

Physical Activity and Sleep Quality among Young Corporate Professionals

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Abstract: ***Background:** Physical activity and sleep quality are important aspects of health and well-being among young working adults. Corporate professionals may experience sedentary working patterns, occupational demands, and irregular schedules that can influence their physical activity and sleep. **Objective:** The present study aimed to examine the relationship between physical activity and sleep quality among young corporate professionals aged 22–35 years. **Method:** A quantitative, cross-sectional correlational approach was used to examine physical activity and sleep quality among 101 eligible participants. Physical activity was assessed using the International Physical Activity Questionnaire–Short Form (IPAQ-SF), and sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). Descriptive statistics and Pearson's product–moment correlation were used to analyze the data. **Results:** The mean physical activity score was 5,807.99 MET-minutes per week ($SD = 4,225.53$), while the mean PSQI global score was 4.96 ($SD = 3.23$). Pearson's correlation analysis indicated a very weak positive relationship between physical activity and PSQI scores ($r = .067$, $p = .505$, $N = 101$). The association was not statistically significant. **Conclusion:** The findings did not demonstrate a statistically significant linear relationship between physical activity and sleep quality in the present sample. Although physical activity and sleep are both important health behaviors, the results suggest that physical activity alone may not explain differences in sleep quality among the participants. Further research using larger and more diverse samples is recommended.*

Keywords: Physical activity, sleep quality, corporate professionals, IPAQ-SF, Pittsburgh Sleep Quality Index, young adults

1. Introduction

Physical activity and sleep are two important health-related behaviours that may be connected through physiological, psychological, and behavioural processes. Physical activity includes activities performed during work, transport, household routines, and leisure time. Sleep quality is broader than sleep duration alone: it can involve how quickly a person falls asleep, how often sleep is interrupted, perceived restfulness, sleep efficiency, and the degree to which sleep difficulties affect daytime functioning. These dimensions are relevant for working adults because occupational demands may require sustained attention, decision-making, emotional regulation, and consistent performance.

Evidence from reviews suggests that physical activity and exercise can be associated with several sleep outcomes, although the magnitude of the relationship may vary across populations, types of activity, timing, and study designs. Kredlow and colleagues' meta-analytic review reported small to moderate benefits of acute and regular exercise for selected sleep outcomes, including sleep quality and sleep efficiency [3]. A later network meta-analysis of exercise interventions also reported improvements in sleep quality for several exercise modalities in adults [4]. Nevertheless, evidence from intervention studies does not mean that a simple association will necessarily be observed in every cross-sectional sample.

Observational research has also examined associations between physical activity and sleep among young adults. Štefan and colleagues reported that sleep-quality problems were associated with insufficient physical activity in a large sample of young adults, although the direction of analysis and adjustment for other factors are important when interpreting such findings [5]. Research among university-age adults has likewise investigated relationships between

physical activity, sedentary behaviour, sleep quality, and sleep quantity [6]. These studies provide a rationale for examining the association in a specific occupational group, but differences in sampling, measurement, and context mean that findings should not be assumed to generalise directly to corporate professionals. Kim and colleagues also examined physical activity and sleep quality in young adults, illustrating the continued interest in these variables in this age group [7].

The measurement of both variables is important when interpreting the relationship. The IPAQ-SF was developed for population-level assessment of walking, moderate activity, and vigorous activity, and its reliability and validity have been examined across multiple countries [2]. However, self-reported activity may be affected by recall and estimation error. The PSQI, in contrast, captures several subjective and behavioural dimensions of sleep during the preceding month [1]. Studies of young adults have reported mixed findings: some research identifies associations between sleep problems and insufficient activity [5], while another study found that physical activity intensity and duration were not associated with sleep quality or quantity after analysis of young adults [6]. This mixed evidence supports examining the relationship directly in the target occupational group rather than assuming that a relationship must be present.

2. Methodology

2.1 Research design

A quantitative, cross-sectional correlational design was used. This design allowed the relationship between total physical activity and PSQI global score to be examined at one point in time. It does not establish temporal order and cannot determine whether physical activity influences sleep quality,

sleep quality influences activity, or other variables are related to both.

2.2 Participants

The study included 101 eligible participants aged between 22 and 35 years who met the eligibility criteria for the investigation of physical activity and sleep quality among young corporate professionals. Participants' responses were collected through an online questionnaire administered using Google Forms. Responses were screened according to the study's eligibility requirements before the final dataset was prepared for statistical analysis. Only eligible responses included in the final dataset were considered for the analysis.

