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Original Research Article

Prevalence of Psychiatric Morbidity and its Associated Factors among Workers in A Small-Scale Industry: A Cross Sectional Study

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Abstract:

Background: Studies related to Psychiatry problems in industrial workers is limited. There are various factors such as shift work, medical illness, substance dependence, sleep problems etc which may precipitate Psychiatry morbidity, resulting in absenteeism and presenteeism, overall affecting both the employer and the employee. It is necessary to identify the risk factors for Psychiatry morbidity among industrial population.

Aims and Objective: The study aims to estimate the Prevalence of Psychiatry morbidity and to assess the contribution of various factors towards Psychiatry morbidity.

Materials and Methods: This Cross-sectional study was conducted over a period of 20 months among Rice mill workers. Workers were recruited to participate in the study after obtaining informed consent. The Mini-International Neuropsychiatric Interview, Hamilton Depression Rating scale and Hamilton anxiety rating scale was used to find the psychiatric morbidity among the participants. The different factors associated with psychiatric morbidity were assessed by semi structured questionnaire.

Results: The prevalence of psychiatric morbidity in our study is 50.8%. Factors such as sleep disturbances, history of psychiatry illness, chronic illness, shift work, higher years of work, poor family support led to higher psychiatry morbidity among the workers.

Conclusion: All employers and employee should be aware of higher Psychiatry morbidity in Industrial workers. It is necessary that industrial workers must be screened annually for mental health problems.

Keywords: Psychiatry morbidity, workers, shift work.

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Introduction

The World Health Organisation (WHO) defines mental health as "A state of well-being in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" [1]. In the global burden of disease study, depression was the predominant mental health problem, followed by anxiety disorders, schizophrenia, and Bipolar affective disorders [2].

WHO estimates that about 50% of people with mental health problems receive no treatment in developed countries, whereas in developing countries, 76 to 85% of people receive no treatment for mental illness. According to the WHO, untreated mental health problems account for up to 13% of the total global burden of diseases, and among various mental health problems, depression will be the leading cause of psychiatric mortality and morbidity by 2030[3].

The importance of mental health among industrial workers is under-recognised, but studies done in India are less extensive than those done abroad among industrial populations. Small-scale industries contribute about 80% of industrial workers. In this century, the number of industries is growing rapidly to meet the needs of consumers, so the population of industrial workers is also increasing. Industrial workers are at higher risk of developing health problems when compared to the general population due to their occupational environment, as they work with risky machines and chemicals and sometimes

in high-risk jobs involving heights, carrying heavy weights, etc. Many researchers have stressed the importance of physical health problems among these workers, whereas the importance of mental health is unrecognised in these populations. Various studies on mental health among industrial populations in India show that the prevalence of psychiatric morbidity in industrial populations is higher compared to the general population, and it is significantly higher in employees with work stress, interpersonal problems, low education, less income, job dissatisfaction, substance use, marital separation, shift duties, and sleep problems. [4,5,6]. Rice mill is an agriculture-based industry, and India ranks second after China in the production of rice, contributing 20% of the World 's total output [7].

Shift work means employees work outside of their regular daytime schedule. There are various types of shift work, like Evening shifts, day or night shifts, on call, more shifts in a single day, and irregular shifts for workers. Workers involved in shifts must adjust and adapt to their changing duty periods. Previous studies have described that long hours of work were characterised by increased job stress and burnout, but at the same time, workers had positive impacts with opportunities for job control and developing good working skills[8].

Presenteeism means employees come to work but are not mentally present due to their health problems, family problems, or stress, which affects both the employer and the employee in terms of productivity and performance [9]. Mental health problems are one of the major causes of presenteeism among the industrial population.

Aim and objectives:

1. To estimate the prevalence of Psychiatric morbidity among Rice mill workers
2. To assess the factors associated with Psychiatry morbidity among rice mill workers.

Materials and Methods

This Cross-sectional study was conducted among rice mill workers in Tiruvallur district, Tamil Nadu, India after scientific and ethical approval from Meenakshi Medical college & Research Institute. The study period was 20 months. The sample size was calculated as 179 based on the study done by Dutta et al and the prevalence of Psychiatry morbidity was taken as 51.6%. The sampling method adopted is consecutive sampling, the sample units are consecutively added until the sample size is achieved. 118 male respondents and 61 female respondents were included in the study.

Inclusion criteria:

1. Age 18 years to 65 years.
2. Both male and female.
3. Availability of informed consent from each worker.
4. Persons working only in production of rice from paddy includes both, paddy drying place and rice mill.
5. Workers must have worked in the production of rice for a minimum period of 6 months.

Exclusion criteria:

1. Age less than 18 years and more than 65 years
2. Workers who did not give consent for the study.
3. Workers who have not worked for a minimum period of 6 month.
4. Workers whose family member (parent, sibling, spouse and child) died in the last 6 months.

Data collection:

After getting the written informed consent the study participants were recruited and purpose of the study was explained to the participants. The semi structured questionnaire was used to collect the social demographic details (age, sex, background, educational status, marital status, religion, socio - economic status, family type and current living arrangements). Information on job attributes (type of work, years of industrial experience, absenteeism and rotating shift works) were collected.

