Research Articles

Work stress among Information Technology professionals in Sri Lanka

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Abstract

Introduction

This study was conducted to determine the prevalence of psychological distress, to describe the work stress and selected factors associated with it and coping strategies of stress among Information Technology professionals in the private sector of Sri Lanka.

Methodology

A descriptive cross sectional study was carried out to meet these objectives. The selection of the sample was done using cluster sampling with probability proportionate to size. IT professionals in IT organizations (private sector) who have work experience more than one year at present station were included as study subjects. The study instrument which was a self administered questionnaire (developed as an electronic form with HTML) consisted of four parts; a validated version of a 30 item general health questionnaire (30 GHQ), a questionnaire on socio-demographic and work related factors, a work stress assessment questionnaire and a questionnaire on coping strategies.

Results

The majority of participants were of a younger age group with a mean age of 30 years and Sinhalese. Male preponderance was observed. The proportion of unmarried participants was higher. There were 43% of IT graduates, 20% of non-IT graduates making the bulk of the study sample. A higher proportion (57%) of participants were in the Rs. 20,000 – 45,000 monthly income categories. It was observed that 55% of participants were doing extra duty of more than five hours per week. Only 5% of participants were paid for extra duty. The prevalence of psychological distress (GHQ score $\geq$ 6) among IT professionals was 41%.Excessive workload, lack of rewards, lack of opportunity to career development and organizational decision regarding deadlines were main stressors for majority of participants in the study group. There is a statistically significant ($p<0.001$) association between psychological distress and work stress. Factors associated with high level of work stress were age, marital status, employment status of spouse, health problems, years of service at present organization, extra-work hours and weekend duty. Higher proportion of participants had adopted problem focused harmless coping strategies to overcome stress.

Conclusions

Psychological distress and work stress among It professionals should be recognised as a priority health problem. Organization culture should be more worker friendly and stress management training programs should be conducted at organizational level to encourage effective coping strategies to overcome stress specially for the benefit of IT professionals who had adopted harmful stress coping methods.

Key words

psychological distress, work stress, IT Professionals, private sector

Introduction

Information Technology (IT) is a comparatively new industry which rapidly changes with advancing modern technology. This industry has accommodated a rapidly expanding young workforce. IT is a profession which maximally utilizes the employees' knowledge, creativity and innovativeness. Most of the professional who work in this industry tend to work long hours under tension to meet deadlines. Thus employees are placed at an immense pressure of work to achieve higher targets, keeping up their innovativeness and working in a competitive environment.

The majority of our young IT professionals have migrated to metropolitan area. They have a restricted leisure time caused by work overload. Limited time and highly confinement to work place has given their priority to seek for fast food. These professionals, who are very busy seated in front of their computers in achieving deadlines, do not move to the next desk to talk to their neighbour/peer.

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They communicate through emails and e-chatting. At the end of the day, or most of the time early morning of next day, they are dropped at home by an office vehicle, making their sedentary life worse. Technology has also allowed the office to slowly creep into the personal lives of workers. Employees now have laptops, voice mail and email that they can access from home. This has encouraged people to do additional work at home and to constantly stay in touch with the office, making the stress continuous.

An employee who spent much more time at his/her work place has limited time to communicate with his/her spouse, children and other relatives. Overwork is causing a strain of families and relationships as it robs people's time, energy and attention needed to maintain healthy relationships with partners and children. When the spouse is also working the family conflict become worse. Children suffer when their parents work long hours. Deficiency in parental are results in behavioural, cognitive and emotional problems among children.

This study was conducted to meet following objectives.

General Objective

To determine the prevalence of psychological distress, to describe the work stress, selected factors associated with it and coping strategies adopted by Information Technology (IT) Professionals in the private sector of Sri Lanka.

Specific Objectives

- to describe the socio-demographic characteristics of the study sample.
- to determine the prevalence of psychological distress among IT Professionals.
- to describe the work stress and selected factors associated with it among IT professionals.
- to describe the coping strategies adapted by IT professionals to overcome stress

Methodology

A descriptive cross sectional study was conducted at IT organizations (private sector) in Sri Lanka within a period of eight weeks starting from late July, 2006. Since the data collecting instrument was an emailed electronic questionnaire (self-administered), the study was conducted covering the entire country as there was no restriction in accessibility.

