

## **Employee's Health Problems and Conditions at the Information Communication Industrial Sectors**

**R.Parvatharajan<sup>a</sup>, Dr.V.Velmurugan<sup>b</sup>**

<sup>a</sup> Ph.D Research Scholar, <sup>b</sup> Associate Professor

<sup>a,b</sup> Department of Business Administration Annamalai University

**Article History:** Received: 11 January 2021; Revised: 12 February 2021; Accepted: 27 March 2021; Published online: 10 May 2021

---

**Abstract:** Work-related physical factors include provisions for computerized workstations, length of employment (years of work at present, daily hours of the work as well as the hours of work per week, days per week, etc.); Physical workload (repetitive motion, forceful exertion, awkward positions, rapid hand & wrist movements, and forces related to the body structures); supply of work-breaks during work timings and environmental conditions such as lightening, noise, lack of clean air (Humidity), and frequent changes of indoor temperature etc. Information technology (IT) tasks have associated with the repetitive stress levels as well as with the problems related to the excessive exposure to the video display devices. Routine work, poorly designed tools such as computers and furniture in the Information and Communication Technology (ICT) work environment have dramatically increased work-related disorders (Blatter & Bongers, 2002) such as muscular skeletal issues.

---

**Keywords:** Health Risks, Stress, Work Load, Occupational Commitment, Remedial Measure

---

### **1. Introduction**

Work-related psychosocial factors (WRPF) are often referred as the Work-related Organizational Factors (WROF) and are defined as “perceptions or beliefs of workers regarding how their workplace is organized” (Warren, 2001 and Huang et al. 2002). Psychosocial work-related factors are monotonous work, work pressure, work variation and work satisfaction in order to assess demands, control and autonomy at work, work organisation and social support. The French National Institute of Occupational Safety and Health (NIOSH) identified five key elements. The psychosocial factors influencing musculoskeletal symptoms among IT executives. This includes increased workload (job demand), monotonous work, and job monitoring, social support and job satisfaction.

High job demands mean having too many tasks to complete within a short time and over an extended period of time. Computer work is characterized by a high prevalence of repetitive and high-speed work activities. Repeated exposure to high work requirements over time that can lead to increased fatigue, pain and functional limitations (Lundberg. 2002). This means that higher demand for employment leads to a more stressful work environment. An untrained work environment provides good health and psychological conditions that allow workers to perform work-related and non-work-related duties without inhibitions.

Task control combines elements of discretion like creativity and the freedom to make decisions about how work is performed. Low Control of the work means that it does not sufficiently influence how the work is to be performed.

Social support combines elements of active encouragement and support from colleagues and supervisors to get the job done, as well as creating a work-friendly environment. Support from supervisors and co-workers is an impact factor in the perception of psychosocial stress, as it acts as a buffer by reducing the amount of stress experienced by tranquillizing the neuroendocrine system, making people less responsive to stress.

The Job Demand Control support Model (JDSCM) states that combinations of Higher Job demand, low control and Low social support at work have an impact on health and well-being. According to the JDSCM model, it is clear that any employee who has the least control over their job, who has high demands and who receives the least support from the workplace is most likely to develop occupational health problems. The very nature of work in the IT sector is very demanding, and this can lead to psychological distress and health problems.

Furthermore, work style has been identified as a mediation factor in the relationship between job applications and musculoskeletal discomfort. The concept of “work style” is defined as a psycho-social, physiological and behavioral response that occurs in an individual due to high workload.

Thus, psychosocial risk factors may influence musculoskeletal pain by: 1) varying work-related biomechanical requirements, 2) raising awareness of pain symptoms, or 3) adversely impacting physiological recovery attempts. This may be due to physiological pathways such as increased muscle tension (Lundberg. 2002) altered joint kinematics (Faucett. 1994) interference with bloodstream and energetic metabolism (Warren N., 2001), and changes in blood catecholamin levels (Lundberg, 2002)

Research studies have also shown that there is a strong relationship between psycho-social factors and quality of working life among information systems staff (Rathinam G., 2003). Quality of work life is the new concept that aims to create an effective work environment that responds to organizational and personal needs and values that promote health, wellness, job security, Job Satisfaction & Skills Development. and finally, the balance between work and personal. The constructions of the quality of professional life which are appropriate and reliable for information.

