional Strain	168	84.0
Stress	195	97.5
Interpersonal Problems	163	81.5
Cleanliness Of Workplace		
Inadequate	200	100.0
Presence Of Tap Water For Drinking		
Not Present	200	100.0
Presence Of Toilet Facilities		
Not Present	200	100.0
Presence Of Place For Eating And Rest		
Not Present	200	100.0
Hand Protection		
Not Present	200	100.0
Foot Protection		
Not Present	200	100.0
Head Protection		
Not Present	114	57.0
Irrelevant	86	43.0
Special Cloths		
Not Present	200	100.0
Eye Protection		
Not Present	110	55.0
Irrelevant	90	45.0
Ear Protection		
Not Present	200	100.0
Child's Using Of Personal Protective Equipment		
No	102	51.0
Not Always	98	49.0
Special Place For Keeping Personal Protective Equipment		
Not Present	200	100.0

4. Discussion

Child labor constitutes a major challenge everywhere, whether in developed or developing world. Working children have a high rate of accidental injury on the job. Work keeps children from normal childhood activities and often from school (Ibrahim et al., 1999) Also child labor is recognized as global health problem and it remains one of the most provocative and controversial challenges facing the world at the beginning of the 21st century. Child labor in stone quarries has an adverse impact on the health and development of working children (Reggero et al., 2007). Child labor in quarrying is in virtually all cases, a worst form of child labor because of the extent and severity of the hazards and the risks of death, injury and diseases (International labor organization 2005). Therefore, the present study was initiated to identify the impact of child labor in stone quarries on his health status in El-Minia city.

4.1. Personal data of the studied sample

The Egyptian child law (1996) and the national law in many countries prohibit children from working before the age of fourteen; the present study revealed that all of the studied group were less than 15 years old. This finding agreed with (Haggag in 1995, Mahmoud 2004, the national survey of Egyptian adolescents in 1999). As regard child's education, the results of this study shows that more than two fifths of the studied groups were dropout from education. This may be attributed to the exposure of working children to injury, long duration of working hours and hard work of quarrying work which prevent these children from going to school and hence miss the class hours, also working children always complaints from fatigue and headache which affect the child concentration. The present study was agreement with (Yassi 2001& Mahmoud 2004).

On the other hand the present study reported that about quarter of the studied group was the first and second child in the family. This may be explained as the norms of our society as the eldest child must be share in family income with his parents. The present study is in disagreement with (Haggag1995) who reported that most of the working children were the second or third child in the family.

4.2. Family profile of the studied sample

Regarding to their father's education the present study indicated that more than half of the studied group their fathers' were illiterate. This may be attributed to early employment of working children resulting from father's ignorance about the importance of education. This result go in line with (Haggag 1995) and study carried out in Lebanon by (. Nuwayhid et al; 2005).

Also more than half of the studied group their father's jobs were unskilled workers especially in quarrying sector. This may be explained by the norms of our society as some families have a tradition of their children must following their parents' footsteps (i e those fathers have concept that their children must take the same job of them). These results go in line with study carried out in Alexandria by (Mahmoud 2004)

On other hand the present study revealed that more than half of the studied group their family source of income was the father and his sons. This can be attributed to child labor is considered as a mean to improve family economic status. Also the present study showed that some of the studied group comes from large families. This may be attributed to the economic burden which exists on parents of large family number which lead to employment of their children. The same finding was reported by other studies (Mitra 1993, Haggag 1995, Leske & Ripa 1996).

4.3. Nature of child labor in quarry

Concerning to duration of working, the present study recorded that about half of the studied group had been working between 24 to 36 months. These results go in line with (Nuwayhid et al 2005). According to the reasons of starting the work among studied group it was found that the main common causes of work among studied group were need to money, to share in family income and due to educational difficulties. This may be explained as those children come from very low social standard families. This finding comes in the same line with (Haggag 1995, national survey of Egyptian adolescents 1999, Assaad 2001, Hawamedeh et al; 2001, Mahmoud 2004.

The present study indicated that more than two fifth of the studied group were exchange limestone bricks, followed by those who are modifying separator way and those who work on stone crushers. Also the present study showed that the most common reasons of choice this job were it is the only available chance, or likes to work in stone quarry, or for other reasons such as wages in the quarries are more than any job, or there is no other workshops in their villages and or to be as other children who work in the quarry. This finding is agreed with (Haggag 1995).

The labor low sets a maximum number of working hours per day as six hours for young person's their age ranged from (15-18 years) and the working hours should interrupted with one or more meal breaks for every four consecutive working hours a rest break not less than one hour should follow. However, the situation in this present study was different, where less than three quarters (73.5%) of the studied group were working up to ten hours daily and (13.0%) of them were working up to eight hours daily. Similar results were reported by (Haggag 1995). Moreover, the vast majority of the studied group were taking one day off weekly. This finding is in contrast to the study of (Haggag 1995).

