

# Effects of Nutrition Education on Nutrition Knowledge of Stone Cutters: A Study in Davanagere District of Karnataka State

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## Abstract

**Objective:** The present study aimed at assessing the nutrition knowledge of the stone cutters at Davanagere district of Karnataka state. **Methodology and Statistical Analysis:** The questionnaire inclusive of 30 statements related to basic health and nutrition concepts was developed and pre-tested to assess the knowledge of stone workers (Male: 60, Female: 60) at Davanagere district of Karnataka in India. After the nutrition education programme for a month, the post test was conducted by using the same questionnaire. The nutrition knowledge was classified as low, medium and high level based on mean and standard deviation. **Findings:** The findings revealed that the higher per cent of stone cutter (45.83 %) had low knowledge, followed by 32.50 per cent stone cutter in the medium level and only 21.67 per cent had high knowledge before the intervention. There was a drastic change observed after the intervention. The stone cutters in the low level group were reduced to 25.83 per cent whereas increase in the knowledge level was observed in the medium and high level groups after the intervention (46.67 % vs. 32.50 % and 27.50 % vs. 21.67 % respectively). The chi-square test showed significant difference at one per cent level. Majority of the respondents (56%) had medium level of knowledge in respect to nutrition practices. **Conclusion:** There was improvement in the nutrition and health practices were observed among male and female respondents after the education provided.

**Keywords:** Effect, Nutrition Education, Nutrition Knowledge, Stone Cutter

## 1. Introduction

Mining business is one of the developing sectors 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<sup>1</sup>. Under the policy of mining in India the 'Stone' is categorized as 'Minor Mineral'. 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 Maharashtra<sup>2</sup>.

According to an International labor organization (1919), 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"<sup>3</sup>. 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<sup>4</sup>.

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

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respiratory morbidity is associated with this industry<sup>3</sup>. The most commonly exposure to mineral dust can cause pneumoconiosis, hazard of contracting silicosis as a result of prolonged exposure to dust containing free silica, back pains and other musculoskeletal problems caused by over-exertion and, incorrect posture while lifting and moving heavy objects<sup>5</sup>. Stone cutters grouped as heavy workers group as per Indian Council of Medical Research (ICMR) classification of activities based on occupations, hence the needs more and a wide range of nutrients to perform various functions in the body and to lead a healthy life. Hence the needs nutrition knowledge and health and hygienic practice. Such information has helped to determine how the present diets can be improved by including certain food stuffs. Hence the present study aims at assessing the impart nutrition education for improving the dietary intakes of these workers.

## 2. Materials and Methods

The location of the study was Bangarakkanagudda village of Jagalur taluk, Davanagere district in Karnataka state. The male and female workers were interviewed to collect information on Nutrition knowledge and Health and hygienic practice of Stone Cutters. The investigation was performed on 120 stone workers selected randomly in the age group of 20-60 years, of which 60 were male workers and 60 were female workers willing to participate in the study were taken from study area.

### 2.1 Imparting Nutrition Education

Knowledge is operationally defined as the body of understood information about recommended nutrition practices by the respondents. Formulated 30 statements related to basic health and nutrition concepts in assessing the knowledge of stone workers which was pre-tested and standardized. Positive and negative statements that deal with either yes or no.

### 2.2 Assessing the Impact of Nutrition Education

After the nutrition education programme for one month, the post test on health and nutrition knowledge and practices was conducted to the rural men (n=60) and women (n=60) in sample group by using the same questionnaire developed to assess the health and nutrition knowledge and practices.

Experts made test was developed to measure the knowledge of the workers about the selected nutrition and health practices. Knowledge of the respondents regarding recommended nutrition practices was measured by using 30 simple questions eliciting information on knowledge of nutrition practices. Each practice was given a score of 'zero' and 'one' for no knowledge and complete knowledge respectively. The total possible score was 30. An individual's knowledge index was calculated by the following formula.

Thus, after computing the knowledge scores, the respondents were grouped into high, medium and low categories by taking the mean and standard deviation as a measure of check.

$$\text{Knowledge index} = \frac{\text{Score obtained}}{\text{Maximum obtained score}} \times 100$$

Category	Score
Low	Less than (Mean - SD)
Medium	Between (Mean $\pm$ SD)
High	More than (Mean + SD)

The percentage increase in knowledge was calculated on the basis of difference between knowledge after nutrition and health and knowledge before nutrition health.

