

HEALTH OF INDUSTRIAL WORKERS-
A GEOGRAPHICAL PERSPECTIVE

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SUMMARY OF THE THESIS

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Introduction

Sound health in relation to vocation and employment is of utmost importance to the very life of the person who works and to the society as a whole. The modern concept of sound health refers to "The health which is the outcome of the interaction between the individual and his environment. He is healthy who is well adjusted". Occupation for the sake of livelihood has always been fraught with situations which causes ill-health. Such situation have been labelled as "health hazards". Occupational health, is, therefore an attention seeking aspect at individual, group and community level. It is equally important for the industry and the society, as the environment, at the industry has directly proportionate impact on worker's health, productivity and progress.

Occupational health has been a matter of concern for many professionals. Rapid and extensive developments in occupational health began in the early 1940's when the second world war made an impact on manpower. In developed and developing countries there has been a growing awareness of its importance.

A brief historical review helps to identify those factors that retard or accelerate developments. There are four that have a positive effect on occupational health : the economic need to conserve the efficiency of the work force;

changing attitudes of workers and their trade unions towards health and safety; compassion which includes a sense of caring for others; increasing competence of health and safety professionals. Not only governments and industries but also individual work places have been influenced by these factors to take more effective action in hazard control and health promotion (Waldron, 1989).

Geography and Health

When questioned as to the nature of medical geography, one usually defines the field as "the application of geographical concepts and techniques to health related problems". Most of us agree that geography is a discipline that bridges the social and environmental sciences. Its integration and coherence derive from system related analysis of man environment interaction through time and over space. By "environment" we holistically embrace its diverse physical, biological, social, cultural and economic components. By "space" we signify a prime interest in the spatial dynamics of man environment phenomena in space. In short geography is a holistic synthesizing, system related, spatio-environmental discipline (Hunter, 1971a). The scope of geographic contribution to health and disease is immense. Thus the impact of the industrial environment on health of population in the spatial and environmental context can immensely help in designing the control strategies for occupational hazards.

Objective of the study

This research in medical social geography aims at examining the impact of industrial environment on human health and to understand the implications of industrial development on the spatial distribution of health patterns. The following objectives were therefore defined for the different categories of industries:

1. To examine the nature of health hazards in different categories of industries.
2. To identify the factors affecting the health of workers in different categories of industries;
3. To examine the nature and magnitude of health problems associated with different categories of industries, and identifying the main hazards within an industrial category.

Hypotheses

1. Type of industry determines the type of health problems.
2. Total length of exposure of worker in industry will have a positive correlation with health problems.
3. Age is positively correlated with level of health problem.
4. Extent of occupational adjustment is strongly related to health.
5. Higher the degree of stress of the worker, greater is the occupational health hazard.

Variables under study

The following are the variables under the study:

1. Age
2. Work experience
3. Exposure to the environment
4. Type of industry
5. Health problems
6. Stress
7. Temperament
8. Adjustment
9. Socio-economic conditions including income, literacy, living conditions, health facilities.

Research Design

This study is explorative - descriptive in nature to probe into various effects on the health of the workers brought about by the type of their work environment.

The study area

The present study is confined to the industries situated within the Vadodara Urban Area. Vadodara is a fast developing city with industrial areas like Nandesari, Makarpura, Pratapnagar, Ajwa, Gorwa surrounding the main city. To get fairly comprehensive view of the industrial

scenario of Vadodara city the following types of industries were chosen for the study:

1. Chemical Industry
2. Heavy Engineering Industry
3. Paint Industry
4. Fertilizer Industry
5. Textile Industry
6. Glass Industry
7. Pharmaceutical Industry
8. Other Industries (unorganised sector).

All the industries selected have played their part in the history of the city and some new ones like fertilizers, chemicals have their definite role in shaping the future of the city. The technological advances in the production procedures and an advancement in the list of products have increased the hazards both for the environment and the human beings in the environment. The city is virtually sitting on the verge of a catastrophe. The greatest harm and damage done is the 'chemicalisation' in the industrial area of Nandesari.