2.3 Instruments

International Physical Activity Questionnaire–Short Form (IPAQ-SF)

Physical activity was assessed using the International Physical Activity Questionnaire–Short Form (IPAQ-SF). The questionnaire measures self-reported physical activity across three principal domains: walking, moderate-intensity physical activity, and vigorous-intensity physical activity. It also records the frequency and duration of these activities, generally in terms of days per week and minutes per day. The IPAQ-SF is widely used in physical activity research and provides a standardized method of estimating activity levels across different populations.

Physical activity scores were expressed as metabolic equivalent minutes per week (MET-min/week). MET-minutes represent the estimated energy expenditure associated with physical activity and are calculated by combining the activity-specific MET value with the duration and frequency of the activity. The total physical activity score was obtained by combining the scores for walking, moderate-intensity activity, and vigorous-intensity activity, following the scoring procedure applied in the study. Higher total MET-min/week values indicate greater reported physical activity.

Pittsburgh Sleep Quality Index (PSQI)

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), developed by Buysse and colleagues [1]. The PSQI is a standardized self-report instrument designed to evaluate sleep quality and sleep-related difficulties over the preceding month. It assesses seven components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction.

Each component receives a score ranging from 0 to 3, and the seven component scores are combined to produce a global PSQI score ranging from 0 to 21. Higher global scores indicate poorer overall sleep quality, whereas lower scores indicate better sleep quality. The PSQI therefore provides a comprehensive measure of perceived sleep quality rather than assessing sleep duration alone.

For the present study, the PSQI global score is used as the primary measure of sleep quality. The global score is treated as a continuous variable in the correlation analysis. This allowed the investigation to examine whether participants

reporting higher levels of physical activity also tended to report better or poorer sleep quality.

2.4 Procedure and statistical analysis

Data were collected through an online Google Forms questionnaire. Responses were screened for eligibility before the final analysis. Descriptive statistics were calculated for total physical activity, activity domains, PSQI global score, and PSQI component scores. The distribution of PSQI global scores was summarised using frequencies and percentages. Pearson's product-moment correlation was used to test the linear association between total MET-min/week and PSQI global score. The test was two-sided, with statistical significance set at $\alpha = .05$. The correlation coefficient, degrees of freedom, p-value, and sample size are reported. The analysis was bivariate and did not adjust for potential confounding variables.

Descriptive statistics were used to summarize the study variables. For physical activity, the mean, standard deviation, median, minimum, and maximum total MET-min/week scores were examined. For sleep quality, the mean, standard deviation, median, minimum, and maximum PSQI global scores were calculated. These statistics provided an overview of the distribution and variability of physical activity and sleep quality among the participants.

The mean total physical activity score was 5,807.99 MET-min/week, with a standard deviation of 4,225.53. The median was 4,986 MET-min/week, and the scores ranged from 198 to 17,118 MET-min/week. The mean PSQI global score was 4.96, with a standard deviation of 3.23. The median PSQI score was 4, with scores ranging from 0 to 15.

3. Results

3.1 Descriptive statistics

The study included 101 eligible participants aged 22–35 years. Physical activity was measured using the International Physical Activity Questionnaire–Short Form (IPAQ-SF), and sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI).

The mean total physical activity score was 5,807.99 MET-minutes per week (SD = 4,225.53). The median was 4,986 MET-minutes per week, with scores ranging from 198 to 17,118 MET-minutes per week. These findings indicate considerable variation in reported physical activity levels among the participants.

The mean PSQI global score was 4.96 (SD = 3.23), with a median score of 4 and a range of 0–15. Since higher PSQI scores indicate poorer sleep quality, the observed variation suggests differences in reported sleep quality within the sample.

Table 1: Descriptive statistics for total physical activity and PSQI global score

Variable	Mean	SD	Median	Range
Total physical activity (MET-min/week)	5,807.99	4,225.53	4,986	198–17,118
PSQI global score	4.96	3.23	4	0–15

3.2 Physical-activity domains

Table 2: Descriptive statistics for vigorous activity, moderate activity, and walking, expressed as MET-minutes per week

Activity domain	Mean MET-min/week	SD
Vigorous activity	2,699.41	2,627.35
Moderate activity	1,281.98	1,159.62
Walking	1,826.60	1,255.28

Physical activity was also summarised across vigorous activity, moderate activity, and walking. These domain-level values describe the contribution of each activity type to the overall MET-minutes-per-week estimate. Because the values depend on participants' recalled days and duration as well as the scoring rules, they should be interpreted as estimates of self-reported activity rather than objective measurements of energy expenditure.

