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Assessment of occupational stress among textile industrial workers in Kanpur Nagar (U.P.)

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ABSTRACT

The present study was conducted in Lal Imali textile mill of Kanpur Nagar to assess the occupational stress in industrial workers. A sample of 90 workers with >35 years age group were randomly selected from various units. Data were collected through interview cum experimental method. It was observed that the highest noise level (117.8db) was recorded in Weaving unit and minimum (60.00db) in Administration unit. Maximum (66.66%) respondents "Always" faced problem of excess noisy environment and agreed with the physical stress because of low wages and no appreciation of work (Rank I) being the main reason of stress among industrial workers

Key words : Noise levels, Occupational stress, Psychological stress, Social stress

The textile industry occupies a unique place in India accounts to nearly 14% of the total industrial production, contributing to nearly 30% of the total exports and is the second largest employment generator after agriculture.

Development of modern automated machines in the textile industries has considerably decreased the physical burden of work on workers in addition to increasing the productivity of the industrial enterprises but one of the most undesirable and unavoidable by- products of these operations and machines is noise pollution. Industrial workers thus are exposed to these high noise levels because of their occupation. High level noise, not only hinders communication between workers but depending upon the level, quality and exposure duration of noise, it may also result in different types of physical, physiological and psychological stress on the workers.Occupational stress has become a common and costly problem, leaving few workers untouched. It is the interaction of workers and the conditions of work. Thus, this study was designed to determine the physio-psychological stress among industrial textile factory workers.

METHODOLOGY

The study was carried out in Lal Imali Textile Mill in Kanpur Nagar. It had a working population of about 3000 workers. The majority were permanently employed. There is an Administrative department and eight production departments namely, Dyeing, Carding and Combing, Spinning, Weaving, Mending, Finishing, Packing and Engineering. These departments have varied sound levels and workers populations. Survey cum experimental method was adapted to carryout the present investigation. The sample size was 90 workers who were selected by simple random sampling. For experimental data various parameters were used. For measuring noise exposure levels of various departments was recorded by Sound Level Meter and to measure the stress level a five- point scale suggested by Likert (1932) was used. Statistical analysis of the data was employed through frequency, percentage, mean, score and rank.

RESULTS AND DISCUSSION

Data presented in Table 1 revealed that maximum (50%) respondents have been working for 15-20 years in the industry whereas minimum (5%) respondents have 5 years working experience. The duty timing of 77.77% respondents was 6: 00 am to 3.00pm and 22.22 respondents have 6am to 5pm. Majority (50%) of the respondents were working in a 20to 40 workers strength in a shift and less than 28 per cent workers were under more than 60 workers strength. Less than 40 per cent respondents interrupt themselves for 20-30 minutes and minimum (11.11%) interrupted for more than 30 minutes in working hours. Maximum (38.88%) respondents were working 5-10 overtime in a month and 33.33 per cent were not doing overtimes while as 11.11 per cent respondents were doing more than 10 overtimes in a month.

Table 2 shows that maximum average noise level 117.88 db was found in weaving unit and 106.22db in spinning unit which was followed by 97.12db, 89.86db,

Table 1: Distribution of respondents according to personal profile N = 90

Sr. No.	Characteristics	Categories	Respondents	Per cent
1.	Work duration	i) 5 years	5	5.55
		ii) 10 to 15 years	10	11.11
		iii) 15 to 20 years	45	50.00
		iv) > 20 years	30	33.33
2.	Duty timing	i) 6:30 am - 3:00 pm (Shift - 1)	70	77.77
		ii) 3:00 pm - 11:30 pm (Shift - 2)	---	---
		iii) 11:30 pm - 6:30 am (Shift - 3)	---	---
		iv) Both 2 and 3 Shift	---	---
		v) 9 am - 5 pm	20	22.22
3.	Workers strength in a shift	i) 20	15	16.66
		ii) 20 to 40	45	50.00
		iii) 40 to 60	5	5.55
		iv) > 60	25	27.70
4.	Interruption period while work	i) 5-10	30	33.33
		ii) 10-20	15	16.66
		iii) 20-30	35	38.88
		iv) Above 30 minutes	10	11.11
5.	Overtime in a month	i) Not at all	30	33.33
		ii) 5	15	16.66
		iii) 5-10	35	38.88
		iv) > 10	10	11.11

Table 2: Noise level at different distance from the machine in each department

Sr. No.	Units	Noise level (db) at different distance from machine					Average
		1 Feet	2 Feet	3 Feet	4 Feet	5 Feet	
1.	Dyeing	85.2	76.7	75.8	74	72.4	76.82
2.	Carding and combing	104.8	100.7	98.1	95	87	97.12
3.	Spinning	114	110.8	107.3	102	97	106.22
4.	Weaving	124.6	120	117.4	115	112.4	117.88
5.	Mending (Role godown)	90	84.2	80	75.7	75	80.98
6.	Finishing	95	93.2	89.1	86.7	85.3	89.86
7.	Packing	84.5	79.2	77.6	75	73.1	77.88
8.	Administration	---	---	---	---	----	60.00
9.	Engineering	80	76	71	69	65.5	72.30

80.98db, 77.88db, 76.82db, 72.30db, 60.00db were recorded for carding and combing, finishing, mending, packing, dyeing, Engineering and Administration units. The noise exposure in different units was observed above the permissible exposure limit.

