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RESEARCH ARTICLE

Effects of Time Utilization on the Well-being of College Athletes

Jay C. Santos[1,*] and Michael Sagas[2]

[1]*Department of Psychology, Central Luzon State University, Science City of Muñoz, Nueva Ecija 3121, Philippines*
[2]*Department of Sport Management, University of Florida, Gainesville, FL 32611, USA*

Abstract:

Background:

Considering that college student-athletes spend a lot of time attending to academic and athletic tasks, their well-being can be compromised. Published literature on the impact of time demands on the well-being of college student-athletes is limited. Hence, the scholarly place of the current study is warranted.

Objective:

This research investigated the effects of academic time use and athletic time use on the subjective, emotional, and physical well-being of college student-athletes.

Methods:

A subset of the NCAA GOALS data, which included 5,042 student-athletes, was utilized. Two research questions were examined: (1) to what extent does academic time use predict subjective, emotional, and physical well-being? and (2) to what extent does athletic time use predict subjective, emotional, and physical well-being? and (2) to what extent does athletic time use predict subjective, emotional, and physical well-being? A series of two-step hierarchical regression analyses were performed. Race, gender, and NCAA division level were used as control variables.

Results and Discussion:

Results revealed that academic time use is a significant positive predictor of subjective well-being. Moreover, athletic time use is also a significant predictor of all well-being indicators. It positively predicted subjective well-being but negatively predicted emotional and physical well-being.

Conclusion:

Our findings showed that both academic and athletic time utilizations are significant predictors of subjective well-being but in varying directions.

Keywords: Mental health, Time demands, NCAA, Student-athletes, Well-being, Academic time use, Athletic time use.

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1. INTRODUCTION

Obtaining a college degree, being a priority of any college student, is academic in nature. While this also holds true for student-athletes, there are athletic expectations that come into play. The rigor of routine practices and other athletic activities while attending regular classes and complying with course requirements adds to the typical challenges of intercollegiate athletics. As such, it can be argued that because they deal with time constraints in meeting their academic and athletic responsibilities, the state of their well-being can be compromised. While the outcomes of the academic time commitment of the general college student population have been well-explored in the academic literature, the state of research on student-athletes' well-being as a consequence of the challenges that arise from academic and athletic time use needs to be investigated.

Previous studies have established that subjective well-being is improved by engagement in physical activity, including sports [1 - 5]. However, the results of studies on the subjective well-being of student-athletes, in general, are mixed and seemingly contradicting. In fact, it was previously argued

* Address correspondence to this author at the Department of Psychology, College of Arts and Social Sciences, Central Luzon State University, Science City of Muñoz, Nueva Ecija 3121, Philippines; E-mail: jcsantos@clsu.edu.ph

that sports can be detrimental or beneficial to the well-being of athletes [6]. As some research claimed that sports participation alone promotes positive well-being, a past study investigated the role of sports involvement on subjective well-being and put forward that playing sports can indeed influence subjective well-being [7]. It was posited that adults who play sports on a regular basis rate their happiness higher than non-players. Meanwhile, another study compared the subjective well-being of active and retired elite athletes and found that the subjective well-being index of active athletes is higher than those of retired athletes [8]. The findings demonstrate that retired athletes have lower subjective well-being a year after retirement than athletes who are still active in competitions.

On the contrary, some studies highlighted a negative impact of sports participation on well-being. The life satisfaction of elite athletes in Australia was assessed for a period of five years, and it was determined that current athletes have lower life satisfaction than their retired peers [9]. Further, research suggests that athletic injury is not only one of the primary reasons for involuntary retirement from sports [10] but also a significant predictor of decreased subjective well-being. In this premise, a previous study concluded that perceived stress is associated with diminished life satisfaction of injured student-athletes, and injured student-athletes who report higher stress and little social support are more likely to experience lower subjective well-being [11].

Several factors have been identified as predictors of subjective well-being in the context of sports. In a systematic review of subjective well-being studies in the context of sports performance, the common predictors identified were gratitude, mindfulness, character strengths, coaching, hope, and spirituality [12]. A number of studies have also explored other socio-demographic factors such as gender, with male athletes having a higher level of life satisfaction [13], and race, with African American college student-athletes having a lower level of life satisfaction than their White counterparts [14].

