2012 4th International Conference on Computer Research and Development
IPCSIT vol.39 (2012) © (2012) IACSIT Press, Singapore

Impact of Technology on Physical and Mental Health of Library Professionals in Engineering Colleges of Anna University, Tamilnadu

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Abstract. A study is conducted to identify the impact of technology on library professionals employed in engineering colleges of Anna University, Tamilnadu. A questionnaire was distributed to the library professionals which consists of demographic details, physical effects, physical and psychological symptoms of technology on library professionals. It is found that 46.70% of the respondents are in the age group of 25-34, 40.06% of the respondents suffer from hypertension and female library professionals are prone to physical effects such as obesity, diabetes mellitus, heart disease, musculoskeletal disorders and hypertension. Also demographical details such as marital status, experience and monthly income of the respondents have significant influence on physical effects.

Keywords*: *Technology, Impact, Library Professionals

1. Introduction

Library professionals in engineering colleges work in networked environment. They provide access to e-resources, design and maintain digital content. As a result, library operations are changing rapidly and they need to adapt new plan of actions. While analyzing the literature related to impact of technology, it is observed that irrespective of the gender, library professionals are prone to eye strain, muscular problems, headache, frustration rapid heartbeat and anxiety. This paper studies the reaction of library professionals for the technological changes and physical and psychological issues faced by them and suggested some remedial measures too.

2. Literature review

Many physical, psychological and social problems have followed the introduction of Video Display Terminals (VDTs) in offices. Some of the common ailments arising from working in Information Technology (IT) environment include visual problems, postural problems and various psychosocial problems due to work stress. Cohen's.S (1981) [1] paper "Sound Effects on Behaviour," found that lack of autonomy and pressures for performance are distinguishing features of highly stressful IT jobs. Problems such as tension, low morale, poor attitude, isolation, fear and worry are symptoms of psychological stress. Fear of job loss, physical harm and isolation from co-workers may cause operators of automated equipment to develop any of the above mentioned stress symptoms. Some common causes of work stress resulting from working in an IT environment are lack of autonomy, heavy workloads, pressures for performance, monitored performance, disrupted social relationships, concern for career and job future, feeling of lack of competence, long hours spent in front of computers and fear of not being able to catch up with IT. Emmanuel,H and Saunders,S (1983) [2] in their article "Plugging into the open office," suggest that many things affect the amount of stress workers experience. Among the reasons, users' past experience with computers and age of

the users play a major role related to stress. Older employees in particular suffer from psychological stress arising from fear of computers-fear about not being able to use the machines and fear of failing when competing with younger and better trained workers. Techno stress symptoms may be physical, cognitive, emotional and behavioral (Hacket,G and Lonborg, S,1983) [3].Physical symptoms include muscle tension, rapid heartbeat, dry mouth and throat, shallow breathing, headache, gastric problems, repetitive strain injuries, carpal tunnel syndrome and back problems. Cognitive symptoms include mental fatigue, inability to concentrate, poor judgment and temporary confusion. Emotional symptoms include irritability, anxiety, mental fatigue and depression. Behaviour symptoms include impulsiveness, avoidance, withdrawal, loss of appetite and insomnia. A study by Palvia.S and Tung,Lai (1990) [4] "IT use and Incidence of Stress by Demographic factors: An exploratory study," found that more than 70% of the office workers reported eye strain and general stress in using IT. There is a positive correlation between age and health problems such as eye strain, stress and backache. There is also a positive correlation between the number of hours spent in front of a computer monitor and eye strain and stress. The top three sources of stress include long hours spent in front of the computer, having to prepare a lot of documents and not being fully competent with IT. Koenenn, Connie (1990) [5] in her article "Techno stress: The high price of a high tech world." She attributes the symptoms such as tension, suspicion, fatigue, headache and back pain to techno stress. Rapid change is one of the reasons given for this fall out as well as isolation factors (People communicate via e-mail instead of in-person). Impatience is another reaction due to technology- people are more impatient when loading software, etc.

