



## Effect of Simhasana on Respiratory Problems Among Cement Factory Workers: A Pre Experimental Study

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### ABSTRACT

*Occupational health like health of the people in general deals with promotion and protection of the workers, control of disease by early diagnosis and promote treatment control disablement and rehabilitation of disabled workers, thus it includes primary, secondary, tertiary level of control measures. A pre experimental research design was conducted at Hemadri cement factory, Andhra Pradesh which aimed to assess the effectiveness of Simhasana on respiratory problems among cement factory workers at Jagayyapet and its association with their demographic variables. Data were collected from 30 subjects by consecutive sampling technique which was used by respiratory assessment scale prepared by the investigators and assessed effectiveness of Simhasana. Paired 't' test value was 20.4 and the pre test score which was 56% and the post test score which was 33% significant difference between pretest and post test scores on respiratory problems was 23%. It reveals that the Simhasana was highly effective. No significant association among cement factory workers with their demographic variables ( $p < 0.05$ ). Simhasana can be used to educate workers in various industries like cotton industry, rice, mills, stone cutting, jute mill to prevention of respiratory tract infections. Simhasana was highly effective on respiratory problems among cement factory workers.*

**KEYWORDS :** Respiratory problems, Simhasana, cement factory workers

### Introduction:

Occupational health is the promotion and maintenance of highest degree of physical, mental and social well being of workers in all occupations by preventing departure from health controlling risks and the adaptation of work to people and people to their work. Cement industry is one of the stable growing industries all over the world, including India. It is basically a labor intensive industry. It employs a considerable proportion of population. The cement factory workers usually belongs to poor socio economic strata and thus, most of the cement industries or sites where these workers are employed are unorganized in nature. Cement workers who were susceptible to various morbid conditions by virtue of work place and working conditions. These morbid conditions may range from chronic respiratory disease due to dust inhalation to other diseases. The type of industries and the type of job a workers takes up in an industry vary from one country to another and from one place to other place. In any setup the industries workers is exposed to several hazards and infections, mainly they are exposed to 5 types such as physical hazards which includes frost bite, trench foot, head ache, lacrimation 23%, hearing loss 13%, cancer 26.9%, extreme cases death 73.3%. Chemical hazards which includes occupational dermatitis 19% biological hazards anthrax 23.9%, tetanus 9.8% mechanical hazards which includes 10% of the accidents are due to protruding parts of moving parts of the machines, psychological hazards likes tension, fear, mental ill health.

Respiratory disease is a common and important cause of illness and death around the world among cement factory workers. In the US, approximately one billion acute respiratory infections occur every year. China has the world highest number of death attributed to air pollution due to cement dust. The health problems experienced by the cement factory workers in India are loss of hearing loss due to continues exposure of noise, work induced hypertension, clubbing of fingers, dermatitis, GIT problems, varicose vein, thickening of the mastoid muscles and also highest prevalence are respiratory tract infections such as emphysema, pneumonia, pleural effusion, work related TB, bronchial asthma, chronic hacking cough, laryngitis, etc., problems are caused due to neglected to use personal protective measures such as face mask, gloves, aprons, boots and continuous exposure to inhale able cement dust particles. In order to promote optimum health of the workers the following measures have been recommended and accordingly services are rendered to the workers such as pre placement examination, job training and continuing education, health education, provision of welfare activities, provision of healthy environment, nutritious diet, provision of personal protective equipment, regular physical exercises, daily meditation and yoga practices.

Simhasana has long been in practice from ancient times to cure acute respiratory infection minor mental illness. Brazil University in the Brazil has proved that the Simhasana has the ability to cure respiratory symptoms. Simhasana twice daily reduced the respiratory symptoms such as common cold, dry cough, chest tightness, wheezing, loss of appetite and nasal block in cement factory workers. It is a cheap and safe remedy for the workers who find it helpful. Participants underwent several spirometric measurements. The most respiratory symptoms was chest tightness 20.3% the prevalence of coast 14.2% in cement processing workers. Among these cases 28.6% had symptoms on the 1<sup>st</sup> day of the week, 71.4% had symptoms seem in after 6 months exposure, 53.6% of the workers with black lung disease mean respirable dust levels were between 0.095 and 0.04134 mg/m<sup>3</sup>.

### Material and methods:

The study was conducted by using a pre experimental design with one group pre test and post test design with 30 cement factory workers selected by using consecutive sampling technique from Jagayyapet cement factory at Andhra Pradesh. Subjects were in cement factory workers age group between 21 – 40 years only male workers and who have working experience more than 6 months, respiratory assessment scale were used to assess the respiratory problems of cement workers. It consisted of 15 parameters shortness breath, attack of wheezing, breathlessness during physical activity, dry cough, sleep disturbance, hoarseness, nasal block, continuous sneezing, headache, cough with thick purulent sputum, attacks of chest tightness, night sweats, chills, loss of appetite, continuous fever. It is a 4 points scale and the total score was 60.

