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The Influence of Physical Activity on Quality of Life and Anxiety among University Students

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Abstract

This study aimed to examine the influence of physical activity on quality of life and anxiety among university students involved in sports communities. The researcher also highlights the potential role of social support particularly from close individuals in enhancing student-athletes motivation. The subjects of this study were 65 students who participated in sports communities, selected using probability sampling through proportionate stratified random sampling. A quantitative research approach was employed, utilizing the third type of causal-comparative research, namely consequence exploration. The hypothesis was tested using bootstrapped regression analysis through SPSS version 27. The results showed that physical activity did not have a significant effect on any of the four dimensions of students' quality of life: physical ($p = 0.243$), psychological ($p = 0.155$), social ($p = 0.352$), and environmental ($p = 0.137$). Additionally, physical activity did not show a significant effect on anxiety levels ($p = 0.137$). Since all significance values were greater than 0.05, the findings indicate that physical activity does not have a statistically significant influence on quality of life or anxiety among university students.

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INTRODUCTION

The Physical activity through sports plays a crucial role in supporting both physical and mental health across the lifespan. Children and adolescents are the most active participants in organized sports; however, this participation declines significantly during young adulthood, particularly among females. Adults tend to shift toward individual physical activities such as walking, cycling, or swimming (Eime et al., 2020; Hulteen et al., 2017). Global trends indicate a rise in physical inactivity, with nearly one-third of the adult population not meeting the recommended levels of physical activity (WHO, 2024). This lack of activity is often attributed to work-related demands that require prolonged periods of sitting, limiting opportunities for movement, as well as the infrequent habit of walking, even for short distances (Pengpid & Peltzer, 2019).

Physical inactivity has become a major public health concern as it contributes to an increased risk of chronic diseases such as cardiovascular conditions, as well as mental health issues including anxiety and stress. In contrast, participation in sports has been shown to provide significant benefits in preventing mental disorders and enhancing psychological well-being (Andersen et al., 2019; Eather et al., 2023). Regular physical activity also improves body image, elevates mood, and reduces the risk of depression and anxiety disorders (Malm et al., 2019; White et al., 2020).

University students represent an age group particularly vulnerable to various stressors, ranging from life transitions and academic challenges to social adjustment. Research indicates that physical activity serves as an effective intervention for reducing anxiety among university students (Kayani et al., 2018). One of the primary causes of anxiety in this population is difficulty in maintaining focus and concentration, which can trigger other psychological symptoms (An Al Rivaldi, 2024). These issues can negatively impact mental health, leading to emotional dysregulation and diminished academic performance (Kahiji et al., 2024). Consequently, psychiatrists agree that anxiety is one of the most pressing mental health problems faced by individuals today (Firmansyah et al., 2019).

Physical activity not only impacts mental health but also influences overall quality of life. Physically active individuals tend to experience better sleep quality, higher energy levels, and improved ability to cope with daily challenges (Li et al., 2021; Liu et al., 2024). Even among older adults, physical activity contributes to the maintenance of cognitive function and independence, thereby enhancing both the social and emotional dimensions of quality of life (Hassan et al., 2023). Conversely, a sedentary lifestyle has been shown to negatively affect health and quality of life (Tamher et al., 2020). Physical activity plays a crucial role in improving muscle performance and energy expenditure, which supports healthy body composition and helps prevent obesity (Hutagalung et al., 2025).

A number of studies have demonstrated a link between the level of physical activity and both the physical and psychological aspects of quality of life. However, research employing theoretical approaches to explain the causal relationship remains limited, as does the exploration of mediating factors such as club satisfaction, intrinsic motivation, and social support. This highlights the need for more comprehensive studies to better understand the impact of the quality of participation in sports clubs on various dimensions of student well-being (Tsz Lun Chu & Zhang, 2018). University students' participation in sports communities, such as university sports communities, has the potential to create a positive environment that facilitates physical activity while simultaneously strengthening social support. Such an environment can help students cope with academic and social pressures, thereby improving their quality of life and mental health. Therefore, this study aims to examine the influence of physical activity on quality of life and anxiety among students who participate in university sports communities

The novelty of this study lies in the use of a correlational predictive research design combined with bootstrap analysis to simultaneously examine the influence of physical activity on quality of life and anxiety among university students who are active in sports communities a context that has been rarely explored empirically in Indonesia.

METHODS

This study employed a correlational predictive research design as proposed by Creswell (2012), which aims to identify the relationships among variables and predict the value of the dependent variable based on the measured values of the independent variables. This design does not involve manipulation of variables but rather measures the degree of relationship and predictive contribution among variables at a specific point in time (cross-sectional).

