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Risk factors faced by female VDT users in Ludhiana district of Punjab

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■ **ABSTRACT :** Computer, a hallmark of technological advancement, has ushered in a new genre of occupational health problems. Since the early nineties, a growing number of people have been using personal computers, both for their office work and personal use. India, being the forerunner in the cyber world, the health personals are slowly awakening to this group of modern occupational diseases, which are slowly taking roots, especially among the Video Display Terminal (VDT) users. Many VDT users report a high level of job related complaints and symptoms including ocular discomfort, muscular strain and stress. This risk increases as the intensity of computer work increases. Therefore, the present study was undertaken to find out various risk factors faced by female VDT users working in various banks of Ludhiana District of Punjab. It was found that 'unhygienic toilets, 'slippery' or 'uneven floor, inadequate light, lack of concentration, frustration, disturbed sleep at night, 'no time for entertainment' and 'high workload' as some of the risks felt by respondents at their workstations. Therefore, these risk factors need to be considered to increase the efficiency of workers.

■ **KEY WORDS:** Risk factors, Female VDT users

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The last two decades have witnessed a rapidly changing trend towards the application of Video Display Terminal (VDT) technology for information management in the workplaces and homes. Most office workers use computers for at least some of the tasks that they perform and many use VDTs for the majority of time that they spend at work. Many VDT jobs do not provide the opportunity to shift one's body position or perform tasks away from the VDT station. Increased psychological stress has also been associated with the use of VDTs. The additional stress may be due to the introduction of new technology and technical procedures, or conditions created by VDT technology, such as monitoring and reducing interpersonal interaction. Evaluation of VDT workstation should focus on the job content, psychological, organizational and environmental factors along with physical ergonomic demands (Iqbal, 2009). It is also important that evaluation technique must address the psychological and work related risk factors of VDT operators, the contribution of both work and workplace design factors and their interactions. Therefore, these risk factors need to be considered to increase the efficiency of workers.

■ RESEARCH METHODS

Field survey was conducted on female employees working on Video Display Terminals (VDT) in different banks of Ludhiana District. Out of four zones of Ludhiana city, two zones were randomly selected. Out of each selected zone, 60 female employees in the age group of 25-35 years working in various private and nationalized banks as VDT users were purposively selected, thus, making a total sample of 120 respondents. A pre-structured interview schedule was used to collect the information regarding environmental, physiological and work related risk factors faced by selected

respondents.

■ RESEARCH FINDINGS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

Environmental risk factors faced by respondents at workstation:

Data in Table 1 depict various environmental risk factors faced by respondents at their workplace. It was observed that unhygienic toilets (50.83%) and slippery/uneven floor (30.83%) were the main environmental risk factors felt by respondents and were found significantly important after analyzing through Z value. Whereas, other factors included inadequate light, sharp edged furniture which were reported by 15-25 per cent of respondents. Very few respondents (5-7%) felt that unhygienic canteen, uncomfortable environmental parameters and inappropriate dimensions of workstation as the

Table 1: Environmental risk factors faced by respondents at workstation

Environmental risk factors	Percentage•	Z
Unhygienic toilets	50.83	10.27**
Slippery or uneven floor	30.83	3.61**
Inadequate light	25.00	1.66^{NS}
Sharp edged furniture	15.00	-1.66^{NS}
Unhygienic canteen	6.66	-4.44^{NS}
Too hot / too cold/ too humid/ too noisy	5.00	- 5.00^{NS}
Inappropriate dimensions of workstation	5.00	- 5.00^{NS}

•Multiple responses NS=Non- significant * and ** indicate significance of values at P=0.05 and 0.01, respectively

Table 2: Psychological risk factors faced by respondents

Psychological risk factors	Percentage•	Z
Lack of concentration	47.50	9.16**
Frustration	45.83	8.61**
disturbed sleep	40.83	6.94^{NS}
Frequent bad mood	30.83	3.61**
Dual pressure of work and family	29.16	3.05**
poor memory problem	26.66	2.22*
Lack of social interaction	25.83	1.94^{NS}
Increased irritation	25.00	1.66^{NS}
Difficulty in decision making	19.16	-0.27^{NS}
Hypertension	13.33	2.22*
Panic of job loss	9.16	-3.61^{NS}
Low self confidence	7.5	-4.16^{NS}
Pressure to achieve target	6.66	-4.44^{NS}
Gastric problems	6.66	-4.44^{NS}