The percentage increase in knowledge was calculated as follows

$$\% \text{ of increase} = \frac{\text{Knowledge after education} - \text{knowledge before education}}{\text{Total number of respondents}} \times 100$$

## 3. Results and Discussion

Table 1 highlights the knowledge of the respondents about individual nutrition practices. Higher per cent (90 to 91.67%) of both male and female were aware on rice is more nutritious than ragi but after the nutrition education, it was increased to cent per cent in male and 95 per cent in female workers. About 73.33 per cent of male and female workers reported that, all vegetables should be washed before cutting and about 33.33 per cent of male and 50 per cent of females reported that, frequent consumption of GLV's are good for health. After the nutrition education it was increased to 75 and 55 per cent in male and 88.33 and 63.33 per cent in female workers respectively. The reasons that could be attributed that stone cutters are

**Table 1.** Knowledge of the respondents about individual nutrition practices

Statements	Male					Female				
	Before		After		% of increase	Before		After		% of increase
	No.	%	No.	%		No.	%	No.	%	
<b>Nutrition</b>										
Rice is more nutrition than ragi	54	90.00	60	100	<b>10.00</b>	55	91.67	57	95.00	<b>3.33</b>
Cooking rice without straining "gangee" is good	45	75.00	47	78.33	<b>3.33</b>	45	75.00	54	90.00	<b>15.00</b>
All vegetables should be washed before cutting	44	73.33	45	75	<b>1.67</b>	44	73.33	53	88.33	<b>15.00</b>
Frequent consumption of GLV in good for health	20	33.33	33	55	<b>21.67</b>	30	50.00	38	63.33	<b>13.33</b>
The vegetable should be cut into large pieces before cooking	13	21.67	40	66.67	<b>45.00</b>	27	45.00	29	48.33	<b>3.33</b>
GLV helps in keeping the bones of young children strong	12	20.00	31	51.67	<b>31.67</b>	20	33.33	35	58.33	<b>25.00</b>
Eating papaya during pregnancy leads to abortion	16	26.67	23	38.33	<b>11.67</b>	48	80.00	49	81.67	<b>1.67</b>
Eating more food during pregnancy will have difficult delivery	12	20.00	17	28.33	<b>8.33</b>	19	31.67	21	35.00	<b>3.33</b>
Who eat less food during pregnancy deliver low birth weight babies	14	23.33	27	45	<b>21.67</b>	30	50.00	41	68.33	<b>18.33</b>
New born baby can't digest milk, it is better to give sugar water	2	3.33	29	48.33	<b>45.00</b>	41	68.33	53	88.33	<b>20.00</b>
Older children do not need to drink milk daily	19	31.67	36	60	<b>28.33</b>	25	41.67	45	75.00	<b>33.33</b>
Eating all types of food provide best nourishment	17	28.33	30	50	<b>21.67</b>	16	26.67	28	46.67	<b>20.00</b>
Many ill effects of health are due to ill balanced diet	21	35.00	47	78.33	<b>43.33</b>	15	25.00	47	78.33	<b>53.33</b>
<b>Health and Hygienic</b>										
Health is related to the food we eat	16	26.67	20	33.33	<b>6.67</b>	4	6.67	8	13.33	<b>6.67</b>
Under weight is not an indicator of ill health in preschool children	16	26.67	26	43.33	<b>16.67</b>	16	26.67	23	38.33	<b>11.67</b>
Dullness are symptoms of malnutrition in preschool children	11	18.33	32	53.33	<b>35.00</b>	5	8.33	22	36.67	<b>28.33</b>
Immunization protects against polio	28	46.67	34	56.67	<b>10.00</b>	22	36.67	32	53.33	<b>16.67</b>
Night blindness can't be cured	20	33.33	27	45	<b>11.67</b>	6	10.00	21	35.00	<b>25.00</b>
Diarrhea is caused due to over eating	10	16.67	26	43.33	<b>26.67</b>	2	3.33	15	25.00	<b>21.67</b>
Living in poor environment is one of the causes of frequent illness	27	45.00	41	68.33	<b>23.33</b>	24	40.00	34	56.67	<b>16.67</b>
Cleanliness prevent many diseases	34	56.67	48	80.00	<b>23.33</b>	33	55.00	45	75.00	<b>20.00</b>
Scabies prevent many diseases	8	13.33	27	45	<b>31.67</b>	5	8.33	25	41.67	<b>33.33</b>
Bore water is safer	21	35.00	27	45	<b>10.00</b>	23	38.33	35	58.33	<b>20.00</b>
Having too many children is harmful to mothers health	20	33.33	31	51.67	<b>18.33</b>	11	18.33	32	53.33	<b>35.00</b>
Heart attracts is caused due to eating more meat	23	38.33	32	53.33	<b>15.00</b>	8	13.33	26	43.33	<b>30.00</b>
Necessary house/surrounding clean	36	60.00	39	65	<b>5.00</b>	36	60.00	41	68.33	<b>8.33</b>
How disease occur and spread	14	23.33	22	36.67	<b>13.33</b>	9	15.00	27	45.00	<b>30.00</b>
Always eatable to be kept covered	34	56.67	43	71.67	<b>15.00</b>	29	48.33	45	75.00	<b>26.67</b>

familiar with these simple nutrition aspects and they do not require any special skills and understanding.