Table 3 depicts that majority (66.66%) of the respondents expressed the physical stress because of "Low wages" and 60.00 per cent respondents were found in stress due to " Too much workload while as only 11.11 per cent respondents agreed with "difficult to understand task".

It was observed that low wages (Rank I) is the main cause of stress among the respondents followed by "Lack of opportunities for learning skills" (Rank II), "Completion of work in time" (Rank III). "Risk of accidents" (Rank IV) and "Too much workload "(Rank V) and "challenging work" (Rank VI) were also found one of the reasons for physical stress.

Table 4 indicates that maximum respondents (66.66%) 'Agreed' the physiological stress was because of 'Job as carrier development factor' and minimum respondents (16.66%) found in stress due to 'Fears of errors'.

Less than 45per cent respondents were found under psychological stress due to 'Non appreciation of work' (Strongly agreed) whereas 27.70 per cent respondents

Table 3 : Distribution of respondents according to physical stress **N=90**

Sr. No.	Physical stress	S.A.	A.	U.D.	D.A.	S.D.	Score	Rank
1.	Too much workload	5 (55.55)	60 (66.66)	5 (5.55)	20 (22.22)	---	3.55	V
2.	Challenging work	15 (16.66)	15 (16.66)	40 (44.44)	20 (22.22)	---	3.27	VI
3.	Risk of accidents	15 (16.66)	50 (55.55)	5 (5.55)	20 (22.22)	---	3.66	IV
4.	Completion of work in time	30 (33.33)	45 (50.0)	5 (5.55)	5 (5.55)	5 (5.55)	4.00	III
5.	Lack of opportunities for learning skills	35 (38.88)	40 (44.44)	---	15 (16.66)	---	4.05	II
6.	Lack of variety in work	25 (27.70)	50 (55.55)	5 (5.55)	5 (5.55)	5 (5.55)	3.94	IV
7.	Low wages	60 (66.66)	15 (16.66)	10 (11.11)	10 (5.55)	---	4.44	I
8.	Difficult to understand task	10 (11.11)	50 (55.55)	10 (11.11)	20 (22.22)	---	3.55	V

Table 4: Distribution of respondents according to psychological stress **N=90**

Sr. No.	Psychological stress	S.A.	A.	U.D.	D.A.	S.D.	Score	Rank
1.	Decision causing mental pressure	30 (22.22)	25 (27.70)	25 (27.70)	20 (22.22)	---	3.50	VI
2.	Responsibility of job	30 (33.33)	40 (44.44)	---	20 (22.22)	---	3.88	II
3.	Security of the job	15 (16.66)	55 (61.11)	5 (5.55)	15 (16.66)	---	3.77	III
4.	Job as carrier development factor	5 (5.55)	60 (66.66)	5 (5.55)	10 (11.11)	10 (11.11)	3.55	V
5.	Non appreciation of good work	40 (44.44)	30 (33.33)	10 (11.11)	10 (11.11)	---	4.11	I
6.	Ambiguous functions	5 (5.5)	25 (27.70)	10 (11.11)	25 (27.70)	25 (27.70)	2.55	VIII
7.	Restriction of freedom	30 (33.33)	25 (27.70)	5 (5.55)	5 (5.55)	25 (27.70)	3.33	VII
8.	Fears of errors	35 (38.88)	15 (16.66)	20 (22.22)	10 (11.11)	10 (11.11)	3.61	IV

S.A. = Strongly agree D.A = Disagree A = Agree S.D. = Strongly disagree U.D. = Undecided

strongly disagreed under stress due to 'Ambiguous function'.

Hence, it is concluded that 'Non-appriciation of work' (Rank I) was the main reason of stress among respondents followed by 'Responsibility of job' (Rank II) 'Security of job' (RankIII). 'Fears of errors' (Rank IV) and 'Job as carrier development factor' (Rank V) found the reasons for social stress.

Conclusion:

The study has clearly demonstrated that the workers of textile industry are at high risk of physio-psychological stress due to excessive occupational exposure to noise which was observed above the permissible exposure limit 90dB (A) for 8h/d. Hence, there is a need to develop and apply a well defined, comprehensive and enforceable noise regulation. The efforts shall be made towards reducing the noise by modifications in existing technologies and to establish a hearing conservation programme in plant.

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