Pre-placement training or orientation is very important to help workers to gain knowledge and develop the skills necessary to perform the job efficiently and it throws light on the hazards involved in the job and measures to protect themselves. The present study indicated that more than half of the studied group hadn't received any pre-placement training or orientation before starting the work in the quarry. The same finding was reported by other study (Haggag 1995. In spite of the dangers, however, many children choose quarry work over other jobs simply because its pays better so that the present study recorded that two fifths of the studied group were receiving 150 Egyptian pounds per week and less than one third of them were receiving 120 Egyptian pounds pre week. This finding comes in the same line with (daily star Egypt staff 2006) and in contrast to study of (Haggag 1995), this is may be due to the different of study setting of this study.

As regard the methods of spending child's wage, the present study clears that more than two third of the studied group were spending their wages on themselves and on their families. Similar results were reported by (Nuwayhid et al; 2005). Also the present study showed that more than two third of the studied group were not jointed to another work before stone quarry work. This is may be due to quarrying sector is the only and available job and it provides wages more than any other job.

4.4. Injury resulting from working in quarry

The present study revealed that less than two third of the studied group was exposed to work injury during their work in the form of cuts, lacerations, abrasions, falling and fractures. This resulted from falling heavy limestone bricks (60.5%), using unsafe machine (28.7%) and electricity (10.8%). Moreover, more than one third (37.2%) of these injuries were in fingers and hand and more than two fifth (44.2%) of these injuries were in toes of foot and legs. This is may be due to falling of limestone bricks on the legs and hands.

Concerning to the effect of work injury, the present study recorded that more than three quarters of work injuries were required hospitalization, and (16.3%) of work injuries causing permanent disability such as amputation of a finger or toe, partial loss of vision or impaired hand movement. This is may be due to lack of pre-placement training, lack of experience, lack of attention span of young children, unavailability of protective equipment and incompatibility of the physical strength and measurements of the child with the used tools and performed tasks. The same findings were reported by other studies (International programme on the elimination of child labor (IPEC), 2002, Daily star Egypt staff, 2006).

The present study revealed that most of the studied group were exposed to injury among their different types of work. The most common nature of work in which the children were exposed to injury was modifying separator way, exchange limestone bricks, on stone sorters and who work more than one nature of work. This is may be attributed to quarrying work is dangerous and hazardous in all natures of its work. In relation to the relation between nature of work and causes of injury the present study showed the most common causes of injury among studied group who exchange limestone bricks were falling heavy limestone and electrical cause, also the using of unsafe machines and electrical cause were the most common causes of injury among studied group who modifying separator way.

4.5. Nutritional status of study sample

The present study indicated that three quarters (75.0%) of the studied group had normal weight, (9.5%) of them were under weight and (7.0%) of them were overweight, compared to (84.0%, 4.7% and 3.3% respectively) of control group. This is due to a consequence of poor and imbalanced diet because the majority of the studied group depend on carbohydrates as the main source of food intake. This result go in line with (Haggag 1995).

4.6. Effect of child labor in stone quarries on his physical status

The present study revealed that most of the studied group reported one or more of physical complaints which affecting the different body system

Integumentary complaints: which include skin, hair, nails, teeth, gum and tongue problems, which were reported in high percentage among studied group than control group. Skin disorders were the most frequently reported category of occupational diseases in quarrying sector. It was manifested in the form of dry skin (14.5%), pervious scars (18.0%), lacerations (4.5%), and more than one complaints (51.5%), compared to 4.7%, 4.3%, 3.0% and 13.0% respectively) of control group. This is may be due to exposure to chemicals, sunlight, using unsafe machines or falling heavy limestone bricks, while among control group it was occurred during playing. The same finding was reported by other study (Graitcer & Lerer 2000).

Concerning to the nails disorders, it was found that more than one third (38.0%) of the studied group were had platynchia nails, compared to (3.7%) of control group. Teeth disorders in the form of decayed teeth were higher among studied group than control group. This finding may be attributed to studied group were consumed large amount of carbohydrates in the form of sweet and due to bad oral hygiene among them. These results go in line with Mahmoud (2004, Haggag 1995).

Digestive complaints; the most common digestive problems among studied group were abdominal colic, anorexia and diarrhea. These may be due to lack of personal hygiene and or irregular time of meals. The same finding was reported by other studies (Haggag 1995, .Human Rights Watch, 2002, Mahmoud 2004).

Respiratory complaints; the most common respiratory complaints among studied group were cough with sputum, cough, dyspnea, nasal obstruction, epistaxis, continuous catarrhal and nasal discharge. These complain were more prevalent among studied group than control group. This may be due to occupational exposure of the studied group to various types of dust, as well as high temperature and humidity and due to large number of the studied group were smokers. The same respiratory manifestations were stated by other studies (. Mahmoud 1995, Nuwayhid et al, 2005).