Regarding nutrition knowledge on benefits of GLV's in maintaining the strength in young children, 20 per cent of male and 33.3 per cent of female workers were aware of the same. After the nutrition education, it was increased to 51.67 and 58.33 per cent respectively. The reason may be due to the pamphlets and leaflets had been given to the respondents this might be the reason in the improvement of the knowledge. Similar trend was observed on eating papaya during pregnancy leads to abortion. However, after the nutrition education, the knowledge level was increased from 26.67 to 38.33 per cent in male and 80.00 to 81.67 per cent in female workers.

With respect to statement on dullness are symptoms of malnutrition in preschool children, 18 per cent of male and eight per cent of the female workers were aware of the same. After the intervention, it was increased to 35 and 28.33 per cent respectively. Forty-six per cent of male and 36.67 per cent of female were aware that immunization protects polio, but after the nutrition education, it was increased to 56.67 and 53.33 per cent respectively. Most of the males (45%) and females (40%) were aware on living in poor environment is one of the causes of frequent illness. However, after the nutrition education, the knowledge level was increased to 68.33 and 56.67 per cent respectively. From Table 1 it was observed that in respect of knowledge about nutrition and health practices, there was improvement in the number of male stone cutters by 45 per cent whereas in case of female subjects the improvement was 53 per cent. This may be due to the reason that they might have perceived importance of health and hygiene practices in their life.

### 3.1 Overall Knowledge Level of the Respondent about the Nutritional Practices

Over all nutrition knowledge of stone cutter before and after the nutrition education is presented in Table 2 and Figure 1. The nutrition knowledge was classified as low, medium and high level. With respect to stone cutter, higher per cent of stone cutter (45.83 %) had low knowledge, followed by 32.50 per cent stone cutter had medium level and only 21.67 per cent had high knowledge before the intervention. There was a drastic change after the intervention low level of nutrition knowledge is reduced to 25.83 per cent; medium level was increased to 46.67

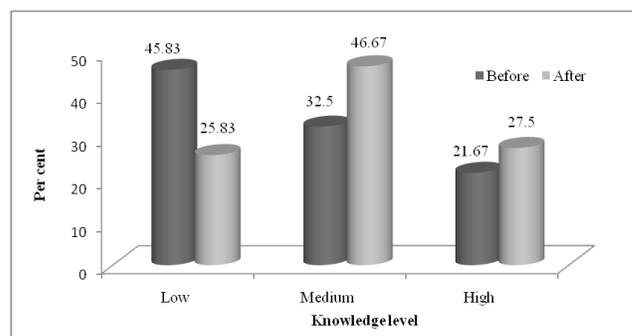
**Table 2.** Overall knowledge level of the respondent about the nutritional practices (n=120)

Categories	Before		After		X <sup>2</sup> value
	No.	%	No.	%	
Low (Mean - SD)	55	45.83	31	25.83	10.570*
Medium (Mean ± SD)	39	32.50	56	46.67	
High (Mean + SD)	26	21.67	33	27.50	

Mean before- (11.48 ± 4.73)

Mean after- (16.37 ± 4.05)

\*Significant at the 0.05 level



**Figure 1.** Overall knowledge level of the respondent about the nutritional practices.

per cent and high knowledge were increased to 27.50 per cent. The chi-square test showed that significant difference was found at one per cent level. Majority of respondents possessed medium knowledge about nutrition practices and only a less number of respondents possessed low level of knowledge, the probable reason may be due to fact that thirty per cent of the respondents were educated up to PUC, high school and middle school level, which might have prompted these respondents to acquire knowledge and their varying degree of interaction of these peoples and showed pictures and posters related to nutrition practices. Accordingly, this helped the respondents to acquire more knowledge about nutrition practices. Hence, majority of the respondents were found to have medium knowledge level. These findings are in line with the finding of the study which reported that pre and post-education on 24-hour recalls (n = 229) showed aggregate intakes improved in all food groups<sup>6</sup>.

## 4. Conclusion

The chi-square test showed that significant difference was found at one per cent level. More number of the

respondents had medium level of knowledge in respect of nutrition practices. There was improvement in male and female respondents about nutrition and health practices after education was provided. So there is utmost need to educate the stone cutters regarding nutrition education to facilitate the intake of energy rich foods, green leafy vegetables, etc. in their daily dietaries to improve nutritional status and health and hygienic practice.

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