The Mini-International Neuropsychiatric Interview was used to find the psychiatric morbidity among the participants [10]. The Mini-International Neuropsychiatric Interview (M.I.N.I.) was developed in United States and Europe by clinicians and Psychiatrists; it is a short structured diagnostic interview for DSM-IV and ICD-10 psychiatric disorders.

Hamilton Depression Rating Scale [11]: HAM-D was developed by Hamilton in 1960. It is a gold standard rating scale for depression. Severity of depression can be evaluated by HAM-D among depressive patients. The 17 items consist of depressed mood, feelings of guilt, suicide, insomnia (early, middle, late), work and activities, psychomotor retardation, agitation, anxiety, somatic symptoms, genital symptoms, hypochondriasis, loss of weight, insight.

Hamilton anxiety rating scale [12]: The HAM-A was one of the first rating scales developed to measure the severity of anxiety symptoms and used widely in both clinical and research settings. It is clinician-based questionnaire, and it consists of 14 symptoms. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Criticism for the scale is that somatic symptoms were weighted. HAM-A is widely used as an outcome measure in clinical trials for Anxiety symptoms.

Categorical variables were represented as percentage. Continuous variables were represented as mean ± standard deviation. Chi square test were used to find the association between psychiatric morbidity and factors like socio demographic factors, socio economic status, type of illness, type of family, Shift work, Sleep disturbance, Past psychiatric illness, Substance use. P<0.05 is considered as statistically significant. Independent T test were used to find the test of significance between various factors with HAM-D scores and HAM-A scores.

Results:

Table 1: Age, HAM-D and HAM-A scores from the study

	Mean	SD	Minimum	Maximum
Age	33.47	10.565	18	58
HAM-D	6.99	4.699	0	20
HAM-A	8.86	5.405	1	27

HAM-D: Hamilton Depression Rating scale, HAM-A: Hamilton Anxiety Rating scale. The estimated parameters of the sample are given below in the table 1, the age distribution of the study population is (mean ±SD) 33.47±10.565, the HAM-D score of the study population is 6.99±4.699 and the HAM-A score of the study population is 8.86±5.405.

Table 2: Gender distribution of Psychiatry morbidity as assessed by Mini International Neuropsychiatric Interview:

	Depression (17.3%)	BPAD (3.4%)	Anxiety disorders (8.4%)	OCD (5.6%)	AUD (13.4%)	Psychotic (2.8%)	Nil (49.2%)
Male (118)	20 (17%)	6 (5%)	10 (8.5%)	5 (4.2%)	19 (16.1%)	3 (2.5%)	55 (46.6%)
Female (61)	11 (18%)	0 (0%)	5 (8.2%)	5 (8.2%)	5 (8.2%)	2 (3.3%)	33 (54.1%)
BPAD: Bipolar Affective disorder, OCD: Obsessive Compulsive Disorder, AUD: Alcohol Use Disorder							

The prevalence of psychiatric morbidity in our study is 50.8%. 53.4% of the males and 46% of the females had psychiatric morbidity. The prevalence of Depression is 17.3%, 17% among males, and 18% among females. 14% of the population had anxiety disorders with OCD; 12.7% of the males and 16.4% of the females had anxiety disorders. 13.4% of the workers had alcohol use disorders; 16.1% among the males and 8% among the females had alcohol use disorders.

Overall Psychiatry morbidity as assessed by MINI among male and female workers in relation to the total number of workers is described as shown in Table 2.

Table3: Chi-square and p-value for various factors with Psychiatry morbidity, Depression severity and Anxiety severity

Variables	MINI (Psychiatry morbidity)		Ham-D (Depression)		Ham-A(Anxiety)	
	X^2	P value	X^2	P value	X^2	P value
Marital status	2.475	0.480	13.447	0.143	20.372	0.016
Sleep disturbances	6.255	0.012	9.519	0.023	1.203	0.752
Past Psychiatry illness	5.302	0.021	3.311	0.346	2.067	0.559
Physical illness	12.788	0.046	20.477	0.307	11.411	0.876
Shift work	3.531	0.060	10.656	0.014	6.896	0.075
Years of experience	4.073	0.254	17.227	0.045	11.509	0.242

There is a significant association between psychiatric morbidity and sleep disturbances, history of psychiatric illness, and Physical illness. There is a significant association between HAM-D severity and Sleep disturbances, Shift work, and Years of experience. There was a significant association between HAM-A severity and Marital status. The chi-Square value and p-value for the above-mentioned findings are shown in Table 3.