Technology executives are: Health and Wellness, Job Security, Job Satisfaction, Skills Development, and Work-Life Balance (GunaseelanRathinam and Maimunah Ismail., 2008). In the process of exploring psychosocial health issues for IT executives Understanding changes in the components of their quality of life in the workplace is key to taking proactive measures to minimize or even eliminate psychosocial health problems. In this way, occupational health and well-being of information technology executives can be optimized for greater productivity.

## **2. Common Health Related Outcomes In The Information Technology Work**

### **Musculoskeletal Health Outcomes**

Musculoskeletal disorders that are often called soft tissue lesions occur when there is a mismatch between the physical demands of work and the physical ability of the human body. Musculoskeletal signs and symptoms are most commonly seen.

Health issues related to computer use include:

1. Numbness or burning within the hand.
2. Decreased grip force in the hand.
3. Swelling or stiffness in the articulations
4. Pain on wrists, forearms, elbows, neck or lower back, followed by malaise.
5. Reduced movement in shoulder, neck or back.
6. Dry eyes, itchiness or aching.
7. Blurred or two-sided vision.
8. Discomfort or tingling.
9. Strangling
10. Loss of colour in impacted areas.
11. Weakness
12. Headaches due to tension stress.

It should be noted that not all of these symptoms necessarily cause musculoskeletal problems. However, if the user experiences any of the above symptoms, they must carry out an assessment of their working position and the layout of their workstation. In relation to the infrastructure and work patterns of employees in Indian information technology industries, musculoskeletal disorders may be caused by one of the following factors:

1. If you maintain an abnormal or healthy posture while using your computer.
2. If the lower spine support is not sufficient for the user.
3. If the user remains in the same job for an extended period of time.
4. If workstation set-up is not ergonomic.

a) Common Types of Musculoskeletal Disorders Experienced by Information Technology Professionals:

- (i) Repeated stress injuries.
- (ii) Carpal tunnel disease.
- (iii) Other Ergonomics Issues - Computer Vision Syndrome.

**(i) Repetitive Strain Injury (RSI):**

Repetitive injury is a syndrome of multifactorial complaints involving the neck, back, shoulder, upper and lower arm, elbow, wrist or hand, or a combination of these areas, resulting in disability or participation issues. The Common symptoms of RSI among IT practitioners include:

1. Persistent discomfort
2. Tiredness and pain.
3. Swelling
4. Skin discoloration
5. Temperature changes
6. Catch or smash with motion,
7. Loss of adhesion, force or awkwardness of the hand, stiffness, numbness, etc.

The early warning signals which have to be noted while working are shaking out the hands, rubbing the fingers, wrists or elbow, 'rolling' the shoulder or head, slouching posture, particularly towards the close of the day, bottles of painkillers, balms or creams on the desk, uncharacteristic changes in productivity or quality of work.

**(ii) Carpel Tunnel Syndrome:**

Carpal tunnel syndrome is a form of tendinitis or repetitive motion injury that can be disabling to computer users and performers. The main cause of Carpel Tunnel Syndrome is repetitive movement, and incorrect posture, especially when working with computers. The attitude of rolling of the shoulder forward, rounding the lower back and thrusting the chin forward, shortens the neck and the muscles of the shoulder, there by compressing the nerves in the neck which ultimately have an effect on the wrist, fingers and the hand. The Psychological factors like the deadlines, interpersonal factors, and the job design at the work place are also associated with the occurrence of Carpel tunnel syndrome. The common symptoms experienced by the computer operators with carpel

Tunnel syndrome are:

- 1) Interruption of sleep with hands numbness and in pain
- 2) Frequent pain in hand and wrist & Cold hands
- 3) Neck or shoulder pain on same side as hand discomfort
- 4) Poor circulation of blood in hands there by hands falling asleep.
- 5) Weakness in hand and wrist-pain radiating up the forearm.
- 6) Forearms warm and loss of Grip strength by forearms.
- 7) Loss of Feeling in Fingers and Thumb
- 8) Dropping of objects especially small objects.