Musculoskeletal complaints; such as backache, muscle twitching and fatigue were also most prevalent among the studied group than the control group. This is resulting from lifting heavy limestone bricks, or from nature of work assumed by those children because some natures of work requiring long standing for long periods of times or squatting position. This finding is in agreement with other studies (Mahmoud 2004,Nuwayhid et al,.2005).

According to the cardiovascular complaints, the present study reported that rapid heart rate was most common among studied group than control. This may be attributed to functional disorders aggravated by work, stress and effort. These findings go in line with other studies (Mahmoud 2004, Nuwayhid et al,.2005).

Eye complaints were also more reported by studied group than control group. The most frequently eye complaints were redness of eyes, tearing eyes and blurred vision. Redness of eyes and blurring of vision may be due to defect in visual acuity, and chemical exposure to dust and excessive hot weather, while blurring of vision among control group has other reasons as improper lighting and defect in visual acuity particularly requiring eye glasses. These results go in line with other studies (Quandt et al, 2001, Mahmoud 2004).

4.7. Health habits and practices

early child labor can lead to exposure of working children to undesirable role models and to adverse habits such as smoking, drug abuse and drinking this finding supported by present study which indicated that less than one third (31.5%) of the studied group were smokers, compared to (5.5%) of control group. Moreover, more than half of the studied group who smokers were starting the smoking for two years. This may be attributed to quarry work

provides working children with a sense of independence and an opportunity to spend long hours outside the home, also quarry work encourage young children to imitate their adult peers in such habits and they have the money to purchase the smoking to prove their manhood. This result is in agreement with other studies (. Haggag 1995, Nuwayhid et al 2005).

In addition, (11.0%) of the studied group were addicted and more than half of them were dependent on drugs. They were mainly dependent on medicaments, alcohol and other popular plants such as tatora. This is denotes that the work expose working children to adverse habits such as drug abuse this is may be due to psychological and social factors such as imitation, encouragement by older work mates and the work help those children to have the money to purchase these things, this finding go in line with (Haggag 1995 Nuwayhid et al; 2005) .

4.7. Work hazards associated with child labor in stone quarries

Working children in stone quarries are exposed to many hazards that impaired their safety and health. The present study reported that all studied group were exposed to physical hazards such as poor ventilation, bad odors, excessive heat, excessive cold and poor lighting. Also the vast majority of the studied group were exposed to mechanical hazards. This is due to using of sharp tools and the using of unsafe machines. Moreover, all studied group were exposed to chemical hazards such as dusts. Concerning to psychological hazards, the present study revealed that most of the studied group were exposed to psychological hazards such as emotional strain, stress and interpersonal problems. These results are in agreement with other studies (Haggag 1995, Mahmoud 2004).

The present study reported that environmental sanitation was poor in all selected stone quarries because there was inadequate cleanliness, absence of toilet facilities, absence of tap water for drinking and there wasn't special place for eating and rest. Also the present study recorded that personal protective equipment were available in few quarries (table 28) but it was incomplete and used by a few percent of working children and wasn't stored well. These results go in the same line with (Haggag 1995, Mahmoud 2004)

Regarding the health services which offered in the quarries, the present study found that all studied group not subjected to pre-employment or periodic medical examination which useful in early detection, diagnosis and proper treatment of occupational problems which facing working children. Also the present study reported that all studied group weren't insured medically such as control group.

Health insurance which gives young workers the right to be treated in case of disease as well as to be compensated in case of accident like adult workers was not available in all selected stone quarries. In addition, first aid equipment was present in very few quarries but it was incomplete and there is no special and safe place in the quarries for keeping them. Finally all selected stone quarries aren't protect the working children from occupational hazards and not provide personal protective equipment as well as not provide periodic examination or health insurance for working children.

5. Conclusion

It can be concluded that almost all working children in stone quarries were facing many health complains such as dry skin, pervious scars, petechial nails, decayed teeth, cough with sputum, cough, dyspnea, nasal obstruction, epistaxis, backache, muscle twitching, fatigue, redness of eyes, tearing eyes, blurred vision. They usually use unsafe machines and carry heavy limestone bricks which led to cuts, lacerations, falling and fractures.

Working children in stone quarries are exposed to many hazards that impaired their safety and health. Environmental sanitation was poor in all selected stone quarries because there was inadequate cleanliness, absence of toilet facilities, absence of tap. All selected stone quarries aren't protecting the working children from occupational hazards and not provide personal protective equipment as well as not provide periodic examination or health insurance for working children.

We can recommend that. Provide non-formal education to the working children and place them in a formal education program, provide the parents of children with functional education and opportunities for initiating income generating activities. Working children, their families and employers should receive full information about occupational illnesses and injuries related to quarry work on a regular basis .Also Quarries owners should provide all working children with appropriate protective measures and trained them on methods of protecting themselves from work hazards. In addition insure implementation of the child labor law and its convention for protections of working children in quarrying sector.

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