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Original Research Paper

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HEALTH PROBLEMS AMONG STEEL INDUSTRIAL WORKERS

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ABSTRACT The present study aimed to assess the health problems of the workers in selected steel industries in Kozhikode district. The objectives of the study were to assess the physical and psychological health problems of workers of steel industry, identify the personal protective measures used by workers in steel industry, find out the association between physical health problems and psychological problems with selected demographic variables and to develop a need-based information booklet on importance of use of personal protective measures among steel industry workers. A non-experimental descriptive survey design was adopted for the study, employing 300 workers from selected private and public sector steel industries. The tools used were a semi structured interview schedule to assess the physical health problems, modified standardized general health questionnaire and standardized perceived stress scale to assess the psychological health problems and a practice proforma to assess the usage of personal protective measures. The result revealed that majority of the workers experienced physical problems such as breathing difficulty (43.82%), heart burns (39.71%), skin ulcers (21.32%), joint pain (72.3%). 76% of workers had accidents during their working time. Psychological problems experienced were moderate level of anxiety (29.7%), moderate level of depression (29.90%) and moderate level of stress (47.10%). 75.4% of workers had poor usage of the personal protective measures during the working hours. Based on the above findings a need-based information booklet on importance of use of personal protective measures was prepared and distributed among workers.

KEYWORDS : Health problems; Physical Health problems; Psychological health problems; Personal Protective Measures; Steel industry workers.

INTRODUCTION

The steel and iron industry has been one of the world's most important industries ever since it was first founded. According to World Steel Association in July 2024, the world crude steel production reached 1882.6 million metric tons and showed a growth of 3.6% from 2020.[1]

India has emerged as the second largest steel producing nation in the world, as per the recent figures release by World Steel Association (WSA) in 2024.[2] Total crude steel production in India for 2024 was around 149.6 million tones which was a 6.3% increase from 2023.The steel industry today has made the country proud as never before.[3]

The health and prosperity of a nation, together with many other things, depend on the health of its workforce. Health of the industrial workers will also be influenced by conditions prevailing in their work place. Occupational environment is the sum of external conditions and influences which prevail at the place of work and which have a bearing on the health of the working population.[4]

A cross-sectional study on the morbidity pattern among iron and steel workers from an industry in central India among 400 workers showed the overall prevalence of morbidities among the workers was 60%. Majority of the non-exposed workers in maintenance department and administrative department had experienced musculoskeletal pain (32.25%) followed by occupational dermatitis (27%) which was more common in exposed group. It was seen that occupation-related morbidities were more prevalent in exposed group.[5] Another cross-sectional study among 505 industrial workers on prevalence and risk factors of accidents and injuries reported cuts from sharp objects (37.32%), followed by fractures and dislocation (30.28%) and burns (19.01%), upper head injury (23.24%) and arm/shoulder injury (14.08%). So, its peak time to have an insight into the problem and for the adoption of remedial measures as the factory workers are one of the prevalent populations.[6]

Investigator's own experience as a community health nurse also support the data revealing that industrial workers are dealing with toxic corrosive substances and doing job in high risky areas. So, the investigator had decided to assess the health problems of the workers in steel industry.

Objectives

1 Assess the physical and psychological health problems of workers of steel industry.
2 Identify the personal protective measures used by workers in steel industry.
3 Find out the association between physical health problems and selected demographic variables.
4 Find out the association between psychological problems and selected variables.
5 Develop a need-based information booklet on importance of use of personal protective measures among steel industry workers.

Assumptions

- Steel industry workers are exposed to problems affecting their health.
- Effective use of personal protective measures helps to minimize occupation related health problems in steel industry workers.
- Information guide helps to modify practice of usage of personal protective measures of steel industry workers

METHODOLOGY

Research Approach

Non-experimental approach

Research Design

Descriptive survey design

Setting Of The Study

Study was conducted in selected steel industries in Kozhikode district. The investigator selected Steel complex Ltd, Nallalam, Minar Steels, Kuttikkattoor, and Steel tech, Peruvattoor for the study.42

Population

Workers in steel industries in Kozhikode district.

Sample

Sample for the study consisted of 300 workers of steel

industries. The investigator selected 100 workers from Steel complex Ltd which is a public sector steel industry. 200 workers from private sector steel industries (176 workers from Minar steels and 24 workers from Steel tech.) employing convenience sampling technique.

Tool

The tools used for collecting data consisted of Semi structured interview schedule to assess the physical problems, calibrated B P Apparatus, Stethoscope, and Tuning fork to measure biophysiological measurements, Modified General Health Questionnaire and Standardized perceived stress scale to assess the psychological problems and practice proforma to assess the usage of personal protective measures. Validity and reliability of the all the tools were established and were found to be valid and reliable.

Data Collection Process

The study was conducted after getting clearance from the Institutional review committee Govt.College of Nursing, Calicut and Institutional Ethics Committee from Government medical college, Calicut, Kerala.

The investigator had taken administrative permission from Steel complex Ltd, Minar steels and Steel Tech. From Steel complex Ltd, which is a public sector industry, the investigator selected 100 samples for the study. 200 workers from private sector steel industries (176 workers from Minar steels and 24 workers from Steel tech.) employing convenience sampling technique. Prior data collection, informed consent of the sample was taken. A semi structured interview schedule was used to assess the physical health problems. Biophysiological measures were assessed by using calibrated B.P Apparatus, Tuning Fork, and Stethoscope. Psychological problems were assessed using Modified General Health Questionnaire and Standardized perceived stress scale, and usage of personal protective measures were assessed by practice proforma using self-reporting technique. About 40-45 minutes were taken for each individual.

