



RESEARCH ARTICLE

HEALTH PROBLEMS OF WOMEN IN SOFTWARE INDUSTRY

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ABSTRACT

In India, Women constitute about 21 percent of the total software work force, which is higher than their participation in the national economy. Owing to the target oriented time schedules, the effort to be put in by the software professionals, especially women in highly strenuous. This new work culture is paving way to a new set of health problems, along with emotional and social problems. Technopark at Trivandrum housing 104 IT and ITES companies, providing employment to more than 12,500 software professionals, was selected as the locale for the study. One hundred and fifty software professionals and 50 non software professionals were taken as the sample for study. The independent variables studied were socio economic and personal characteristics, life style pattern and dietary particulars. The dependant variables studied were morbidity pattern, anthropometric measurements, reproductive health and stress level. Most of the Socio economic, personal characteristics life style patterns and dietary profile were comparable However Occupational diseases like joint pains, vision problems, back pain, muscular pain and spondilitis were higher for software professionals. High level of stress was observed among software professionals than non software professionals.

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INTRODUCTION

India is a forerunner among developing counters in accepting cyber industry. Software industry is reported to be the fastest growing occupation in the global scenario. It is now emerging as one of the largest employment providers to women (NASS COM 2003). It is estimated that women constitute about 21 percent of the total Software workforce which is higher than their participation in the national economy as a whole. Thus software industry contributes to the enhancement of women's work participation in the country. The software industry is characterized by reduction in physical labour and increase in skill or knowledge component. This makes it possible for women to take up jobs that were formally the domain of men (Kelkar, 2003). Long hours of work and travel that are inevitable in the software industry leads to women opting for jobs in testing or quality assurance, which is usually paid less, but have regular working hours. In this branch, they have no chance of being sent abroad. This is a major reason why although participation of women in software industry increasing, the proportion of women at the top remains low. Rothboek *et al.* (2001) in a study on Indian software labour market found clustering of women professionals at the lower end of the hierarchy leading to feminization of certain service activities. Mitter (2003) conducted a study in Malaysia and India to find out the impact of information technology on women. He observed that a women's work has multiplied and

the gender based division of labour was continued even as a result of the introduction of new information and communication technologies.

Jobs in the software industry are insecure, people are liable to be laid off or transferred at any time in response to downward trends in the economy, loss of customers or closure of a project. Considering the nature of work in this industry, the commitment of time and energy that women software professionals have to put in is heavy. Many women are able to work for long hours like their male counter parts, and this lead to stress. Women face objection from parents in laws or face social disapproval while staying at the office till late at night. Also there is tension of reaching their homes safety, even though transportation is mostly provided by the companies themselves. Married women face additional constraints due to their domestic responsibilities (Prasanna Kumari, 2008). India being the fore runner in the Cyber world the personnel are awakening to a group of modern occupational diseases which are slowly taking its roots among software professionals (Kesava Chandran *et al.*, 2006). These problems if ignored can prove debilitating and can cause crippling injuries forcing one to change ones profession (Choudhary *et al.*, 2002).

Thus their work is affecting the mental, emotional and social health of the individuals and their families, as evidenced from literature. Thus software industry could be creating a new range of life style diseases. Hence this study envisages to investigate the life style of young professionals and the related health risks.

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Considering the nature of work in this industry, the commitment of time and energy that women software professionals have to put in is heavy. This work culture is also affecting the mental, emotional and social development of individuals and their families as in evidenced from literature.

MATERIALS AND METHODS

Locale of the study - The study entitled "Health problems of women in software industry" was conducted at "Technopark", Trivandrum. This software technology park employs more than 12,500 software professionals through its 104 IT & ITES companies.

Selection of Respondents

Software industry is noted to be an emerging and young industry having more of fresh graduates or post graduates. The technopark began operation here at Thiruvananthapuram only in 1990. hence 150 software professionals were selected with the following criteria.

- 1) With a basic qualification of B Tech /M Tech / MBA or graduate in Sciences.
- 2) Minimum 3 years experience
- 3) Above 25 years of age
- 4) Willingness to cooperate with the study.

It is presumed that a minimum of 3 years atleast is required for a life style to set in and cause any effect on the person, The control group of 50 non software professionals were selected from the executive level of Vikram Sarabhai space Centre, Trivandrum, following the same criteria, to make the study comparable.

Measurement of independent variables

The socio economic and personal characteristics namely age, religion, marital status, experience in occupation type of family, personal income and family income were studied life style patterns were assessed with respect to leisure time activities, sleeping habits, exercise pattern and house hold responsibilities. Dietary status was assessed with respect to meal pattern, frequency of skipping meals and snacking pattern.

Measurement of dependant variables

Review of literature reveals computer related morbidity mainly in the form of visual problems, musculo skeletal problems and stress (Suparna *et al.*, 2005; Pinto, 2003; Sharan 2005; Hunting *et al.*, 1981; Shah *et al.*, 1999; Chaithanya, 2002)

Data Collection

Based on the methodology discussed, an interview schedule was prepared for the purpose of data collection. The schedule was presented on a sample of 10 software professionals. Based on the pre testing, certain modifications were made so as to ensure clarity and relevance.

RESULTS AND DISCUSSION

The socio economic and personal characteristics were observed to be comparable among the 2 groups. The time spent for leisure time activities was greater for non software respondents than software respondents. Watching TV, reading news paper and listening to music were their main leisure time activities. However the major relaxing measure observed was that majority of software professionals (84%) slept over 8 hours, none of the non software professionals belonged to this group. 80 percent of them slept between 6-7 hours. This in fact points out the degree of exhaustion of professionals of the same age group. Relaxing in the form of napping or idling in the afternoon-break was observed among 80 percent of non software professionals and only 14 percent of software professionals which is another picture of energy drain. Sleeping pattern and exercise pattern of the 2 groups did not show significant difference. Though 63% of software and 64% of non software professional spent 8-10 hrs at their work place, the computer centered working was higher for software professionals.