The sample consisted of students from

Universitas Pendidikan Indonesia who participated in sports communities , specifically in six types of sports: athletics, futsal, hockey, karate, football, and taekwondo. Data collection was based on participants' willingness to take part voluntarily. The instruments used included the International Physical Activity Questionnaire – Short Form (IPAQ-SF) to measure physical activity (Bauman et al., 2003), the WHOQOL-BREF to assess quality of life (Skevington et al., 2004), and the Zung Self-Anxiety Scale to measure anxiety levels (Zung, 1971).

Sampling involved 65 students from Universitas Pendidikan Indonesia who were actively involved in sports communities and participated voluntarily without coercion. The study tested its hypotheses using bootstrapped regression analysis to examine the influence of physical activity on quality of life and anxiety.

RESULTS AND DISCUSSION

This study was conducted with 65 university students who were actively involved in sports communities. The following is the respondent data for the student-athletes

Table 1. Result of questionnaire

sample	Physical Activity (METs)	Quality Of Life (Total WHOQoL Score)				Anxiety (Total Score)
		Physical Domain	Psychological Domain	Social Domain	Environmental Domain	
1	4746	50	75	56	75	40
2	1413	100	100	100	75	46
3	6666	88	94	94	94	60
4	6435	81	88	81	88	37
5	2613	44	63	50	63	34
6	5913	56	56	50	69	35
7	4692	44	69	56	69	41
8	7176	44	63	50	56	38
9	8826	81	94	81	75	51
10	3573	56	56	44	50	44
11	1191	63	56	56	31	58
12	5112	69	75	75	69	47
13	2028	38	56	31	56	39
14	4536	94	94	100	94	77
15	4755	69	69	69	75	54
16	2085	50	56	50	44	37
17	4395	56	56	56	63	51
18	2151	56	69	56	63	42
19	2514	56	69	56	75	47
20	5610	56	75	50	63	39
21	1182	75	75	56	50	36
22	9244	63	81	56	50	36
23	4739	69	75	56	75	55
24	1173	69	94	69	44	36
25	1422	69	81	75	69	37
26	3276	44	63	75	81	33
27	1386	45	64	76	82	37
28	6552	100	100	100	100	60
29	3426	63	69	69	69	53
30	3306	44	44	50	44	35
31	2391	56	69	44	75	46
32	4551	69	75	75	75	64
33	4203	63	81	69	75	44
34	1188	63	88	69	69	45
35	5508	75	81	50	81	39
36	1836	69	69	56	75	39
37	4266	50	63	56	75	36
38	3786	44	63	31	44	49
39	2346	50	75	81	63	52
40	2415	56	63	56	56	38
41	1752	63	81	69	63	46
42	5226	63	81	81	75	41
43	1551	56	69	56	63	28
44	3111	63	81	44	56	34
45	2190	69	69	81	63	40
46	5580	69	69	69	63	42
47	1836	50	50	50	50	55
48	2358	81	81	100	81	28
49	5508	44	56	56	69	38
50	1311	56	69	69	69	44
51	1518	63	69	56	81	45
52	1065	64	70	57	82	47
53	7116	50	81	56	63	40
54	1017	65	71	58	83	34
55	1150	50	56	50	50	43
56	3572	75	75	75	75	44
57	1584	63	69	75	75	51
58	3078	69	81	69	75	54
59	7266	44	69	56	56	33
60	1572	44	50	44	56	47
61	2391	56	63	69	69	39
62	4510	69	50	56	75	48
63	8478	75	56	75	88	44
64	2346	56	63	56	69	47
65	2151	69	75	81	75	27

Based on the results **Table 1** of the analysis using the bootstrap approach, physical activity did not show a significant effect on either the quality of life or the anxiety levels of students. Although the direction of the coefficients across all dimensions indicated a positive trend, the magnitude of the effect was very small and did not reach statistical significance. These findings suggest that, within the context of this study, physical activity has not yet demonstrated a tangible impact on students' quality of life and anxiety. Furthermore, the positive direction of the coefficient for anxiety contrary to much of the previous

literature indicates the need for further investigation, considering other influencing factors, more comprehensive methodological approaches, or different population contexts.

