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<https://ejournal.upi.edu/index.php/penjas/article/view/74505>DOI: <https://doi.org/10.17509/jpjo.v9i2.74505>**Physical Activity and Health-Related Quality of Life****Ahmad Hamidi<sup>1\*</sup>, Zidan Syamsul Alam<sup>1</sup>, Burhan Hambali<sup>2</sup>, Susanti<sup>3</sup>, Ajeng Annamayra<sup>3</sup>, Tian Kurniawan<sup>1</sup>**<sup>1</sup>Departement of Sport Science, Indonesian University of Education, Indonesia<sup>2</sup>Departement of Physical Education, Health and Recreation, Indonesia University of Education, Indonesia<sup>3</sup>Departement of Medicine, Pasundan University, Indonesia**Article Info***Article History :**Received August 2024**Revised August 2024**Accepted August 2024**Available online September 2024**Keywords :**HRQoL, physical activity, psychological well-being, quality of life***Abstract**

The study aimed to evaluate the relationship between physical activity, psychological well-being, and Health-Related Quality of Life (HRQoL) among adults within the academic community of Universitas Pendidikan Indonesia. This research was designed to inform policymakers on the importance of implementing needs-based health services and improving overall health status. A total of 201 employees were selected as the sample population. To collect data, the researchers used the Global Physical Activity Questionnaire (GPAQ) and the Short Form Health Survey (SF-36). The results indicated that the data followed a normal distribution, with Kolmogorov-Smirnov test results for GPAQ = 0.82 and HRQoL = 0.83. The correlation test revealed a significant relationship between physical activity levels and HRQoL, with a significance value of Sig. = 0.000, which is less than 0.05, indicating statistical significance. The R-Square value of 0.694 suggests that a substantial portion of the variance in HRQoL can be explained by the level of physical activity. The study underscores the critical role of developing effective physical activity programs to influence and predict physical activity behaviors positively. The findings align with existing research that demonstrates the benefits of physical activity in enhancing HRQoL, improving mood, and reducing symptoms of depression. This highlights the importance of physical activity as a key factor in promoting psychological well-being and overall quality of life.

## INTRODUCTION

Improving access to health service in developing countries remains a significant challenge, with efforts to provide adequate care a persistent issue (Robson et al., 2018). Recent health indicators suggest improvements, aligning with the United Nations' Sustainable Development Goal 3 (SDG3), which seeks to ensure healthy lives and promote well-being for all ages, so as to achieve general health outcomes (Sarker, 2021). However, the cost of health care remains a barrier, although every individual has the right to access essential health services, including health promotion, treatment, and rehabilitation (Robson et al., 2018).

Health-Related Quality of Life (HRQoL) has attracted great attention because of the need for systematic records of health status in the general population, reflecting subjective states of health and well-being including mental, physical, and social functioning capacities (Meade et al., 2015).

HrQoL is a multidimensional construct that supports life domains related to psychological, physiological and social functioning (Nitka et al., 2016). In particular, HrQoL has been developed to consider the impact of disease and the effects of medical interventions on the quality of several domains of life. Quality of life is defined as an individual's perception of life in the context of the cultural and value systems in which they live and in relationships to achieve goals, expectations, standards, and concerns (Becker et al., 2020).

The impact of disease can be assessed by identifying health-related quality of life (HRQoL) factors, such as self-perception of quality of life and support for physical, mental, and social well-being, all of which are relative to culture, values, systems, and expectations. HRQoL has been associated with several physical and mental health outcomes. Aspects of health psychology are related, consisting of health perceptions and HRQoL, which include broad domains because they are connected to positive health outcomes (Long et al., 2021). HRQoL is considered an important health outcome among populations and serves as a public health instrument for assessing physical, psychological, and social functioning.

Physical activity (PA) has shown a significant role in preventive measures for various diseases. There is evidence of a clear beneficial effect of physical activity

on HRQoL (Dai et al., 2015). Improvements in HRQoL can be enhanced through regular physical activity, which is considered a key health behavior from a public health perspective due to its positive impact on health. Physical activity can improve pathological outcomes by promoting the release of stress hormones responsible for reducing excessive local inflammation in the respiratory tract (Liao et al., 2020). PA is strongly associated with mental health and well-being, as physically active individuals generally experience less stress, depression, and anxiety. PA can also be a potential treatment for mental health issues. Psychologically, PA improves positive outcomes such as happiness, mood, vitality, and reduced stress (Fleming et al., 2020).

