

Health Status of Stone Workers: A Study in the Davanagere District of Karnataka State

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Received: 11.04.2017 | Revised: 23.04.2017 | Accepted: 24.04.2017

ABSTRACT

The present study aimed at assessing the health status of the stone cutters at Davanagere district of Karnataka state. The study was conducted at Davanagere district of Karnataka state. One hundred and twenty subjects of both genders were divided into male (n=60) and female (n=60) groups. A well-structured questionnaire was framed to gather the information on health status was assessed by through clinical examination, haemoglobin test and morbidity status. The data was collected through personal interview and observation of respondents at work place. The findings revealed that the mean haemoglobin level for the male subjects was 12.5g/dl and female subject was 9.6g/dl. The hemoglobin level was found to be deficient in majority of female workers. The Clinical symptoms observed in male and female subjects were found to have high percentage of (83.3 and 78.3%) dry and rough skin followed by dry and rough hair (81.3 and 85.0%) while discoloured teeth recorded maximum numbers of subjects showing at 51.7 and 56.7 per cent respectively. Overall more number of female workers had nutritional and health problems compared to male workers. It is therefore an urgent need on the part of the policy makers to take effective steps to better the condition of female in stone cutters not only to improve their condition but also to make effective contribution to the society.

Key words: Morbidity, Clinical Examination, Haemoglobin Level, Stone Cutter.

INTRODUCTION

A site on the outskirts of cities having hills or mountains that having been partially cut to get stones, with plastic hutments or small houses built by the owners, houses of stone walls with low entrance clouds of dust and smoke from the crushers, machines etc. always reminds a layman of the stone quarry and crusher

communities. Mining business is one of the developing sector of India, it's growing at larger level and provides hundreds of thousands of well-paying jobs to the skilled as well as unskilled workers. The stone quarries are one of the parts of mining business. Under the policy of mining in India the 'Stone' is categorized as 'Minor Mineral'.

Cite this article: Ravi, Y., Revanna, M.L., Vijayalakshmi, D. and Ravindra, U., Health Status of Stone Workers: A Study in the Davanagere District of Karnataka State, *Int. J. Pure App. Biosci.* 5(3): 164-168 (2017). doi: <http://dx.doi.org/10.18782/2320-7051.2829>

But usually stone quarry activities are seen mushrooming around the mega cities where in the Real Estate construction / developmental activities goes on at large scale. Stone quarry and crushing sector is treated as ‘Small-Scale’, labour intensive’ and un-organized’ sector, providing of survival to over 40 to 50 lakhs of population in the state of Maharashtra¹.

Stone cutter is defined as “Crude stone into masses and blocks (by cutting, shaping, breaking, processing, polishing, removal of sections, etc.) into desirable sizes, patterns and degrees of finishing” (ILO 1919). This is done by using manual and mechanical work tools, for the purpose of building, decoration, creation of statues and similar goals. Various procedures and operations are involved in this work viz. stone cutting, loading and crushing. Based on these operations, the workers are employed at different places as per the nature of work and are exposed to silica dust of different concentrations. The health impact of the working conditions and environmental factors in stone quarry industry have been well documented. And therefore, a very high degree of respiratory morbidity is associated with this industry³. Stone cutting is one of the traditional occupations from generation to generation since many years, Very few studies have been conducted on health status aspects and hence the present study aims at assessing the nutrition status of stone cutters. Therefore, in light of above information the researcher decided to undertake a study entitled the following. Health status of stone cutter: A Study in Davanagere District of Karnataka State.

MATERIALS AND METHODS

The study was carried out in Bangarkkanagudda village Davanagere district of Karnataka state. One hundred and twenty subjects of both genders were divided into male (n=60) and female (n=60) groups, who were engaged in stone cutting were considered for the study. A detailed interview schedule was formulated to elicit the information on

various aspects related to stone cutters. The interview schedule included the information regarding clinical status was assessed by the investigator by visual method (presence of any deficiency symptoms at the time of survey). Modified ICMR proforma was used for the same. Morbidity status of the subjects was assessed by orally enquiring from the subjects whether they suffered from any of the disorders mention in the proforma for the past six months. The left hand middle finger of the selected subjects was cleaned with alcohol and dried with cotton. The finger prick was done with fresh sharp disposable lancet. The usual precaution of avoiding undue pressure and squeezing the fingertip to collect blood drop was taken before drawing the blood in haemoglobin pipette. The blood in the haemoglobin pipette was adjusted to 20 µl and this was transferred to Whatman No.1 filter paper strip. The filter paper was dried and labelled. The subjects were classified into four groups based on the haemoglobin level⁴.

