Occupational Health Problems Among Tobacco Processing Factory Workers, at Kheda District Gujarat: A Cross Sectional Study

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Abstract

Background: Tobacco use is a major public health problem globally. According to the World Health Organization (WHO), tobacco is the second most important cause of death in the world. It is currently estimated to be responsible for about 5 million deaths each year worldwide. In India, it is responsible for over 8 lakh deaths every year. Tobacco use is one of the most important preventable causes of disease and death globally.

Aims of study: To determine the occupational health hazard of tobacco workers.

Objectives:

1. To explore the various types of occupational health hazards among factory workers.

2. To determine the occupational health problems among tobacco factory workers.

Methodology: The researcher has adopted quantitative non experimental research approach. A cross-sectional study was carried among 50 tobacco factory workers in Kheda District Gujarat. The tobacco factory workers who fulfil the inclusion criteria were selected as a sample for the study and sample size was 50, Non-Probability purposive sampling technique was used. The data was collected using a questionnaire and performing a clinical examination. The questionnaire gathered information on demographic factors and adverse habits of the study subjects. The subjects were clinically examined to assess their respiratory health status using lungs function test. Prevalence of tobacco chewing and/or bidi and cigarette smoking, and their socio-demographic correlates, were examined. Collected data were analysed using SPSS statistics software.

Results: Majority of the workers in the tobacco factory had tobacco chewing habits (44%) than smoking (2%) and alcohol drinking (38%). Majority of the workers in the tobacco factory workers belongs to 19-25 years (34%), regards to gender(68%) were male, regards to educational status (60%) were illiterate, Monthly income in rupees (56%) has 5000-10000 INR. Majority of workers had normal BMI (72%). Due to working in the tobacco factory (34%) have respiratory problem tachypnoea. (84%) of workers were having cough problem. (32%) of workers are having Runny and Stiffy nose. (42%) of workers are having Itching in eyes. (44%) of workers are having Skin rash.

Conclusion: The study attempted to assess the health problems among tobacco factory workers. Study result revealed that tobacco factory hazard had a great effect on the tobacco workers, so it should be halted/minimized at an acceptable level. The "Tobacco Control Law" in the country should be enforced strictly so that the owner of the factory maintain healthy environment for the workers to prevent or reduce the occupational health hazards at an acceptable level.

Keywords: Occupational, Health Problem, Tobacco Factory, Workers, Hazard, Gujarat.

INTRODUCTION

Tobacco manufacturing is a traditional company based small scale industry, spread over almost all the major states of India. Several studies from India have revealed that tobacco workers are predisposed to respiratory, dermatological, ophthalmic, and podiatric problems. Nicotine released from the tobacco leaves can be absorbed through skin, mucus membrane of mouth,

respiratory epithelium. The optic nerve is susceptible to damage from several toxic substances including tobacco. Tobacco use is a significant public health risk especially for rural adolescents and youth.

Green Tobacco Sickness (GTS) is a type of nicotine poisoning caused by the transdermal absorption of nicotine from the surface of wet tobacco plants. Tobacco harvesters, whose clothing becomes saturated from tobacco wet with rain or morning dew, are at high risk of developing GTS. The condition is prevalent in Asian and South American tobacco harvesters. Worldwide there are an estimated 33 million tobacco farm workers, with a substantial proportion living in developing countries.

Tobacco use contributes to chronic disease and health problems including cancers, cardiovascular disease, strokes, tuberculosis respiratory disease, gastrointestinal disorders, cancer in oral cavity, reduced physical fitness, increased risk of osteoporosis and broken bones, cataracts, blindness and increased time needed to recover from illness.

Process tobacco leaves, in order to study the prevalence of different physiological abnormalities of tobacco workers who were occupationally exposed to tobacco dust in their work place. Tobacco factory provide livelihood to tobacco workers who are engaged in tobacco cultivation, processing and rolling of Bidis, cigarettes. Environment of tobacco factories are usually polluted by tobacco dust inspirable dust concentration also increased in the air of tobacco factories.

Aims of study: To determine the occupational health hazard of tobacco workers.

Objectives: 1. To explore the various types of occupational health hazards among factory workers. 2. To determine the occupational health problems among tobacco factory workers

Methodology:

Research Design: Quantitative research approach, Non experimental research, cross sectional research design was used to assess the problems among tobacco factory workers in Kheda.

Variables: Demographic variable: - Age, Gender, Marital Status, Educational Status, Family monthly income. Have you undergone any occupational health training.