In order to develop the sample frame of all Information Technology (IT) Professionals of private sector organizations in Sri Lanka. , Trade Association Membership Listing and listing from Business Chambers were used (Sri Lanka Association for Software Industry – SLASI, Software Exporters Association - SEA, Board of Investment of Sri Lanka). In addition, key organizations that did not appear in those listings were included to ensure a representative sample. The lack of a complete and up to date company listing for the entire country was the primary reason for taking this approach.

In preparing the sample frame, the guidance and reference of the report of Information and Communication Technology (ICT) Work Force Survey (2005) conducted by Sri Lanka ICT Association (SLICTA), was obtained with permission, from relevant authorities.

For the purpose of this study, IT worker was defined as "a person involved in producing IT related output as his primary job function". With reference to ICT workforce survey, twelve job categories were considered under IT profession. The twelve job categories were Database Administration and Development, Digital Media, Enterprise and Development, Digital Media, Enterprise Systems Consulting, Networking, Software Engineering, Project Management, Quality Assurance, Sales and Marketing, Technical Support, Technical Writing, Web Development and IT Management. The job categorization was prepared by using IT association of American job categorization as the baseline and four new job categories have been included to suit the Sri Lankan environment to gain a more comprehensive picture of IT workforce. IT Enabled Services (ITES) workers were excluded in this study as their main job function does not produce IT related output, although they use IT service in their day to day work.

Sampling technique

The list of institutions registered at above mentioned organizations till the end of June, 2006 was obtained. The same institutions which had been registered under two or more organizations were considered only once. Each institution was considered as a sampling site. Two stage cluster sampling was carried out to get the required sample size.

Stage I - Cluster selection.

1. A list of all institutions was prepared with number of IT professionals available.
2. Sample size calculation was done using statistical formulae,

$$N = \frac{z^2 p(1-p)}{d^2}$$

Where,

N = the required sample size,

z = the standard normal deviation, usually set at 1.96 which correspond to the 95% confidence level

d = the degree of accuracy (precision) desired for margin or error, set at 0.05

p = p is considered as 0.5 because 50% proportion gives the largest number of sample size.

$$N = \frac{1.96^2 \times 0.5\ (1 - 0.5)}{0.05^2} = 384$$

To minimize bias associated with using a cluster sampling technique, a design effect was incorporated. The sample size was multiplied by the design effect of 1.5. Therefore the sample size was 576.Considering 15% non response rate, sample size was 663.

3. The cluster size was the smallest number of IT professionals in the list working in an institute. For this study the cluster size was determined as 30 and the number of clusters required was 663/30 = 22. Since all IT professional population is 27,000 the cluster interval was 27,000/22 = 1227.
4. To define institution where the first cluster would be drawn, a random number was obtained between 1 and the sampling interval (1227) by using random number table.
5. The sampling interval was added repeatedly to the original random number to locate additional clusters up to the required total of 22. Thus more than one cluster was allocated to institutions with large IT workforce.

Stage II- Selecting individuals within each cluster

The required number of IT professionals was selected by systematic sampling method as described below.

1. According to the location of clusters, a list of selected institutions was prepared with their total number of IT professionals. The Head of the institution of each was contacted via e-mail and details of the eligible of IT professionals available in that institution was obtained. A person involved in producing IT related output as his primary job function and having more than one year work experience in the current station were considered to be eligible to participate in the study. The e-mail address of each eligible IT professional in the selected institution was assigned a unique identification number.
2. Sampling interval was calculated by dividing the total number of IT professionals working in that institution by the required number of professionals.
3. The first participant was selected within the first sampling interval by drawing a random number which was smaller than the sampling interval.
4. The next participant was selected by adding the sampling interval to the first participant's identification number.
5. In this way, participants were selected until the required sample size was obtained from that institution.
6. Selected participants were not substituted for any reason.
7. Participants who failed to return the completed questionnaire were personally contacted by the Principal Investigator to collect data

Study instrument

A self administered questionnaire was prepared to collect data. The investigator conducted unstructured interviews among eight IT professionals individually before preparing the questionnaire. The investigator realized that while the questionnaire was been more focused on stress at work place, information on family related stressors should also be gathered.

Part I - Questionnaire on socio-demographic data

It consisted of brief questions to obtain personal information and information regarding families of IT professionals.

