

Correlation Between Physical Activity and Work Ability Among Computer Workers

Dr. Kshiti Dirghayu Bhachech¹, Dr. Mihirdev Jhala²

¹First Year MPT Student, ²Principal,
JG College Of Physiotherapy, Gujarat University, Ahmedabad, India

Corresponding Author: Dr. Kshiti Dirghayu Bhachech

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ABSTRACT

Background and need of research: The rapid progress of civilization almost completely deprives us of the opportunity for movement and physical effort. It eliminates all these forms based on physical activity, leaving mainly monotonous activities that unevenly load the individual parts and systems of the human body. This phenomenon pertains mainly to office workers. Because of the specificity of the work performed, they are especially exposed to a risk of diseases, and that raises the problem of constructing programmed, intentional physical activity. Therefore, the aim of the study is to evaluate the association between physical activity level and the ability to work among computer workers.

Methodology: An observational study was conducted on computer workers between the ages of 30 and 50. The International Physical Activity Questionnaire (IPAQ) and Work Ability Index (WAI) were filled out by 103 individuals working as computer workers and submitted through a Google form. Ethical clearance has been obtained.

Result: SPSS version 20 was used for statistical analysis. The data was not normally distributed, so the Spearman correlation test was applied. A positive correlation was found between physical activity and work ability in computer workers ($r = 0.730$, $p = 0.001$).

Conclusion: We found in our study that as physical activity reduces, work ability also reduces among computer workers.

Keywords: computer workers, physical activity level, IPAQ, work ability, work ability index (WAI)

INTRODUCTION

Virtually all aspects of work and education now rely heavily on computers, from management tasks to document creation and electronic communication.^[1] In today's world, practically everyone uses computers, digital electronics, and video display terminals for business and enjoyment.^[1] Computer-operating workers are constantly exposed to a variety of occupational risks, including uncomfortable, constrained, and harmful postures, repetitive finger, wrist, and arm movements, eye strain, and visual system burdens; inappropriate design of computer workstations (including inadequate microclimatic conditions, noise,

and poor lighting); use of nonergonomic hardware and software with poor usability; and longer hours in front of computers without giving importance to their health.^[2,3] According to estimates, 25% of computer users worldwide currently experience computer-related injuries, which places a significant financial burden on society.^[4]

Additionally, people who experience forced and uncomfortable working positions and have a low level of recovery are more likely to develop musculoskeletal problems and have impaired work ability.^[5,6] Work ability is defined as "having the health, competence, and relevant occupational

virtues required for managing some kind of job, assuming that the work tasks are reasonable and that the work environment is acceptable".^[7] Work ability is a reflection of how an individual's resources interact with the particular requirements of their job duties.^[8] Numerous studies have stressed that a person's lifestyle may have a role in determining their ability to work.^[12,13] Musculoskeletal pain, chronic illness, absence from work due to illness, early retirement, and all-cause mortality have all been linked to impairments in work capacity.^[9,10]

The challenge of developing a programme of intentional physical activity for this group of employees arises from the fact that office workers are more susceptible to the danger of the occurrence of such diseases due to the specific nature of the work done.^[11] Therefore, an employee's personal health practises and, especially, their regular participation in physical activity during their free time, play a crucial role in overall health.

Therefore, the purpose of this study is to assess the relationship between physical activity and work ability among computer employees.

MATERIALS & METHODS

After receiving approval from the institutional ethical committee, an observational study including computer employees living in Ahmedabad, Gujarat, India, was carried out. Purposive sampling was the method used. The study involved 103 computer employees, and Google Form was used to build an online survey for the study's data collection. The research was carried out from January 1 to January 31, 2023, for a total of one month. According to the inclusion and exclusion criteria, the participants were chosen. The study comprised of male and female computer workers who were between the ages of 30 and 50 and had at least two years of work experience in the field. Missing data and participants who did not match the inclusion

criteria were disqualified. The Google Form, which has three pieces, was given to the participants to complete. The first portion asks for demographic details including age, gender, and the number of hours spent working on a laptop or PC. The International Physical Activity Questionnaire (IPAQ) is used in the second portion to evaluate the participants' level of physical activity. The Work Ability Index (WAI) scale is used in the third portion to evaluate the participants' work aptitude.