Various studies suggest that a number of factors including socio-demographic characteristics, social services, health accessibility, and physical and psychological factors are significantly related to HRQoL. Simultaneously, rapid population growth requires continuous monitoring of HRQoL to assist policymakers in providing affordable and effective health services.

Research on HRQoL is widely discussed in the literature. Haverman carried out research related to the importance of measuring HRQoL for children (Haverman et al., 2017). Additionally, studies examining the relationship between HRQoL and PA have shown a significant and positive correlation. For example, Anokye et al. (2012) found that higher levels of PA positively impact HRQoL (Fraenkel et al., 2012a). Xiangli Gu & Mei Chang (2016) also explored the relationship between PA, physical fitness, and HRQoL in school-age children, showing that PA and the four components of physical fitness are positively correlated with HRQoL (Anokye et al., 2012a). Furthermore, Hakkinen et al. (2010) studied the relationship between physical fitness and HRQoL in 727 participants. Their results showed that 45% of participants fell into the poor physical fitness category, while 37% and 18% were in the satisfactory and good fitness categories, respectively. Physical fitness was found to be related to HRQoL, with better HRQoL in terms of general health, physical function, and mental health being associated with better physical fitness (Gu et al., 2016a).

Based on this review of research findings, global issues related to the relationship between HRQoL and PA remain compelling topics for further study. Differences among participants are a focus of attention in

HRQoL research related to PA. Therefore, the purpose of this study was to evaluate the relationship between physical activity, psychological well-being, and HRQoL. This research serves to inform policymakers in supporting the introduction of need-based health services and improving health status within the population.

## METHODS

This study used a quantitative approach. This approach was used to present the data obtained by quantitative statistical tests, primarily in the form of numbers. The design of this study utilized a correlation design. A correlational study investigated the potential relationships between two or more variables and describes the extent of these relationships using coefficients. The main goal of a correlational design is to deepen the understanding of a phenomenon by identifying relationships between variables (Fraenkel et al., 2012b). This correlational design is appropriate because the study aims to examine the causal relationship between physical activity (PA) and health-related quality of life (HRQoL). This assumption aligns with the findings of several previous studies that have examined the causal link between PA and HRQoL (Anokye et al., 2012b; Gómez et al., 2013; Gu et al., 2016b; Häkkinen et al., 2010; Haverman et al., 2017).

### Participants

A total of 201 employees from the Indonesian University of Education's academic community were selected as participants in this study. These participants were drawn from eight work units, including FIP, FPIPS, FPBS, FPMIPA, FPTK, FPOK, FPEB and FPSD.

### Materials and Apparatus

*Global Physical Activity Questionnaire (GPAQ)*: This questionnaire was used to assess participants' levels of physical activity, categorize them as active or inactive, and evaluate various activities they engaged in, such as recreational activities and sedentary behavior. According to physical activity guidelines, an active level is defined as more than 150 minutes of moderate-to-vigorous physical activity per week, while a low level is defined as less than 150 minutes per week. The GPAQ has a reliability coefficient of 0.40 and a validity range of 0.70–0.90 (Amireault & Godin, 2015).

*Short Form-36 Health Survey (SF-36)*: The SF-36 was used to measure physical and mental health components across eight health concepts: physical functioning, social functioning, role limitations due to physical or emotional problems, mental health, vitality, bodily pain, and general health perception. The SF-36 scores range from 0 to 100 for each domain (Grossi et al., 2006).

### Design or Data Analysis

The descriptive data for this study include the mean and standard deviation. A normality test was conducted using the Shapiro-Wilk test. The results were analyzed using Spearman's Correlation (Schober & Schwarte, 2018; Sedgwick, 2014; Xiao et al., 2015) and Linear Regression (Su et al., 2012; Yu & Yao, 2017). The correlation test aims to analyze the relationship between the HRQoL and PA variables. The analysis will present the correlation coefficient and the coefficient of determination, either separately or simultaneously. All data were analyzed using SPSS version 25.

## RESULT

The research findings are presented in several tables, as shown below:

**Table 1.** Data Description by Age Category

Age Category	(n)
Young Adult	1
Mature	56
Middle Adult	63
Old Adult	47
Seniors	34
Total	201

The participants' characteristics were dominated by the "Middle Adult" category (63 participants), while the "Young Adult" category had the fewest participants (1 person).