3.3 PSQI component scores

Table 3: Descriptive statistics for the seven PSQI component scores (each component ranges from 0 to 3)

PSQI component	Mean	SD
Subjective sleep quality	0.81	0.83
Sleep latency	1.06	0.85
Sleep duration	0.53	0.64
Habitual sleep efficiency	0.17	0.49
Sleep disturbances	0.80	0.77
Sleep medication	0.60	1.03
Daytime dysfunction	0.98	0.73

3.4 Distribution of PSQI global scores

Using a PSQI global-score threshold greater than 5, 39 participants (38.6%) scored above the threshold and 62 participants (61.4%) scored 5 or below. This categorisation is descriptive and depends on the selected cut-off. It should not be interpreted as a clinical diagnosis, and the wording used in the final paper should match the protocol and the rationale for using this threshold.

Table 4: Frequency distribution of PSQI global scores

PSQI global score	n	%
0	5	5.0%
1	7	6.9%
2	11	10.9%
3	16	15.8%
4	13	12.9%
5	10	9.9%
6	11	10.9%
7	10	9.9%
8	4	4.0%
9	3	3.0%
10	3	3.0%
11	3	3.0%

12	3	3.0%
13	1	1.0%
15	1	1.0%

3.5 Correlation between physical activity and sleep quality

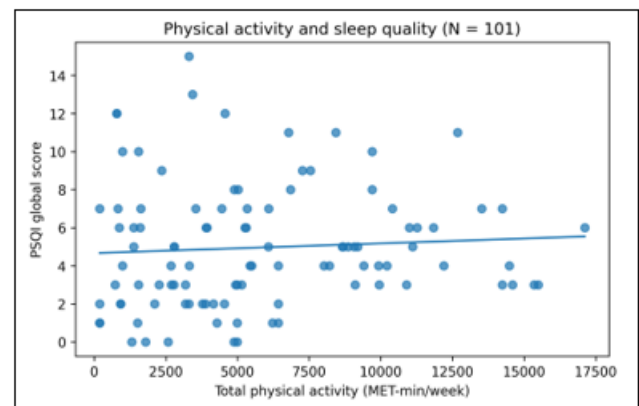
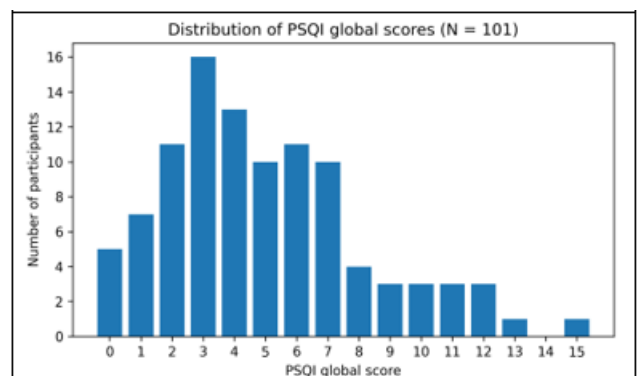
Pearson's product-moment correlation was conducted to examine the relationship between total physical activity and PSQI global scores. The analysis yielded a correlation coefficient of $r = .067$, with 99 degrees of freedom and a p-value of .505 ($N = 101$).

The correlation indicated a very weak positive association between physical activity and PSQI scores. However, this relationship was not statistically significant at the conventional .05 significance level. Therefore, the study did not provide sufficient evidence of a linear association between physical activity and sleep quality in this sample.

Because higher PSQI scores represent poorer sleep quality, the direction of the coefficient suggests a negligible tendency for higher activity scores to be associated with higher PSQI scores. This pattern should not be interpreted as evidence that physical activity worsens sleep quality, given the very small correlation and the lack of statistical significance.

Table 5: Pearson correlation between total physical activity and PSQI global score

Variables	Pearson's r	p-value	N
Total MET-min/week and PSQI global score	0.067	0.505	101

**Figure 1:** Scatter plot of total physical activity and PSQI global score; fitted line shown for visual reference.**Figure 2:** Frequency distribution of PSQI global scores.

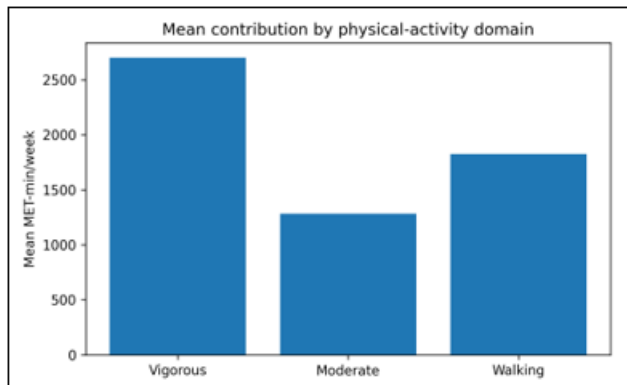


Figure 3: Mean MET-min/week contribution from vigorous activity, moderate activity, and walking