Universe of study

The study is conducted to assess the effect on health of the workers in different types of industries of Vadodara city. These industries were chosen with the intention of giving the study a coverage embracing varied working conditions and exposure to different types of causative

agents bringing about ill-health.

Sample of the study

A total of four hundred and fifty (450) male respondents were chosen who worked in various industrial environments. Thus fifty respondents were randomly selected from seven different categories of industries and a sample of 100 respondents from unorganised sector were taken for the study. Another 100 respondents were randomly selected from the slums adjoining the factories where the workers were interviewed.

Plan for the Analysis of Data

1. Primary information collected is analysed by using descriptive statistics. All such information has been translated in the form of frequency distribution tables.
2. Respondents of all industries are divided into two groups, viz., in respect of their suffering or non-suffering in health areas, stress, occupational adjustment and temperament.
3. Health areas have been associated with exposure, age and type of work.
4. F-Test has been computed to determine whether the type of industry has any association with health hazards or not.
5. Stress, occupational adjustment and temperament have been examined in association with exposure, age and type of work.

FINDINGS

1. Physical infirmities are more associated with chemical, heavy engineering and glass industries where heavy physical labour is involved. Problems of the respiratory system, nose and asthma are more common in the textile and glass industries; while skin problems are highest among chemical and paint industries. It is noted that the problem of stress pervades all industries indicating the strains and stress imposed by the industrial environment.
2. Most of the health problems are related to long years of exposure to the industrial environment. All infirmities are maximum amongst those working for more than 10 years. It is evident that most of the physical and mental problems prevents them taking adequate safety measures at such a late stage.
3. Temperament and adjustment problems are related to the availability of welfare facilities in the industry and the extent of hazards posed by an industry. Thus adjustment is less in the chemical industry due to the potential threat to health caused by handling of toxic chemicals. On the other hand, in the fertilizer industry these components reveal a favourable situation since this industry is well organised and provides adequate steps for the welfare of the workers.

4. Impact of pollution is felt on the health of the people residing in the vicinity of the industrial area which is observed from high respiratory, skin and nasal disorders.
5. Health care facilities for industrial workers are inadequate. Most of the workers prefer private clinics. Most workers consider the E.S.I.S. hospital at Gotri to be located too far for them to have access to this facility.
6. Knowledge, awareness and perception is low, among majority of the respondents.
7. The employer's attitude towards the health hazards is indifferent. Adequate steps are not taken for safety of workers and adequate health care measure are not provided. The general solution for tackling health problems currently adopted by employers is to dispense with the services of the affected worker.
8. Since in an industrial area the percentage of people engaged in industries is very high the ill-health of workers has an adverse effect on the health of society as a whole.

The study has helped to show that there are a number of health problems associated with various industrial

environments that need to be tackled in order to counteract the adverse effects of industrial development and to sustain human progress and well-being.

Industries adopt various types of processes and materials depending on the nature of industry. These processes and agents create varying environmental conditions in which the population is compelled to live and work. The effects of such environment on the health of the population working within or without the industrial units are reflected in the physical and mental disorders afflicting this population at risk. Although the exact occupational diseases could not be identified during this study. The ailments described by the respondents clearly indicate the nature of health problems that are encountered. Some of the problems may intensify over time, resulting in serious outcomes in the future. Since the distribution of industries is uneven over space, the areal distribution of health hazards associated with industries is also bound to vary. In the light of these facts, the findings of this research, which is confined to a single industrial centre, assume considerable significance.

Source of Water :

W.C. :

Electricity :

C. Information on work place:

Name of Industry :

Address :

Experience :

Nature of work :

Type of material handled:

D. Health Services :

Availability of Medical Facility at the Factory site:

: Yes

No

Part-time

Do you visit Private Doctors for your health problems:

: Yes

No

Do you visit ESIS Dispensary/Hospital for your health problems

: Yes

No

Do you think ESIS Hospital is within your reach

: Yes

No

SUFFERINGS ON HEALTH AREAS

Please mark the following statements on a five point scale where 1 is to be marked for least suffering and on another extreme 5 to be marked for the highest suffering and 2, 3, 4 for moderate and moderate to low and moderate to high suffering.

