Epidemiology International
Volume 4, Issue 2 - 2019, Pg. No. 29-33
Peer Reviewed & Open Access Journal

Research Article

A Cross-Sectional Study of Health Profile of IT Professionals in Goa

Preksha P Vernekar[1], Kalyani S[2], Jagadish A Cacodcar[3]

[1,2]PG Student, [3]Professor and Head, Department of Preventive and Social Medicine, Goa Medical College, Goa, India.
DOI: https://doi.org/10.24321/2455.7048.201909

I N F O

Corresponding Author:
Preksha P Vernekar, Department of Preventive and Social Medicine, Goa Medical College, Goa, India.
E-mail Id:
preksha.vernekar23@gmail.com
Orcid Id:
https://orcid.org/0000-0001-6008-024X
How to cite this article:
Vernekar PP, Kalyani S, Cacodcar JA. A Cross-Sectional Study of Health Profile of IT Professionals in Goa. *Epidem Int* 2019; 4(2): 29-33.

Date of Submission: 2019-07-30
Date of Acceptance: 2019-09-11

A B S T R A C T

Background: Keeping in mind, the increasing burden of health problems among professionals working in IT industry and lack of evidence on health status of IT Employees in Goa, the present research study was undertaken.

Aim: To study the health profile of workers employed in selected IT companies in the largest industrial estate of Goa.

Methods and Materials: This cross-sectional study was a retrospective, record-based study conducted over a period of 2 months. Data was obtained from the records of an Occupational Health Service (OHS) centre after assuring confidentiality. The variables of study comprised sociodemographic data (age, sex), anthropometry (height, weight), vitals (pulse, blood pressure), vision (near, far and colour) and basic blood/urine laboratory investigations and ECG readings. Data was entered into Excel spreadsheet and analysed using SPSS version 22. Descriptive statistics was used to analyse the data.

Results: Mean age of the employees was 38.91±7.80 years (79.7% males and 20.3% females). 33.9% were overweight and 6.8% were obese. 11% had diabetes and 31.4% had hypertension. The proportion of patients having pre-hypertension, prediabetes was 42.2% and 2.5% respectively. 36.4% had dyslipidaemia of which 30.5% were having hypercholesterolemia and 5.9% were having hypertriglyceridemia.

Conclusion: This study highlights the need of periodic medical check-ups of the IT professionals for timely detection and early management of health problems.

Keywords: Goa, Health Profile, Information Technology, IT Professionals

Introduction

India's IT industry renders a significant contribution to the Indian economy. It contributed towards 7.7% of the country's GDP in 2018. India is also the leading sourcing destination across the world, accounting for approximately 55 per cent market share of the US$ 185-190 billion global services sourcing business in 2017-18.[1]

IT and its related sectors fuel a large pool of aspiring graduates trying to make a place in this multi-dynamic industry which has increased the demand for job opportunities.

This, in turn, has paved the way for a plethora of health-related problems for the employees due to the increased demands of work contributing to physical and mental stress.

Considering the importance of the subject and lack of published evidence on health status of IT professionals in Goa, the present research was undertaken to study health profile of workers employed in selected IT industries in Goa so that effective measures can be put into action and favourable policies can be developed to prevent chronic health problems among the study population.

Materials and Methods

This cross-sectional study was a retrospective, record-based study conducted over a period of 2 months (November - December 2018). A well-known OHS centre was approached that conducted health check-ups of all employees in 4 IT companies in the largest industrial estate of Goa. Confidentiality was assured to the Occupational Health Physician in charge with respect to the names of the IT companies and the identity of the employees. All employees working in the respective IT companies whose health records were obtained were included in the study. Employees whose health records could not be traced or were lost or incomplete were not included in the study.

The health records of 118 employees who had voluntarily consented for medical check-up were obtained. These employees belonged to different categories of work in the respective companies. The data that was procured contained records of their sociodemographic characteristics (age, sex), anthropometry [(height, weight, body mass index (BMI)], vitals [(pulse, blood pressure (BP)], vision (near, far, colour) and basic blood/ urine laboratory investigations (fasting and 2 hour post prandial blood sugar, lipid profile, urine routine and microscopy) and ECG readings.

Height was measured to the nearest 0.1 cm with the help of a stadiometer. Weight was measured using a standard weighing scale to the nearest 0.1 kg after zero correction. BMI was calculated as a ratio of weight in kilograms to square of height in metres. BP was recorded in sitting position using a sphygmomanometer. Far, near and colour vision were assessed using Snellen chart, Roman text type and Ishihara's chart respectively. Blood samples were collected in the fasting state and 2 hours after a meal. Early morning midstream samples of urine were collected in a clean sterile container. These were then sent to the OHS laboratory attached to the OHS centre and were processed using standard assays. For ECG reports, patient was placed in supine position and 12 lead ECG reading was taken to look for abnormal heart rhythm.