**3. Eye, Ear And Throat Related Problemsa. Computer Vision Syndrome**

The Ocular complaints that experienced by the executives who are working in computers typically includes eyestrain, burning sensations, irritation, blurred vision, as well as dry eyes, compared to others. The condition of a person experiencing one or more of these ocular complaints as a result of operating a computer and looking at a computer monitor is generally referred to as "Computer Vision Syndrome".

Computer vision syndrome (CVS) has been defined by the American Optometric Association (AOA) as "a complex of eye and vision problems related to the activities which stress the near vision and experienced in relation, or during the use of the computer" (American Optometric Association 2010).

The Symptoms of CVS includes eyestrain, headaches, ocular discomfort, dry eye, diplopia and blurred vision either at near or when looking into the distance after prolonged computer use. This Occurs mainly due to Change in Dynamics of attention between the close and distant Objects regularly. These Symptoms are strongly correlated with the number of hours spent using a computer and were highest among females.. One possible mechanism would be that employees who are constantly looking at the computer monitor were prone to significant reduction in the blink rate from 22 per minute to 4 per minute, resulting in evaporation of moisture in eyes leading to dry eye symptoms.

#### **4. Ear & Throat Related Problems**

Ear related problems are more prevalent among the ITES Voice based sector employees such as those working on call centers. Call center work is demanding on the hearing. Telephone calls with customers normally make up a large proportion of the working day. To ensure that customer calls can be heard clearly, the noise level in the office should not be disturbingly loud. Noise levels over 55 adjusted decibels needs to be avoided. If the work demands a high degree of concentration, even levels of 40-45 adjusted decibels can be disturbing. Work which requires a high level of concentration can be disturbed by noise levels over 40-45 adjusted decibels. Speech comprehension can be disturbed at levels over 55 adjusted decibels. High noise levels can necessitate rising of the voice, which increases the risk of throat or voice problems in the long term. Disturbing noise can also cause mental tiredness and diminished motivation to perform well. The most common ear related problems reported among the call center workers are: Ear pain and Acoustic shock. Acoustic shock is caused by (i) unexpected noises, typically on a Phone line (from feedback to the headsets or a sudden change in Volume); (ii) background noise from Incoming Call and; (iii) Background noise and other stressors in the work place (Watson BW, 2003). The Call Center operator's experiences the shock and a range of symptoms including pain in Ears, tinnitus (ringing in ear), Vestibular (balance) disturbance, and hyperacusis (sensitivity to noise). Voice loss and sore throat are the common throat related problems affecting the voice of the call center operators. It includes a range of health complaints such as hoarseness, irritating cough, inability to modulate voice and breathing difficulties

#### **5. Mental Health Problems Among The Information Technology Professionals**

The Common Mental Health problems prevalent among the Information Technology Professionals are mental stress, anxiety, depression; sleep disturbances and, disturbance in biological rhythms (Bhuyar et al., 2008)

From the Occupational point of view, the Stress arises in the process of interaction between a person and the work environment that threatens the individual's physical, psychological and physiological homeostasis (Carayon, Smith and Haims., 2001).

Average Business Process Outsourcing (BPO) employee puts in 11-12 hours of work per day and at times it reaches 14 hours in case of companies that encourage overtime (BijavaraShwetha, Honnamachanahalli Sudhakar.,2012). IT employees especially those working in Business Process Outsourcing (BPO) are exposed to frequent changes in shift and highly stressful working environment. This dual effect may be responsible for decreased cognitive functions seen in Business Process Outsourcing (BPO) employees.

Moreover, IT Employees develop various symptoms of stress that can harm job performance, health and even threaten their ability to cope with the environment. Many researchers highlight "techno-stress" concept when discussing stress that is related to IT (Bradley, 2001)

Moreover, the symptoms of techno stress are related to physical and psychological conditions such as backache, uncertain tempers, ulcers, acne, insomnia, low morale and job-hopping. Thus, the odd working hours and the highly pressurized work environment along with the burden of western accent, changed lifestyles and the dual identities aggravate the physical and mental health problems of the Information Technology employees.