1 2 3 4 5

1. BACK

- ± 1. Do you get spasm of back muscles?
- 2. Is your back pain bearable?
- 3. Do you have to take medicines for back pain?
- 4. Do you get admitted in hospital for back pain?

2. NECK

- 1. Do you get pain in Neck muscles?
- 2. Do you get headache?
- 3. Do you get pain in movements of neck?
- 4. Do you get pain in a particular movement of neck?

3. SHOULDER

- 1. Do you get pain in shoulder?
- 2. Do you get stiffness in upper limb?
- 3. Do you get Tremors in hand?
- 4. Do you get pain in elbow & Hand?
- 5. Does pain radiate from neck to hand?

4. HAND

1. Do you feel weakness in hand; as if things will fall from hand.
2. Do you get tingling in hand?
3. Do you get pain on moving fingers?
4. Do you have pain in joints of fingers?

5. LOWER LIMB

1. Do you feel numbness in lower limb?
2. Do you get tingling in lower limb
3. Do you get pain in knee?
4. Do joints crackle, specially on standing up from sitting position?
5. Do you get pain in toes?

INVENTORY OF SYSTEMS6. RESPIRATORY SYSTEMS

1. Do you have cough?
2. Which time of the day do you get cough
3. Do you get sputum during cough
4. Do you have blood in sputum?
4. Do you get breathlessness (anytime) during cough?
6. Do you get whistling during cough?
7. Did you suffer from T.B.?
8. Did you take treatment for T.B.?

9. Do you feel heaviness in Chest?
10. Do you get fever?
11. Do you suffer from loss of weight?

7. CARDIOVASCULAR SYSTEM

1. Do you get headache?
2. Do you get headache after work,
3. Did you take treatment for high blood pressure?
4. Do you get pain in chest due to exertion (work)?
5. Did you take treatment for any heart disease?
6. Do you feel reeling sensation?

8. NERVOUS SYSTEM

1. Do you get tremors in hand & feet?
2. Do you have paralysis in any part of body?
3. Do you feel change in movements of body parts?
4. Do you get spasms in any part of body?
5. Do you feel depressed mentally?

9. GASTROINTESTINAL SYSTEM

1. Do you get pain in abdomen?
2. Do you get diarrhoea occasionally?
3. Do you feel loss of appetite?
4. Did you suffer from jaundice?

5. Do you get vomiting?
6. Do you throw blood in vomit?
7. Do you feel loss of weight?
8. Do you feel constipated?
9. Do you pass black stools?

10. EYES

1. Do you get burning in eyes?
2. Do you get pricking in eyes?
3. Is there watering from the eyes?
4. Do the eyes become red?
5. Do you remain absent due to eye disease?

11. EARS

1. Do you feel constant noise in ears?
2. Can you not hear normal ticking of clocks?
3. Do you miss hearing certain words during conversation?
4. Do you feel throbbing in the ear?
5. Does pus come out of ears?
6. Do your family members complain of smell from your ears?

12. NOSE

1. Do you get irritation in nose?
2. Do you suffer bleeding from nose?
3. Do you have any difficulty in breathing?
4. Do you catch cold and cough frequently?

13. ASTHMA

1. Do you suffer from Asthma?
2. How frequently do you get asthmie attacks?
3. Do you feel uneasy or suffer chest problem after heavy manual work?
4. Do you suffer from asthma since quite long?
5. Any specific diagnosis made on your asthmie problem.

14. SKIN

1. Do you get itching on skin?
2. Are there spots on the skin?
3. Do you get boils on the skin?
4. Is there water or pus discharge from skin?

15. SLEEP

1. Do you get sleep adequately?
2. Do you have disturbed sleep?
3. Do you feel exhausted even after having sufficient sleep?
4. Do you have habit of getting astonished during the sleep?

