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Understanding Mental Health, Physical Health, and Physical Activity of State University Employees

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Abstract

Mental health has become a growing concern in contemporary society. The combination of work demands and sedentary lifestyles contributes not only to the rise of mental health issues but also to the prevalence of non-communicable diseases such as hypertension, diabetes, and high cholesterol. Given these concerns, this study examines the mental health, physical health, and physical activity of employees at a state university in the Philippines. Physical activity was measured using the International Physical Activity Short Form Questionnaire (IPAQ-SF), while mental health was evaluated using Depression, Anxiety, and Stress Scale (DASS-21). Physical health was assessed through body mass index (BMI), cholesterol level, and blood glucose. Findings revealed that the majority of 210 participants (118 women; 92 men) reported high levels of anxiety, depression, and stress. Most of them were also overweight, had high cholesterol levels, and were physically inactive, falling short of the recommended 150-300 minutes of weekly physical activity for optimal health and well-being benefits. Sex differences in cholesterol levels were observed, with males exhibiting higher cholesterol than females ($t(208) = 2.279$, $p = .024$). Female employees reported more mental health issues and lower physical activity engagement compared to males. These findings underscore the need for policy interventions to enhance the overall well-being of faculty and staff in higher education institutions.

Introduction

Mental health has become a growing concern in contemporary society. A report by the World Health Organization (WHO, 2017) indicated that a large number of people have mental health concerns because of stigma and limited access to mental health services. The report presented a comprehensive mental health analysis, revealing insufficient progress toward the global goal of reducing mental health problems. This underscores the urgent need for countries to implement approaches to address mental health challenges.

While the intersection of mental and physical well-being, along with physical activity engagement, has been investigated in extant literature, most studies have focused on children, young adolescents, or the general population. This current research centers on the mental health, physical health, and physical activity of university employees. Previous research showed that faculty and staff often faced heavy workloads, stress, and anxiety in the workplace, which significantly hindered their ability to engage in physical activities (Aprerribai *et al.*, 2020). In addition, gender differences were observed in past studies. Men were found to be more physically active (Guthold *et al.*, 2018; Cagas *et al.*, 2022) while the majority of women were more inclined to sedentary behavior (Dela Cruz, 2019). As such, Cagas *et al.* (2022) urged authorities to act

and create more physical activity opportunities for Filipinos. Aside from the research gaps in the Philippine context, there are compelling reasons to explore the relationship of physical activity with mental health and physical health of university employees.

Thus, this paper focuses on the mental health, physical health, and physical activity of employees in higher education. Findings are crucial in justifying the need to prioritize mental health and physical health, including physical activity engagement, among university employees.

Mental Health

Mental health is considered the fundamental component of health and well-being. According to the World Health Organization (2022), it is the state in which individuals can work productively, cope with life stressors, contribute to their community, and are aware of their own abilities. It encompasses adaptive thinking and behaviors, high self-esteem, high coping strategies, and fulfilling relationships (Shitole, 2018). However, almost 50% of faculty and staff experienced a prominent increase in work-related stress and emotional exhaustion after the onset of the COVID-19 pandemic (Riba *et al.*, 2022).

Colleges and universities constitute one of the largest populations requiring attention to address mental health concerns (Riba *et al.*, 2022). Working in the higher education industry is considered a critical occupational health issue, as the nature of the work of faculty and staff poses a major risk factor for developing anxiety and depression (Shitole, 2018). In fact, colleges and universities are associated with high levels of stressors related to their academic workload (Carillo *et al.*, 2021). Moreover, university employees have been found to experience poorer mental health compared to other professionals in other fields (Yang *et al.*, 2019).

Understanding sex differences on the mental health of individuals is another factor to prioritize. Men are generally less likely to seek social support (Ferguson *et al.*, 2017), while women are more prone to work-related stress and anxiety (Maheswaras, 2017). A cross-sectional study conducted in Vietnam found that a significant proportion of healthcare workers, a key public sector group, had at least one mental disorder, with high rates of anxiety, stress, and depression. These issues were linked to factors such as administrative pressure, long working hours, and job dissatisfaction (Do *et al.*, 2024). While health workers and higher education professionals may have commonalities in the performance of their job, their experiences are more distinct than similar. Hence, the need to explore the mental health landscape within the context of higher education.