House hold chores were assessed with respect to the time devoted and also assistance received. This aspect too did not show significant difference. The main leisure time activities in both groups were seen to be watching TV, reading newspaper and listening to music. Regarding exercise pattern 26 percent of software and 12 percent of non software professionals never had this habit. Nutritional sufficiency was also assessed. Skipping breakfast was higher among software professionals than non software professionals snacking pattern of both groups were not found to show much of difference.

Frequency of consumption of junk foods were classified as once a week, twice a week, 3-5 times a week and daily. Snacking on a weekly basis was slightly higher among software professionals. Body mass index – Body mass index (BMI) is an indicator of body's energy stores as reported by Choudhari and Solanki (1999). Based on BMI seventy eight percent of software professionals and seventy two percent of non software professionals were classified as normal. The remaining software belonged to Ist & IInd grade of obesity.

Morbidity Pattern

A schedule was standardized after circulating among experts in the field. This schedule was used to record manifestation of any disease or illness in the past 6 months prior to the interview, from the respondents. Heights and weights were the anthropometric measures recorded. Reproductive health was also assessed using standardized schedules and stress level was studied using Menon's scale, 2003 The health complaints were classified as occupational and non occupational. Joint pains, vision problems, back pain and spondylitis were grouped under occupational pains and the other health complaints as non occupational. Complaints like pain, joint pain and vision problems were reported on a higher side among software professionals.

Table 1. Distribution of working women based on occupational health complaints

| S.No. | Symptoms | Distribution of women | |
|-------|--|-----------------------|-----------------------|
| | | Software industry (%) | Non software industry |
| 1 | Nil | 0 | 2 |
| 2 | Back pain | 8 | 8 |
| 3 | Back pain and joint pain | 23 | 16 |
| 4 | Back pain, joint pain & vision problem | 34 | 11 |
| 5 | Pains, vision problem and spondilits | 25 | 0 |

Reproductive Health

Reproductive health was assessed with respect to regulation of menstrual cycles and obstetric problems. Significant difference was not observed amongst the 2 groups; however the period of confinement related to delivery availed by women of non Software industry was more than women of Software industry

Table 2. Details of confinement of working women availed for delivery

| S.No. | Period | Distribution of working women (%) | |
|-------|-----------------------|-----------------------------------|-----------------------|
| | | Software industry | Non software industry |
| 1 | 3 months | 23 | 8 |
| 2 | > 3 months | 11 | 76 |
| 3 | Resigned and rejoined | 3 | 8 |

Table 3. Comparison of nutrient adequacy, body weight and stress level of working women

| Variables | Software (N=150) | Distribution of Women | | Value |
|--|------------------|-----------------------|---------------------|--------|
| | | Software | Non software (N=50) | |
| 1) Nutrient adequacy | 64.61 | 67.20 | | 1.12 |
| | SD (14.70) | (12.08) | | |
| 2) Body weight | 56.92 | 60.42 | | 3.57** |
| | SD 66.73 | 69.23 | | |
| 3) Stress – I (Physical Complaints) | 26.56 | 22.04 | | 6.00** |
| | SD 87.96 | 92.40 | | |
| 4) Stress – II (negative affective reaction) | 25.35 | 22.18 | | 3.17** |
| | SD 92.10 | 95.27 | | |
| 5) Stress-III (Cognitive behaviour) | 24.53 | 21.66 | | 3.20 |
| | SD 95.69 | 98.07 | | |
| 6) Stress IV (overt behaviour) | 24.57 | 21.57 | | 3.40** |
| | SD 98.91 | 100.63 | | |
| 7) Domestic level stress | 12.02 | 13.92 | | 2.92** |
| | SD 102.02 | 103.07 | | |
| 8) Stress (total) | 113.04 | 104.56 | | 3.67** |
| | SD 104.40 | 106.04 | | |

Stress Level

Stress is the out come of modern lifestyle pressures. Hence, the level of stress was studied among the 2 populations. When the stress manifested as 'physical complaints' was studied, 17% of women of software sector and 6 percent of non software sector

showed high level of stress. Stress manifested as negative affective behaviour' was displayed among 18 percent of women in software sector and 14 percent of women in non software sector. Stress studied from 'cognitive behaviour' showed high levels among 14 percent of both software and non software sector. Twenty percent of women of software industry revealed high stress; when overt behaviour was studied; corresponding type of stress in non software industry was 14 percent. Stress due tp 'domestic problems' was higher among women of non-software industry (24%) as against 18 percent of women from software sector. Overall stress was high in 44 percent of the women of software industry sector. When the data was further analysed station the difference for body weight and stress levels were statically significant among the 2 groups.

The association of total stress and various parameters were studied it was seen that work duration ($r=5.082$) and nutrient adequacy had positive association with total stress. An interesting observation seen was that time spent on house hold activities was negatively associated with the level of stress ($r=0.161$ at 1% level). This could be because, women if involved totally in house hold chores can be relieved of much of their occupational stress. Chi square analysis showed that work duration at the office and total stress were positively associated. Work pressure thus adds to women's stress hence, this study highlights are that-

- Women are not relieved of household chores, however high her professional commitments are
- Food consumption patterns reveal that women are not consuming balanced meal, even if their incomes are high
- Skipping of meals is also prevalent due to time pressure
- Junk foods have become a habit in any urban home.
- Occupational diseases are being manifested mainly due to sedentary nature and posture at work place
- Psychological stress in extremely high due to dual burden of women

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