3. Objectives

1. To identify the physical symptoms
2. To identify the physical effects, and
3. To identify the psychological symptoms

4. Methodology

Anna University was established on 4th September 1978 as a unitary type of University. In the year 2002, it was converted into an affiliated type of university wherein all the Government, Government aided and Self-financing Engineering Colleges in the State of Tamil Nadu numbering around 102 are taken under one umbrella. There were 240 engineering colleges during 2006, due to administrative exigencies, the state government divided the Anna University into the four separate universities namely,

- Anna University, Chennai
- Anna University of Technology, Coimbatore
- Anna University of Technology, Tiruchirappalli and
- Anna University of Technology, Tirunelveli

The respondent population consists of librarians and assistant librarians of engineering colleges of Anna University in the districts of Chennai, Coimbatore, Tiruchirappalli and Tirunelveli of Tamilnadu. In 2009, there were 354 colleges in Anna University, Tamilnadu. Out of 354 colleges, 109 colleges were started only in the last two years. These 109 colleges being relatively new were not included in the study. Thus, the study population consists of 245 colleges. The questionnaires were sent to 375 professionals in 245 colleges, of which 350 were received but only 332 were found to be defect free in all aspects and yielded 88.5% response rate. So, the sample for present study is 332. The questionnaire consist of two parts namely demographical details and the second part consists of physical effects, physical and psychological symptoms. The collected data were processed using SPSS software.

5. Results and Discussion

Table I provides demographical details of the respondents 231(69.58%) respondents are male and 138(41.57%) of the respondents are drawing ` 10,001-` 20,000 as monthly income.

Table I Demographical Details

Demographical details	Classification	Frequency	Percentage
Gender	Male	69.58	231
	Female	30.42	101
Age Group (in Years)	<25	7.53	25
	25-34	46.70	155
	35-44	36.74	122
	45-54	7.53	25
	>55	1.50	5
Marital Status	Bachelor/Spinster	19.58	65
	Married	78.61	261
	Divorced	0.60	2
	Widow/Widower	1.21	4
Monthly Income(in Rs)	Below 10,000	34.64	115
	10,001-20,000	41.57	138
	20,001-30,000	11.75	39
	30,001-40,000	8.13	27
	40,001-50,000	2.41	8
	50,001-60,000	0.90	3
	> 60,001	0.60	2

Table II Physical Symptoms

.Symptoms	N	R	O	M	A	Total
Sleep disturbances	95(28.61)	160(48.19)	54(16.27)	9(2.71)	14(4.22)	332(100)
Stomach problems	114(34.34)	146(43.98)	49(14.76)	12(3.61)	11(3.31)	332(100)
Headache	83(25.00)	145(43.67)	76(22.89)	16(4.82)	12(3.61)	332(100)
Dizziness	158(47.59)	119(35.84)	33(9.94)	10 (3.01)	12 (3.61)	332(100)
Rash	191(57.53)	109(32.83)	17(5.12)	5 (1.51)	10 (3.01)	332(100)
Fatigue exhaustion	195(58.73)	104(31.33)	20(6.02)	5 (1.51)	8 (2.41)	332(100)
Eye strain	85(25.60)	142(42.77)	58(17.47)	28 (8.43)	19 (5.72)	332(100)

Note: Values in brackets are in percentage

Table II explains the division of respondents based on frequency of occurrence of various physical symptoms of technology. Respondents were given a scale N-No, R-Rarely, O-Often, M-More often and A-Always. It is observed from table IV that, half of the respondents 160 (48.19%) rarely suffer from sleep disturbance. Maximum of 98 (29.52%) respondents rarely get panic attacks and cardiovascular diseases. Maximum of 109 (32.83%) respondents rarely suffer from backache and other muscular problems followed by 142 (42.77%) respondents rarely suffer from eye strain and 145 (43.67%) respondents suffer from headache.

