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ORIGINAL

MODERATING EFFECT OF PHYSICAL HEALTH IMPAIRMENTS BETWEEN PHYSICAL ACTIVITY AND SPORTSMAN LEARNING EXPERIENCES: MEDIATING ROLE OF QUALITY OF LIFE AND PHYSICAL SELF-ESTEEM

Ahmed Y Saleh¹, Ali H. Mohammed², Waleed Khalid Abdul Hadi Al-Mashta³, Maher Mohamed Al-Ameri⁴, Taha Al-Haili⁵, Nathera Hussin Alwan⁶, Fatimah Hassan Ateb⁷

¹Department of Physical Education & Sport Sciences, AlNoor University College, Nineveh, Iraq

Email: ahmed91@alnoor.edu.iq

²Al-Manara College For Medical Sciences/ (Maysan)/Iraq

³Physical Education and Sport Sciences Department, Al-Mustaqbal University College, Babylon, Iraq

⁴Al-Nisour University College, Baghdad, Iraq

⁵Education college/ Al-Farahidi University /Baghdad/ Iraq

⁶Department of Nursing, Al-Zahrawi University College, Karbala, Iraq

⁷National University of Science and Technology, Dhi Qar, Iraq

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ABSTRACT

The purpose of the study was to assess the effect of physical health on the learning experience of athletes (SLE). Furthermore, the mediating and moderating roles of quality of life (PQOL), physical self-esteem (PSE), and physical health impairments were studied. The study utilized the quantitative research methodology and cross-sectional design. The study's primary respondents were the athletes who were picked using a simple sampling procedure. For data collection, the self-administered survey questionnaire was employed. The results of the Partial Least Square (PLS)-Structural Equation Modeling (SEM) reveal that physical activity (PA) has a favorable and statistically significant impact on sportsman LE, PQOL, and PSE. PA has beneficial and strong impacts on SLE, both as a mediator and as a moderator. Consequently, based on the findings mentioned above, the current study provided a body of literature to the existing literature about the moderating and mediating impact, which might contribute to the expansion of research in this particular field. The findings of this study may help advise university policymakers on the benefits of physical activity in increasing student

productivity.

KEYWORDS: physical activity, physical health, physical self-esteem, learning experience, Iraq

INTRODUCTION

Despite their similarity, physical activity (PA) and exercise are separate ideas. PA appears to be the word for any skeletal muscle-driven movement of the body that results in an increase in energy expenditure over the resting rate; Exercise is a subtype of PA that incorporates the purposeful planning, structure, repetition, and pursuit of health and fitness. Physical activity is often measured in kilocalories, and as PA frequency, duration, and intensity rise, so does total physical fitness (Caspersen, Powell, & Christenson, 1985; Lopes & Rodrigues, 2021). In a research on the prevalence of PA among adults in 28 European countries, 59.1% of participants engaged in strenuous exercise to remain physically active (Gerovasili, Agaku, Vardavas, & Filippidis, 2015). According to the "physical activities Council's overview report," 67% of persons over six would participate in fitness sports by 2020. (E. Diener, 2009; Herbert, Meixner, Wiebking, & Gilg, 2020). PA contributes to better health maintenance, enhanced "quality of life" (PQOL), and increased "physical self-esteem" (PSE) (Hasson et al., 2022; Warburton, Eng, Krassioukov, & Sproule, 2007).

The phrases "mental health" and PQOL are often employed as catch-all terms for describing a person's functioning in terms of their mental, psychological, emotional, and cognitive states. Therefore, mental, perceptual, and PQOL factors are the most important predictors of a person's mental health. This perspective is consistent with academic conceptions of health and PQOL, which focus heavily on the absence of psychological and physical illness (Warburton et al., 2007). Similarly, the psychological theories and models of PQOL emphasize its link to having the best possible experiences and maintaining optimal brain and body function (Herbert et al., 2020). Prior studies studied the relationship between PSE, PQOL, and PA in addition to mental health issues such as depression and anxiety (Hasson et al., 2022).

Students should work on their PSE since it has been demonstrated to significantly impact their motivation, tenacity, and overall sportsmanship learning experience (SLE). Hence, PSE and SLE may have an important causal relationship (Lopes & Rodrigues, 2021). According to previous research, a better SLE may not be associated with a correlation between physical activity (PA) and greater self-esteem (SE).

Yet, physical inactivity has a variety of negative health repercussions, including an increased risk of developing diabetes, a migraine, high blood pressure, and heart issues (Zayed & Elshaer, 2022). According to the World Health Organization (2018), lack of PA is the fourth most major risk factor for mortality worldwide, resulting in nearly 3.2 million deaths annually. According to the Centers for Disease Control and Prevention (CDC), frequent physical activity reduces the risk of developing chronic diseases and improves PQOL (McGuire, 2014). According to the "World Health Organization Quality of Life

Assessment Group," the PQOL is a term that describes how an individual perceives their circumstances, both positive and negative (Abdullah, Mansor, Mohamad, and Teoh, 2021; Group, 1998), several variables that influence an individual's perception of life satisfaction on a mental and physical level (E. Diener, 2009; H. Diener & Loeb, 2011). Prior research has demonstrated a favorable correlation between PA and various PQOL indicators (Konopack & McAuley, 2012; Lee, 2021). The majority of these investigations, however (Awick et al., 2017; Motl, McAuley, Snook, & Gliottoni, 2009; White, Wójcicki, & McAuley, 2009) relied on older participants or those with ongoing medical concerns. Few published research (Maher & Conroy, 2017; Rodriguez Macias, Abad Robles, & Gimenez Fuentes-Guerra, 2021) have examined the effects of physical exercise on learning, PQOL, and PSE in healthy adolescents and college students. As a result, there is a shortage of research on the psychological (PQOL) and physical (PSE) effects of different PA levels on students and adolescents. Due to the unique challenges that this group of adolescents faces during the transition from high school to college, this college community appears to be of particular significance (Arnett, 2007; Kwon et al., 2022). These challenges include "increased responsibility, competition, academic pressure, and time management requirements" (Gall, Evans, & Bellerose, 2000; Reitz, Luhmann, Bleidorn, & Denissen, 2022). Possible negative effects of this change include decreased "physical activity (PA)," increased emotional and mental stress, and sleeping problems (Arnett, 2007; Bray & Born, 2004), as well as the rise of harmful health habits such as drug and alcohol abuse (Arria et al., 2017), which may harm LE and PQOL.

