

# Correlation of BMI with Workplace Stress and Physical Activity in IT Professionals

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## ABSTRACT

**Background and need for research:** IT professionals spend most of their office hours at their table due to long days of work, so there is less chance to find time for healthy physical activity. IT professionals are involved in a sedentary lifestyle and are bound to have an increase in body weight, which has a negative impact on their health and leads to psychological stress. Therefore, the objective of the study is to find out the correlation of BMI with workplace stress and physical activity among IT professionals.

**Materials and Methods:** An observational study was conducted on both males and females between the ages of 18-45 from various IT companies. The 'Workplace Stress Scale (WSS)' and 'International Physical Activity Questionnaire (IPAQ)' were filled out by 100 IT professionals and submitted through online Google Form. Ethical clearance has been obtained.

**Result:** SPSS Version 29 software is used for data analysis. There is a strong positive and significant correlation found between BMI and WSS ( $r = .653$ ,  $P = .001$ ). There is a weak but significant negative correlation found between BMI and IPAQ ( $r = -.260$ ,  $P = .009$ ).

**Conclusion:** The result of this study suggests that there is a strong and significant correlation between BMI and WSS as BMI increases and stress increases. And there is a weak but significant correlation between BMI and IPAQ as BMI increases and physical activity decreases.

**Keywords:** BMI, workplace stress, physical activity, IT professionals.

## INTRODUCTION

The work environment, which has become more sedentary with the emergence of the desktop computer, has an impact on the health of today's working population.<sup>(1)</sup> Given that physical inactivity is the fourth biggest cause of death and that the WHO estimates 3.2 million people die from it each year, this is a significant public health issue.<sup>(2)</sup>

In addition to spending the majority of the workday sitting down, many employees often consume unhealthy foods and experience stress at the office.<sup>(3)</sup> Employees who spend too much time sitting are more likely to develop several chronic diseases,<sup>(4)</sup>

become obese,<sup>(5)</sup> have lower cognitive performance,<sup>(6,7)</sup> and experience mental anguish.<sup>(8,9)</sup> Upper-body musculoskeletal complaints and illnesses have also been linked to sedentary computer use.<sup>(10,11)</sup>

Sedentary behaviour is evolving into a public health concern that needs to be taken into full consideration.<sup>(12)</sup> IT professionals are forced to spend greater hours in front of computers without giving importance to their health, especially their weight, any consideration due to the urgency, precision, and demands of their work.<sup>(13)</sup> Due to their sedentary lifestyles, IT professionals are prone to weight gain. In addition to causing a slow metabolism, which is the cause of a

poor BMI and has detrimental effects on health, prolonged physical inactivity also causes psychological stress.<sup>(12)</sup> When there is a poor fit between the demands of the job and the worker's abilities, resources, or requirements, workplace stress is the detrimental physical and emotional reaction that results.<sup>(14)</sup> One of the most important occupational health risks, work stress is now well acknowledged to decrease employee happiness and productivity while raising turnover and absenteeism.<sup>(15)</sup>

IT professionals avoid exercising regularly because they believe it is useless in achieving a healthy work-life balance.<sup>(12)</sup> Therefore, in order to lessen the hazards associated with a sedentary lifestyle, it is vital to find a suitable alternative, such as regularly participating in physical exercise like walking, yoga, cycling, etc.<sup>(12)</sup> The study's goal is to determine the relationship between BMI and stress at work and physical activity among IT professionals.

## **MATERIALS & METHODS**

After getting approval from the institutional ethics committee, the study was initiated. An observational study was conducted, and the purposive sampling technique was used. Data collection was done through an online Google form. Which started with the recruitment of subjects who met the inclusion and exclusion criteria from various IT companies in Ahmedabad, Gujarat, India. 100 IT professionals were recorded. Participants aged between 18-45 years, both male and female, with work experience of more than 1 year and working for at least 5 days per week (35–40 hours per week) were included in the study. A person with a physical illness for the last week and a part-time worker were excluded from the study. The questionnaire consisted of three sections: the first section encompassed anthropometric and demographic information such as name, age, gender, height, weight, experience, and any illness. The second section was to assess the IT professionals' physical activity level via an international physical activity

questionnaire. The third section was to assess the IT professionals stress level via the workplace stress scale.