Van Rens and colleagues [15] investigated the link between student-athlete identities and well-being. Their findings revealed that student-athletes' academic identity is significantly correlated with life satisfaction. In addition, Surujlal *et al*. [16] ascertained that subjective well-being positively correlates with coping skills, while the same variable is negatively correlated with perceived stress. Moreover, Galli and Reel [17] examined the adversities experienced by student-athletes from three universities in the western part of the United States. The top three adversities identified by the respondents were time demands, physical stress, and mental stress.

Evidence of the benefits of physical activities such as sport and exercise is established. For instance, Salmon [18] noted that physical exercise acted as a buffer against anxiety, depression, and stress. Another benefit is emotional well-being, which has been claimed to facilitate positive development among adolescents [19]. The positive impact of physical activity, including sport, on emotional well-being encompasses different populations, such as middle-aged women [20], adults [21], adolescents [22 - 24], children [25, 26], and college students [27, 28].

Several studies have dealt with the impact of social and personal factors on emotional well-being. For instance, appraisal of threat/challenge was found to be significantly associated with the emotional well-being of club-level athletes, although it is important to note that the mediation effect, and not a direct effect, was tested [29]. This indicates that a higher level of emotional well-being is experienced by athletes who treat competition as an opportunity for growth and mastery of skills. In another study, it was concluded that perceived autonomy support, autonomy, and intrinsic goal motivation were associated with emotional well-being among Olympic athletes [30], which indicates that athletes who feel supported and are motivated by their own goals have higher emotional well-being. Conversely, emotional well-being is positively predicted by peer task-involving climate but negatively predicted by coach ego-involving climate in research among youth athletes [31]. It is clear in their findings that emotional well-being is influenced by the type of sports environment athletes participate in.

While research on emotional well-being in general is extensive, literature specific to student-athletes is sparse. Some clues, however, can be derived from related studies. Brunstein *et al*. [32] examined the relationship between personal goals and the emotional well-being of college students. They found that emotional well-being is positively predicted by the interaction of goal commitment and goal attainability of motive-congruent goals. In addition, high commitment to motive-incongruent goals predicted a decrease in emotional well-being. These results can serve as a foundation for determining the effects of student-athletes' time use on their emotional well-being. According to the NCAA [33], there are more student-athletes who intend to graduate from college than to pursue a career in professional sports. This finding is supported by the NCAA GOALS data, which indicated that student-athletes spend more time in academics rather than athletics [34]. The goals of student-athletes are more educational than athletic, and thus, it can be argued that time used in academics will positively predict higher emotional well-being while time used in athletics will negatively predict emotional well-being.

On positioning for success in intercollegiate athletics, one has to be physically prepared. Contrastingly however, Wiese-Bjornstal [35] believes that the most effective means of being competitive in college athletics can also be destructive to physical health. The author pointed out that sports injury can be debilitating to student-athletes, given that athletes are prone to the excessive effort to the point of overtraining. Aside from the risks involved in playing, athletes can also get injured in training and practice. The tendency for them to glorify pain and suffering [36] only adds to these risks.

Accordingly, there is the contention that athletic participation can be detrimental to physical health. The risks are notably high and the chance of being seriously injured becomes akin to playing the sport itself. Once injured, it can be assumed that subjective and emotional well-being suffer, too, as reported in various studies [11, 37, 38]. Interestingly, studies on the direct link between time use and the physical well-being of student-athletes are virtually scarce. As such, the need to

study the impact of time use on physical well-being has been warranted. Further, research on student-athletes' well-being has not directly explored its connection to time utilization. The need for more studies on the life satisfaction of young adults, where most college student-athletes belong, has been echoed [39]. Studies on subjective well-being specific to the group of student-athletes are necessary given their unique context and the research evidence that showed the role of culture on subjective well-being [40]. Fundamentally, context can influence subjective well-being, as shown in the significantly different levels of life satisfaction among Korean and American adolescents [41]. Thus, the current study examined the effects of academic time use and athletic time use on subjective well-being, physical well-being, and emotional well-being using a large representative sample of NCAA student-athletes. The following research questions were investigated:

RQ1: To what extent does academic time use predict subjective emotional and physical well-being?

RQ2: To what extent does athletic time use predict subjective, emotional, and physical well-being?

It is hypothesized that academic time use would be a significant positive predictor of subjective, emotional, and physical well-being, while athletic time use would negatively predict the three well-being dimensions.