Depression and anxiety are also other forms of stress that contribute towards the deterioration of health. Previous studies indicated that depression was positively associated with overall stress of the executives and also showed that overall stress is found to have significant association with depression among employees. (Vimala&Madavi, 2009). Also, it had been established that Women Information Technology employees are at higher risk for depression and prone to work-family conflict.

#### **6. Psychosocial Health Outcomes**

The psychosocial health problems prevalent among the Information Technology Professionals include disruptive family relations due to work family conflict, poor recreation opportunity, vices like alcohol as well as use of tobacco, and the defective eating habits.

The efficient functioning of Information Technology Work demands IT employees with certain kind and amount of knowledge. Employees who are not having necessary knowledge feel that they cannot satisfactorily handle work demands and control their work situation and such lack of control is the stress factor leading to health consequences (Karasek& Theorell, 1990). To combat such Job stress, the employees adopt a series of coping strategies. There is a tendency among the employees to overcome stress by adopting the habit of using substances such as Alcohol and Cigarettes. Empirical studies show a modest support for this association between the Job stress and adoption of habits such as Smoking and Alcohol consumption. Studies show that stress can induce several unhealthy behaviours such as smoking and excessive alcohol use (Ng DM, Jeffery RW., 2003). Moreover, the professionally stressed IT employees had 5.9 times higher prevalence of harmful alcohol use when compared to those who were not professionally stressed (Darshan et al, 2013)

Likewise, the employees who were at risk for developing depression had 4.1 times higher prevalence of alcohol use than those who were not at the risk of developing depression (Darshan et al, 2013). A recent study indicated over 40 Percentage of the Business Process Outsourcing (BPO) employee in India have tobacco addiction mainly cigarette smoking (Mishra et al., 2010). All the empirical findings suggest that there is a strong association between Job stress, development of depression and Alcohol use among the IT Employees. In addition to that, there is a tendency among the young affecting work force in IT sector to stick on to the habit of excessive intake of junk foods that is impacting on the health of Business Process Outsourcing (BPO) and IT executives (KeyurDhandeo; Ronendra Singh., 2012)

Another psychosocial health outcome prevalent among the Information Technology Professionals is Work Family Conflict (WFC). Work-to-family conflict and family-to-work conflict are generally considered two distinct, though related, constructs (Frone, Russell, & Cooper 1992; Kossek&Ozeki, 1998). Family-to-work conflict may predict poor job performance, work-to family conflict may predict poor family relationships, and both forms of conflict may lead to lower well-being (Gareis et al., 2009).

Researchers have suggested that WFC is reciprocal in nature (Frone et al., 1992). There are three sources of WFC (Greenhaus and Beutell., 1985) viz. (a) time-based, (b) strainbased, and (c) behavior-based conflict. Time-based conflict occurs when the amount of time spent on multiple roles prohibits the individual's ability to function adequately in his or her work or family role. Second is the strain-based conflict which exists when the stressors felt in one role (e.g., fatigue and irritability) inhibit required performance in the other role.

Third, behavioural conflict arises when certain types of behavior developed for one role (e.g., aggressive behaviors required at work) are inappropriate or dysfunctional when used for the other role. With the information technology (IT) employees are being increasingly used by extensive projects along with the aggressive timelines, there are mounting evidence that indicates that workers in the IT sector are experiencing longer work hours, more work-life conflict, and higher indices of burnout than their co-workers in other functional areas (McGee, 2003).