The self-administered short form of the IPAQ is a 7-item scale. IPAQ has a reported reliability of 0.8 and a criterion validity of 0.3.<sup>(16)</sup> Assessing the amount of time spent in vigorous activity, moderately intense activity, and walking during the last 7 days. Also, the amount of time spent sitting on weekdays in the past 7 days is assessed, which is not included in the analysis of physical activity. For all categories, patients have to define how many days and how many minutes they spent in a specific activity category. For all categories, the amount of metabolic equivalent (METs)-minutes is calculated by multiplying the amount of minutes by 8 (vigorous), 4 (moderate), 3.3 (walking), or 1.3 (sitting). A total score is determined by adding the METs-minutes from the first three categories, in addition to these four sub scores.

The Marlin Company, North Haven, Connecticut, USA, created the Workplace Stress Scale (WSS) in 2001. WSS has a Cronbach's alpha reliability coefficient of 0.80.<sup>(17)</sup> The eight items that make up the WSS describe how frequently a person feels positive or negative about their job. Items 6, 7, and 8 are reverse scored in terms of scoring. The scale uses a five-point Likert answer system, with 1 representing never and 5 representing very often. High scores are a sign of greater levels of workplace stress.

## **RESULT**

Statistical analysis was performed on 100 IT professionals using SPSS Version 29 software for data analysis. Data normality was checked by using the Shapiro-Wilk test, as per the analysis, the data was not normally distributed and a non-parametric Spearman's correlation test was used to correlate BMI with workplace stress and physical activity among IT professionals. A p value <0.05 is considered statistically significant.

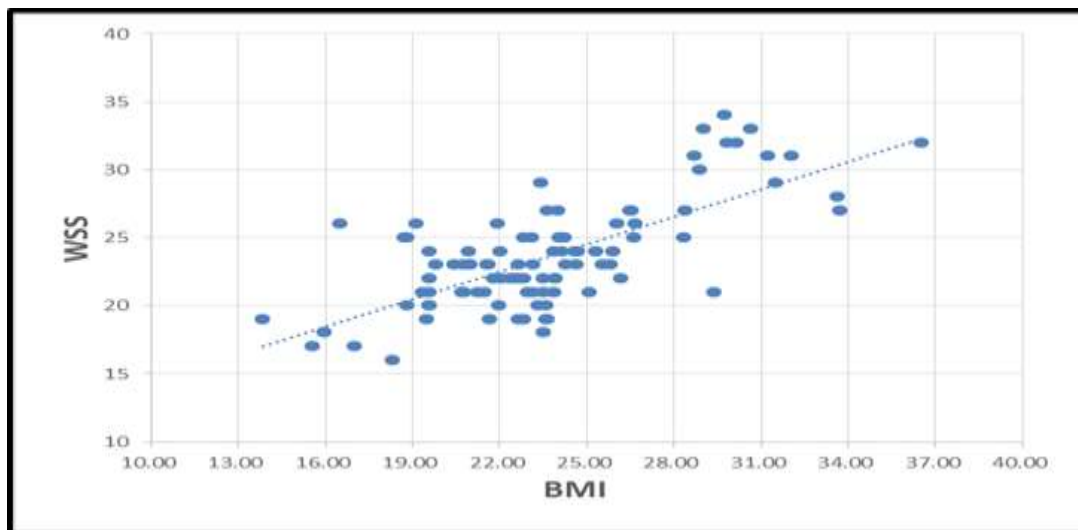
A strong positive and significant correlation was found between BMI and workplace stress ( $r = 0.653$ ,  $p = 0.001$ ). A weak but significant negative correlation was found between BMI and physical activity ( $r = -0.260$ ,  $p = 0.009$ ).