In addition to earlier paradoxes, the prior literature has mostly focused on other established countries, whereas developing economies have received less attention. In addition, prior research mostly focused on the direct effect of PA on PLE or the indirect effect mediated by PA (Zayed & Elshaer, 2022). The influence of physical health limitations on the connection between physical activity and SLE in Iraq has received minimal investigation. Consequently, more study is necessary to determine which buffering elements may help sustainably improve the HLE and PQOL of college students. Thus, the present research aims to evaluate the mediation influence of PQOL and HSE between PA and SLE. The study also examined the moderating effect of physical health impairments on the link between PA and SLE.

Literature review and hypothesis development

This section consists of a literature review from both theoretical and empirical perspectives. Based on the literature review, the hypothesis of the study is formulated.

Physical activity and learning experience

Learning is enhanced by core cognitive processes connected with memory and attention, which are increased via exercise and cardiovascular fitness. Physical activity improves mental performance and brain health in the short and long term. Their bodies are better able to deal with the stress associated with learning. In addition to its physical benefits, exercise improves

children's concentration. Increased quantities of brain chemicals generated during exercise boost memory retention. Empirical evidence suggests that physical exercise can enhance the learning experience of sports students (Bentsen, Mygind, Elsborg, Nielsen, & Mygind, 2022). Another study discovered that physical activities have favorable and substantial effects on students' learning outcomes (Bentsen et al., 2022). Another study also suggested that as students' physical activities are enhanced, their learning experiences also rise, enhancing their learning experiences (Cairney, Dudley, Kwan, Bulten, & Kriellaars, 2019). Thus, based on prior findings, it is expected that,

H1: Physical activity positively and significantly impacts sportsman learning experiences.

Physical activity, physical self-esteem, and learning experience

Several techniques for enhancing self-esteem have been offered by researchers (SE). Physical activity has been demonstrated to improve mood, well-being, health, and fitness. Exercising and being physically active enhances one's perception of competence and freedom of movement, which improves one's sense of pride in oneself (Sepah Mansour, Memar, & Azmoudeh, 2013). (Sepah Mansour, Memar, & Azmoudeh, 2013). In addition, there is a well-established connection between regular exercise and increased sentiments of pride and confidence (Dembeck, 2011). Studies have shown that teenagers and adults who engage in regular physical activity express elevated self-esteem (Horn, 2021; Opdenacker, Delecluse, & Boen, 2009). Findlay et al. showed that compared to non-athletes, exceptional athletes tended to have greater levels of SE, appealing physical looks, and athletic skills (Findlay & Bowker, 2009). (Findlay & Bowker, 2009). Asci, Kosar, and Isler (2001) discovered that physical activity and participation in sports increased a person's sense of success. Athletes are better equipped to develop competence and self-acceptance when they receive an instant boost to their physical self-esteem from athletic accomplishment (Nguyen, 2008).

Another study indicated that physical self-esteem had a favorable and substantial impact on educational experiences (Mukola, 2022). As a result of the exposure of this issue, several attempts have been undertaken to improve the lives of students in general and those identified as being at a higher risk of failing in particular (Huebner, Johnson, Bennett, & Schneck, 2003). The researchers reached this conclusion (Rickinson & Rutherford, 1996). Even though it is generally known that departmental environments significantly influence academic achievement, such initiatives do not give any systematic or scientific explanation of this reality (Audin, Davy, & Barkham, 2003; Entwistle & Ramsden, 2015). The quality of students' experiences can be improved by addressing the current unfavorable systemic variables. Yet, the capacity to recognize, protect, and improve societal variables contributing to well-being is of the utmost significance. This implies that physical self-esteem played a vital part in boosting sportsmen's learning experiences.

According to independent research (Kocatürk & icek, 2021), physical exercise has a favorable and substantial influence on learning experiences. In

other words, physical activities boost the players' self-esteem, enhancing their learning experiences (icek, 2021). Some research contends that physical exercise can indirectly influence learning experiences (Kocatürk & icek, 2021). So, based on prior discussion, the following study hypothesis is presented:

H2: Physical self-esteem positively and significantly affects sportsman learning experiences.

H3: Physical activity has a positive and significant effect on physical self-esteem.

H4: Physical self-esteem significantly and positively mediates between physical activity and sportsman learning experiences.

Physical activity and quality of life

According to experts and participants, improved quality of life is one of physical activity's primary advantages and rewards. Unfortunately, healthy quality of life measurements are frequently erroneous and do not adequately account for the participants' perspectives. Several researchers and academicians, including those who have undertaken the most comprehensive studies on the issue of physical activity and quality of life, have identified severe flaws in our conceptual models and quality of life assessments, which impedes both research and health promotion efforts. McAuley et al. (2005) claimed that we could not determine if exercise improves the quality of life since there is no reliable way to assess it. According to Rejeski and Mihalko (2001), the lack of agreement about the relationship between physical activity and quality of life is partially attributable to the imprecise definition of quality of life. Quality of life has been extensively investigated and discussed in medical and academic circles, but its precise definition remains unclear. Some academics distinguish between the quality of life and health-related quality of life, with the latter emphasizing how an individual feels about their body and mind. Yet, some individuals believe we place too much emphasis on health outcomes. Sun et al. (2017) discovered, for instance, that how healthy an individual felt was not a determining factor in life satisfaction.