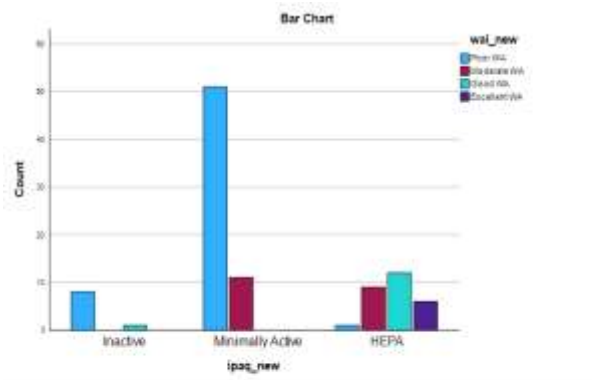
To overcome these issues and enable physical activity surveillance based on a global standard, a group of specialists created the International Physical Activity Questionnaire (IPAQ) in 1998.^[14] The IPAQ scale has an accuracy of 0.80.^[15] The short version tracks activity at four different intensities: 1) strenuous activity, like aerobics; 2) moderate activity, such leisure cycling; 3) walking; and 4) sitting.^[16]

A reliable self-report technique extensively utilised in numerous research to gauge work ability is the Work Ability Index (WAI). The index has a maximum potential estimate of 49 points and a minimum possible estimate of 7. Finally, the work capacity is categorised into one of four groups based on the scores obtained: low (7–27), moderate (28–36), good (37–43), or exceptional (44–49).^[17] Test-retest reliability for the Work Ability Index is $r = 0.8$.^[18]

RESULT

SPSS version 20 was used for data analysis to calculate the statistical result. Normality of the data was checked by the Shapiro-Wilk test.

The data was not normally distributed as per the analysis, so a non-parametric Spearman correlation test was used. The p value of 0.001 is considered statistically highly significant. A significant positive correlation was found between physical activity and work ability among computer workers ($r = 0.730$, $p = 0.001$).



Graph 1 Correlation of physical activity with work ability

| SPEARMAN CORRELATION | MEAN±SD | r-value | p-value |
|----------------------|-------------|---------|---------|
| IPAQ | 1253±774.24 | 0.730 | <0.001 |
| WAI | 21.40±8.93 | 0.730 | <0.001 |

Table 1 Correlation of physical activity with work ability

DISCUSSION

This study looked at the relationship between computer professionals' ability to perform their jobs and their level of physical activity. The majority of the 103 participants on the IPAQ scale were falling under minimally active or inactive level. There were few HEPA-active participants. This finding indicates that the majority of computer users are engaged in less physical activity.

According to the results of this recent study, computer professionals' capacity to do their jobs is significantly positively correlated with their level of physical exercise. In a related study, Arvidson et al. (2013)^[19] examined over 3000 Swedish workers in a cross-sectional and prospective manner and discovered a link between physical activity and productivity. They just used their own self-assessed level of activity on the 3-point scale and did not link their level of physical activity to the health guidelines. However, it was discovered in that study that, as measured by the WAI, the ability to work among those with higher levels of physical activity was not only higher but also improved over the following two years. Additionally, these authors contend that measuring physical activity can be a helpful technique for predicting and preventing inadequate work capacity.

White-collar employees' stress levels are decreased by high-intensity physical activity, according to a second study by Hansen et al. (2010).^[20] Kettunen, Vuorimaa, and Vasankari (2014)^[21] discovered an improvement in the capacity to work following the adoption of a 12-month, moderate-intensity, 3-5 session per week individual training programme. This is comparable to the amount of physical activity that the WHO advises.

CONCLUSION

This study came to the conclusion that physical activity and work abilities are positively correlated on the basis of the findings and statistical analysis. Computer professionals rarely engage in physical activity for a variety of reasons, which eventually affects their productivity. The incidence of many ailments among computer professionals may rise as a result. The absence of data on physical activity intensity is one of the study's weaknesses. Additionally, the physical activity's required exercises were not taken into account. The various problems that might result from insufficient physical activity and the appropriate exercise therapies should be the main focus of future research.

Declaration by Authors

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