2. MATERIALS AND METHODS

2.1. Participants

The sample is composed of 5,042 respondents from the NCAA GOALS 2015 dataset, which was provided by the NCAA Research through a data use agreement. The approval of the university's Institutional Review Board was sought prior to data release. The authors were given access to a sample of 21,219 respondents. Random sampling was employed using the Statistical Package for Social Sciences (SPSS). Most of the respondents are men (n = 2,752; 54.6%) and White (n = 3,634; 72.1%). There are almost the same number of research participants per division level: Division I = 1,720 (34.1%), Division II = 1,517 (30.1%), and Division III = 1,805 (35.8%).

2.2. Measures

Academic time use and athletic time use are the independent variables. Academic time use includes the number of hours per week spent on attending classes and doing class-related activities such as study halls and tutorials. Athletic time use pertains to the number of hours spent per week on athletic activities such as training, games, and travel to game sites. The dependent measures include the 3-item physical well-being, 2-item emotional well-being, and 3-item subjective well-being. These measures were developed by the NCAA through their GOALS research program and validated in succeeding research [42]. Higher scores indicate a higher level of well-being.

The items for subjective well-being included "In the last month, how often have you felt that things were going your way?", "In the last month, how often have you felt about your ability to handle your personal problems?", and "All things considered, how happy are you today?" This measure has a Cronbach's alpha of .64. Participants answered these items using a 5-point scale (1 = very often; 2 = fairly often; 3 = sometimes; 4 = almost never; 5 = never).

"In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?" and "In the last month, how often have you felt that you were unable to control the important things in your life?" were the items for emotional well-being. The Cronbach's alpha attached to this measure is .77. Participants also answered both items using a 5-point scale (1 = very often; 2 = fairly often; 3 = sometimes; 4 = almost never; 5 = never).

The items, "During the last 30 days, how many days did you have a headache?", "During the last 30 days, how many days did you have a cold, flu or similar illness?", and "During the last 30 days, how many days did you have trouble sleeping?" captured physical well-being (PWB). The items were reported using a frequency scale that comprised the following categories of 15+ days, 8-14 days, 4-7 days, 1-3 days, and none. The Cronbach's alpha is measured at .58.

2.3. Data Analysis

A series of two-step hierarchical regression analyses were performed to answer the two research questions. Before conducting the regression analysis, gender was dummy coded as 1 for men and 0 for women, the race was dummy coded as 1 for Whites and 0 for student-athletes of color, and division level was dummy coded as 1 for Division I and 0 for Divisions II and III. In step 1, race, division level, and gender as control variables were loaded in block 1. Step 2 placed a predictor variable (academic time use or athletic time use) in block 2. For each research question, three separate two-step hierarchical regressions predicting each of the well-being indicators (subjective well-being, emotional well-being, and physical well-being) were conducted. For RQ1, academic time use was used as a predictor of subjective well-being, emotional well-being, and physical well-being in different regression models. Similarly, for RQ2 athletic time use served as the independent variable for each of the three well-being indicators in separate regression analyses. The R^2 for step 1, ΔR^2 for step 2, the total R^2, and the standardized beta (β) values are reported below. The significance level was determined at $p < .05$.

3. RESULTS

3.1. Academic Time Use

The results for RQ1 and RQ2 are summarized in two regression analysis tables. Table **1** shows the extent to which athletic time use predicts the three indicators of well-being. For effect on subjective well-being, results of Step 1 showed that the control variables accounted for .002% of the variance in the dependent variable, $F(3, 5038) = 3.373$, $p = .018$. Within block 1, race, $\beta = -.033$, $p = .019$ and gender, $\beta = -.034$, $p = .016$ were found to be statistically significant covariates in the model, but division level was not significant, $\beta = -.008$, $p = .571$. Adding academic time use in Step 2 indicated a significant .1% variance increase, $\beta = .033$, $p = .023$, $\Delta R^2 = .001$, and the model remains significant, $F(4, 5037) = 3.825$, $p = .004$.

For effect on emotional well-being, results in Step 1

revealed that the demographic variables significantly contributed to 1.3% of the variance, $F(3, 5038) = 22.134$, $p < .001$. Race, $\beta = .068$, $p < .001$, and gender, $\beta = .100$, $p < .001$, are statistically significant, but division level is not significant, $\beta = -.008$, $p = .559$. When academic time use was added in Step 2, the variance did not change, $\beta = -.023$, $p = .114$, $\Delta R^2 < .001$, although the model remains significant, $F(4, 5037) = 17.365$, $p < .001$. For effect on physical well-being, results in Step 1 showed that the demographic variables significantly explained 1.5% of the variance, $F(3, 5038) = 25.862$, $p < .001$. Division level, $\beta = -.033$, $p = .018$, and gender, $\beta = .119$, $p < .001$, are statistically significant, but race is not significant, $\beta = .002$, $p = .866$. The variance did not change after adding academic time use to the model, $\beta = -.004$, $p = .788$, $\Delta R^2 = .000$, but the model remains significant, $F(4, 5037) = 19.411$, $p < .001$.

