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GENDER DIFFERENCES IN PHYSICAL ACTIVITY, SLEEP QUALITY, AND PSYCHOLOGICAL DISTRESS: A COMPARATIVE STUDY

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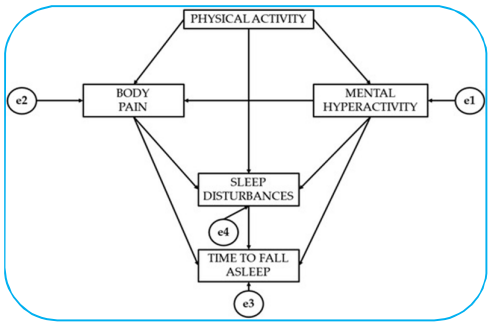
ABSTRACT



The research examines the relationships among physical activity, sleep quality, and psychological discomfort, highlighting gender disparities in these health factors. This study aimed to evaluate the differences between adult males and females regarding physical activity levels, sleep quality, and psychological discomfort. A cross-sectional research design measured physical activity, employed the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality, and utilized a standardized questionnaire to evaluate psychological distress. Statistical analysis utilized independent samples t-tests to ascertain gender-based differences, with effect sizes computed using Cohen's d. The results revealed a statistically significant disparity in physical activity, demonstrating that males participate in greater levels of exercise ($p < 0.05$; Cohen's $d = 0.34$), signifying a mild to moderate effect. No substantial variations in sleep quality were seen across genders ($p > 0.05$). In contrast, psychological discomfort was significantly more common in females than in males ($p < 0.05$), with a modest effect size (Cohen's $d = 0.43$). This research reveals substantial gender differences in physical exercise and psychological suffering. Conversely, sleep quality does not seem to vary significantly between genders. These findings need the formulation of gender-sensitive health promotion programs aimed at enhancing physical activity among women and mitigating psychological discomfort through customized treatments. Future research is advised to investigate the psychological and environmental elements that account for these observed disparities.

KEYWORDS: *physical activity, psychological distress, sleep quality, male, female, gender.*

INTRODUCTION

Gender disparities in physical activity, sleep quality, and psychological distress have garnered significant focus in health, sports science, and psychological research, as these factors are intricately associated with overall well-being and quality of life. Physical activity is widely acknowledged as a principal factor influencing physical and mental health, enhancing cardiovascular fitness, promoting

healthier sleep patterns, and alleviating psychological distress (Warburton, Nicol, & Bredin, 2006; World Health Organization [WHO], 2020). However, participation in physical activity frequently differs by gender due to biological, psychological, and sociocultural influences, with males typically exhibiting higher activity levels than females across various age groups and populations (Hallal et al., 2012; Guthold et al., 2018).

Another important part of health is sleep quality, which affects how well you think, how well you control your emotions, and how well you recover physically. Poor sleep quality has been linked to heightened stress, anxiety, and depression, as well as diminished physical performance (Buysse et al., 1989; Pilcher & Huffcutt, 1996). Research indicates the presence of gender-related disparities in sleep patterns and sleep-related issues; however, results are inconsistent, with certain studies indicating inferior subjective sleep quality in females, while others report negligible or non-significant gender differences (Mallampalli & Carter, 2014; Fatima, Doi, & Mamun, 2016).

Psychological distress, which includes signs of stress, anxiety, and depression, is also known to be different for men and women. A multitude of studies demonstrate that females generally report elevated levels of psychological distress relative to males, a phenomenon attributed to a confluence of hormonal factors, psychosocial stressors, role expectations, and coping mechanisms (Kessler et al., 2005; Matud, 2004). Physical activity and sleep quality are significantly correlated with psychological distress, with diminished activity levels and inferior sleep quality linked to increased distress (Biddle & Asare, 2011; Baglioni et al., 2011).

Despite the expanding corpus of literature, there persists a necessity for population-specific evidence to enhance the comprehension of gender-based disparities in these interconnected health variables. Consequently, the current study sought to investigate gender disparities in physical activity, sleep quality, and psychological distress. By contrasting male and female participants, this study aims to enhance existing knowledge and offer empirical validation for gender-sensitive interventions designed to encourage physical activity, enhance sleep quality, and mitigate psychological distress.

METHODOLOGY

The study employed a descriptive correlational research design to explore the relationships between sleep quality, dietary habits, body composition, physical activity, and mental health in elderly individuals. A total of 250 participants (125 males and 125 females, aged 60 years and older) were intentionally selected from Amravati, Maharashtra, ensuring ethical considerations and informed consent were strictly followed. Data collection involved using standardized tools, including the Pittsburgh Sleep Quality Index (PSQI) for sleep assessment and the Elderly Dietary Index (EDI) for dietary quality evaluation.

The PSQI, developed in 1989, assesses subjective sleep quality and disturbances through 19 self-rated questions and delivers a global score indicating sleep quality, with lower scores reflecting better quality. Its structure evaluates components such as sleep duration, disturbances, medication use, and daytime dysfunction. The EDI, introduced in 2009, focuses on dietary habits in older adults, emphasizing adherence to Mediterranean dietary patterns through a scoring system based on consumption frequency across 10 food groups. Higher scores indicate better dietary quality and are associated with improved health outcomes.