Please mark the following statements on a five point scale where 1 is to be marked for least suffering and on another extreme 5 to be marked for the highest suffering and 2, 3, 4 for moderate and moderate to low and moderate to high suffering.

STRESS

1 2 3 4 5

1. Usually fear that I may be terminated from my job?
2. I get tensed occassionally as I think of day's happenings
3. Small things sometimes irritate me
4. My job interfere with my family life.
5. My remuneration is not adequate enough to run the family,
6. Many times I become emotional and tensed

(OCCUPATIONAL) ADJUSTMENT INVENTORY

1. Do you anytime feel unsatisfied by your present job?
2. Is any of your family member mentally unsound?
3. Do you believe in using influence for promotion or pay rise.
4. Do your colleagues behave properly with you
5. Do you think you have to put more hours of work in your present job?

6. Do you plan to change your present job?
7. Do you become unhappy by comparing yourself with your boss?
8. Do you think that your boss personally dislikes you?
9. Do you have to work with people whom you dislike in the present establishment
10. Do you think that your superior is a person in whom you can put your trust.
11. Do you think that you are getting enough pay?
12. Do you appreciate/like all your colleagues
13. Do you hate or love any of your relatives.
14. Does your present job give you enough experience.
15. Do you feel that in your present job you have all the opportunity to express your views?
16. Do you feel that your pay is not sufficient to fulfil your financial needs?
17. Did you get promotion in your job as you have desired.
18. Do you get irritated by any of your co-worker's peculiar habit
19. Does your present job make your life cumbersome
20. Is your good work appreciated by your superior

21. Do you think that you are an obstacle in your present working set-up?
22. Are you being praised by your superior for a good job?
23. Have you taken this job because you were eager to take the job?
24. Do you any time loose courage in your present job
25. Can you easily ask help from others?
26. Do you feel that your work is being scrutinized more by your superior?
27. Do you feel that your present job is boring?
28. Do you feel that you have very little interest in your present job?
29. Do you feel that your attempt to do a work properly is not praised by your superior.
30. Do you have fear of loosing your present job.

G TOOL FOR TEMPERAMENT COMPONENTS

Please mark the following statements on a five point scale where 1 is to be marked for least suffering and on another extreme 5 to be marked for the highest suffering and 2, 3, 4 for moderate and moderate to low and moderate to high suffering.

1 ACTIVE

- * I enjoy hard work and would quickly like to finish what I start.

2. IMPULSIVE

- * My decisions are on the spur of the moment
- * I don't usually think over the matter in depth before any action.
- * I often try new and dangerous (uncommon) ways to attain the goals I have set.

3. DOMINANT

- * I want people to do things as I like
- * I would rather order, then take orders from others
- * I like to work and function on my own sweet will and also want people around me to do the same.

4. EMOTIONAL

- * Stories with sad ending disturb me and make me sad.
- * I usually cry in sad movies
- * I am always deeply moved by small miseries

5. SOCIABLE

- * I take interest in the community programmes, viz. Holi, Diwali, Ganesh Utsav, Id, etc.
- * I make social visits at fellow worker's place

6. REFLECTIVE

- * I like to contribute in meetings, at work place and where I stay by giving new and innovative ideas

- * I am always thinking for something "NEW" to be done in the community and in the work place.

7. NERVOUS

- * Any new venture makes me tense
- * I am not able to concentrate when under pressure
- * Doing any work my hands tremble

8. INTROVERT/EXTROVERT

- * I don't like to meet people
- * I avoid meeting somebody new
- * I don't like to talk to strangers
- * I like to make friends
- * More the people around me more happy I am
- * I enjoy meeting and interacting with new people

Knowledge, Attitude and Perception of Industrial Workers regarding Industrial health hazards:

1. Are you aware of occupational health hazards
2. Are you aware about prevention of health hazards
3. Are you satisfied about remedies of health hazards
4. What is the attitude of management towards health hazards