Ethical approval was taken from the Institutional Ethics Committee (IEC) of GMC before commencement of the study.

The data was entered into Microsoft Excel version 2010, statistically analysed using IBM SPSS version 22 and expressed as simple percentages and proportions.

The study variables were classified as follows:

- Hypertension (Systolic BP >140 mm Hg or Diastolic BP >90 mm Hg) and pre-hypertension (Systolic BP 120-139 mm Hg or Diastolic BP 80-89 mm Hg)[2]
- Diabetes (Fasting plasma glucose ≥126 mg/dl or 2-h plasma glucose ≥200 mg/dl) and prediabetes (Fasting plasma glucose 100-125 mg/dl or 2-h plasma glucose 140-199 mg/dl)[3]
- Overweight (BMI ≥25 - <30 kg/m^2) and obese (BMI ≥ 30 kg/m^2)[4]
- Hypertriglyceridemia (Serum TG >150 mg/dl)[5]
- Hypercholesterolemia (Serum cholesterol >200 mg/dl)[5]
- A working definition was developed for visual status: Near vision: Normal ≥N6; Satisfactory N8-N12; Poor <N12 (Roman text type); Far vision: Normal ≥6/6; Satisfactory 6/9-6/12; Poor <6/12 (Snellen chart). Colour vision was assessed using Ishihara's chart and was interpreted as defective if the employee could not correctly identify at least 12 out of the 14 red/ green plates

Results

Out of the 118 employees, 94 (79.7%) were males and 24 (20.3%) were females. Age of the employees ranged between 21-54 years with mean age being 38.91±7.80 years (Figure 1).

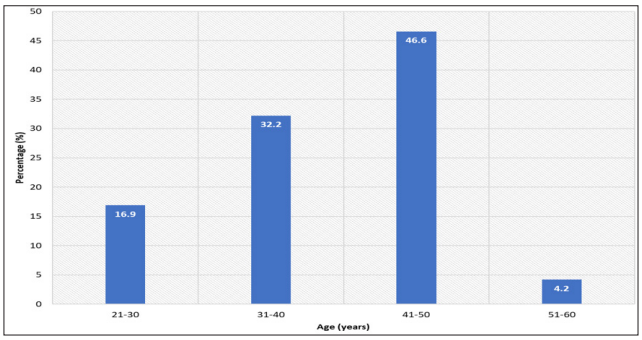

Figure 1.Age-wise distribution of the IT professionals

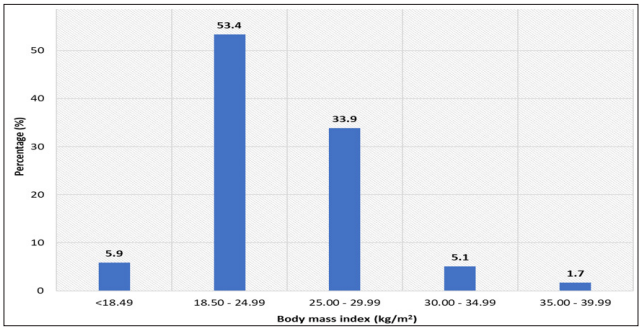

Figure 2.Distribution of the IT professionals according to their BMI

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.201909

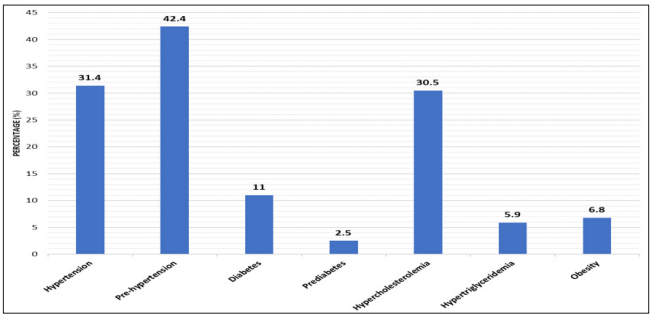

Figure 3.Health problems among the IT professionals

Majority of the employees i.e. 63 (53.4%) had BMI in the normal range (18.50 - 24.99); however, seven (5.9%) were underweight, a significant proportion of one third of them (33.9%) were overweight, six (5.1%) had class I obesity and two (1.7%) had class II obesity (Figure 2).