Table 4: Independent t-test of sleep disturbance and family support with Depression and Anxiety score

		t-test for equality of means					
		Mean difference	Standard error	95% confidence interval		t statistic	P value
				lower	upper		
Sleep disturbance with HAM-D score	Equal variances assumed	2.045	0.716	0.631	3.458	2.855	0.005
	Equal variances not assumed	2.045	0.676	0.709	3.380	3.023	0.003
Family support with HAM-D score	Equal variances assumed	-1.677	0.852	-3.359	0.004	-1.969	0.051
	Equal variances not assumed	-1.677	0.952	-3.588	0.233	-1.763	0.084
Family support with HAM-A score	Equal variances assumed	2.028	0.979	0.096	3.959	2.071	0.040
	Equal variances not assumed	2.028	0.863	0.306	3.749	2.348	0.022

In Table 4, The HAM-D score is statistically significant for respondents with sleep disturbances and poor family support. The HAM-A score is also statistically significant for the respondent's poor family support.

Table 5: ANOVA of physical illness, years of experience, marital status with Depression and Anxiety score

ANOVA		Sum of squares	Degrees of freedom	Mean square	F	Significance
Physical illness with HAM-D score	Between groups	323.122	6	53.854	2.567	0.021
	Within groups	3607.872	172	20.976		
	Total	3930.994	178			
Years of experience with HAM-D score	Between groups	180.339	3	60.113	2.805	0.041
	Within groups	3750.656	175	21.432		
	Total	3930.994	178			
Marital status with HAM-A score	Between groups	256.674	3	85.558	3.029	0.031
	Within groups	4942.834	175	28.245		
	Total	5199.508	178			

In table 5, The HAM-D score is statistically significant for physical illnesses like diabetes, hypertension, and hypothyroidism. The Ham-D score is statistically significant for the Years of experience. The HAM-A score is statistically significant for marital status.

Discussion

The prevalence of psychiatric morbidity among the workers is 50.8%, which is on par with the studies done by Dutta et al. and Matoria et al.[13] with 51.7% and 54%, respectively. In our study, psychiatric morbidity was high when compared with the general population. Not many studies have described the prevalence of various psychiatric problems among males and females in the industrial population.

The most common diagnosis was depression (17.3%), of which the proportion among males (17%) and females (18%) was almost equal. This is similar to studies done in India but contrasts with the study done in Vietnam by Tran et al.[14] in which 38.6% were depressed. Females were more depressed than males due to longer hours of work, work hazards, poor family support, and the population studied. These variations can also be due to cultural differences and work characteristics among the population. Depression was higher among the workers who had worked for a longer number of years; this can be due to the increasing age of the worker, burnout, comorbid physical illness, job insecurity, and higher personal responsibilities. Previous studies have not measured psychiatric morbidity with years of work. It is a well-known fact from studies done in the past that people with chronic illnesses like Diabetes and hypertension are more prone to comorbid depression. In our study, also workers with physical illnesses had depression.

The prevalence of anxiety disorders in our study is 8.4%; other studies done in India have shown similar results, and the proportion of anxiety disorders among males and females is almost equal. 13.4% of the workers had alcohol use disorders, which is higher when compared with other studies done in India. Dutta et al. in their study reported alcohol

dependence to be 6.7%, and Kiran et al. in their study had 7.2%. This might be due to the easy availability of alcohol and not knowing the various health hazards associated with it.

51% of the workers doing shifts had sleep disturbances; Dutta et al., in their study among chemical fertiliser companies, reported sleep disturbances among shift workers to be 83.9%. This difference can be due to the type of work; however, in our study, shift workers also had higher sleep disturbances compared with workers without shifts. It may be difficult for a person to adapt his sleep pattern to the rotating shifts at work, so employers must ensure that the workers get adequate sleep and rotate the shifts accordingly.

42% of the shift workers had depressive symptoms. Sleep disturbances and depression have a bi-directional relationship, as explained by Sultan et al.; frequent fragmented sleep due to shift work can lead to chronic sleep disturbances, which may result in depression in the long run. Poor sleep can lead to poor quality of work, various mental health problems like depression, and physical problems. Loss of spouse, Separated or divorced workers had more anxiety symptoms than workers who were married, and workers with poor family support were prone to depressive and anxiety symptoms. Tran et al. also mentioned in their study that workers with poor family support had more depression.

Strengths of the Study:

Identifying risk factors for psychiatry morbidity among rice mill workers will help the physician and Mental health professionals to understand the problems and will be easier to provide treatment accordingly to improve their quality of life.

Limitations of the Study:

The findings of the study cannot be generalised to a larger population due to the minimal sample size. A follow-up study after treating the psychiatric morbidity would provide more information about the impact of treatment and how their quality of life improved.

Conclusion:

Mental health problems among workers are a major problem for both the employer and the employee. Psychiatry morbidity affects the employer by means of absenteeism, presenteeism, and work productivity, whereas the employee also suffers from poor quality of life. Both the employers and employees were psychoeducated about stigma related to various mental health problems, also about the health hazards of the use of substances, absenteeism and presenteeism. Sleep hygiene and progressive relaxation exercises were taught to the persons with sleep disturbances and anxiety disorders. Those who needed psychiatric treatment were advised to follow up with the nearby psychiatric centre for their mental health problems regularly. It is necessary to screen industrial population at least in an annual basis to address mental health problems.

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