**Table 2.** HRQoL Components by Faculty

Component	Mean	Std Dev
PF	733.95	223.23
RP	280.1	157.16
RE	195.54	120.53
BP	154.47	38.79
MH	376.53	98.54
VT	269.27	63.93
GH	290.27	51.97
SF	147.77	35.34
All Components	2508.2	495.83

The results of the Health-Related Quality of Life (HRQoL) assessment indicate an average overall score of 2508.2 across all components. The specific component scores are as follows: physical function (PF) = 733.95, physical role (RP) = 280.1, emotional role (RE) = 195.54, mental health (MH) = 376.53, vitality (VT) = 269.27, body pain (BP) = 154.47, and general health perception (GH) = 290.27 and social functioning (SF) = 147.77.

**Table 3.** HRQoL Components by Gender

Component	Gender	Mean
PF	Male	103.40
	Female	96.51
RP	Male	96.39
	Female	109.64
RE	Male	100.42
	Female	102.08
BP	Male	99.60
	Female	103.63
MH	Male	99.94
	Female	102.99
VT	Male	99.95
	Female	102.97
GH	Male	99.85
	Female	103.16
SF	Male	100.24
	Female	102.41
HRQOL	Male	99.97
	Female	90.05

In the male group, the average HRQoL score was 99.97, with the component breakdown as follows: physical function (PF) = 103.40, physical role (RP) = 96.39, emotional role (RE) = 100.42, mental health (MH) = 99.94, vitality (VT) = 99.95, body pain (BP) = 99.60, and general health perception (GH) = 99.85 and social function (SF) = 100.24.

In the female group, the average HRQoL score was 90.05, with the following component scores: physical function (PF) = 96.51, physical role (RP) = 109.64, emotional role (RE) = 102.08, mental health (MH) = 102.99, vitality (VT) = 102.97, body pain (BP) = 103.63, and general health perception (GH) = 103.16 and function social (SF) = 102.41.

**Table 4.** HRQoL Components by Faculty

	Mean							
	PF	RP	RE	BP	MH	VT	GH	SF
FIP	103.55	99.12	102.20	98.55	94.50	99.00	92.72	97.13
FPIPS	127.77	126.23	136.58	119.08	120.69	112.88	109.31	122.35
FPBS	83.17	85.27	83.20	86.46	93.53	91.59	113.70	105.94
FPMIPA	95.70	100.93	81.75	119.00	118.98	114.93	114.85	98.35
FPTK	107.76	105.50	100.90	90.24	107.79	95.98	97.21	111.66
FPOK	109.03	98.44	99.58	107.97	107.36	113.39	101.61	109.58
FPEB	63.00	103.95	127.77	102.45	145.68	149.95	105.36	117.95
FPSD	119.09	111.68	114.85	111.08	74.56	84.44	80.32	70.98

FPIPS has the highest score for PF (127.77), RP (126.23), RE (136.58), BP (119.08) and SF (122.35). FPTK has the highest value for GH (114.85). In addition, FEB scored highest in MH (145.68) and VT (149.95).

**Table 5.** Physical Activity Levels by Faculty

Faculty	Mean & Std. Dev		
	Work	Travel	Recreational
FIP	1152.5 ± 1975.4	388.4 ± 525.7	844.6 ± 1787.1
FPIPS	1428.3 ± 4286	270.8 ± 508.1	860.3 ± 1418.
FPBS	1607.2 ± 3391	458.1 ± 1028.3	491.8 ± 807
FPMIPA	745.6 ± 1626.4	380.3 ± 505.9	242.5 ± 558.40
FPTK	1153.9 ± 2451	366.2 ± 764.6	658.6 ± 1596.23
FPOK	2371.7 ± 3067.7	521.8 ± 1014	2623.1 ± 2545.7
FPEB	669.6 ± 1142.1	477.4 ± 1143.4	432.19 ± 402.1
FPSD	837.0 ± 2046	368.3 ± 1496.2	11432.9 ± 502.8
Faculty	1364.9 ± 2836.5	411.3 ± 910	1010.8 ± 1767.9
MET Total	2791.20 ± 4027.55		

The total MET results for the entire sample are: work = 1364.96, travel = 411.36, and recreational = 1010.81. FPOK has the highest average for work (2371.7), travel (521.8), and recreational (2623.1).

**Table 6.** Physical Activity Levels by Gender

Component	Gender	Mean & Std. Dev
Work	Male	1619.77 ± 2601.30
	Female	1151.31 ± 3021.33
Travel	Male	452.44 ± 997,311
	Female	375.80 ± 828.14
Recreational	Male	1308.17 ± 1825.96
	Female	758.43 ± 1683.25

The average component of physical activity based on gender was greater in the male group, namely: work = 1619.77, travel = 452.44 and recreational = 1308.17. The normality test using Kolmogorov-Smirnov Test shows significance values greater than 0.05, namely GPAQ = 0.82 and HRQoL = 0.83. Therefore, the data of this study were normally distributed.