•Multiple responses, NS=Non- significant, * and ** indicate significance of values at P=0.05 and 0.01, respectively

Table 3: Work related risk factors faced by respondents

Work style risk factors	Percentage•	Z
No time for entertainment	37.50	5.83**
High workload	37.50	5.83**
Low wages	34.16	4.72**
Monotonous work	24.16	1.38^{NS}
Lack of cooperation from fellow colleagues	11.66	-2.77^{NS}
Lack of social support from seniors	9.16	-3.61^{NS}
Lack of training before starting the work	7.50	-4.16^{NS}
Poor supervisory relations	1.66	-6.11^{NS}

•Multiple responses, NS= Non – significant, * and ** indicate significance of values at P=0.05 and 0.01, respectively

environmental risk factors. Therefore, it can be concluded that if the working conditions of the users are comfortable, their performance can be enhanced. Ashraf *et al.* (2007) also found that ergonomic deficiencies in office affected the health of computer users.

Psychological risk factors faced by respondents:

It is evident from Table 2 that respondents reported lack of concentration (47.50%), frustration (45.83%), disturbed sleep (40.83%), frequent bad mood (30.83%) and dual pressure of work and family (29.16%) as the major psychological risk factors which were significantly affecting their performance when Z value was calculated. Some other psychological risk factors were also reported by respondents included 'poor memory problem' (26.66%) 'irritation' (25.00%), 'lack of social interaction'(25.83%) and 'difficulty in decision making' (19.16%) due to over burden. But the Z-value shows that these factors were non-significant. Some of the factors which were also found non- significant included hypertension (13.33%), panic of job loss (9.16%), low self confidence (7.50%), gastric problems and pressure to achieve target (6.66%). So it can be said that the respondents felt that due to any kind of risk factor, a worker can experience stress may affect work and workforce and sometimes increase in musculo-skeletal disorders too. Therefore, interventions that may change any of the risk factor are of potential use to reduce musculo-skeletal problems. Wahlstrom (2005) also aimed at reducing musculo-skeletal disorders due to computer work and should be directed at both physical/ergonomic factors, work organizational and psychosocial factors. Interventions should be carried out with management and active involvement of the individual workers. When individuals have some measure of control over the work environment, as well as over the organization of their work, the stress level often decreases (Rossignol *et al.*, 1987).

Work related risk factors faced by respondents:

Stress in VDT operators may be related more to the total job and organizational structure than to the VDTs themselves. Some researchers have also reported the job level is a better indicator of stress than VDT use. Stress has been linked to jobs that include rigid work procedures, lack of social support, monotony and insecurity (Grandjean *et al.*,1984).

Data in Table 3 depict various work related risk factors faced by respondents at their work place. It was observed that 'no time for entertainment' and 'high workload' was felt by 37.50 per cent of respondents followed by low wages (34.50%) and were significantly important when Z value was calculated. It was further observed that 24.16 per cent of respondents felt that their work is monotonous and lack of cooperation from fellow colleagues (11.66%) as other work related risk factors. Whereas, 'poor supervisory relations', 'lack of training before starting the work' and 'lack of social support from seniors' were felt by 2-9 per cent of respondents. Tint *et al.* (2012) also reported that workers engaged in info-technology work as monotonous which can lead to musculoskeletal problems.

Conclusion:

It was found that 50.83 per cent of respondents felt that unhygienic toilets, 'slippery' or 'uneven floor' (30.83 %) and inadequate light (25.00%) were the main environmental risk factors at their workstation.

Regarding psychological risk factors, it was found that 47.50 per cent of respondents were having lack of concentration, frustration (45.83%), disturbed sleep at night (40.83%). Whereas, 37.50 per cent respondents felt that they found less time for entertainment due to high workload.

Regarding various work related risk factors faced by respondents at their work place, it was observed that 'no time for entertainment' and 'high workload' was felt by 37.50 per cent of respondents followed by low wages (34.50%). It was also observed that 24.16 per cent of respondents felt that their 'work is monotonous' and 'lack of cooperation from fellow colleagues' (11.66%) as other work related risk factors.

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