Study Setting: The present study was conducted in selected factory of Kheda district. For the research the investigators has selected four factories (Alindra, Nanikhadol, Navchetan, Sandhana).

The factory workers who full fill the inclusion criteria were selected as the sample in the study and total 50 factory works has been selected for the study.

Sample: Sampling process entails the formulation of specific criteria for selection. Sample consists of 50 samples of workers of Sandhna, Alindra, Nanikhadol and Navchetan tobacco factory of Kheda district. The investigator adopted probability simple random sampling technique to select the samples.

Criteria for sample selection

• Inclusive criteria:-

1. Worker who have been working in factory of last 6 month.

2. Workers who do not have any disease condition before joining factory.

3. Those who are willingly participate in the study.

• Exclusive criteria:-

1.   Those who not given consent.

2.   Who are not available during data collection?

Tools for Data Collection

Based on the objective of study the following data collection tool was developed in order to obtain necessary information. To collect the data of present study following tool were selected and constructed:

A.   Demographic data

B.   Screening of health problems

C.   Health Assessment (Respiratory Assessment)

Section-A: It includes the demographic information of participants such as age, gender, education, nature of work, experience year in this field, family monthly income, any bad habits, before joining any health problems, after joining any health problems, taking any medication before joining, taken any medication after joining.

Section-B: It includes the health assessment of participants height, weight, BMI, blood pressure, respiration and also include respiratory assessment in this lung function questionnaire include.

Section- C: It contains screening of health problems that affects the factory worker.

Data Collection Procedure

The investigators have taken formal prior permission from concern authority of tobacco factory. The investigators collected data via face-to-face interaction with tobacco factory workers of Kheda and Anand District. The data collection procedure was conducted from May-July 2022. The investigators approached 50 samples individually, discussed the objective of the study. The entire sample gave co-operation during data collection and no any problems occurred during data collection.

Results:

Table No.1 Analysis of the socio demographic variables of Tobacco Factory workers

DEMOGRAPHIC DATA	FREQUENCY	PRCENTAGE
Age in years		
19-25 Years	11	22 %
26-35 Years	17	34 %
36- 45 Years	12	24 %
46-55 Years	6	12%
Above 55 Years	4	8 %
Gender		
Male	34	68 %
Female	16	32 %
Education Status		
Illiterate	30	60%
Primary	13	26 %
Secondary and HSC	5	10 %
Graduate & Above	2	4 %

Nature of work		
Labour Work	40	80 %
Manager/Supervisor	7	14 %
Other	3	6 %
Monthly Income Rupees		
5000-10000	28	56 %
11000-15000	15	30 %
16000-20000	6	12 %
Above 20000	1	2 %
Bad Habit		
Tobacco	22	44 %
Smoking	6	12 %
Alcohol	1	2 %
Not any	19	38 %
Tobacco and Smoking	2	4 %
Before joining any health problem		
Yes	2	4 %
No	48	96 %
After joining any health problem		
Yes	8	16 %
No	42	84 %
Any medication before joining		
Yes	1	2 %
No	49	98 %
After Joining any medication		
Yes	1	2 %
No	49	98 %

Table-2: Frequency and percentage distribution of tobacco factory workers based on the Height, Weight, BMI, Blood Pressure and Respiration rate

S.N.	Height	Weight	BMI	Blood Pressure	Respiration
1	168cm	68kg	24.11	124/80	22
2	170cm	65kg	22.5	110/78	22
3	154cm	42kg	17.7	120/80	16
4	157cm	52kg	21.1	120/80	17
5	162cm	59kg	22.5	110/70	21
6	167cm	49kg	17.6	120/80	20
7	172cm	60kg	20.3	110/70	20
8	158cm	56kg	22.4	120/80	19
9	152cm	39kg	16.9	120/80	22
10	154cm	45kg	18.98	130/80	20
11	137cm	40kg	21.3	120/80	18
12	155cm	55kg	22.9	130/80	20
13	160cm	45kg	17.57	110/80	20
14	135cm	43kg	23.6	120/80	17
15	156cm	50kg	20.5	110/80	18