Part II - Questionnaire to determine psychological distress

The item 30 version of General Health Questionnaire (GHQ), validated for Sri Lanka was used for this study to identify the state of anxiety, minor depressive illness, and transient situational disturbances such as feeling of incompetence in coping

and social dysfunction i.e. psychological distress. It was a self administered questionnaire which consisted of thirty questions, each with four responses in which participants should mark only one response. The first two responses were assigned a score of zero each, while the last two responses were assigned a score of one each (from left to right 0-0-1-1). The score of six or more marks was used to identify psychological distress.

Part III - Questionnaire on work stress and selected factors associated with it

These questions were related to work and were constructed, based on the information gathered during informal interviews with IT professionals and referring the literature. Several other job stress assessment questionnaires were also referred to. Final questionnaire was done with the help of psychiatrists and managerial experts in IT sector. The work stress assessment questionnaire consisted of following dimensions.

Job related and organizational factors

Work overload, monotony, ambiguity, short term deadlines, responsibility, relationship with co-workers/superiors, Skills/knowledge, job insecurity, career development confidence in management, appreciation and satisfaction with work.

Physical environmental factors

Availability of software/hardware tools, design/ posture of computer chairs and tables, air conditioning, work atmosphere, machine configuration, internet failure etc. Each item was accompanied by five point score system rating scale. This section consisted of two types of questions in order to collect more accurate information. In one type of questions, response number one indicated no stress and fifth response indicated extreme stress. In the other type, response number one indicated extreme stress while fifth response indicated no stress. While analyzing, one mark was allocated for "no stress" response and five marks were allocated for "extreme stress" response.

Some questions were prepared to gather same information in different ways of questioning to improve the validity of the results.

For analysis purposes, total scores were summarized according to the relative frequency and cut off level was determined to categorize IT professionals into two work stress levels.

Part IV - Questionnaire on coping strategies

There are two main methods of stress coping strategies namely problem focused and emotion focused. Emotion focused stress coping method can be either harmful or harmless. Part IV of the questionnaire administered to describe above coping strategies practiced by the participants. The questionnaire contained two parts,

Part (a)

In this part of the questionnaire, participants were requested to mark their usual stress coping method(s) in response to five pre-identified stress producing events for IT Professionals. By that, participants were categorized to two main groups; practicing problem focused, emotion focused strategy of stress coping.

Part (b)

This part of the questionnaire was used to asses the frequency of practicing two types of emotion focused method separately; five harmless (seeking emotional support from friends/ relatives, listening to music, meditation, physical exercise, recreational activities) and six harmful (smoking, alcohol, using drugs like diazepam, and excessive eating/starving, keeping feelings to self and refuse to believe it happened) coping strategies were assessed among participants. The responders were requested to indicate the frequency of practicing each of these methods.

Data collection

Since IT professionals are more familiar with e-Forms, an electronic questionnaire was prepared with professional guidance; a special care was taken to minimize the writing descriptions, where almost all responses could be selectable with mouse. The e-questionnaire was prepared using Adobe Acrobat forms and the collection of result was automated via return e-mail to the Principal Investigator. The results were automatically formatted to well-formed XML (eXtensible Markup Language) data which made storing and analysis easy.

It was also disclosed how the participant had been selected to be included in the study. Since participants were assigned a particular identification number, the name of the IT professional was not entered in the answer script.

Data analysis

The collected data via e-questionnaire and the questionnaire hosted on the web was converted to Excel format. The colleted data via MS Word doc and hard copy were manually entered to the Excel file. The data analysis was done with SPSS-11 software package using personal computer. The cut off levels

were determined as described above for stress levels and GHQ status. For the descriptive statistics, frequency distributions were generated and data were tabulated accordingly. Chi square test was used to analyze the qualitative data. A probability of < 0.05 was considered as significant.

Ethical considerations

Informed, written consent was obtained from each IT professional prior to send the questionnaire. The confidentiality of the information obtained, was ensured. Ethical clearance for the study was obtained from the Ethical Review Committee, Faculty of Medicine, University of Colombo. The approval to carry out the survey was obtained from the relevant Head of the Institutions.

Results

The study was carried out among a sample of 663 Information Technology professionals who are currently employed in IT organizations in the private sector. A total of 604 participants responded of the total of 663 giving a response rate of 91%.

The socio-demographic characteristics

The majority (82%) of the IT professionals in the sample were less than 36 years old, Sinhalese and unmarried. Only 0.8% participants were more than 45 years old. Among the study sample, male preponderance was observed with a sex ratio of 2.6 (Male: Female). (Table 1).