### Based on percentage of the scores the level of respiratory problems were categorised into 3 grades. They were,

Grading	Respiratory problems	Percentage of score
Grade I	Not present	0-34%
Grade II	During activity	35-67%
Grade III	At rest	68-100%

The demographic characteristics were collect from cement factory workers. the respiratory assessment scale was validated with nursing expert personnels and used spilt half methods to test reliability of the tool.( $r=1$ ). Prior permission was obtained from Vice President of Hemadri Cement factory at Jagayyapet, Andhra Pradesh and data collection period was one month. Pre test was conducted by using respiratory assessment scale to assess the respiratory problems and after pre test Simhasana was implemented to the workers with the duration of 15 minutes in to two times a day a continuous for the 30

days and post test was used by same scale to evaluate the respiratory problems at the end of 30<sup>th</sup> day of intervention. Data were analysed by using descriptive and inferential statistics.

**Results:**

It reveals that the highest percentage of cement workers were in the age group of 21 – 30 years , the 53% of cement workers had a experience more than 12 months. 535 of cement workers went undergone a frequency of medical check up not in regular and none of them were not practiced Yoga previously. Frequency and percentage distribution of pre test and post test scores of respiratory problems among cement factory workers. Depicts that in pre test all 100% cement factory workers were in Grade II level of respiratory problems , and post test score was 27% in Grade II. Only 73 % of post test score was in Grade I. Paired 't' test was calculated to analysis that difference in pre test and post test scores on respiratory problems. The paired 't' test obtained for shortness of breath was 7.1, breathlessness during physical activity was 3.6, dry cough was 3.2 , sleep disturbance was 5.7, nasal block 10.7, continuous sneezing was 10.6, head ache 5.5, cough with purulent sputum 6.7, attack of chest tightness 8.5, night sweats 3.3, chills 4.3, loss of appetite 5.3. It shows that Simhasana on the above mentioned respiratory problems was significant . Whereas Simhasana was not significant on attacks of wheezing 0.01, hoarseness 0.3, continuous fever 0.01. Hence in cement factory workers over all paired 't' test value was 20.4 when compared to table values 2. 086 it was high . Hence there was significance of Simhasana on respiratory problems among cement factory workers.

**Table 2: Mean, Standard deviation and Mean percentage of cement factory workers duing pre and post test scores.**

RESPIRATORY FUNCTION PARAMETERS	MAXIMUM SCORES	CEMENT FACTORY WORKERS						DIFFERENCE IN MEAN %
		PRE TEST SCORE			POST TEST SCORE			
		MEAN	SD	MEAN%	MEAN	SD	MEAN%	
Shortness of breath	4	2.1	1.2	53%	1.3	0.6	33%	20%
Wheezing	4	1	0	25%	1	0	25%	05
Breathlessness during physical activity	4	2.0	1.14	50%	1.4	0.76	35%	15%
Dry cough	4	1.93	1.3	48%	1.4	0.96	35%	13%
sleep disturbance	4	2.5	1.27	63%	1.36	0.66	33%	30%
Hoarseness	4	1.2	0.62	30%	1.06	0.24	25%	5%
Nasal block	4	3.3	0.94	83%	1.96	1.2	48%	35%
Continues sneezing	4	3.1	0.88	78%	1.4	0.76	35%	43%
Headache	4	2.2	1.18	55%	1.1	0.3	28%	27%
Cough with purulent sputum	4	2.9	1.7	73%	1.66	1.11	40%	33%
Attack of chest tightness	4	3.3	0.94	83%	1.76	1.06	43%	40%
Night sweats	4	1.46	1.1	38%	1.03	0.18	26%	12%
Chills	4	2.1	1.4	53%	1.03	0.18	26%	27%
Loss of appetite	4	1.83	1.17	45%	1.1	0.31	28%	17%

Continues fever	4	1	0	25%	1	0	25%	0%
Total	60	33.3	5.15	56%	1.98	2.0	33%	23%

Chi – square test reveals that there was no significant association between the post test score cement factory workers when compared to age, years of experience, frequency of medical check up and previous practice of yoga. Hence the differences observed in the mean score values were only by chance and not true difference. It seems that Simhasana was effective to all cement factory workers irrespective to their demographic variables.

**Discussion:**

In pre test 100% percentage of workers were in Grade II level of respiratory problems and 73% were in Grade I level of respiratory problems in post test and 26.6% of them were in Grade II level of respiratory problems in post test score. It seems that Simhasana was effective on respiratory problems among cement factory workers. An experimental study on the effect of Simhasana on nasal patency and nasal symptoms in newly joined cement factory workers with common cold in Madhya Pradesh. They have selected 62cement factory workers with common cold by a randomized controlled trial. Simhasana was given for a 20 minutes session each workers recorded the subjective response during the week. Following Simhasana on a daily basis and a week later peak nasal respiratory and aspiratory flow was measured and resulted in alleviating patency in a significantly higher percentage (P 0.005 ) of cement factory workers.

Nurse educators should the nursing personnel's about how to change health practices of workers who are at risk of getting occupational diseases , and role of community health nurse.

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