Physical Health

Physical health is an essential component of overall well-being, defined as the state in which the body's organs and systems are functioning properly, and the individual is free from disease or infirmity (WHO, 2017) and not suffering from any type of sickness (Nishat, 2022). However, the isolation and boredom experienced by university employees during the lockdown increased their unhealthy eating habits and sleep disorders (Phillipou *et al.*, 2020). For instance, 60% of individuals with unhealthy lifestyles experience negative impacts on their health and quality of life (WHO, 2017). They encounter illness, weight gain, and other cardiovascular diseases.

Sex-based differences in physical health are well-documented. Males are more prone to terminal diseases than females, resulting in lower life-expectancy (Zhao & Crimmins, 2022). Crimmins *et al.* (2019) found that men have a higher risk of developing cardiovascular diseases such as heart disease, stroke, and diabetes, while women are more likely to develop arthritis and depression. This means that there is a need to confirm whether sex-based differences in physical health are also evident among employees at Philippine higher education institutions.

Physical Activity

WHO (2022) defines physical activity as any bodily movement that requires energy expenditure, including walking, exercising, running, swimming, wheeling, cycling, sports, and other active recreation at any level of skill. Additionally, it fosters growth and development, making people reduce the risk of chronic diseases, hypertension, cancer, and even depression (Qomariyah & Djannah, 2019).

As stated earlier, men and women differ in physical activity engagement. The differences may be due to psychosocial and socio-cultural factors. For instance, women's motivations for exercise are often linked to body image concerns, such as weight loss or toning, while men are more frequently motivated by competition and social factors (Cherry *et al.*, 2018; Pousa *et al.*, 2023). Women may also face barriers such as lower self-efficacy and traditional gender roles that discourage participation in vigorous physical activities. Furthermore, safety concerns—including fear of harassment in public spaces and the lack of accessible, affordable, or women-only facilities—serve as significant deterrents to their engagement in physical activity (Bhawra *et al.*, 2023).

Despite the various benefits of physical activity, 60% of the world's population does not meet the recommended physical activity levels (Renteria & Morris,

2017). Researchers have suggested that time availability (Joseph *et al.*, 2015; Leininger *et al.*, 2015) and work responsibilities (Da Silva *et al.*, 2017) are the primary barriers for being physically active. Among university employees, approximately 75% of their time is spent in a sedentary lifestyle (Edge *et al.*, 2017). As sedentary behavior increases, motivation and interest of employees in physical activities tend to decline (Gemota, 2021).

In view of the critical roles of higher education institutions, this study examined the levels, relationships, and sex differences in mental health, physical health, and physical activity among university faculty and staff. Specifically, the following research questions (RQ) were addressed:

RQ1. What is the level of mental health, physical health, and physical activity of university employees in a state university?

RQ2. Is physical activity significantly correlated with mental health and physical health?

RQ3. Are there significant sex differences in the mental health, physical health, and physical activity of the respondents?

Materials and Methods

Participants

Convenience sampling was utilized in selecting the 210 respondents (118 women, 92 men), aged between 24 and 65 years old, from a medium-sized state university in the Philippines, which has been anonymized to protect participant confidentiality. They all received a free health check-up to measure their cholesterol and blood sugar as a token of appreciation for their research participation. Data collection commenced only after obtaining approval from the University Ethics Review Committee.

Measures

To measure mental health, the researchers used the Depression Anxiety and Stress Scales - 21 (DASS-21; Lovibond & Lovibond, 1995), which assesses the state of depression, anxiety, and stress. The research instrument is composed of twenty-one items and rated using a 4-point Likert scale ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time*). Each of the three scales—depression scale, anxiety scale, and stress scale—contains seven (7) items.

In scoring the depression scale, the score of 4 and below is categorized as *normal*, 5-6 *mild*, 7-10 *moderate*, 11-13 *severe*, and 14 and above *extremely severe*. For the stress scale, the score of 0-3 is classified as *normal*, 4-5 *mild*, 6-7 *moderate*, 8-9 *severe*, and higher than 9 *extremely severe*. For the anxiety scale, the score of 0-7 is *normal*, 8-9 *mild*, 10-12 *moderate*, 13-16 *severe*, and 17 and up *extremely severe*. The Cronbach's alpha of this measure demonstrated high internal consistency (.95).

To measure physical health, body mass index (BMI), blood glucose level, and cholesterol level were used. BMI was categorized into *normal* (BMI = 18.5—24.9 kg/m^2), *overweight* (BMI = 25—29.9kg/m^2), and *obese* (BMI = 30kg/m^2 and above). For blood glucose level, below 70.10 is *low*, 70.10-98.93 *normal*, 98.94 and above *high*. For cholesterol level, below 120 mg/dL is *low*, 121 to 200.7 mg/dL *normal*, and over 200.7 mg/L *high*.