There were 43% IT graduates and 20% non IT graduates making the bulk of the study sample. The majority of the IT professionals (57%) received an income between 20,000 to 45,000 rupees monthly.

Job categorization in the study population is given in Figure 1. The distribution of job categories among the sample approximately matches the IT work force categorization, in the IT work force survey 2005.

The prevalence of psychological distress among the study group was 41%.

Table 1- The socio-demographic characteristics of the study sample

Variable		No	%
Age (Years)	21 – 25	94	15.6
	26 – 30	262	43.4
	31 – 35	140	23.2
	36 – 40	91	15.1
	41 – 45	12	2.0
	> 45	5	0.8
Sex	Male	435	72.0
	Female	169	28.0
Ethnicity	Sinhala	523	86.6
	Tamil	44	7.3
	Moor	26	4.3
	Other	11	1.8
Marital status	Unmarried	357	59.1
	Married	247	40.9
Educational	G C E (A/L)	1	0.2
	Diploma	58	9.6
	Advanced Diploma	82	13.6
	Graduate (Non IT degree)	120	19.9
	Graduate (IT degree)	257	42.5
	Post Graduate Diploma	31	5.1
	M.Sc / MBA	52	8.6
	PhD	2	0.3
	Other	1	0.2
Monthly income	< 20,000	45	7.5
	20,001 - 30,000	217	35.9
	30,001 - 45,000	130	21.5
	45,001 - 75,000	114	18.9
	75,001 - 100,000	61	10.1
	> 100,000	37	6.1

Work stress among IT Professionals

Work stress was measured by using various parameters which were considered as sources of work stress (stressors) for IT professionals (Table 2).

The work load was a stressor for approximately 51% of study participants. Other main stress producing events were lack of rewards, lack of opportunities for career developments, organizational decisions regarding deadlines and less appreciation in participation in decision making, management decisions/enrolment decision, frequent interruption of work by management for new priorities and lack of access to all necessary information. Poor physical environment was a stressor for 31% of participants.

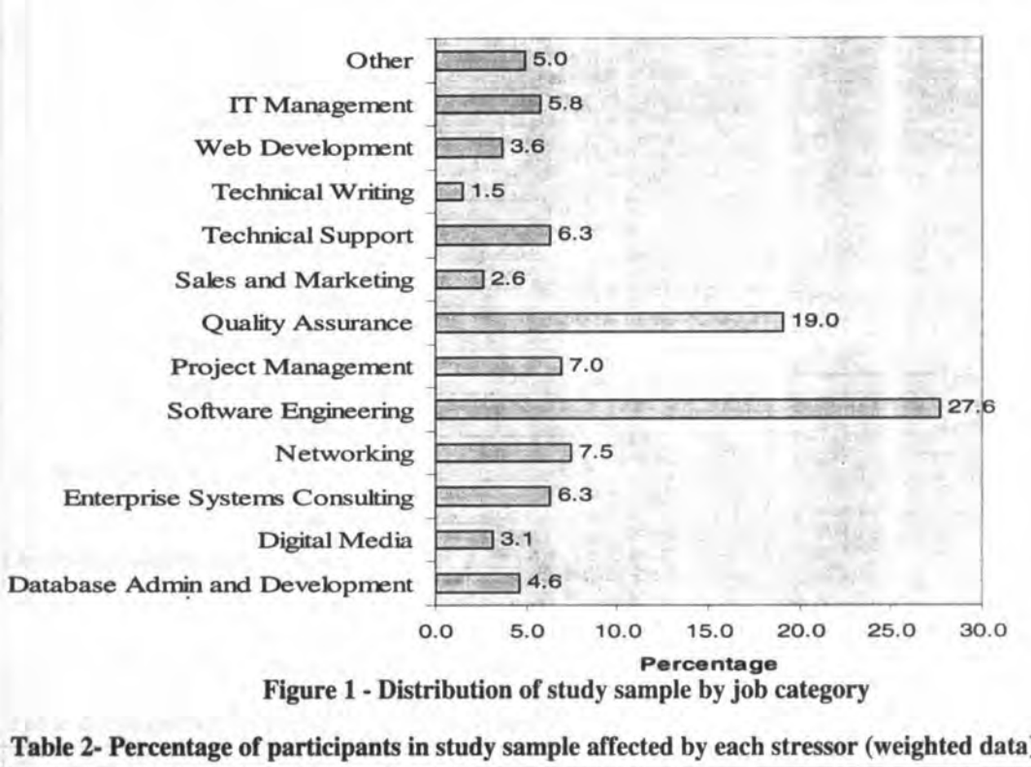


Figure 1 - Distribution of study sample by job category

Table 2- Percentage of participants in study sample affected by each stressor (weighted data)