Another study indicated that the quality of life has a favorable and significant impact on the educational experience (Knight et al., 2007). Self-esteem (SE) is a person's overall appraisal of their worth based on their judgments of their abilities and morality (Afari, Ward, & Khine, 2012). Due to slight alterations in people's social positions and commitments, adolescents' SE is susceptible to volatility. In general, teenage SE declines in the early teen years and then rebounds in the later teen years (Orth, Trzesniewski, & Robins, 2010). High-self-esteem adolescents are more likely to be content with themselves, to have satisfying relationships with others, and to experience improved overall physical and mental health (Cameron & Granger, 2019; Peng et al., 2019). In 2010, several scholars, including Li, reached this result. SE, a fundamental psychological characteristic, may play a role in the motivation to study self-improvement (Lim & Lee, 2017). Individuals with a positive self-perception are more likely to be invested in their education and achieve success (Fang, 2016). Allen, Vella-Brodrick, and Waters (2017)

discovered that SE positively correlates with learning experience (LE) and influences learning-related domains. Filippello, Buzzai, Messina, Mafodda, and Sorrenti (2020) found that the quality of living significantly impacts the learning experiences of athletes.

According to other research, physical activity has a good and large effect on the quality of life. In other words, it was discovered that physical activities improved the players' quality of life, hence enhancing their learning experiences (Joseph, Royse, Benitez, & Pekmezi, 2014). Several studies have also suggested that physical exercise may indirectly influence learning experiences (Li, Han, Wang, Sun, & Cheng, 2018). Thus, the following study hypothesis is created based on prior discussion.

H5: Quality of life has a positive and significant effect on learning experiences.

H6: Physical activity positively and significantly affects Quality of life.

H7: Quality of life significantly and positively mediates between physical activity and sportsman learning experiences.

The moderating effect of Physical Health Impairments

A relationship between "physical activity" (PA) and "learning experiences" among athletes seems equivocal. Some studies indicated a beneficial influence, while others found a detrimental effect on the learning experience of athletes; consequently, as suggested by the logic of (Baron & Kenny, 1986), a moderating variable is required between independent and dependent variables. Earlier research (Budzynski-Seymour, Jones, & Steele, 2022; Kirk, 2005) also showed that physical exercise might indirectly influence the learning experience of athletes. Thus, physical health impairment might be a moderating element in the link between physical exercise and athletic learning experience. When the level of health impairment rises, so does the level of physical activity, which might enhance the sportsman's learning experience (Cruickshank, Pill, & Mainsbridge, 2021). Thus, the following study hypothesis is established based on the prior discussion:

H8: physical health impairments significantly moderate between physical activity and sportsman learning experience.

RESEARCH METHODOLOGY

The purpose of the study was to assess the effect of physical health on the learning experience of athletes (SLE). In addition, the mediating and modifying roles of "quality of life (PQOL), physical self-esteem (PSE), and physical health impairments (PYHI)" were examined. The study was quantitative and employed a cross-sectional methodology. The data was obtained from Iraqi college students in the public sector. The study's primary respondents were the athletes who were picked using a simple sampling procedure. The self-administered survey instrument was used to gather data and disseminate using the easy sampling method, which is acceptable when the population size is uncertain (Etikan, Musa, & Alkassim, 2016). The questionnaire was given to 500 respondents, and 400 were returned for a

response rate of 80 percent. In addition, the survey questionnaire was taken from a previous study in which physical activity (PA) was assessed by three items, PA was measured by five things, sportsman LE by three items, and PQOL by five items. These items were derived from (Zayed & Elshaer, 2022) impairment of physical health, which was evaluated using five measures borrowed from a study (Zayed & Elshaer, 2022). (Cho, Martin, Margrett, MacDonald, & Poon, 2011). The items were evaluated using a five-point Likert scale that ranged from 1 to 5 (strongly disagree to agree, respectively strongly).

DATA ANALYSIS FINDINGS

Diagnostics Test

In this study, to address the issue of missing data, SPSS version 25 is used to find the minimum (1) and maximum (5) values. Less than 5% of the data revealed the absence of a few data items. As a result, there was no difficulty with missing data, and the outcomes of all possible solutions were identical. The evaluations of skewness and kurtosis, which demonstrated the lack of values greater than 2 and 2, respectively, "showed typical univariate normality" The findings of the measures for skewness and kurtosis, which indicated that no value was more than 2 or +2, respectively, corroborated the normality of the univariate distribution. In addition, the VIF values of all research variables were judged to be less than 5, indicating that our study does not have a multi-collinearity problem (Becker, Ringle, Sarstedt, & Volckner, 2015). In addition, the value of common method bias was below 50%, indicating no concern with common method bias.

Convergent and Discriminant validity

As proposed by Hair Jr., Sarstedt, Ringle, and Gudergan (2017), various criteria were evaluated to ensure the "discriminant and convergent" reliability and validity of the "outer model" of the study measurement model. Among these are "internal consistency reliability" (Cronbach's alpha), "composite reliability" (CR), "convergent validity," and "discriminant validity." Cronbach's alpha (a) values ranged were greater than 0.7, as shown in Table 1; the recommended value for Cronbach's alpha is that it should be greater than 0.7, and composite reliability (CR) values were also greater than 0.7; the recommended value for composite reliability is that it should be greater than 0.7, indicating that the research scale appears to have adequate internal consistency (Kline, 2015). Second, the "Standardized Factor Loading" (SFL) values of each variable remained more than 0.50, but the recommended value of factor loadings is 0.50, providing additional evidence that study measures were sufficiently reliable. AVE values greater than 0.5 were utilized to evaluate convergent validity (Hair, Black, Babin, & Anderson, 2014). This figure is the minimal amount of acceptance necessary to certify convergent validity. The outcomes of the factor loadings are projected in Table.2 below.

Tabl.1: Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
PA	0.812	0.888	0.725
PPQOL	0.67	0.802	0.51
PYHI	0.795	0.856	0.601
PYSE	0.88	0.918	0.737
SLE	0.834	0.9	0.75

Note: PA-Physical Activity, PPQOL-Physical quality of life, PYHI, physical health impairments, PSYE-physical self-esteem, SLE-sportsman learnings experiences

Table.2: Factor Loadings

	PA	PPQOL	PYHI	PYSE	SLE
PA1	0.822				
PA2	0.849				
PA3	0.883				
PPQOL1		0.798			
PPQOL3		0.76			
PPQOL4		0.824			
PYHI1			0.872		
PYHI2			0.861		
PYHI3			0.673		
PYHI4			0.671		
PYSE1				0.89	
PYSE2				0.777	
PYSE3				0.884	
PYSE4				0.877	
SLE1					0.826
SLE2					0.885
SLE3					0.886