To assess physical activity, the researchers used the International Physical Activity Questionnaire (IPAQ; International Consensus Group, 1998), which is widely used to gauge daily time spent walking, sitting, and engaging in moderate and vigorous physical activity. This instrument is a self-report questionnaire composed of seven items. Results are clustered into *low activity*, *moderate activity*, or *high activity*. Scoring high on the IPAQ scale means a person's physical activity levels reach one hour or more per day of at least moderate intensity. Scoring moderately on the IPAQ scale implies a person's physical activity levels only reach half an hour of at least moderate intensity most of the time. Lastly, scoring low on IPAQ means a person is not meeting the required level of physical activity per day (Craig et al., 2003). The respondents' mean physical activity was low at 110.08 (*SD* = 63.83). The measured Cronbach's alpha of IPAQ was .80, indicating good internal consistency and suggesting that the instrument reliably assessed physical activity levels among the respondents.

Data Analysis

To answer RQ1 which sought to assess the level of mental health, physical health, and physical activity of the respondents, descriptive statistics such as means, standard deviation, and percentages were used. To answer RQ2, *Pearson product-moment correlation coefficient* was used to determine the relationship of physical activity with mental health and physical health is significant. To answer RQ3, which aimed to determine sex differences in mental health, physical health, and physical activity, an *independent sample t-Test* was conducted.

Results and Discussion

Table 1. Frequency and percentage distribution of participants' mental health (depression, anxiety, and stress), physical activity, and physical health (blood, sugar, cholesterol, and BMI)

Variables	Frequency (f)	Percentage (%)
Depression		
Normal	76	36.2
Mild	16	7.6
Moderate	35	16.7
Severe	15	7.1
Extremely Severe	68	32.2
Anxiety		
Normal	12	5.7
Mild	23	11.0
Moderate	20	9.5
Severe	18	8.6
Extremely Severe	137	65.2
Stress		
Normal	57	27.1
Mild	22	10.5
Moderate	39	18.6
Severe	40	19.0
Extremely Severe	52	24.8
Physical Activity		
Low	107	51.0
Moderate	68	32.4
High	35	16.7
Blood Sugar		
Normal	147	70.0
High	63	30.0
Cholesterol		
Normal	95	45.2
High	115	54.8
Body Mass Index		
Underweight	3	1.4
Normal	94	44.8
Overweight	80	38.1
Obese	33	15.7

Table 1 shows that a large number of the respondents reported concerns related to mental health, physical health, and physical activity. More than half (73.8%) of the respondents exhibited high levels of anxiety. A significant number of them had high levels of depression (39.3%) and stress (43.8%). Most of them (51.0%) were physically inactive, which means that they did not meet the recommended guidelines of 150-300 minutes of physical activity per week (WHO, 2021). The majority (54.8%) had a high cholesterol level, while 30% had a high blood sugar level. Most of the respondents were either overweight (38.1%) or obese (15.7%).

These findings confirm previous research, indicating that university employees experience some of the highest rates of burnout and stress in the workplace (Stoeber & Rennert, 2008). Moreover, a sedentary lifestyle, specifically sitting for six to eight hours per day, was identified as an antecedent of non-communicable diseases (NCDs) (Wijndaele *et al.*, 2017). As a result, there has been an increase in the number of NCDs, including diabetes, cardiovascular disease, cancer, and respiratory disease worldwide (Kuruvilla *et al.*, 2023). In the Philippines, high cholesterol levels, weight gain, and physical inactivity are among the leading risk factors of NCDs (WHO, 2023). Thus, implementing a holistic workplace well-being intervention should be a public health priority in higher education institutions.

Table 2. Correlations among depression, anxiety, stress, body mass index, sugar level, cholesterol level, and physical activity

Domains	1	2	3	4	5	6	7
1. Depression	-	-	-	-	-	-	-
2. Anxiety	-	-	-	-	-	-	-
3. Stress	-	-	-	-	-	-	-
4. Body Mass Index	.033	.050	.000	-	-	-	-
5. Sugar	.095	-.001	.059	-	-	-	-
6. Cholesterol	.038	-.079	.002	-	-	-	-
7. Physical Activity	-.121	.015	-.089	-.078	-.025	.000	-

*Note: *p<.05, **p<.001*

Results of RQ2, which tested the relationship between physical activity and both mental health and physical health, found no significant correlations (Table 2).