Stress producing event (Stressor)	% of participants affected
Work overload	50.7
Lack of rewards	48.7
Lack of opportunities for career developments	46.9
Organizational decisions regarding deadlines	46.2
Less appreciation in participation in decision making	42.2
Management decisions/enrolment decisions	38.7
Frequent interruption of work by management for new priorities	35.1
Lack of asses to necessary information for work	34.6
Less satisfaction of remuneration	32.4
Too many responsibilities	32.2
Poor physical environment at work place	31.1
Leave policy	29.1
Lack of appreciation	29.1
Lack of satisfaction of work	23.2
Lack of confidence in management	21.2
Poor interactions	16.3
Poor relationship with co-workers	14.3
Poor relationship with superiors	14.0
Job insecurity	13.7
Lack of skills/knowledge	12.9
Monotony	11.6
Unclear roles (ambiguity)	9.8

Table 3- Factors significantly associated with work stress

		Work stress level				Total	
		Low		High			
		N	%	N	%	N	
Age (years)	21 - 25	59	62.8	35	37.2	94	$\chi^2 = 16.894$
	26 - 30	148	56.5	114	43.5	262	p = 0.002
	31 - 35	58	41.4	82	58.6	140	
	36 – 40	39	42.9	52	57.1	91	
	> 40	11	64.7	6	35.3	17	
Marital status	Unmarried	204	57.1	153	42.9	357	$\chi^2 = 8.713$
	Married	111	44.9	136	55.1	247	p = 0.003
Spouse employed	No	41	62.1	25	37.9	66	$\chi^2 = 10.746$
	Yes	70	38.7	111	61.3	181	p = 0.001
Quality of child care/ attention	Good care	62	64.6	34	35.4	96	
	Adequate care	27	38.6	43	61.4	70	
	Inadequate	0	0	17	100	17	
Company with relatives/ friends during last six months	Never	25	52.1	23	47.9	48	$\chi^2 = 14.220$
	1 – 2 times	78	43.1	103	56.9	181	p = 0.007
	3 – 4 times	88	52.1	81	47.9	169	
	5 – 6 times	41	52.6	37	47.4	78	
	> 6 times	83	64.8	45	35.2	128	
Home conflicts for last 6 months	Never	206	61.1	131	38.9	337	$\chi^2 = 34.317$
	Once	76	48.7	80	51.3	156	p < 0.001
	2 – 3 times	26	31.3	57	68.7	83	
	> 3 times	7	25	21	75	28	
Health problems	No	168	60.2	111	36.8	279	$\chi^2 = 13.508$
	Yes	147	45.2	178	54.8	325	p < 0.001
Monthly income	< 20,000	14	31.1	31	68.9	45	$\chi^2 = 17.486$ p = 0.004
	20,001 – 30,000	121	55.8	96	44.2	217	
	30,001 – 45,000	72	55.4	58	44.6	130	
	45,001 – 75,000	68	59.6	46	40.4	114	
	75,001 – 100,000	26	42.6	35	57.4	61	
	> 100,000	14	37.8	23	62.2	37	
Years of service	1	153	57.1	115	42.9	268	$\chi^2 = 8.389$
	2	78	53.1	69	46.9	147	p = 0.039
	3-4	34	40	51	60	85	
	> 5	50	48.1	54	51.9	104	
Extra duty	≤ 5	169	62.4	102	37.6	271	$\chi^2 = 20.531$
	> 5	146	43.8	187	56.2	333	p < 0.001
Weekend duty	None	244	57.8	178	42.2	422	$\chi^2 = 24.470$
	One weekend	44	42.7	59	57.3	103	p < 0.001
	Two weekends	13	25	39	75	52	
	> Two weekends	14	51.9	13	48.1	27	

Factors associated with work stress
With increasing age, the proportion of IT professionals who experience a higher stress was increased. There is a statistically significant association between work stress and age (Table 3).
A higher proportion of married IT professionals in the sample (55.1%) were experiencing stress in comparison to the unmarried group (42.9%). Further in 61.3% of participants who experience high level work stress, the spouses were also employed. This factor was also associations with work stress.