16	158cm	60kg	24.0	120/80	22
17	141cm	41kg	20.6	130/70	20
18	168cm	64kg	22.7	120/80	20
19	172cm	70kg	23.7	120/80	21
20	180cm	65kg	20.1	110/70	18
21	180cm	75kg	23.1	110/70	18
22	155cm	60kg	25.0	120/80	24
23	159cm	92kg	36.4	120/80	22
24	158cm	79kg	31.6	140/90	24
25	164cm	50kg	18.6	120/80	22
26	154cm	48kg	20.2	110/70	22
27	160cm	50kg	19.5	130/70	20
28	148cm	50kg	22.5	120/80	20
29	162cm	56kg	21.3	110/70	24
30	170cm	86kg	29.8	110/70	20
31	150cm	50kg	22.2	130/70	24
32	175cm	67kg	23.5	120/80	24
33	171cm	63kg	21.5	120/80	22
34	170cm	60kg	21.5	120/80	20
35	168cm	60kg	21.0	110/80	20
36	158cm	55kg	20.5	130/80	19
37	159cm	57kg	21.0	110/80	20
38	163cm	63kg	22.5	120/80	20
39	166cm	60kg	22.0	110/80	22
40	166cm	61kg	22.1	120/80	20
41	170cm	60kg	23.2	130/80	18
42	180cm	60kg	17.0	130/80	18
43	190cm	61kg	16.9	120/80	20
44	190cm	65kg	18.0	120/80	16
45	175cm	52kg	17.0	120/80	18
46	186cm	60kg	17.3	120/80	18
47	191cm	58kg	15.9	120/80	20
48	180cm	65kg	20.1	120/80	16
49	170cm	60kg	20.8	120/80	18
50	164cm	48kg	17.8	120/80	22

Body Mass Index status

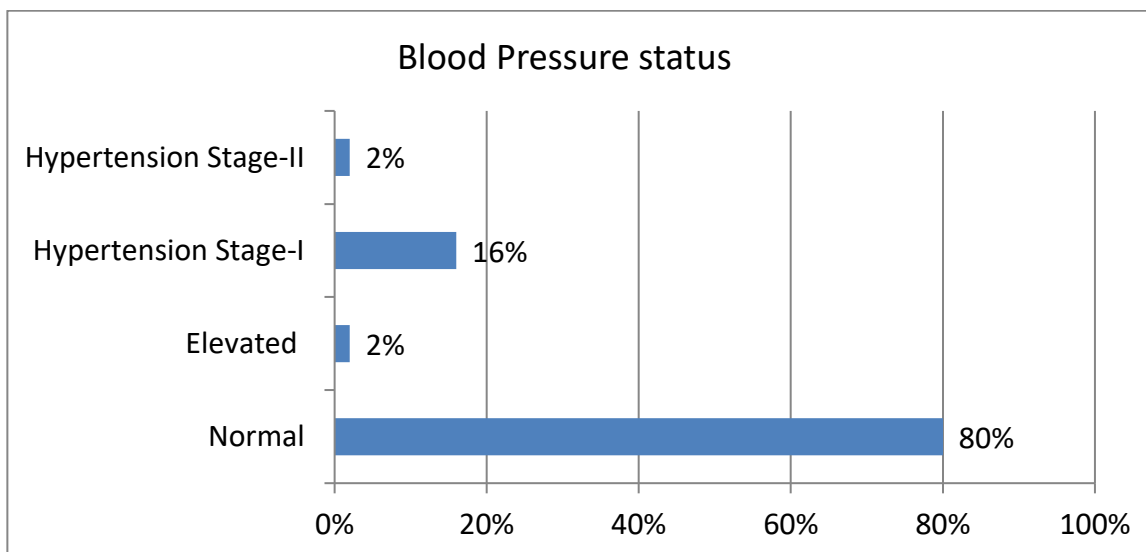| Category	Percentage
Obese Class-II	2%
Obese Class-I	2%
Overweight	2%
Normal	72%
Mild Thinness	12%
Moderate Thinness	8%
Severe Thinness	2%
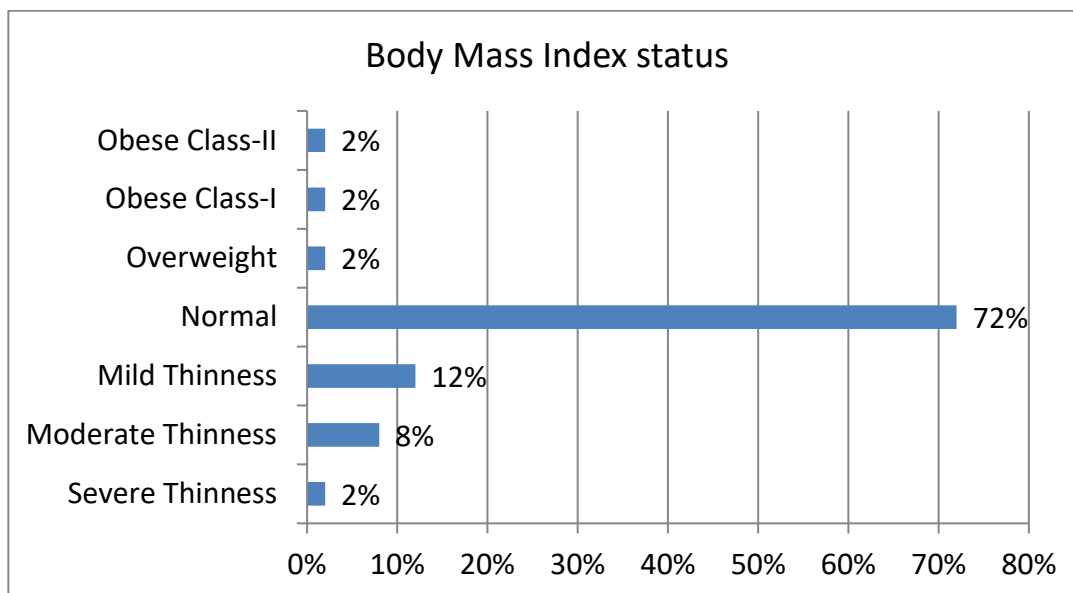
Graph no.1 showing distribution of tobacco factory workers based on body mass index