The data were analyzed using appropriate descriptive and inferential statistics.

RESULTS

Sociodemo Graphic Characteristics

Among 300 workers, 45.30% workers were between the age group of 41-50 yrs, 42.3% had primary education and 62.71% were working in private steel industry.51.41% people had experience below 2 yrs. There were not having a regular health checkup in both private and public sector industries.

Physical Health Problems Of Steel Industrial Workers

Major problems experienced in workers were:

Respiratory System: 43.82 % of the workers had breathing difficulty, 34.44% had allergic asthma and 19.5% had allergic rhinitis

Gastrointestinal System: 42% people had abdominal pain, 39.71% workers experienced heart burns 9% had constipation and 32% had hemorrhoids.

Skin Problems: 24% people had burning sensation over the skin,21.32% had skin ulcers, and 19.31% workers had skin rashes.

Musculoskeletal Problems: 72.32% workers had joint pain, 60.71% had backpain, 39.32% had varicose vein and 12.32% had sprain during their work.

Sensory Problems: 61.32% workers experienced hearing problem as reported by them, 36.71% had ear pain, and 19.74% had eye irritation.

Injuries And Accidents Occurred During Worktime: 76% of the workers had accidents, 58% had burns, 46.74% had cuts and 5.24% had dislocation during their working hours.

Biophysiological Measurements: 77.4% workers were having hypertension. Tuning fork examination did not reveal any hearing abnormalities.

PSYCHOLOGICAL HEALTH PROBLEMS OF THE STEEL INDUSTRIAL WORKERS.

Psychological health problems assessed included anxiety, depression and stress of the steel industrial workers.

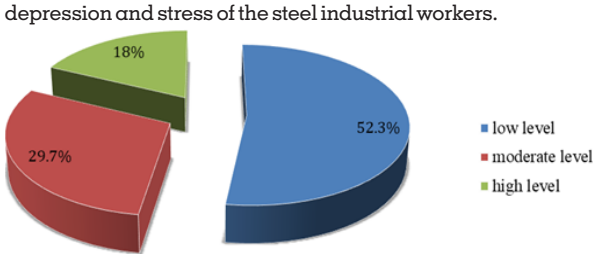

Figure 1: Distribution of subjects based on their anxiety level.

Figure 1 shows that 52.30% workers had low level of anxiety, 29.7% workers had moderate level of anxiety and 18% had high level of anxiety.

Table: 1 Distribution Of Steel Industrial Workers Based On Depression Level

Level of depression	Score	f	%
Low depression	0-7	210	70.10
Moderate level depression	8-14	90	29.90
High level depression	15-21	0	0

Table 1: shows that 70.10% of the workers had low level depression and 29.90% workers had moderate level depression.

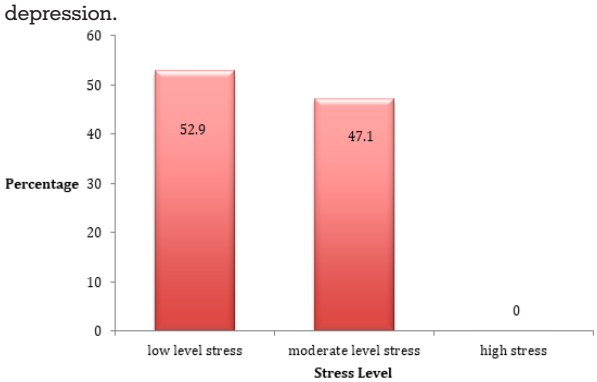

Figure 2: Distribution of subjects based on the stress level of steel industry workers.

Figure 2, it is noticed that 47.10% workers had moderate level of stress, and 52.90% had low level stress.

Table 2 Distribution Based On The Use Of The Personal Protective Measures By Steel Industry Workers. (n=300)

Usage of personal protective measures	Score range	f	%
Poor usage	0-10	227	75.41
Moderate usage	11-20	58	19.59
Good usage	21-30	15	5.0

Table 2 illustrates 75.41% workers had poor usage of the personal protective measures.

ASSOCIATION BETWEEN PHYSICAL AND PSYCHOLOGICAL HEALTH PROBLEMS AND SELECTED DEMOGRAPHIC VARIABLES.

P value is tested at 0.05 level of significance

- Gastro-intestinal problems in steel industrial workers was

significantly associated with selected socio-personal variables such as age (p=0.01), presence of past diseases (p=0.05) and experience (p=0.00).

- Accidents and injuries in the steel industrial workers was significantly associated with age (p=0.00), and experience (p=0.00).
- Anxiety in steel industrial workers was significantly associated with age (p=0.004).
- There was significant association between depression in steel industrial workers and experience (p=0.00).
- There was significant association between stress in steel industrial workers with age (p=0.001) and experience (0.00).

CONCLUSION

The iron and steel industry in Indian economy is a dominant global sector. Occupational health safety of the workers in the such industries are of major concern as there workers are exposed to major work hazards. From the above findings it is clear that the steel and iron industry workers are experiencing major physical and psychological problems and they are not imparting much importance to use of personal protective measures. As reported by the workers need based information booklet on use of personal protective measures was very useful. Henceforth stakeholders of steel industries should follow appropriate strategies to improve overall health and wellbeing of the workers and reinforce the usage of personal protective measures.

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