The extent to which academic time use predicts the three well-being indicators is shown in Table **2**.

Table 1. Summary of the regression analyses for academic time use as predictor of subjective well-being, emotional well-being, and physical well-being.

-	*F*	R^2	ΔR^2	*B*	*SE*	β
Criterion variable: subjective well-being						
Step 1	3.373*	.002				
Division level				-.009	.016	-.008
Race				-.039	.017	-.033*
Gender				-.036	.015	-.034*
Step 2	3.825**	.003	.001			
Division level				-.006	.016	-.005
Race				-.037	.017	-.031*
Gender				-.031	.015	-.029*
Academic time use				.001	.000	.033*
Criterion variable: emotional well-being						
Step 1	22.134***	.013				
Division level				-.018	.031	-.008
Race				.157	.033	.068***
Gender				.208	.029	.100***
Step 2	17.365***	.013	.000			
Division level				-.022	.031	-.010
Race				.153	.033	.067***
Gender				.200	.030	.097***
Academic time use				-.001	.001	-.023
Criterion variable: physical well-being						
Step 1	25.862***	.015				
Division level				-.060	.025	-.033*
Race				.005	.027	.002
Gender				.205	.024	.119***
Step 2 (2-way interaction)	19.411***	.015	.000			
Division level				-.061	.026	-.034*
Race				.004	.027	.002
Gender				.204	.025	.118***
Academic time use				.000	.001	-.004

*** $p < .001$
** $p < .01$
* $p < .05$

Table 2. Summary of the regression analyses for academic time use as predictor of subjective well-being, emotional well-being, and physical well-being.

-	*F*	R^2	ΔR^2	*B*	*SE*	β
Criterion variable: subjective well-being						
Step 1	3.373*	.002				
Division level				-.009	.016	-.008
Race				-.039	.017	-.033*

(Table 2) contd.....

Gender				-.036	.015	-.034*
Step 2	4.670 **	.004	.002			
Division level				-.012	.016	-.011
Race				-.036	.017	-.031*
Gender				-.039	.015	-.037**
Athletic time use				.001	.000	.041**
Criterion variable: emotional well-being						
Step 1	22.134***	.013				
Division level				-.018	.031	-.008
Race				.157	.033	.068***
Gender				.208	.029	.100***
Step 2	20.469***	.016	.003			
Division level				-.010	.031	-.005
Race				.149	.033	.065***
Gender				.216	.029	.105***
Athletic time use				-.004	.001	-.054***
Criterion variable: physical well-being						
Step 1	25.862***	.015				
Division level				-.060	.025	-.033*
Race				.005	.027	.002
Gender				.205	.024	.119***
Step 2 (2-way interaction)	23.641***	.018	.003			
Division level				-.054	.025	-.030*
Race				-.002	.027	-.001
Gender				.213	.024	.123***
Athletic time use				-.003	.001	-.058***

*** $p < .001$
** $p < .01$
* $p < .05$

3.2. Athletic Time Use

For the effect on subjective well-being, adding athletic time use to the model explained a significant .2% variance increase, $\beta = .041$, $p = .003$, $\Delta R^2 = .002$, and the model remains significant, $F(4, 5037) = 4.670$, $p = .001$. For the effect on emotional well-being, adding athletic time use to the model explained a significant variance increase of .3%, $\beta = -.054$, $p < .001$, $\Delta R^2 = .003$. The model after Step 2 remains significant, $F(4, 5037) = 20.469$, $p < .001$. For the effect on physical well-being, adding athletic time use to the model increased the variance by .3%, $\beta = -.058$, $p < .001$, $\Delta R^2 = .003$. The model after Step 2 continues to be significant $F(4, 5037) = 23.641$, $p < .001$.