RESULTS AND DISCUSSION

Haemoglobin estimation

As observed in **Table 1** the mean haemoglobin level for the male subjects was 12.5g/dl and female subject was 9.6g/dl. There was a significant difference between the male and female stone cutters. The mean haemoglobin level of male stone cutters (12.51 g/dl) was comparatively higher than the female stone cutters (9.64 g/dl). Shows the classification of stone cutters by haemoglobin range. The low level of haemoglobin existed in 73.33 per cent in male stone cutters followed by female stone cutters (73.33%) had deficient and only 26.67 per cent had low level of haemoglobin, but none of them found to be deficient in male workers. This may be due to the consumption of alcohol and 26 per cent of male stone cutters had acceptable level.

The reason of low level of haemoglobin among the subjects may be due to inadequate of iron through dietary intake, low consumption of meat, egg and green.

Table 1: Distribution of stone cutters according to haemoglobin levels (Sub sample, n=30)

WHO classification	Ranges (g/dL)	Male (n=15)		Female (n=15)		't' test
		No.	%	No.	%	
Deficient	<10	0	0.00	11	73.33	9.52*
Low	Male-10-12.9 Female-10-11.99	11	73.33	4	26.67	
Acceptable	Male > 13 Female > 12	4	26.67	0	0.00	

*Significant at 5% level

leafy vegetables which in turn particularly affects the women as undernourished also affects the overall physical performance which reduce work capacity and increase fatigue and causes nutritional anaemia.

These findings are in line with the findings of Madhu *et al.*⁵ and Revanna⁶ who reported that mean haemoglobin level of farm women was 10.4 g/dl. Mild anaemic (56.6%), moderate (18.8%) and only 24.4 per cent were

found to have normal haemoglobin level.

Clinical symptoms

Clinical symptoms observed among selected stone cutters is presented in **Table 2**. Majority of male stone cutters (83.3%) had dry and rough skin followed by dry and rough hair (81.3 %) and discoloured teeth (78.3%). Few subjects had (21.7%) angular stomatitis and brittle ridge nails (23.3%).

Table 2: Clinical symptoms observed among the stone cutters (n=120)

Clinical symptoms @	Male		Female		Combined	
	No.	%	No.	%	No.	%
1. General appearance						
Good	19	31.7	10	16.7	29	24.2
Fair	24	40.0	32	53.3	56	46.7
Poor	17	28.3	18	30.3	35	29.2
2. Eyes						
Night blindness	1	1.7	1	1.7	2	1.7
3. Mouth						
A. Lips						
Angular stomatitis	13	21.7	14	23.3	27	22.5
B. Tongue colour						
Normal	28	46.7	12	20.0	40	33.3
Pale	2	3.3	2	3.3	4	3.3
Red	30	50.0	46	76.3	76	63.3
C. Gums						
Bleeding gums	5	8.3	2	3.3	7	5.8
D. Teeth						
Normal	14	23.3	10	16.7	24	20.0
Discoloured	31	51.7	34	56.7	65	54.7
Caries	15	25.0	16	26.7	31	25.8
4. Hair						
Dry and rough	49	81.3	51	85.0	100	100.0
5. Skin						
Dry and rough	50	83.3	47	78.3	97	80.8
6. Face						
Diffuse depigmentation	1	1.7	0	0.0	1	0.8
7. Nails						
Kolinychia	6	10.0	3	5.0	9	7.5
Brittle ridge nails	14	23.3	11	18.3	25	20.8

Table 3: Morbidity status of stone cutters (n=120)