**Table 7.** Correlation Test

Variable		HRQoL
Physical Activity	Coefficient	0.814
	Sig.	0.000
	R	0.833
	R.Square	0.694

The correlation test shows a significance value of 0.000, indicating a significant relationship between physical activity (PA) and health-related quality of life (HRQoL). The correlation coefficient (0.814) shows a strong positive relationship, meaning that higher PA levels are associated with higher HRQoL. The R Square value of 0.694 indicates that PA explains 69% of the variation in HRQoL, with the remaining 31% influenced by other factors.

## DISCUSSION

This study investigates the correlation between physical activity (PA) and Health-Related Quality of Life (HRQoL) among educators at UPI. The results show a significant positive relationship, with PA contributing 69% to HRQoL, indicating that higher PA levels are strongly associated with improved HRQoL outcomes. These findings are consistent with previous studies, which have established that PA positively affects HRQoL, particularly in adults (Liao et al., 2020).

The significant correlation between PA and HRQoL found in this study echoes the conclusions of Long et al. (2021), who demonstrated that participation in physical activity programs positively impacts mental health, mood, and the prevention of depression. This relationship is likely driven by the role PA plays in modulating the body's stress response. Physical activity interventions have largely been shown to reduce anxiety among healthy individuals. Physical activity plays a protective role in suppressing the stress response evoked by an overactive sympathetic nervous system response (Nienhuis & Lesser, 2020).

The current study suggests that any form of physical activity can have a beneficial effect on HRQoL. Whether through organized sports, recreational activities, or active commuting, physical activity appears to contribute to both physical and psychological well-being. Biological mechanisms such as increased serotonin release, physiological activation, and thermogenesis are likely mediators of this improvement in HRQoL

(Neil et al., 2018).

Any type of physical activity (sports participation, recreation, active travel) can contribute to HRQoL. In particular, a low level of sports participation has a high rate of psychological disorders (Kido et al., 2014). It appears that exercise improves symptoms of psychological illness and psychological well-being. Individuals who engage in sports activities that meet physical activity recommendations significantly improve their mental health and psychological well-being (Carter et al., 2016). The overall effect of exercise intervention on HRQoL indicates that there is a significant effect of exercise in reducing psychological illness and improving psychological well-being (Nguyen et al., 2021).

Individuals who exercise regularly show fewer symptoms of depression and anxiety, further supporting the theoretical concept that physical activity has a significant positive effect on the development of psychological well-being (León-zarceño et al., 2021). Physical activity is inversely related to psychological illness (depression, stress, negative affect, overall physiological stress) and is positively related to psychological well-being (self-image, satisfaction with life and happiness) (Snedden et al., 2018).

Developing effective strategies to promote physical activity plays an essential role in influencing individuals' behavior and predicting their participation in physical activities. Physical activity is not confined solely to formal sports but also encompasses everyday activities like working, playing, household chores, traveling, and general movement. These types of physical activities can significantly enhance overall health and well-being (Talapko et al., 2021). Consistent physical activity has been shown to positively affect HRQoL, particularly by improving psychological aspects such as self-esteem and overall feelings of well-being. In addition, regular exercise helps in the prevention of mental disorders and is integral to maintaining psychological health (Esain et al., 2021).

These findings collectively reinforce the positive relationship between PA and HRQoL demonstrated in this study. The analysis confirms that higher levels of physical activity positively influence HRQoL among employees, as evidenced by the high coefficient of determination. These results are in line with previous research (Eriksson et al., 2010; Gu et al., 2016b; Hendrayana et al., 2022; Omorou et al., 2013; Wanderley et

al., 2011; Yazicioglu et al., 2012), all of which support the conclusion that physical activity plays a crucial role in enhancing HRQoL.

## CONCLUSION

There is a significant relationship between the level of physical activity (PA) and Health-Related Quality of Life HRQoL. Engaging in regular physical activity or participating in exercise programs can have substantial benefits for HRQoL, contributing not only to physical health but also to psychological well-being. The findings indicate that physical activity improves mood, reduces symptoms of depression, and alleviates anxiety, especially in healthy individuals. Any form of physical activity, whether through exercise, recreation, or daily tasks, has the potential to yield positive outcomes for an individual's HRQoL. Therefore, promoting regular physical activity is essential for enhancing both the physical and psychological well-being of individuals.

## CONFLICT OF INTEREST

The authors declared no conflict of interest.

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