Table: 1 Mean and Standard deviation of BMI, WSS and IPAQ

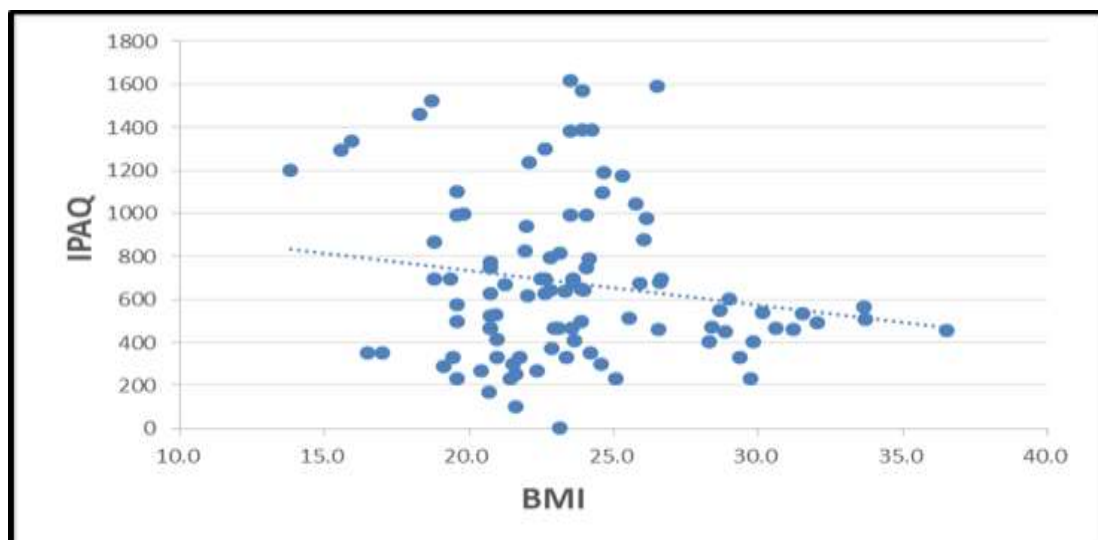
	MEAN±SD
BMI	23.53±4.09
WSS	23.54±3.85
IPAQ	676.46±372.74

Table: 2 Spearman's correlation of BMI with WSS and IPAQ

Spearman's correlation	r value	p value
WSS	0.653	0.001
IPAQ	-0.260	0.009



Graph: 1 Correlation of BMI with Workplace stress



Graph: 2 Correlation of BMI with Physical activity

## DISCUSSION

The efficiency of any IT organisation is primarily dependent on the health of its computer workers. In their sedentary working lives, importance must be given to the reduction of body weight; otherwise, it may eventually result in serious work-related musculoskeletal disorders and occupational-psycho-social stress.<sup>(13)</sup> Correct

ergonomic setup, frequent rest, stretching, and strengthening exercises may reduce a few degrees of physiological and psychological load in the body.<sup>(13)</sup> People's physical and mental health can be significantly improved through physical activity.<sup>(18)</sup>

According to the results of this study, the majority of the IT workers who participated

in it engaged in very little physical activity and experienced elevated levels of stress along with an increase in BMI.

Similar to the current study, Jasobanta Sethi et al.<sup>(13)</sup> found that among computer professionals, BMI significantly increased musculoskeletal discomfort from work and occupational-psychosocial stress. In order to create a well-designed training programme to prevent obesity, make computer professionals fit for their sedentary work, and free from occupational injury and stress, this study provides the association between BMI, WMSD, and occupational stress. The results of a study by D. Anithakumari et al.<sup>(12)</sup> suggest that elevated stress levels among Chennai-based IT workers are positively correlated with a sedentary lifestyle. A study by Abhinav Singh et al.<sup>(18)</sup> found that dental practitioners who led sedentary lifestyles were more prone to become obese and to engage in minimal physical activity. From these previous studies, it is evident that IT professionals face a lots of problems due to long days of work; therefore, the present study was carried out to correlate BMI, workplace stress and physical activity.

## CONCLUSION

This study gives us an elaborate understanding of the various difficulties and health impacts that IT professionals are subjected to. The result of this study implies a relationship between BMI, workplace stress, and physical activity. As the BMI increases, workplace stress also increases, and physical activity decreases. There are some limitations to this present study: the amount of stress and physical activity among various BMI categories has not been taken into account. A future study can be conducted to see the different levels of stress in male and female participants separately. Spectacled people should be considered. Clinical Implication should be design to improve physical activity and stress such as rest, lifestyle modification and ergonomically setups.

## Declaration by Authors

**Ethical Approval:** Approved

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**Conflict of Interest:** The authors declare no conflict of interest.

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