Note: PA-Physical Activity, PPQOL-Physical quality of life, PYHI, physical health impairments, PSYE-physical self-esteem, SLE-sportsman learnings experiences

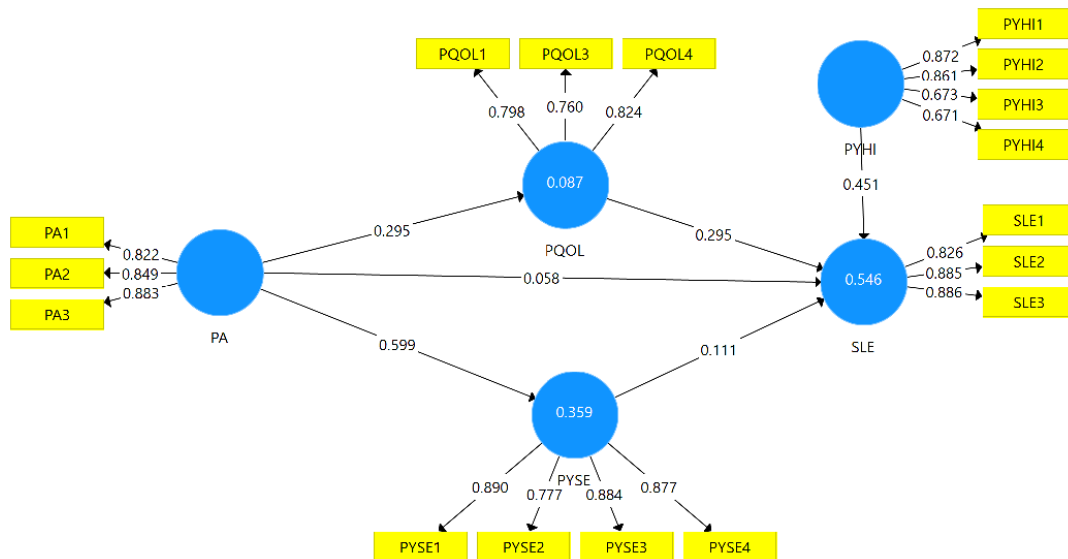


Figure.2: Factor Loadings

Also, three additional criteria were utilized to ensure that the discriminant validity of the scale was comparable to its convergent validity. "Among these conditions, the cross-loading matrix, the Fornell-Larcker criterion technique, and the heterotrait-monotrait method ratio (HTMT) stand out." (1) For "discriminant validity of model" to be guaranteed, the external (bolded) loading from each component must be greater than the cross-loading

(with other measures), which was greater inside this model. (2) "Table 3's bolded diagonal AVE values" are much greater than the "inter-variable correlation coefficient," and it is evident from a glance at the Table that the model meets Fornell and Larcker's highest criteria of discriminant validity (Hair et al., 2014). (3) HTMT (heterotrait monotrait correlation) values must be below 0.90. The HTMT quantities for the item remained far below the indicated value (see Table 3). The data shown in Tables 3 and 4 support the scale's reliability, discriminant validity, and convergent validity, all of which were judged to be acceptable in the article's outer measurement model. So, researchers can proceed to the "structural outer model" and evaluate these study ideas.

Table.3: Fornell and Larcker

	PA	PPQOL	PYHI	PYSE	SLE
PA	0.852				
PPQOL	0.295	0.794			
PYHI	0.37	0.49	0.775		
PYSE	0.599	0.307	0.519	0.858	
SLE	0.379	0.567	0.675	0.471	0.866

Note: PA-Physical Activity, PPQOL-Physical quality of life, PYHI, physical health impairments, PSYE-physical self-esteem, SLE-sportsman learnings experiences

Tabl.4: HTMT

	PA	PPQOL	PYHI	PYSE	SLE
PA					
PPQOL	0.383				
PYHI	0.444	0.586			
PYSE	0.701	0.386	0.595		
SLE	0.46	0.739	0.745	0.545	

Note: PA-Physical Activity, PPQOL-Physical quality of life, PYHI, physical health impairments, PSYE-physical self-esteem, SLE-sportsman learnings experiences

REGRESSION RESULT

Using the "partial least squares (PLS)-structural equation modeling (SEM)" methodology, the proposed hypotheses of the study are evaluated. More specifically, the primary objective is to test if the model accurately depicts and predicts variance in endogenous variables created by exogenous factors (Hair Jr et al., 2017). In addition, various criteria were applied, as proposed by (Henseler, Ringle, & Sinkovics, 2009; Ringle, Sarstedt, Mitchell, & Gudergan, 2020), "to verify that the model fit was appropriate. The R2 number must be at least 0.10, the Stone–Geisser Q2 must be more than zero, the NFI must be greater than 0.90, and the SRMR value must be less than 0.08". All values fell within the recommended range, indicating that the structure satisfies the condition for an excellent fit.

In smart PLS, the route coefficient and its related t-value were computed using a bootstrapping method for both direct and mediated interrelationships. The present study generated eight hypotheses, five of which have direct relationships and three with indirect ones. The results of smart PLS indicate that "physical activity seems to have a direct positive and significant substantial influence on " learning experience, physical self-esteem, and quality of life PQOL. Physical self-esteem was also found to have a significant and beneficial impact on the learning experience. All

individual indirect effects remained statistically significant and positive, indicating that the mediating results of physical self-esteem within the connections between physical exercise and learning experiences were confirmed. Additional indirect moderating effects reveal that physical health impairment moderates between physical activity and learning experiences considerably and favorably. The projected outcomes are displayed in Table.5 below.