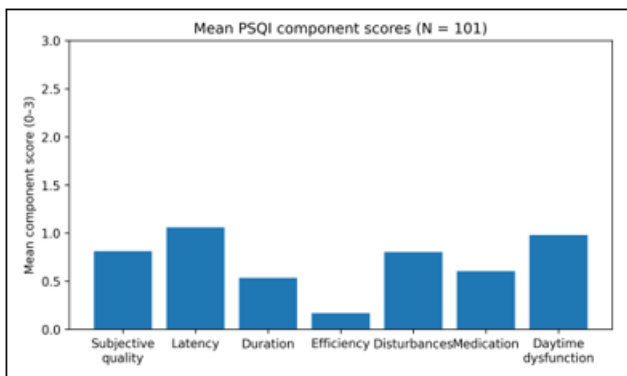


Figure 4: Mean scores across the seven PSQI components; each component score ranges from 0 to 3.

4. Discussion

The present study examined the relationship between physical activity and sleep quality among young corporate professionals aged 22–35 years. The analysis of 101 eligible participants produced a very weak positive correlation between total physical activity and PSQI global scores ($r = .067$, $p = .505$). The relationship was not statistically significant, indicating that the present study did not establish a meaningful linear association between the two variables.

The mean physical activity score was 5,807.99 MET-minutes per week, although the standard deviation was relatively large ($SD = 4,225.53$). This variation suggests that participants differed considerably in their reported physical activity. Differences in work routines, commuting patterns, recreational activities, and individual lifestyles may contribute to variation in physical activity; however, these factors were not independently tested in the present analysis.

The mean PSQI global score was 4.96 ($SD = 3.23$), indicating variation in reported sleep quality. Sleep quality may be influenced by several factors, including work-related stress, sleep schedules, screen exposure, caffeine consumption, and individual health behaviours. These potential influences should be regarded as explanations for future investigation rather than conclusions established by the current dataset.

Previous research has investigated associations between exercise, physical activity, and sleep outcomes. However, findings from different populations and study designs cannot be directly assumed to apply to the present sample.

Differences in participant characteristics, physical activity measurement, sleep assessment, and study methodology may contribute to variations across studies.

The absence of a statistically significant association in the present study does not establish that physical activity and sleep quality are unrelated in all populations. It indicates only that the available data did not provide sufficient evidence of a linear relationship in this particular sample. The correlation coefficient was small, and the study did not establish a causal relationship between physical activity and sleep quality.

Several limitations should be considered. First, the cross-sectional design does not permit conclusions about temporal order or causality. Second, questionnaire-based measures may be affected by recall error and self-reporting bias. Third, the sample was limited to 101 eligible young corporate professionals, which may restrict the generalizability of the findings. Finally, potential confounding variables, such as occupational stress, work schedules, and other lifestyle factors, were not included in the reported correlation analysis.

Despite these limitations, the study contributes descriptive information about physical activity and sleep quality among young corporate professionals. Future studies may benefit from larger samples, objective activity monitoring, repeated sleep assessments, and statistical analyses that account for relevant demographic, occupational, and lifestyle variables.

5. Conclusion

The present study investigated the relationship between physical activity and sleep quality among 101 young corporate professionals aged 22–35 years. The mean physical activity score was 5,807.99 MET-minutes per week, and the mean PSQI global score was 4.96. Pearson's correlation analysis revealed a very weak positive association between physical activity and PSQI scores ($r = .067$, $p = .505$), which was not statistically significant.

Therefore, the study did not find sufficient evidence of a significant linear relationship between physical activity and sleep quality among the participants. The findings should be interpreted cautiously because of the cross-sectional design, reliance on self-reported measures, and sample limitations.

Future research involving larger and more diverse populations, objective measures of physical activity, and additional sleep-related variables may provide a clearer understanding of the relationship between physical activity and sleep quality among working adults.

6. Future research

Future research should examine the relationship between physical activity and sleep quality using larger and more diverse samples of working adults. Longitudinal designs could help establish how changes in physical activity relate to changes in sleep quality over time. The use of wearable activity trackers and sleep-monitoring devices, alongside validated questionnaires, may improve measurement accuracy. Researchers should also consider potential

influencing factors, including occupational stress, shift work, screen time, caffeine intake, and sleep schedules. Where appropriate, multivariable analyses could be used to assess whether physical activity is associated with sleep quality after accounting for relevant confounding variables.

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