Table 3. Sex differences in mental health, physical activity, and physical health

Variable	Sex		*t*
	Men (n=92) **M (SD)**	**Women** (n=118) **M (SD)**	
Mental Health			
Depression	12.40 (8.21)	10.47 (7.87)	1.72
Anxiety	14.04 (8.10)	13.44 (7.88)	0.55
Stress	14.48 (8.30)	12.70 (7.81)	1.64
Physical Health			
Body Mass Index	26.54 (4.49)	25.60 (4.03)	1.56
Cholesterol Level	220.10 (51.30)	205.94 (38.68)	2.28*
Blood Sugar Level	100.88 (32.10)	94.14 (20.91)	1.83
Physical Activity	437.77 (31.24)	332.39 (29.25)	2.49*

*Note: *p<.05, **p<.001*

Table 3 shows that the physical activity level of men (M = 437.77, SD = 31.24) was significantly higher than those of women (M = 332.39, SD = 29.25), $t(208) = 2.488$, p = .015. Existing literature suggests that socioeconomic status, sedentary lifestyle, and lack of motivation among females are key factors in the observed inequalities between sexes (Hands *et al.*, 2016). These sex differences have been consistently supported across previous studies, where males are twice as likely to meet the physical activity guidelines compared to females across different age groups (Brazo-Sayavera, 2021).

While no significant sex differences in depression, anxiety, and stress among university employees, this may suggest that these symptoms are prevalent regardless of sex.

This aligns with the findings in other academic cohorts, where no significant gender differences were found in anxiety and stress, and only modest differences in depression (Aazami *et al*., 2017). Similarly, another study found an unclear relationship between depression and stress levels in the academic sector but a notable distinction in anxiety (Gao *et al.*, 2020). While these results contrast with other findings that report higher rates of depression and anxiety (Huang *et al*., 2019) and stress among women (Redondo-Flórez et al., 2020) within the academic sector, this study contributes new insights, highlighting the need to further explore the mental health, physical health, and physical activity engagement of university employees. Consequently, there is an evident need to optimize the overall well-being of higher education faculty and staff. The promotion of mental and physical health in the workplace is supported by existing laws and issuances from the Civil Service Commission (CSC), the Department of Health (DOH), and the Department of Labor and Employment (DOLE). Specifically, the CSC's Memorandum Circular (MC) No. 4, series of 2020, is aligned with the Mental Health Act (Republic Act No. 11036), and consequently mandates comprehensive mental health programs in government agencies. This is further supported by the Occupational Safety and Health Standards Act (Republic Act No. 11058), which requires the implementation of programs to address psychosocial stressors in the workplace. Furthermore, the CSC MC No. 38, series of 1992 and CSC MC No. 8, series of 2011 authorize physical and mental fitness programs to enhance employee well-being and efficiency.

Conclusion

The study reveals concerning mental health, physical health, and physical activity issues among higher education employees. This mirrors a global trend of worsening overall well-being and underscores the immediate need for interventions. Key barriers of physical activity such as work demands and sedentary lifestyles must be addressed.

Meeting the mental and physical health needs of faculty and staff would increase their work productivity. Therefore, a comprehensive policy to minimize NCDs and optimize the overall well-being of university faculty and staff must be institutionalized, considering their direct involvement in the development of the youth and the future leaders of our society.

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Conflict of Interest Statement

The authors declare no conflict of interest related to the conduct and publication of this research. All procedures followed were in accordance with institutional and ethical standards, and there were no financial or personal relationships that could have influenced the outcomes of this study.

Ethical Declaration

The authors secured ethical approval from the Central Luzon State University Ethics Review Committee. Participants were informed about the research study, and the data would be used solely for the research. Furthermore, participation was voluntary, as informed consent was also secured from the respondents before conducting the study. Strict confidentiality was applied throughout the study and the reporting of its findings.

Declaration of Generative AI and AI-Assisted Technologies

This work was prepared entirely by the authors without the use of generative AI or AI-assisted technologies.

Data Availability

The data supporting the findings of the study are confidential and not available for public disclosure.

Author Contributions

JCS, BMBS, EFA, KPL, JTS, KPL, JDC: Conceptualization, Writing - Original Draft; **WDR, NVA:** Formal Analysis; **EFVDF, JBC, JVPA, MRIB, MGS:** Investigation, Writing - Review and Editing

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