The participants' perceived level of quality care received by their children was assessed by requesting them to mention their feeling regarding the level of care received by the children. All 17 participants who felt that their child is not getting adequate care and attention were experiencing high work stress (100%).

The study participants who had frequent company with relatives/friends seemed to be experiencing less work stress than the other group. There was a statistically significant association between work stress and home conflicts.

With increasing level of monthly income and with increasing number of years of their service in the current organization, the proportion of participants in the "high stress" category was found to be high. The proportion (56.2%) of participant in the "high stress" category was higher among the group who worked more than five extra hours per day. There was a stepwise increase in the proportion of participants in the "high stress" category with increasing frequency of weekend duties.

There was a significant association between work stress and GHQ score $\geq$ 6 (psychologically distressed) indicating that those who are having high work stress levels are more prone to psychological distress (Table 4).

The majority of IT professionals in the study sample were found to be practicing problem focused stress coping strategy to the given situation Tables 5-7).

Discussion
The study results revealed that the majority of the participants were in age group of 26 - 30 years with a mean age of 30 years. The IT industry in Sri Lanka is still young compared to other fields of industry and at the same time it is expanding rapidly. Young graduates and diploma holders enter into this field[1]. This explains the distribution of the study sample.

The male preponderance (72%) at IT field can be due to the fact that, IT organization culture in the private sector which is more competitive, profit and target oriented, places more demand on the employee and ultimately lead them to work long hours. Finally it becomes a field where females are reluctant to choose as their career, because of inability to balance responsibilities at workplace and family. Furthermore, maternity leave policies in the private sector may not encourage females entering this field.

The majority of study sample was Sinhalese. The ethnic distribution was somewhat similar to that of the urban population according to the Demographic and Health Survey in 2000 conducted by the Department of Census and Statistics, Ministry of Finance and Planning, Sri Lanka.

The majority (59%) of the study sample was unmarried, may be because of IT workforce consist of younger age group.

The majority of study sample (77%) was graduates. The bulk of the younger work force (43%) in IT field comprised of IT graduates. It gives the clue that recently, Sri Lankan curriculum has given way to develop these professionals at higher education institutes. However, there were 20% of non IT graduates in the study sample, indicating that still the demand for IT workforce cannot be met merely with IT graduates since the curriculum which leads to IT degree commenced recently.

Furthermore, other educational qualifications such as diploma, advanced diploma also has come into play to meet the demand. The present study revealed that there were 23% Diploma and Advanced Diploma holders among the study sample. IT professionals enjoy very attractive starting salaries regardless of the sector they find employment in. An overall the entry level salary is around Rs 20,000 per month[1]. In the present study, the majority of IT professionals (57%) were earning salary 20,000 to 45,000 per month.

In this study, it was found that 55% of IT professionals did extra work hours ($\geq$ 5 hours per week), but only 5.3% of the IT professionals were paid for extra duties. This indicates that IT professionals work hard for their salary.

Table 4- Distribution of the study sample by work stress and psychological distress

Work stress level	Prevalence of psychological distress				Total	
	No Distress (GHQ≤5)		Distress (GHQ≥6)			
	N	%	N	%	N	%
Low	229	72.7	86	27.3	315	100.0
High	125	43.3	164	56.7	289	100.0
Total	354	58.6	250	41.4	604	100.0

$\chi^2 = 53.87$ df=1 $p < 0.001$

Table 5. Distribution of study sample by stress coping strategies

Situation	Problem focused		Emotion focused		Total
	N	%	N	%	
In a difficulty in meeting a project deadline	598	99.0	6	1.0	100
Dealing with customers/management	563	93.2	41	6.8	100
Lack of skills to complete an assignment	551	91.2	53	8.8	100
Work overload	468	77.5	136	22.5	100
Conflict situations	543	89.9	61	10.1	100

Table 6- Distribution of the study sample by frequency of practicing harmless emotion focused stress coping

Harmless stress coping strategies	Never		Seldom		Frequent		Very frequent	
	N	%	N	%	N	%	N	%
Frequency of discussing the events with spouse and friends	119	19.7	115	19.0	216	35.8	154	25.5
Frequency of going on a trip/film with family	252	41.7	228	37.7	111	18.4	13	2.2
Frequency of listen to music watching TV	99	16.4	165	27.3	225	37.3	115	19.0
Frequency of trying to reduce tension by physical exercise	333	55.1	132	21.9	85	14.1	54	8.9
Frequency of meditation	437	72.4	97	16.1	52	8.6	18	3.0

Prevalence of psychological distress

The study found that prevalence of psychological distress among IT professionals is 41%. This situation can be explained by various characteristics of the IT profession: long work hours, tight schedules, work overload, short term dead lines and customer problems. Working in the private sector, hence job insecurity, also becomes a stressor for them. There was a significant association between work stress and GHQ score ≥ 6 (psychologically distressed) indicating that those who are having high work stress are more prone to psychological distress.