Hypothesis: Personal factors of the respondents have no significant influence on physical symptoms relating to technology.

Table III. Personal Factors-Physical Symptoms

Personal Factors	Chi Square Values	p values	NS/ S
Gender	1.897	0.387	NS
Age (in years)	9.048	0.171	NS
Marital Status	5.167	0.523	NS
Education	7.448	0.281	NS
Experience (in years)	9.345	0.314	NS
Type of College	7.734	0.102	NS
Area of Work	11.965	0.746	NS
Monthly Income (in Rs)	21.34	0.006	S
Nativity	1.068	0.586	NS

S-Significant at 5% level (probability < 0.05), NS-Not significant at 5% level (Probability > 0.05)

Table III describes the personal factors of the respondents, chi-square values, p values and their significance on physical symptoms relating to technology. It is found from table III that hypothesis is rejected (S) in monthly income of the respondents and in rest of the eight cases the hypothesis is accepted (NS).

Table IV. Physical Effects

Physical effects	N	R	O	M	A	Total
Reduced immunity to disease	172(51.81)	111(33.43)	22(6.63)	10(3.01)	17(5.12)	332(100)
Obese	272(81.93)	40(12.05)	7(2.11)	2(0.6)	11(3.31)	332(100)
Diabetic	279(84.04)	31(9.34)	7(2.11)	2(0.6)	13(3.92)	332(100)
Heart Disease	282(84.94)	33(9.94)	5(1.51)	2(0.6)	10(3.01)	332(100)
Musculo skeletal Disorders	201(60.54)	93(28.01)	18(5.42)	8(2.41)	12(3.61)	332(100)
Hypertension	149(44.88)	133(40.06)	36(10.84)	6(1.81)	8(2.41)	332(100)

Note: Values In Brackets Are In Percentage

The table IV portrays the categorization of respondents based on the frequency of occurrence of various physical effects of technology. Respondents were given a scale N-No, R-Rarely, O-Often, M-More often and A-Always. It is found from the table IV that, minimum of 10 (3.01%) respondents more often suffer from reduced immunity to disease. Maximum of 40 (12.05%), 31 (9.34%), 33 (9.94%), 93 (28.01%) and 133 (40.06%) rarely suffer from obesity, diabetes mellitus, heart disease, musculoskeletal disorders and hypertension respectively.

Hypothesis: The personal factors of the respondents have no significant influence on the Physical effects relating to techno logy.

Table V. Personal Factors And Physical Effects

Personal Factors	Chi Square Values	p Values	NS/S
Gender	4.790	0.091	NS
Age (in years)	11.467	0.075	NS
Marital Status	7.673	0.022	S
Education	4.296	0.637	NS
Experience (in years)	19.212	0.014	S
Type of College	2.603	0.626	NS
Area of Work	13.177	0.660	NS
Monthly Income (in Rs)	17.284	0.027	S
Nativity	0.410	0.814	NS

S-Significant at 5% level (probability < 0.05), NS-Not significant at 5% level (Probability > 0.05)

Table V depicts the personal factors of the respondents, chi-square values, p values and their significance on physical effects relating to technology. It is found from table V that, hypothesis is rejected (S) in three cases namely marital status, experience and monthly income of the respondents and in remaining cases hypothesis is accepted (NS).