Table.5: Direct and Indirect effect results

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
PA -> PPQOL	0.295	0.298	0.05	5.937	0.000
PA -> PYSE	0.599	0.6	0.049	12.245	0.000
PA -> SLE	0.575	0.576	0.043	13.387	0.000
PPQOL -> SLE	0.295	0.298	0.044	6.759	0.000
PYSE -> SLE	0.111	0.11	0.045	2.493	0.013
PA -> PPQOL -> SLE	0.087	0.089	0.02	4.311	0.000
PA -> PYSE -> SLE	0.067	0.066	0.028	2.408	0.016
PA*PHYI-> SLE	0.733	0.735	0.034	21.798	0.000

Note: PA-Physical Activity, PPQOL-Physical quality of life, PYHI, physical health impairments, PSYE-physical self-esteem, SLE-sportsman learnings experiences

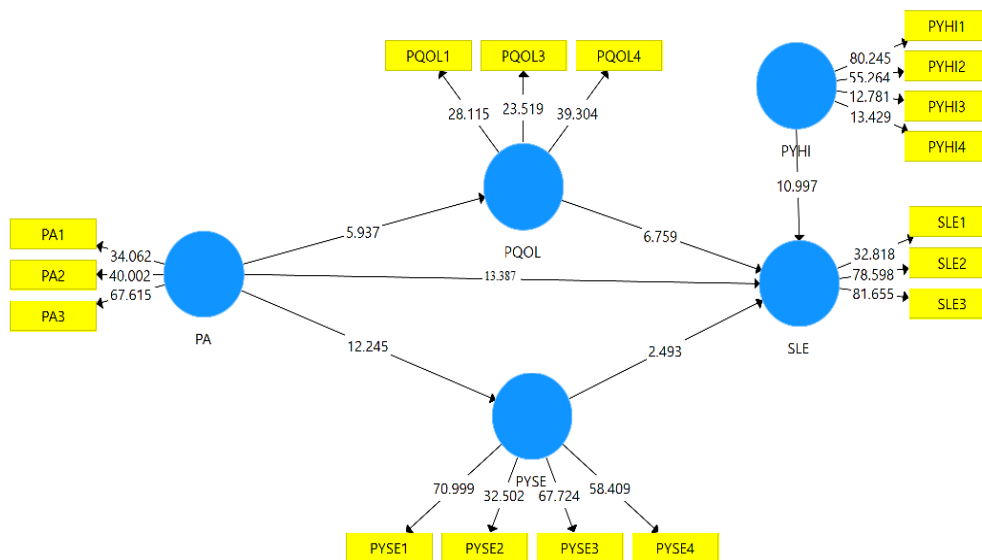


Figure.3: Structural Model

DISCUSSION

The purpose of the study was to assess the effect of physical health on the learning experience of athletes (SLE). Furthermore examined were the mediating and moderating effects of "quality of life (PQOL)," "physical self-esteem (PSE)," and physical health impairments. Previous research supports a growing body of literature suggesting dependable favorable associations between physical activity (PA) and athlete learning experience (Arnett, 2007; Miller, Bartholomew, & Springer, 2005). Although exploring possible moderating and mediating effects, earlier studies have received little attention. Hence, other factors' mediating and modifying roles were the driving force behind this study. Prior empirical studies (Elavsky, 2009; Elavsky et al., 2005; Lustyk, Widman, Paschane, & Olson, 2004) discovered favorable

relationships between PA, PPQOL, PSE, and SLE. Nevertheless, several of these research needed participants to be elderly (Elavsky, 2009; Paxton, Motl, Aylward, and Nigg, 2010) or have chronic health issues (Motl et al., 2009). Published research (Bray & Born, 2004; Maher, Pincus, Ram, & Conroy, 2015; Raedeke, Focht, & Scales, 2009), The association between healthy adolescents' or college students' PA rates and outcomes, especially their SLE, PPQOL, and PSE quantities, is just beginning to be investigated. Thus, there is a shortage of knowledge about PPQOL and PSE outcomes connected to varied levels of PA among collegiate athletes. Therefore, this study focuses on college student-athletes due to their unique challenges in moving into the sports field (Arnett, 2007). Thus, there is a compelling need for more research to determine which, if any, buffering mechanisms may assist stably in improving the PPQOL and SLE of collegiate athletes. The current study investigates the relationship between physical activity and SLE in athletes and the moderating influence of physical health impairments.

This study revealed that physical activity had a positive, direct influence on PPQOL, perceived PSE, and athletic learning. These findings are consistent with prior research (Arnett, 2007; Elavsky, 2009; Lustyk et al., 2004). Hence, excellent time management is associated with greater dedication to PA. It seems to sense that people who routinely engage would be less prone to procrastinating in other areas. This study and analysis reveal a previously unrecognized benefit of PA. The favorable impacts of PA fall into three key categories: greater SE, expanded educational possibilities, and a significantly improved PPQOL. In addition, individuals with the most improvement in PSE maintained consistent exercise programs. The findings of this study are congruent with those of other studies (Konopack & McAuley, 2012; McGuire, 2014; Raedeke, 2007). Generally speaking, a person's degree of achievement and performance is proportionate to how highly they regard and esteem themselves. Respect for oneself is vital to human life. Individuals must develop a good self-image in all areas (mental, emotional, and physical).

Major education groups are addressing the issue since it directly influences a person's feeling of self-worth and, by extension, their drive to seek and achieve their own objectives, such as raising their PA. The investigation outcomes also demonstrated the tremendous effect that PA has on SLE. These results are identical to those observed (Arnett, 2007; Hasson et al., 2022; Leedy & Smith, 2012). This study demonstrates the significance of PA for obtaining high levels of athletic LE. People with significant PSE and PPQOL gain from even one modest session of PA. This enriches the learning environment and significantly increases students' theoretical topic understanding. It was shown that PPQOL had a considerable favorable impact on LE.

Earlier studies (Diseth, Danielsen, & Samdal, 2012; Lewis, Huebner, Malone, & Valois, 2011) have also discovered a link between high PPQOL and academic success. These data demonstrate the importance of PPQOL on academic achievement. Despite their strong connection, relatively little study has examined the relationship between PPQOL and SLE. PPQOL

improves throughout time because it influences the learning process. Children who are normally satisfied may perform well in school, and their contentment may increase due to their success. The PSE of many sporting students declines with adolescence. The findings of this study suggest that participation in PA may aid certain adolescents in the same difficult era and increase their engagement in sports.

In conclusion, the current research highlighted the importance of PPQOL as a mediator in strengthening the relationship between PA and LE. Higher levels of PA tend to promote PPQOL, enhancing future learning chances. Collegiate sportsmanship can benefit people who are generally content with their lives and have a strong sense of Self. Positively and substantially moderating PA and SLE among athletes is another moderating effect of physical health improvements.