4. DISCUSSION

This study investigated the consequences of time commitments on the well-being of college student-athletes. Significant negative predictive value of athletic time utilization on emotional well-being and physical well-being was observed. The negative effect of athletic time use on physical well-being (PWB) is aptly supported in the extant literature. Training and practices take a physical toll on the players' bodies. It can be put forward that physical exhaustion is one of the issues reported by student-athletes in the survey that determined the impact of time demands [43]. Moreover, there are innate risks associated with playing sports. It is given that playing high-level competitive sports, such as intercollegiate athletics, is physically-taxing. Preparation for athletic competition makes athletes susceptible to overtraining and injuries [35]. Considering also that athletes are known to take pain and suffering with glory [36], it can be posited that there is a higher than usual tendency to overexert themselves physically. Combined with the enormous time demands on athletics, student-athletes can be expected to experience a decreased level of physical well-being. These findings, therefore, imply that the more time student-athletes spend on athletics, the lower their physical well-being becomes.

The finding that athletic time use negatively predicts emotional well-being can be explained by the dynamics of the relationship between emotional well-being and personal goals. Previous research has established that among college students, emotional well-being is positively predicted by the interaction of goal commitment and goal attainability of motive-congruent goals but negatively predicted by a high commitment to motive-incongruent goals [32]. The foremost goal of any college student is towards an eventual degree. For student-athletes, however, there is an opportunity for a professional sports career after their college playing years are over. In fact, according to NCAA [33], student-athletes indeed have strong athletic expectations, which suggests that academics may not be their priority. However, universities exist for academic reasons, and research has shown that student-athletes are reminded of the importance of having academic and athletic balance in the landscape [44]; hence, most student-athletes prefer having a college degree [33]. Therefore, it is asserted

that spending too much time on athletics does not help the commonly-accepted purpose of attending college getting a college degree because any time spent outside academics can compromise the advancement towards that goal. In addition, academic time use facilitates better quality of life in college [45], which further suggests that time spent on other aspects of college life, especially the magnitude of time student-athletes spend on athletics, is detrimental to well-being. Hence, the negative effect of athletic time utilization on emotional well-being.

Athletic time use has a positive effect on subjective well-being, as indicated by the derived values. This offers a fresh perspective to reexamine how athletic time must be framed. This finding, being counterintuitive, thus opens an area for further investigation. One possible explanation for this is that sport is seen as a form of escape for student-athletes and away from their foremost tasks and responsibilities in academics as students. In arguing that sport serves as an escape from the challenges of everyday life, Segrave [46] stated, "At worst, sport is not so much an escape from life but an inversion of it first, and ultimately evasion altogether" (p. 76). As such, time devoted to athletics can have a cathartic effect. Previous research has found that stress and sports fandom are positively correlated [47], indicating that the utility of athletics in subjective well-being goes beyond the athletes themselves.

The results demonstrated that academic time use positively predicts subjective well-being. This finding is consistent with the results of a previous study that the time spent in academics is a significant predictor in the quality of life of college students [45]. This suggests that because college students, student-athletes included, are in school primarily for a degree, spending time to that end and consequently getting related tasks to make them feel better about themselves. In addition, time spent in academics suggests decisiveness in their career goals. It can be inferred from these findings that student-athletes who prioritize academics over athletics seem to understand that a bachelor's degree is more valuable. Past studies suggested that career-decidedness is a significant predictor of subjective well-being among college students [48].

CONCLUSION

Both time utilizations in academics and athletics are significant predictors of subjective well-being. Athletic time use negatively predicts emotional well-being and physical well-being, indicating the toll athletics have on well-being. While significant findings are in place, caution must be observed when considering the standards of Cohen [49] in interpreting the value of variance explained in multiple regression. None of the ΔR^2 values is higher than the 2% cut-off for small effect size. Some limitations of the study must also be emphasized. First, our study did not test for covariates. Second, the psychometric properties could be improved with further iterations. Beyond these, however, our findings open up some potential areas and topics for succeeding research to advance the knowledge and practice aligned with the variables of interest examined in this study.

LIST OF ABBREVIATIONS

SPSS	=	Statistical Package for Social Sciences
PWB	=	Physical Well-Being

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by University of Florida's Institutional Review Board.

HUMAN AND ANIMAL RIGHTS

No animals were used for studies that are the basis of this research. All the humans used were in accordance with the Helsinki Declaration of 1975.

CONSENT FOR PUBLICATION

Participants signed off a consent form to participate in the original survey.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The dataset utilized in this study is protected by a data use agreement. Subsequent use must be requested from the NCAA Research.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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