Table VI. Psychological Symptoms

Feeling	N	R	O	M	A	Total
Anger	-	215 (64.76)	78(23.49)	23(6.93)	16 (4.82)	332(100)
Anxiety	-	230(69.28)	66 (19.88)	23 (6.93)	13 (3.92)	332 (100)
Depression	-	219(65.96)	71 (21.39)	25 (7.53)	17 (5.12)	332 (100)
Excessive worries over health	-	218 (65.66)	62(18.67)	29 (8.73)	23 (6.93)	332 (100)
Inability to cope	-	252 (75.9)	49 (14.76)	13 (3.92)	18 (5.42)	332 (100)
Frustration	-	237 (71.39)	59 (17.77)	20 (6.02)	16 (4.82)	332 (100)
Hopelessness/ Helplessness	-	241 (72.59)	55 (16.57)	14 (4.22)	22 (6.63)	332 (100)
Indecisiveness	-	258 (77.71)	44 (13.25)	14 (4.22)	16 (4.82)	332 (100)
Lack of concentration	-	245 (73.8)	52 (15.66)	18 (5.42)	17 (5.12)	332 (100)
Loss of confidence	-	266 (80.12)	34 (10.24)	18 (5.42)	14 (4.22)	332 (100)
Lower self-esteem	-	257 (77.41)	41 (12.35)	15(4.52)	19 (5.72)	332 (100)

Note: Values in brackets are in percentage

Table VI depicts the distribution of respondents based on frequency of occurrence of various psychological symptoms of technology. As illustrated, a maximum of 266 (80.12%), 258 (77.71%), 257 (77.41%), 252 (75.9%), 245 (73.8%) and 237 (71.39%) respondents rarely feel loss of confidence, indecisiveness, lower self-esteem, inability to cope, lack of concentration and frustration.While a minimum of 13 (3.92%), 14 (4.22%), 15 (4.52%) respondents more often feel inability to cope, hopelessness and indecisiveness and lower self-esteem respectively.

Hypothesis:The personal factors have no significant influence on psychological symptoms relating to technology.

Table VII. Personal Factors And Psychological Symptoms

Personal Factors	Chi Square Values	p Values	NS/ S
Gender	0.063	0.969	NS
Age group (in years)	7.786	0.254	NS
Marital Status	4.322	0.115	NS
Education	2.450	0.874	NS
Experience (in years)	14.911	0.061	NS
Type of College	1.870	0.760	NS
Area of Work	8.118	0.945	NS
Monthly income (in Rs)	14.455	0.071	NS
Nativity	2.514	0.285	NS

S-Significant at 5% level (probability < 0.05), NS-Not significant at 5% level (Probability > 0.05)

Table VII depicts the personal factors of the respondents, chi-square values, p values and their significance on psychological symptoms relating to technology. It is found from table VII, the hypothesis is accepted (NS) in all the cases which indicates the personal factors have insignificant influence on the psychological symptoms relating to technology.

6. Conclusion

The paper studied the effect of technology on the physical and mental health of library professionals of Anna University, TamilNadu. It is found that respondents suffer from physical symptoms such as sleep disturbance and backache and other muscular problems, physical effects such as obesity and diabetes mellitus and psychological symptoms such as loss of confidence and lower self esteem.This is in line with the results of Hacket,G and Lonborg,S(1983),Palvia.S andTung,Lai(1994),Koennen,Connie(1990)Ametz,Bengt and Wihol, Clairy(1997).Also, marital status, monthly income, age group and gender of the respondents have significant influence on usage of technology. Further the study revealed that respondents are carrying out their activities with stress. This can be minimized by coping strategies such as integrating new skills into professional responsibility, effective communication within the environment, giving close attention to physical health, acquiring technological skills continuously and thereby lead to increased feelings of confidence and competence, attending yoga classes and doing regular exercises to reduce stress.

7. References

[1] Cohen S. (1982). Sound Effects on Behaviour. Psychology Today, 15(38-49).Retrieved from http://repository.cmu.edu/psychology/286.

[2] Emmanuel, H. & Saunders, S. (1983). Plugging into the open office, Today's office, (June), 28-31.

[3] Hackett, Gail & Longborg, Susan. (1983). Models of Stress. San Francisco: Jossey – Boss.

[4] Palvia. S & Tung, Lai. (1994). IT use and Incidence of Stress by Demographic Factors: An Exploratory Study. Paper contributed to TENCON '94. Retrieved from http://ieeexplore.ieee.org/.

[5] Koenenn, Connie. (1990, September 30).Techno stress: The high price of high tech. Star Bulletin and Advertiser, p, D1.