Implications and Future Directions

This study has practical implications for educational institutions because it suggests that implementing sports fitness programs at universities could help sports students in three ways: by providing a means to experience greater happiness and contentment in life, by reducing the symptoms of mental health disorders, and by enhancing their ability to learn and advance in their studies. This study supports the relevance of promoting academic accomplishment through physical activities, whereas most attempts to improve the learning process focus on enhancing teaching tactics and study habits. According to the findings of this study, participation in PA, perceived PSE, physical health impairments, and qualification increase the SLE of athletes. According to Noddings (2005), whoever makes this argument, "happiness and education are properly, intimately related." it appears that students who are content and have a high level of PSE recall information better. It is suggested that university presidents and instructors change class schedules, so students have sufficient time to engage in physical activity on campus. Authorities should also make available independent exercise and sports equipment to encourage students' engagement in physical activity throughout their academic careers.

The study has several flaws that researchers plan to address in future research. There were a few modifying and mediating factors in this research. Nevertheless, additional characteristics, such as gender and social support, can impact the connections we examined. Future research is strongly suggested to investigate a larger variety of variables that influence the LE, and the authors are urged to do so. In addition, these data are cross-sectional, making it hard to determine the exact causal relationships between variables. And even though we avoided CMV, as indicated by Podsakoff, MacKenzie, and Podsakoff (2012), future studies may employ longitudinal data and/or a combination of data sources to validate the proposed model. In addition, subsequent research might be conducted in other nations or industries to determine the significance of the study's findings, therefore expanding the area of future research. Using certain modifiable characteristics (such as gender and student year), the suggested model may be evaluated in two groups or a different setting (population, industry, or country).

REFERENCES

1. Abdullah, M. F. I. L. B., Mansor, N. S., Mohamad, M. A., & Teoh, S. H. (2021). Quality of life and associated factors among university students during the COVID-19 pandemic: a cross-sectional study. *BMJ open*, 11(10), e048446.
2. Afari, E., Ward, G., & Khine, M. S. (2012). Global Self-Esteem and Self-Efficacy Correlates: Relation of Academic Achievement and Self-Esteem among Emirati Students. *International Education Studies*, 5(2), 49-57.
3. Allen, K., Vella-Brodrick, D., & Waters, L. (2017). School belonging and the role of social and emotional competencies in fostering an adolescent's sense of connectedness to their school *Social and emotional learning in Australia and the Asia-Pacific* (pp. 83-99): Springer.
4. Arnett, J. J. (2007). Suffering, selfish, slackers? Myths and reality about emerging adults. *Journal of youth and adolescence*, 36(1), 23-29.
5. Arria, A. M., Caldeira, K. M., Allen, H. K., Bugbee, B. A., Vincent, K. B., & O'Grady, K. E. (2017). Prevalence and incidence of drug use among college students: an 8-year longitudinal analysis. *The American journal of drug and alcohol abuse*, 43(6), 711-718.
6. Asci, F. H., Kosar, S. N., & Isler, A. K. (2001). The relationship of self-concept and perceived athletic competence to physical activity level and gender among Turkish early adolescents. *Adolescence*, 36(143), 499.
7. Audin, K., Davy, J., & Barkham, M. (2003). University Quality of Life and Learning (UNIPPQOLL): An approach to student well-being, satisfaction and institutional change. *Journal of Further and Higher Education*, 27(4), 365-382.
8. Awick, E. A., Ehlers, D. K., Aguiñaga, S., Daugherty, A. M., Kramer, A. F., & McAuley, E. (2017). Effects of a randomized exercise trial on physical activity, psychological distress and quality of life in older adults. *General hospital psychiatry*, 49, 44-50.
9. Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173.
10. Becker, J.-M., Ringle, C. M., Sarstedt, M., & Völckner, F. (2015). How collinearity affects mixture regression results. *Marketing Letters*, 26(4), 643-659.
11. Bentsen, P., Mygind, L., Elsborg, P., Nielsen, G., & Mygind, E. (2022). Education outside the classroom as upstream school health promotion: 'adding-in' physical activity into children's everyday life and settings. *Scandinavian Journal of Public Health*, 50(3), 303-311.
12. Bray, S. R., & Born, H. A. (2004). Transition to university and vigorous physical activity: Implications for health and psychological well-being. *Journal of American College Health*, 52(4), 181-188.
13. Budzynski-Seymour, E., Jones, M., & Steele, J. (2022). 'A Physically Active Experience': Setting the Stage for a New Approach to Engage Children in Physical Activity Using Themed Entertainment Experiences.

Sports Medicine, 1-13.

14. Cairney, J., Dudley, D., Kwan, M., Bulten, R., & Kriellaars, D. (2019). Physical literacy, physical activity and health: Toward an evidence-informed conceptual model. *Sports Medicine*, 49(3), 371-383.
15. Cameron, J. J., & Granger, S. (2019). Does self-esteem have an interpersonal imprint beyond self-reports? A meta-analysis of self-esteem and objective interpersonal indicators. *Personality and Social Psychology Review*, 23(1), 73-102.
16. Caspersen, C. J., Powell, K. E., & Christenson, G. M. (1985). Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. *Public health reports*, 100(2), 126.
17. Cho, J., Martin, P., Margrett, J., MacDonald, M., & Poon, L. W. (2011). The relationship between physical health and psychological well-being among oldest-old adults. *Journal of aging research*, 2011.
18. Çiçek, I. (2021). Mediating Role of Self-Esteem in the Association between Loneliness and Psychological and Subjective Well-Being in University Students. *International Journal of Contemporary Educational Research*, 8(2), 83-97.
19. Cruickshank, V. J., Pill, S., & Mainsbridge, C. (2021). 'Just do some physical activity': Exploring experiences of teaching physical education online during Covid-19. *Issues in Educational Research*, 31(1), 76-93.
20. Dembeck, K. (2011). Physical activity and self-esteem in Females During late adolescence.
21. Diener, E. (2009). Assessing subjective well-being: Progress and opportunities *Assessing well-being* (pp. 25-65): Springer.
22. Diener, H., & Loeb, I. (2011). Constructive reverse investigations into differential equations. *Journal of Logic and Analysis*, 3.
23. Diseth, Å., Danielsen, A. G., & Samdal, O. (2012). A path analysis of basic need support, self-efficacy, achievement goals, life satisfaction and academic achievement level among secondary school students. *Educational Psychology*, 32(3), 335-354.
24. Elavsky, S. (2009). Physical activity, menopause, and quality of life: the role of affect and self-worth across time. *Menopause (New York, NY)*, 16(2), 265.
25. Elavsky, S., McAuley, E., Motl, R. W., Konopack, J. F., Marquez, D. X., Hu, L., . . . Diener, E. (2005). Physical activity enhances long-term quality of life in older adults: efficacy, esteem, and affective influences. *Annals of behavioral medicine*, 30(2), 138-145.
26. Entwistle, N., & Ramsden, P. (2015). *Understanding student learning (routledge revivals)*: Routledge.
27. Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1-4.
28. Fang, L. (2016). Educational aspirations of Chinese migrant children: The role of self-esteem contextual and individual influences. *Learning and Individual Differences*, 50, 195-202.
29. Filippello, P., Buzzai, C., Messina, G., Mafodda, A. V., & Sorrenti, L. (2020). School refusal in students with low academic performances and specific learning disorder. The role of self-esteem and perceived parental psychological control. *International Journal of Disability*,