As far as vision is concerned, with respect to visual acuity, majority of the employees, i.e. 98 (83.1%) had normal far vision, 12 (10.2%) had satisfactory far vision but eight (6.8%) were short sighted. As regards near vision, 101 (85.6%) had normal near vision, nine (7.6%) could satisfactorily adjust to close reading but eight (6.8%) were far sighted. One of the employees was found to have red green colour blindness.

Thirty-seven (31.4%) of the employees had hypertension, in addition to which 50 (42.4%) were observed to have pre-hypertension (Figure 3). Correlation between age, sex and BMI and presence of hypertension were found to be statistically significant (Table 1). The mean systolic BP was 125.68 ± 17.18 mm Hg and the mean diastolic BP was 82.29 ±10.49 mm Hg (Table 2).

Thirteen (11.2%) employees were found to have diabetes mellitus in addition to which three (2.5%) were found to have blood sugars in the prediabetic range (Figure 3). Correlation between age and sex and presence of diabetes mellitus was found to be statistically significant (Table 1). Forty-three (36.4%) of the employees were having dyslipidaemia, out of which 36 (30.5%) were having hypercholesterolemia and seven (5.9%) were having hypertriglyceridemia (Figure 3). Around five (4.2%) employees had traces of sugar on urine routine/ microscopy. Interestingly, seven (5.9%) of employees also showed ECG changes which mainly consisted of bundle branch blocks.

Table 1.Association of hypertension, diabetes mellitus and dyslipidaemia with selected variables among the IT professionals

Variables	Presence of hypertension		Presence of diabetes mellitus		Presence of dyslipidaemia	
	N (%)	p-value*	N (%)	P value	N (%)	p-value
Age (years)						
21-30	2 (1.7)	0.059	1 (0.8)	0.025	4 (3.4)	0.002
31-40	11 (9.3)		1 (0.8)		21 (17.8)	
41-50	21 (17.8)		9 (7.6)		14 (11.9)	
51-60	3 (2.5)		2 (1.7)		4 (3.4)	
Sex						
Males	36 (30.5)	0.001	13 (11)	0.053	38 (32.2)	0.075
Females	1 (0.8)		0 (0)		5 (4.2)	
BMI						
Normal and underweight	18 (15.3)	0.017	9 (7.6)	0.68	25 (21.2)	0.789
Overweight	13 (11)		3 (2.3)		14 (11.9)	
Obese	6 (5.1)		1 (0.8)		4 (3.4)	

*p-value calculated using chi-square test (p-value <0.05 is considered significant).

Table 2. Comparison of age-related selected variables among the IT professionals (Mean±SD)

Variables	Age (years)				Total
	21-30	31-40	41-50	51-60	
Systolic BP	118±13.94	126.95±17.94	125.18±15.14	149.20±19.82	125.68±17.18
Diastolic BP	78.3±5.55	81.79±11.69	83.37±10.1	90.4±15.58	82.29±10.49
BMI	23.36±4.75	24.35±3.55	24.67±3.84	22.96±4.21	24.31±3.91

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.201909

Discussion

Our study showed a significant prevalence of lifestyle diseases among the study participants. Lifestyle diseases like hypertension, diabetes mellitus, dyslipidaemia and overweight/obesity are the major risk factors for the development of CVD.[6]

A high percentage (31.4%) of the IT professionals had hypertension which was quite contrasting to a study done by Limaye TY et al.[7] which found prevalence to be 13.5% under similar study settings. A study done by Reddy KS et al.[8] in an industrial population of 10 companies across India found prevalence of hypertension to be 22.7%. Padma V et al.[9] also observed a prevalence of 22% of newly diagnosed hypertension among IT and BPO employees.

A high proportion of IT professionals (42.4%) were found to have pre-hypertension which raises concern about the possibility of these employees being at risk of developing cardiovascular morbidities associated with complications in due course of time. Limaye TY et al.[7] found a prevalence of 20.3% of borderline high BP (Systolic BP >130 - <140 mm Hg; Diastolic BP >85 - <90 mm Hg) in a comparatively young study population of mean age 33±6 years compared to the mean age of the study subjects of our study i.e. 38.91±7.80 years. The mean systolic BP and diastolic BP increased with age of the employees (Table 2).

The proportion of employees with diabetes in our study was 11% along with 2.5% having prediabetes. On the contrary, Limaye TY et al.[7] found 2.5% of employees with diabetes with 6.5% of employees having prediabetes. However, the findings were comparable to studies done by Padma V et al.[9] that reported 10% of employees having diabetes and Reddy KS et al.[8] presenting 10.1% of employees having clinical diabetes.