Additionally, the study utilized the Munique Chronotype Questionnaire (MCTQ) to analyze sleep-wake behaviors relative to social obligations, alongside physical activity assessment employing an adapted International Physical Activity Questionnaire (IPAQ-SF) suitable for older adults. Mental health was gauged through self-rated health metrics and Kessler's Six-Item Psychological Distress Scale (K6), measuring non-specific psychological distress over the past month. The research aims to illustrate how lifestyle and psychological factors interact to influence mental health in the elderly population, utilizing

reliable tools with validated psychometric properties to ensure comprehensive data collection and analysis.

STATISTICAL DESIGN

Both descriptive and inferential statistical techniques were used for data analysis, as follows:

Descriptive Statistics

Descriptive statistics were performed to summarize the general characteristics of the sample and variables. These included: Mean and Standard Deviation (SD) – to describe continuous variables such as physical activity (MET-min/week), psychological distress (K6 scores), and sleep duration.

Inferential Statistics

To examine and compare mean scores of physical activity, sleep quality, and psychological distress between gender *t*-test (for two groups) is employed to identify significant differences among subgroups. All statistical analyses were carried out at a 5% level of significance ($p < 0.05$). A 95% confidence interval was considered for estimating parameters. All collected data were coded, entered, and analyzed using appropriate statistical software namely SPSS (Statistical Package for the Social Sciences), Version 26.0 and Microsoft Excel was used for data entry, cleaning, and initial tabulations.

Ethical Considerations in Data Analysis

All analyses were conducted maintaining research integrity and confidentiality. Data were anonymized, and only aggregated results were reported. Statistical procedures adhered to ethical standards for quantitative social and behavioral research.

RESULTS

Table 1. Showing the Comparison of Mean Scores of Physical Activity, Sleep Quality, and Psychological Distress between male and female groups

Variable	Male		Female		*t*-test		Cohen's d
	Mean ± SE	SE	Mean ± SE	SD	*t*-value	*p*-value	
Physical Activity	2.85 ± 0.06	0.64	2.63 ± 0.05	0.58	2.42	*p<0.05*	0.34
Sleep Quality (PSQI)	6.92 ± 0.19	2.1	7.41 ± 0.20	2.33	1.88	*NS*	0.26
Psychological Distress	18.45 ± 0.20	5.8	20.72 ± 0.53	6.14	3.12	*p<0.05*	0.43

Table 01 depicted the gender differences between male and female groups mean scores of physical activity, sleep quality, and psychological distress between male and female subjects in the present study. Independent samples t-tests were conducted to evaluate differences in physical activity, sleep quality, and psychological distress between male and female participants. In terms of the physical activity of individuals, it was shown that male participants scored substantially (*p<0.05)* higher (2.85 ± 0.06) than female participants (2.63 ± 0.05), indicating that males had higher activity levels than females. Using Cohen's d = 0.34, the effect size suggested that the effect was mild to moderate in magnitude.

In contrast, Sleep Quality (PSQI) indicate that there is statistically insignificant (*p>0.05*) difference between males (6.92 ± 0.19) and females (7.41 ± 0.20) participants in the present study.

In terms of Psychological Distress of the participants similar result is witnessed in the present study. It is seen that the female participants reported substantially (*p<0.05)* higher (20.72 ± 0.53)

distress than male participants (18.45 ± 0.20), indicating that females had higher distress level that males. Using Cohen's d = 0.43, the effect size suggested that the effect was moderate in magnitude.

DISCUSSION

In this present study, is seen that how physical activity, sleep quality, and psychological distress differed among older people based on their age and gender. The results offer noteworthy thoughtful of the influence of demographic factors on health-related behaviors and psychological well-being.

The findings indicated substantial gender disparities in physical activity and psychological distress. Male participants demonstrated markedly elevated levels of physical activity in comparison to their female counterparts. This aligns with prior research indicating that men are more likely to participate in both structured and unstructured physical activities in later life, attributable to enhanced mobility, social autonomy, and engagement in outdoor pursuits (Bauman et al., 2012; Sun et al., 2013). Moreover, prior studies have indicated that women frequently report diminished activity levels and elevated psychological distress, often ascribed to mobility constraints, caregiving responsibilities, and sociocultural expectations (Guthold et al., 2018; Regier & Parmelee, 2020).

Psychological distress is found to be noticeably larger in females. Previous studies corroborated with the present study that elderly women face increased psychological fragility, potentially attributable to elevated rates of caregiving responsibilities (Gove et al., 1983; Steptoe et al., 2013). It is seen in some studies that biological, social, and cultural factors lead to elevated anxiety and depressive symptoms in older women relative to men (Albert, 2015). The current study found no significant differences in sleep quality between genders, aligning with evidence indicating that sleep disturbances are common among older adults, regardless of gender, primarily due to age-related physiological changes and comorbid health conditions (Ohayon et al., 2012; Miner & Kryger, 2017).

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