- Development and Education*, 67(6), 592-607.
30. Findlay, L. C., & Bowker, A. (2009). The link between competitive sport participation and self-concept in early adolescence: A consideration of gender and sport orientation. *Journal of youth and adolescence*, 38(1), 29-40.
 31. Gall, T. L., Evans, D. R., & Bellerose, S. (2000). transition to first-year university: Patterns of change in adjustment across life domains and time. *Journal of social and clinical psychology*, 19(4), 544.
 32. Gerovasili, V., Agaku, I. T., Vardavas, C. I., & Filippidis, F. T. (2015). Levels of physical activity among adults 18–64 years old in 28 European countries. *Preventive medicine*, 81, 87-91.
 33. Group, T. W. (1998). The World Health Organization quality of life assessment (WHOPQOL): development and general psychometric properties. *Social science & medicine*, 46(12), 1569-1585.
 34. Hair, J., Black, W., Babin, B., & Anderson, R. (2014). *Multivariate Data Analysis: Pearson New International Edition*; Essex Pearson Educ. Ltd.: Harlow, UK, 1.
 35. Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*: saGe publications.
 36. Hasson, R., Sallis, J. F., Coleman, N., Kaushal, N., Nocera, V. G., & Keith, N. (2022). COVID-19: Implications for physical activity, health disparities, and health equity. *American journal of lifestyle medicine*, 16(4), 420-433.
 37. Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing *New challenges to international marketing*: Emerald Group Publishing Limited.
 38. Herbert, C., Meixner, F., Wiebking, C., & Gilg, V. (2020). Regular physical activity, short-term exercise, mental health, and well-being among university students: the results of an online and a laboratory study. *Frontiers in psychology*, 11, 509.
 39. Horn, T. S. (2021). Reflections on a Scholarly Career in Sport and Exercise Psychology: The Influence of Significant Others on the Psychosocial Well-Being of Children, Adolescents, and Young Adults. *Kinesiology Review*, 1(aop), 1-11.
 40. Huebner, R. A., Johnson, K., Bennett, C. M., & Schneck, C. (2003). Community participation and quality of life outcomes after adult traumatic brain injury. *The American Journal of Occupational Therapy*, 57(2), 177-185.
 41. Joseph, R. P., Royse, K. E., Benitez, T. J., & Pekmezi, D. W. (2014). Physical activity and quality of life among university students: exploring self-efficacy, self-esteem, and affect as potential mediators. *Quality of life research*, 23(2), 659-667.
 42. Kirk, D. (2005). Physical education, youth sport and lifelong participation: the importance of early learning experiences. *European physical education review*, 11(3), 239-255.
 43. Kline, R. B. (2015). *Principles and practice of structural equation modeling*: Guilford publications.
 44. Knight, S. J., Latini, D. M., Hart, S. L., Sadetsky, N., Kane, C. J.,

- DuChane, J., . . . Investigators, C. (2007). Education predicts quality of life among men with prostate cancer cared for in the Department of Veterans Affairs: a longitudinal quality of life analysis from CaPSURE. *Cancer, 109*(9), 1769-1776.
45. Kocatürk, M., & Çiçek, İ. (2021). Relationship between positive childhood experiences and psychological resilience in university students: the mediating role of self-esteem. *Journal of Psychologists and Counsellors in Schools, 1-12*.
46. Konopack, J. F., & McAuley, E. (2012). Efficacy-mediated effects of spirituality and physical activity on quality of life: a path analysis. *Health and quality of life outcomes, 10*(1), 1-6.
47. Kwon, S., Menezes, A., Ekelund, U., Wehrmeister, F. C., Gonçalves, H., da Silva, B. G. C., & Janz, K. F. (2022). Longitudinal change in physical activity and adiposity in the transition from adolescence to early adulthood: the 1993 Pelotas cohort study. *International Journal of Behavioral Nutrition and Physical Activity, 19*(1), 1-9.
48. Lee, J.-H. (2021). The Impacts of a Systematic Exercise Method on Physical Activity and Psychological Factors. *Journal of Advanced Researches and Reports, 1*(3), 23-30.
49. Leedy, G., & Smith, J. (2012). Development of emotional intelligence in first-year undergraduate students in a frontier state. *College Student Journal, 46*(4), 795-804.
50. Lewis, A. D., Huebner, E. S., Malone, P. S., & Valois, R. F. (2011). Life satisfaction and student engagement in adolescents. *Journal of youth and adolescence, 40*(3), 249-262.
51. Li, J., Han, X., Wang, W., Sun, G., & Cheng, Z. (2018). How social support influences university students' academic achievement and emotional exhaustion: The mediating role of self-esteem. *Learning and Individual Differences, 61*, 120-126.
52. Lim, Y., & Lee, O. (2017). Relationships between parental maltreatment and adolescents' school adjustment: Mediating roles of self-esteem and peer attachment. *Journal of child and family studies, 26*(2), 393-404.
53. Lopes, V. P., & Rodrigues, L. P. (2021). The role of physical fitness on the relationship between motor competence and physical activity: mediator or moderator? *Journal of Motor Learning and Development, 9*(3), 456-469.
54. Lustyk, M. K. B., Widman, L., Paschane, A. A., & Olson, K. C. (2004). Physical activity and quality of life: assessing the influence of activity frequency, intensity, volume, and motives. *Behavioral Medicine, 30*(3), 124-132.
55. Maher, J. P., & Conroy, D. E. (2017). Daily life satisfaction in older adults as a function of (in) activity. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 72*(4), 593-602.
56. Maher, J. P., Pincus, A. L., Ram, N., & Conroy, D. E. (2015). Daily physical activity and life satisfaction across adulthood. *Developmental psychology, 51*(10), 1407.
57. McAuley, E., Elavsky, S., Motl, R. W., Konopack, J. F., Hu, L., & Marquez, D. X. (2005). Physical activity, self-efficacy, and self-esteem: Longitudinal relationships in older adults. *The Journals of Gerontology*