Table 7-Distribution of the study sample by frequency of practicing harmful emotion focused stress coping strategies

Harmful stress coping strategies	Never		Seldom		Frequent		Very frequent	
	N	%	N	%	N	%	N	%
Frequency of eating more or staving	368	60.9	135	22.4	80	13.2	21	3.5
Frequency of consuming alcohol	490	81.1	71	11.8	24	4.0	19	3.1
Frequency of smoking	536	88.7	36	6.0	19	3.1	13	2.2
Frequency of taking drugs such as Diazepam	570	94.4	24	4.0	6	1.0	4	0.7
Frequency of keeping the feelings to self	148	24.5	145	24.0	177	29.3	134	22.2
Frequency of refusing to believe that it happened	311	51.5	195	32.3	84	13.9	14	2.3

Work stress and factors associated with work stress

Perceived work overload was the most common stressor for IT professionals. Approximately 51% of IT professionals were affected by work overload. A study conducted among IT professionals in North America, Europe and Australia has uncovered that more than half (55%) of the chief IT officers indicated rising work load as a major source of stress in the work place[2].

In the Sri Lankan IT field, qualified workers are in demand[1]. Therefore, with the rapidly advancing demand placed on the worker, excessive workload on already understaffed IT organization can cause an immense pressure on employees. Due to the work overload, IT professionals have to work long hours, stay at work place for longer duration and disturbing family relationships. Family conflicts can occur. Children can be neglected. Health status of the employee also disturbed[3]. All these factors can again act as stressors (vicious cycle) and professionals become more stressful.

Lack of rewards was a stressor for 49% of participants in present study. In private sector organizations, most of the professional rewards are based on the performance, unlike in the public sector where most of the career rewards depends on the seniority and educational qualifications but not on the performance. Thus, to get rewards IT professional should perform at a predetermined level. This can become a stressor for them. Lack of skills or inadequacy of knowledge or any other factor which prevent getting rewards can serve as stressor for them.

An organization which does not encourage a sense of belonging, worker participation in decision making and good communication within its ranks is likely to generate stress[4]. In the present study, it was found that less appreciation in participation in decision making was a stressor for 42% of participants. Young IT professionals who are working in the private sector without much experience will not enjoy job autonomy. Inability of worker to have control over his own environment becomes a stressor for him[5].

A study carried out by Warburton[6] on 5296 office workers in several countries revealed that job dissatisfaction caused more stress in the work place. According to his study 25% of senior managers and chief executives among the study group reported dissatisfaction with their jobs. In the present study, job dissatisfaction among Sri Lankan IT professionals was 26%.

Working environment is another determining factor for work stress[7]. Among IT professionals in the study group, 31% was affected by poor physical environment at work place. It was found that insufficient software/hardware, poor quality/ configuration of available tools, inconvenient arrangement of tables and computer chairs and air conditioning were stressors for some participants. The majority of IT professional among the study sample had a high work stress level.

The study sample grouped into two by dividing at 50th percentile of work stress distribution into two categories; low level of work stress vs. high level of work stress.

Almost all participants who were psychologically distressed were in the high work stress category, but there were some participants who were not psychologically distressed, still they had high level of work stress. This reflects the fact that even though the work stress is associated with psychological distress, it always does not cause psychological distress.

The present study revealed that, with increasing age, work stress also increased. With increasing age, IT professionals get more work experience, with that work experience these professionals are allocated to newer job categories with higher responsibilities with higher remunerations[1]. So, unlike in the younger age group who are engaged in less responsible job categories, this older group face more demands at the work place. Another factor which can cause stress on older IT professional is job insecurity. With rapidly changing modern technology, even older people have to keep in touch with new technology; otherwise they will be replaced by new comers to the field who are equipped with newer technology. With increasing age of this young workforce, especially females when they enter into marriage, affected by other stressors; work/ family imbalance which ultimately can aggravate job stress.