Tabel 2. Calculation for regression bootstrap of Physical Activity to Quality of Life

Dependen	B	Sig. (2-tailed)	BCa 95% CI (Lower–Upper)	Interpretation of Influence
QoL physical	0,001	0,243	–0,001 – 0,003	insignificant
QoL psychological	0,001	0,155	0,000 – 0,003	insignificant
QoL Social	0,001	0,352	–0,001 – 0,003	insignificant
QoL environmental	0,001	0,137	0,000 – 0,003	insignificant

Tabel 3. Calculation for regression bootstrap of Physical Activity to Anxiety

Dependen	B	Sig. (2-tailed)	BCa 95% CI (Lower–Upper)	Interpretation of Influence
Anxiety	0,001	0,137	0,000 – 0,003	insignificant

The regression analysis indicated that physical activity did not have a significant effect on any of the four dimensions of quality of life—physical, psychological, social, or environmental. For the physical dimension, the regression coefficient was 0.001 ($p = 0.243$; 95 % CI: –0.001 to 0.003), while the psychological dimension showed an identical coefficient of 0.001 ($p = 0.155$; 95 % CI: 0.000 to 0.003). The social dimension yielded a coefficient of 0.001 ($p = 0.352$; 95 % CI: –0.001 to 0.003), and the environmental dimension had $p = 0.137$ with a 95 % CI of 0.000 to 0.003. All p-values exceeded the 0.05 threshold and most confidence intervals included zero, confirming that physical activity was not a statistically significant predictor of any quality-of-life dimension.

Similarly, the analysis of physical activity's impact on anxiety revealed a regression coefficient of 0.001, with a significance level of $p = 0.137$ ($p > 0.05$), again indicating no statistically significant effect. The 95 % bias-corrected and accelerated (BCa) confidence interval ranged from 0.000 to 0.003, reflecting an extremely small, non-significant positive effect. Thus, based on the bootstrap approach employed, physical activity was not found to have a significant influence on students' anxiety levels.

Although students who are active in university sports communities exhibit high levels of physical activity, the findings of this study indicate that such activity does not significantly contribute to improvements in their quality of life. These results are consistent with previous research, which suggests that high levels of physical activity do not necessarily correlate directly with better perceived quality of life (Gönülateş & Ozturk, 2019). Engagement in intensive sports activities may also pose risks of physical fatigue or injury, which can negatively affect the physical dimension of quality of life (Kellmann & Kölling, 2019). Moreover, if the social environment within the sports club is unsupportive or overly competitive, students may experience social pressure that adversely impacts their psychological well-being (Rees & Freeman, 2007). These findings align with prior studies showing that the relationship between physical activity and quality of life may be influenced by contextual factors such as stress, burnout, social pressure, and the dual role of being both a student and an athlete (Pluhar et al., 2019). While physical activity is theoretically beneficial for health, the present results suggest that participation alone does not automatically enhance students' perceived quality of life.

These findings also indicate that physical activity alone may not be sufficient to significantly reduce anxiety unless accompanied by other approaches such as psychological counseling, stress management, or adequate social support. Other studies have emphasized that holistic mental health interventions are far more effective than single-method approaches (Lubans et al., 2016). Furthermore, not all students respond to physical activity in the same way. Students with high levels of resilience or psychological adaptability may already possess the ability to manage anxiety without relying heavily on physical activity. Individual factors such as personality traits and emotional regulation skills influence the extent to which a person derives psychological benefits from exercise (Zika & Becker, 2021).

CONCLUSION

This study concludes that high levels of physical activity among university students actively involved in sports communities do not significantly contribute to improvements in quality of life or reductions in anxiety levels. Although physical activity is theoretically associated with benefits for mental health and well-being, the findings suggest that such effects do not automatically manifest in the context of students facing various academic, social, and dual-role pressures as both athletes and learners. Factors such as stress, burnout, lack of social support, and pre-existing psychological conditions may moderate the relationship between physical activity and quality of life. Therefore, enhancing quality of life and reducing anxiety among students requi-

res a more holistic approach that includes appropriate psychological and social interventions, rather than relying solely on physical activity.

This study has several limitations that should be considered when interpreting the results. First, the use of self-report instruments may introduce subjectivity bias, as respondents could over or under estimate their levels of physical activity and psychological states. Second, the sample consisted solely of students who are active members of sports communities at a single higher-education institution, which restricts the generalizability of the findings to a broader student population or to different cultural contexts. Future research should consider employing a longitudinal design to observe long-term changes and effects of physical activity on quality of life and mental health. In addition, it would be beneficial to include potential mediating or moderating variables such as stress levels, social support, fatigue, and individual motivation to gain a more comprehensive understanding of the complex dynamics between physical activity and student well-being.

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