A substantial proportion of the employees in our study i.e. 33.9% were overweight and 6.8% were obese. Hence, there is a need to educate these employees about lifestyle modifications such as healthy dietary habits and increased physical activity in their lives as raised BMI is a major contributory risk factor for cardiovascular diseases (mainly heart disease and stroke) diabetes, musculoskeletal disorders and cancers.[10] Cardiovascular risks increase within the so-called range of normal BMI and there is a linear increase in multiple risk factors, such as HTN, diabetes, and metabolic syndrome, with each unit increase in BMI of >19 kg/m^2.[11] A mean BMI of 24.31 ± 3.41 kg/m^2 among these employees suggests an alarming risk of adverse health effects.

Most studies conducted on visual problems among IT professionals in India and abroad focussed on common visual symptoms experienced by these employees such as blurring of vision, headaches, eye strain etc. Our study focussed on checking visual acuity, near and colour vision of the employees and interestingly, the proportion of employees having poor near and far vision was the same i.e. 6.8%. These employees had been advised referral for necessary correction of possible refractive error and further evaluation.

Since this study was record-based, all socio demographic details and behavioural aspects of the employees could not be obtained. Preplacement medical records of the employees were unavailable since the IT companies did not send their employees to a single Occupational Health Centre/Medical Facility for periodic medical examination. The specific morbidities concerning IT professionals such as job stress and visual and musculoskeletal disorders could not be studied.

Conclusion

We conclude that there is a need for implementation of a system that caters to monitoring the health and well-being of employees working in IT and its related sectors. The companies should have mandatory periodic health check-ups of the employees, preferably at their regular health centre for better insight into the general health status of the workers. Pre-placement examination of the employees is a must to know the working capacity of the employee to ensure ergonomics as well as to procure first-hand knowledge on health problems the workers may be suffering from before employment. The employees should also be encouraged to report any health issues which need investigations and appropriate treatment; referral to a higher centre may also be considered.

An ergonomically organised workspace endowed with a positive and healthy environment is the key to ward off psychosomatic problems since work stress is a major ingredient of a multitude of chronic health problems in IT professionals. There should be effective communication with the manager and other higher authorities and moral support from colleagues and supervisors.

Health education regarding diet, physical activity and relaxation techniques such as yoga and meditation can be given to the employees. There should be an organizing committee appointed by the managers that conduct periodic recreational activities for the workers.

These measures will finally improve their performance in respective fields and will in turn lead to decreased incidence of morbidities, reduce sickness absenteeism and job stress leading to an optimum work output and contribute indirectly to better Indian workforce.

Acknowledgement

We would sincerely like to thank Dr. Vallabh B. Dhaimodker for providing us access to the medical records at his Occupational Health Centre for conducting the study.

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.201909

Conflict of Interest: None

References

1. Indian Equity Brand Foundation. Indian IT & ITeS Industry Report (March, 2019), India. Available from: https://www.ibef.org/industry/indian-iT-and-iTeS-industry-analysis-presentation.
2. Williams B, Mancia G, Spiering W et al. 2018 ESC/ESH Guidelines for the management of arterial hypertension. *European Heart Journal* 2018; 39(33): 3021-3104.
3. American Diabetes Association. Standards of medical care in diabetes-2018. *Diabetes Care* 2018; 41 Suppl 1: S13-27.
4. World Health Organization. *Obesity: preventing and managing the global epidemic*. Report of a WHO Consultation. World Health Organization, Geneva, 2000 (WHO Technical Report Series, No. 894).
5. National CE. Third report of the National Cholesterol Education Program (NCEP) expert panel on detection, evaluation, and treatment of high blood cholesterol in adults (Adult Treatment Panel III) final report. *Circulation* 2002; 106(25): 3143-3421.
6. Pappachan MJ. Increasing prevalence of lifestyle diseases: high time for action. *Indian J Med Res* 2011; 134(2): 143-145.
7. Limaye TY, Kulkarni RL, Deokar MR et al. High prevalence of cardiometabolic risk factors in young employees of Information Technology industry. *Indian J Occup Environ Med* 2016; 20(1): 64-67.
8. Reddy KS, Prabhakaran D, Chaturvedi V et al. Methods for establishing a surveillance system for cardiovascular diseases in Indian industrial populations. *Bull World Health Organ* 2006; 84(6): 461-469.
9. Padma V, Anand NN, Gurukul SM et al. Health problems and stress in Information Technology and Business Process Outsourcing employees. *J Pharm Bioallied Sci* 2015; 7 Suppl 1: S9-13.
10. Gupta R, Agrawal A, Misra A et al. Metabolic cardiovascular risk factors worsen continuously across the spectrum of body mass index in Asian Indians. *Indian Heart J* 2012; 64(3): 236-244.
11. World Health Organization. *Obesity and Overweight, Fact Sheet No. 311*. September 2006.

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.201909