Table-3: Frequency and percentage distribution of tobacco factory workers based on the Respiration rate.

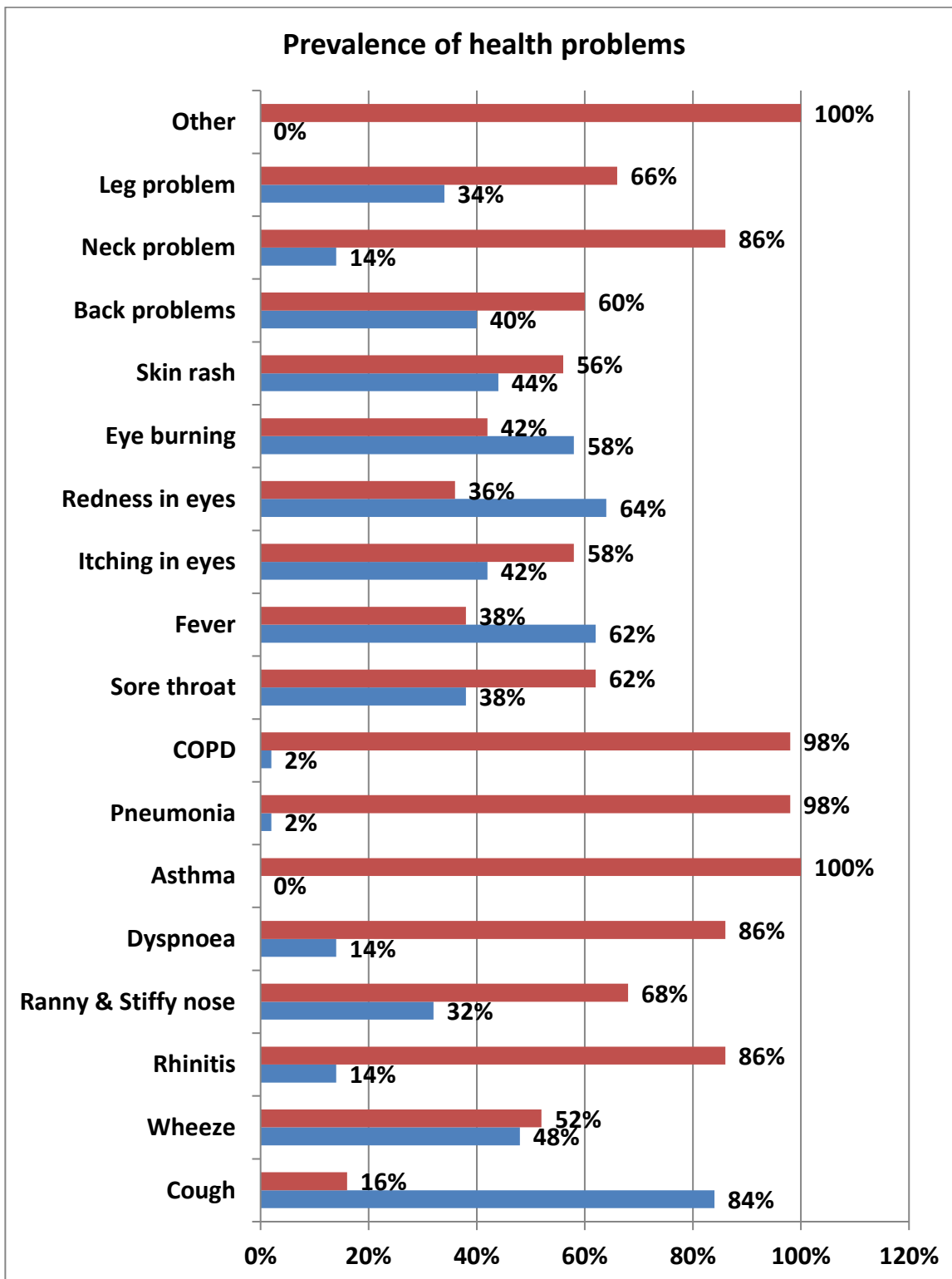| Category	Respiration Range	Frequency	Percentage
Normal	12-20	33	66%
Tachypnoea	>20	17	34%