## 7. Conclusion

Prima facie of computer work where the IT employees perform and does not appear excessively hazardous or difficult, usually occurring during climate-controlled environments, with the workers who are sitting for long periods. Computer work has been characterized by low force exertions and static postures that have sustained for extended durations (Carter and Banister, 1994). The hands and forearms perform small dynamic contractions during the keyboard work while the arm, neck and shoulder muscles have statically activated to main head and hand positions. The arrangement of Computer workstation may impose forward bending of neck or elevated arms and shoulders that exacerbate the postural loading on neck and shoulder muscles. Moreover, these stagnant postures adopted during the computer work for an extended period are also visually demanding, and the computer-based workplaces more substantial demands on the visual system than traditional office work. All these physical factors lead to Cumulative trauma disorders or repetitive strain injuries. Dry, irritated eyes and blurred vision are common complaints among the Professional Computer users. To overcome from all these health issues and to optimize the productivity of IT executives, it requires a complete understanding of the critical factors of health issues among the Information Technology Professionals which is a big challenge to the Human Resource Managers today.

## References

1. Government of Maharashtra (2013-14, 2012-13, 2011-12).Economic Survey of Maharashtra. Mumbai: Department of Economics & Statistics, Planning Dept. Government of Maharashtra.
2. Maheshwari U. (2012).Usage of ICT among the students and teachers and its impact on their communication behavior. *European Journal of social sciences*, Vol.36 No.2-2012, ISSN-1450-2267
3. Maki, C.(November 2008). Information & Technology for administration and Management for secondary schools in Cyprus. *Journal of Online learning and teaching*, Vol. 4 No.3-2008.
4. Mikre, F. (July 2011). The Roles of Information Communication Technologies in Education. *Journal of Education & Science, Ethiopia* Vol. 6 No. 2-2011
5. Mohanty, J. (2010).Modern Trends in Educational Technology.Neelkamal Publication.
6. Mondal N. K., Paul P. K. (2012).Integration of ICT in School Education; An analytical Study in Burdwan District of West Bangal.*Research Journal of Management Sciences* , Vol. 1 No.4-2012.
7. Mukherjee, S. (2011).Application of ICT in rural development. *Global Media Journal – Indian Edition / ISSN 2249-5835.35.*
8. Passey, D. (2002).ICT and School Management, A review of Selected Literature. Department of Educational Research Lancaster University, Lancaster.
9. Peedy, P. D. (1985).Practical Research: Planning and Design. Macmillan Publication, New York.
10. Government of India (2007) National Policy on Information and Communication Technology in School. Department of School Education and Literacy Ministry of Human Resource Development New Delhi.

11. Prensky, M. (2001).Digital Natives Digital Immigrants. From On the Horizon MCB University Press, Vol. 9 No. 5- October 2001.
12. Reddi, U. V. (2008).ICT in Education. UNICCO Meta survey on the use of technologies in education – 2008.
13. Roy, N. K. (October 2012).ICT –Enabled Rural Education in India. International Journal of Information and Education Technology, Vol.2 No. 5 -2012.
14. Vaishampayan S. Y., Mali P. D. & Pawar G. S. (2013).Information & Communication Technology and Instructional Systems. Pune: Nirali Prakashan.
15. Mangal S. K. & Mangal U. (2012).Essentials of Educational Technology.Bahadurgarh, Haryana: PHI Learning Private Ltd.
16. 198
17. Secretariat Loksabha. (2013, August).Central Government Schemes for School Education. Reference Note No.17/RN/Ref./ August/2013, India.
18. Simin Ghavifekir & et al. (2013).ICT Applications for Administration and Management: A conceptual review. Science Direct, ISSN-1344-1351.
19. Singh, K. D. (2012).Internet Enhanced Learning.NCTE Journal New Delhi. Vol. (n.d.) 2012.
20. Tinio V. L. (2005). ICT in Education, World summit on Information Society, New York UNDP.
21. Tolani-Brown, McCormack & Zimmerman ( 2009).An analysis of the research and impact of ICT in education in developing country context. Journal of Education for International Development, Vol. 4 No. 2-2009.
22. Web, I. (2007).Key Factors in the use of ICT in Primary School Classrooms. A thesis Submitted to
23. Yevale, S. (2007).Shaikshanik Tantravidnyan again Mahiti Tatradyan.Pune: Nitya Nutan Prakashan.Websites50.AboutDISE. (2012