In present study, sex was not found to be significantly associated with work stress. The female IT workforce mainly consisted of unmarried young females, who are employed in low stressful job categories. On the other hand, there is a high turnover rate in the female IT workforce. Especially after marriage they leave the field because of work/ family imbalance. So, stressful females are not retained in this field[8].

In the present study, marital status was found to be significantly associated with work stress. IT professionals when they work long hours do not have adequate time to have good relationships with their families. Family members become neglected. Married professionals are more stressful in their attempt to balance work and family.

Today, the Sri Lankan economy does not favour the traditional way of one party to become income generator for the family. Instead, dual income families have come into play. In the present study, it was found that a majority of the spouses of IT professionals were employed. Employment status of spouses caused increase stress among IT professionals. This may be due to the fact that when both are employed, and work long hours, it can cause work/family imbalance which aggravate the work stress, child caring problems etc.

All participants who perceived that their children stress" category. The reason for this might be that they are overloaded with work and unable to give due care for children.

Lack of social relationships is a stressor for work[5]. In the present study a larger proportion of participants having good social relationships, were found to be in the low work stress category. This association was statistically significant and indicates that lack of social relationships has become a stressor for the IT professionals. This is because, good social interactions help to overcome stress , and therefore they can manage stress easily.

In the present study, it was found that, there was a statistically significant association between high stress and increasing level of monthly remuneration. IT professionals in the private sector are being paid well. Even at entry level they can get a salary of more that Rs 20,000[1]. With increasing levels of salary and more responsibilities they are subjected to more and more pressure. This could be the reason for an increasing work stress level with increasing salary.

In the present study, it was found that majority (69%) of IT professional had less than two years service in the current organization. There were only 11% of participants who had work experience greater than seven years at the current organization. This fact is supported by IT workforce survey results. According to that survey, the employee retention in the IT sector is very poor. The majority of professional has less than three years experience in one organization[1]. This may be due to the demand for experienced IT professionals, and IT organizations are in search of experienced professionals. The professional who stay longer than three years duration in one station become mature at that organization and enter into more esteemed, highly paid positions like IT management and project management[1].

Findings of this study show that with increasing years of service in the current organization, the proportion of participants of the high stress category increases. IT professionals enter into more responsible posts with maturity and pressure on them

increases. They become more target oriented and thus their stress level also increases.

Cooper and Cartwright[9] claimed professionals like managers working more than ten hours a day is not uncommon but working beyond four hours per week would be increasingly unproductive. Information Technology organizational culture contributes to long work hours, as this behaviour is often valued and expected. Many organizations value long work hours and equate this to commitment and high performance. Among the study sample, the majority did extra duty more than 5 hours per week. It was observed that some professionals (1%) did extra hours at very extreme levels. (more than 40 hours per week). There was a statistically significant association between participants who did more than five hours extra duty per week and their work stress levels. This can be due to the fact that the groups who work long hours are the groups who have work overload and they belong to the groups which are under stress. In this study, work overload was identified as the top reason for work stress among IT professional.

In this study it was found that the majority (70%) of professional do not do weekend duties. A statistically significantly association was observed between work stress level and frequency of weekend duties. The group who tends to do weekend duties was the same group who are overloaded with work.

Coping with stress

In this study, it was found that a problem focused stress coping strategy was adapted by a majority of IT professionals. In conflict situations related to work such as difficulty in meeting project dead lines, dealing with customers, difficulty in completing assignment and situation with work overload, most participants adapted problem focused strategies: individuals evaluate the situation and does something to change or avoid it. This is the healthiest method of stress coping, as it is problem oriented. IT professionals have used to this method of coping because in day to day activities this type of problems should be settled. The emotion focused stress coping strategy has little place in the working environment to deal with the above problems.

Even though, majority of participants practiced problem focused strategy in given selected situations usually people practice both emotion focused and problem focused methods in coping with stress. Emotion focused coping strategies are two types: harmless and harmful.

The International Labour Organization revealed that stressful work might tempt the worker to use drugs or smoke in order to reduce tension[10]. The majority of the participants in present study practiced harmless emotion focused strategy more frequently. But 7% of participants frequently consumed alcohol and 5% smoked frequently.
IT professionals should be encouraged to practice stress coping strategies instead of smoking or consuming alcohol to relieve stress.

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