with regards to respiration range 33(66%) have normal respiration the range is 12-20, 17(34%) have a tachypnoea respiration range is >20.

Blood Pressure status

Category	Percentage
Hypertension Stage-II	2%
Hypertension Stage-I	16%
Elevated	2%
Normal	80%

Graph no.2 showing distribution of tobacco factory workers based on Blood Pressure Status

Table-4: Frequency and percentage distribution of tobacco factory workers based on the Prevalence rate of health problems.

S. No.	Health Problem	No		Yes	
		F	%	F	%
1	Cough	8	16%	42	84%
2	Wheeze	26	52%	24	48%
3	Rhinitis	43	86%	7	14%
4	Ranny & Stiffy nose	34	68%	16	32%
5	Dyspnoea	43	86%	7	14%
6	Asthma	50	100%	0	0%
7	Pneumonia	49	98%	1	2%
8	COPD	49	98%	1	2%
9	Sore throat	31	62%	19	38%
10	Fever	19	38%	31	62%
11	Itching in eyes	29	58%	21	42%
12	Redness in eyes	18	36%	32	64%
13	Eye burning	21	42%	29	58%
14	Skin rash	28	56%	22	44%
15	Back problems	30	60%	20	40%
16	Neck problem	43	86%	7	14%
17	Leg problem	33	66%	17	34%
18	Other	50	100%	0	0%

Prevalence of health problems

Health Problem	Blue (%)	Red (%)
Other	0%	100%
Leg problem	34%	66%
Neck problem	14%	86%
Back problems	40%	60%
Skin rash	44%	56%
Eye burning	58%	42%
Redness in eyes	64%	36%
Itching in eyes	42%	58%
Fever	62%	38%
Sore throat	38%	62%
COPD	2%	98%
Pneumonia	2%	98%
Asthma	0%	100%
Dyspnoea	14%	86%
Ranny & Stiffy nose	32%	68%
Rhinitis	14%	86%
Wheeze	48%	52%
Cough	84%	16%

Graph no.3 Graph showing distribution of tobacco factory workers based on health problems after working in factory.

Table No.5 Respiratory health assessment of the tobacco factory workers

Respiratory Parameter	More than 30 years	21-30 Years	11-20 years	10 Years or less	Never
How many years have you smoke	1 (2%)	2 (4%)	8 (16%)	18 (36%)	21 (42%)

Table No.6 Lungs Functions Test

Respiratory Parameter	Very often	Other	Sometime	Rarely	Never
How often do you cough.	1 (2%)	4 (8%)	16 (32%)	15 (30%)	14 (28%)
How often your chest sound noisy, wheezy, whistling.	1 (2%)	4 (8%)	20 (40%)	14 (28%)	11 (11%)
How often do you experience shortness of breath during physical activities.	1 (2%)	4 (8%)	15 (30%)	20 (40%)	10 20%)

Recommendations

1.   A similar study can be undertaken with a large sample among the tobacco factory workers for better generalization of the findings.

2.   A similar study can be undertaken among other tobacco factory workers.

3.   A similar study can be undertaken in different settings.

Conclusion:

The current research study was designated to assess health problems among tobacco factory workers in Kheda District. The data were collected from 50 samples from tobacco factory workers of Kheda District. According to the study majority of samples have minor health problems.

Conflict of Interest: There is not any conflict of interest between the all authors

Source of Funding: Self-funding

Ethical Clearance: The study was approved by the institutional ethical committee of Dinsha Patel College of nursing, research committee, there are total 9 members. This thesis is approved by ethical committee of Dinsha Patel College of Nursing and a formal written permission was gathered from the authority of or owner of factories prior to data collection.

Statement of Informed consent: Yes, informed consent form was taken from the participants prior to data collection.

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