- Series B: Psychological Sciences and Social Sciences*, 60(5), P268-P275.
58. McGuire, S. (2014). Centers for Disease Control and Prevention. State indicator report on Physical Activity, 2014. Atlanta, GA: US Department of Health and Human Services; 2014. *Advances in Nutrition*, 5(6), 762-763.
 59. Miller, B. M., Bartholomew, J. B., & Springer, B. A. (2005). Post-exercise affect: The effect of mode preference. *Journal of Applied Sport Psychology*, 17(4), 263-272.
 60. Motl, R. W., McAuley, E., Snook, E. M., & Gliottoni, R. C. (2009). Physical activity and quality of life in multiple sclerosis: intermediary roles of disability, fatigue, mood, pain, self-efficacy and social support. *Psychology, health & medicine*, 14(1), 111-124.
 61. Mukola, P. M. (2022). *Relationship between Parenting Styles and Self-Esteem in Adolescents Aged 13 to 18 Years: A Case of Ace Schools in Nairobi County*. United States International University-Africa.
 62. Nguyen, P. V. (2008). Perceptions of Vietnamese fathers' acculturation levels, parenting styles, and mental health outcomes in Vietnamese American adolescent immigrants. *Social Work*, 53(4), 337-346.
 63. Noddings, N. (2005). Identifying and responding to needs in education. *Cambridge Journal of education*, 35(2), 147-159.
 64. Opdenacker, J., Delecluse, C., & Boen, F. (2009). The longitudinal effects of a lifestyle physical activity intervention and a structured exercise intervention on physical self-perceptions and self-esteem in older adults. *Journal of sport and exercise psychology*, 31(6), 743-760.
 65. Orth, U., Trzesniewski, K. H., & Robins, R. W. (2010). Self-esteem development from young adulthood to old age: a cohort-sequential longitudinal study. *Journal of Personality and Social Psychology*, 98(4), 645.
 66. Paxton, R. J., Motl, R. W., Aylward, A., & Nigg, C. R. (2010). Physical activity and quality of life—the complementary influence of self-efficacy for physical activity and mental health difficulties. *International journal of behavioral medicine*, 17(4), 255-263.
 67. Peng, W., Li, D., Li, D., Jia, J., Wang, Y., & Sun, W. (2019). School disconnectedness and Adolescent Internet Addiction: Mediation by self-esteem and moderation by emotional intelligence. *Computers in Human Behavior*, 98, 111-121.
 68. Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual review of psychology*, 63(1), 539-569.
 69. Raedeke, T. D. (2007). The relationship between enjoyment and affective responses to exercise. *Journal of Applied Sport Psychology*, 19(1), 105-115.
 70. Raedeke, T. D., Focht, B. C., & Scales, D. (2009). Mediators of affective responses to acute exercise among women with high social physique anxiety. *Psychology of Sport and Exercise*, 10(5), 573-578.
 71. Reitz, A. K., Luhmann, M., Bleidorn, W., & Denissen, J. J. (2022). Unraveling the complex relationship between work transitions and self-esteem and life satisfaction. *Journal of Personality and Social*

- Psychology*, 123(3), 597.
72. Rejeski, W. J., & Mihalko, S. L. (2001). Physical activity and quality of life in older adults. *The Journals of Gerontology Series A: Biological sciences and medical sciences*, 56(suppl_2), 23-35.
73. Rickinson, B., & Rutherford, D. (1996). Systematic monitoring of the adjustment to university of undergraduates: A strategy for reducing withdrawal rates. *British Journal of Guidance and Counselling*, 24(2), 213-225.
74. Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2020). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management*, 31(12), 1617-1643.
75. Rodriguez Macias, M., Abad Robles, M. T., & Gimenez Fuentes-Guerra, F. J. (2021). Effects of Sport Teaching on Students' Enjoyment and Fun: A Systematic Review and Meta-Analysis. *Frontiers in psychology*, 12, 708155.
76. Sepah Mansour, M., Memar, E., & Azmoudeh, M. (2013). The relationship between self-esteem and self-efficacy with persuasion in educational managers. *Social Cognition*, 1(2), 92-100.
77. Sun, Y., Zhang, D., Yang, Y., Wu, M., Xie, H., Zhang, J., . . . Su, Y. (2017). Social support moderates the effects of self-esteem and depression on quality of life among Chinese rural elderly in nursing homes. *Archives of psychiatric nursing*, 31(2), 197-204.
78. Warburton, D., Eng, J., Krassioukov, A., & Sproule, S. (2007). Cardiovascular health and exercise rehabilitation in spinal cord injury. *Topics in spinal cord injury rehabilitation*, 13(1), 98-122.
79. White, S. M., Wójcicki, T. R., & McAuley, E. (2009). Physical activity and quality of life in community dwelling older adults. *Health and quality of life outcomes*, 7(1), 1-7.
80. Zayed, M. A., & Elshaer, I. A. (2022). Physical Activities and Learning Experience of Higher Education Students: Mediating Role of Quality of Life and Physical Self-Esteem. *International journal of environmental research and public health*, 19(20), 13417.