Symptoms	Never				Sometime				Occasional				Always			
	Male		Female		Male		Female		Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Pain in hands and legs	2	3.33	0	0.00	10	16.70	5	8.33	11	18.33	3	5.00	37	61.67	52	86.67
Giddiness	36	60.00	25	41.7	15	25.00	24	40.00	2	3.33	1	1.67	6	10.00	10	16.67
Backache	3	5.00	0	0.00	16	26.70	4	6.67	15	25.00	4	6.67	26	43.33	52	86.67
Headache	26	43.33	8	13.30	21	35.00	15	25.00	6	10.00	15	25.00	7	11.67	22	36.67
Fatigue	10	16.67	1	1.67	24	40.00	12	20.00	20	33.33	15	25.00	6	10.00	32	53.33
Body ache	8	13.33	0	0.00	13	21.70	6	10.00	15	25.00	4	6.67	24	40.00	50	83.33
Fever	43	71.67	18	30.00	16	26.70	33	55.00	2	3.33	5	8.33	0	0.00	4	6.67
Breathlessness	44	73.33	38	63.3	11	18.30	16	26.67	3	5.00	5	8.33	2	3.33	1	1.67
Cough	29	48.33	24	40.00	14	23.33	13	21.67	8	13.33	14	23.33	9	15.00	9	15.00
Acidity	34	56.67	30	50.00	20	33.30	25	41.67	4	6.67	4	6.67	2	3.33	1	1.67
Tooth pain	40	66.67	37	61.70	11	18.30	11	18.33	5	8.33	8	13.33	4	6.67	4	6.67
Pain in shoulder	10	16.67	4	6.67	5	8.33	9	15.00	14	23.33	5	8.33	31	51.67	42	70.00
Respiratory problem	45	75.00	52	86.70	12	20.00	6	10.00	2	3.33	1	1.67	1	1.67	1	1.67

Similarly in female stone cutters high percentage (85%) were found to have dry and rough hair, followed by dry and rough skin (78.3%) and discoloured teeth. majority of the male stone cutters (83.33%) seems to be affected by dry and rough skin diseases. This may be because of the reason that, heavy disposal of sunrays when the workers work in the quarry. These findings are in line with the findings of Srinivasan *et al*,⁷. Majority of the male and female workers cent per cent of dry and rough hair. This caused mainly due to inadequate intake of nutrition and may be due to lack of knowledge on good nutrition. Most of the male stone cutters had dental caries 25 per cent and discoloured teeth (51.7%) whereas female (26.7%) and 56.7 per cent dental caries and discoloured teeth respectively. This may be due to improper food habits, unscientific brushing with low quality dentifrices. Fair appearance of the male stone cutters (40%) and female stone cutters (53%). This may be due to the heavy disposal of sunrays when the workers work in the quarry and also they are working 8-10 hours in the quarry.

Morbidity status

Morbidity status of the subjects suffering from illness for the past six months is presented in **Table 3**. Majority of female stone cutters had the pain in hands and legs and back ache (86.67%), followed by 83 per cent had the body ache, while 36.6 and 53.3 per cent had the headache and fatigue respectively. About

61.67 per cent of male stone cutters had pain in hands and legs followed by 26 per cent backache whereas 40 per cent and 51.67 per cent subjects suffered from body ache and pain in shoulders.

Most with respect to health status of subjects of the male stone cutters had pain in hand and legs (61.67%), giddiness (43.33%), fatigue (40%), pain in shoulders (51.67%) and whereas majority of female cases pain in hand and legs (86.67%), giddiness (86.67%), fatigue (53.33%), bodyache (83.33%) pain in shoulders (70 %) and headache (36.67%). These findings are best supported by Hiteshree who reported that regarding the health issues 48 per cent had health problems i.e., chronic body ache(38%), headache(16%), fever(12%), malaria and fatigue (9%). Back pain may be due to the carrying heavy loads and feeling of total fatigue, as a result of performing physical work in a noisy environment. Pain in hands and legs and pain in shoulders this may be attributed workers performing manual work, particularly in uncontrollable forces posture of the body. A stone cutter work with a hammer tools, stone cutting it by the supporting right hand and left hand, cutting of stone with hammer weight 5-6 kg for many hours. These findings are supported by Witold *et al*,⁸. High percentage of respondents reported the fatigue and backache this may be due to considerable heavy work load on stone cutting, who spend 8-10 hours at work and after workers returning continue their day's work at home.

CONCLUSION

Overall more number of female workers had nutritional and health problems compared to male workers. It is therefore an urgent need on the part of the policy makers to take effective steps to better the condition of female in stone cutters not only to improve their condition but also to make effective contribution to the society.

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