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## The Relationship Between Extracurricular Activities and the Well-Being of Undergraduate Students

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THE RELATIONSHIP BETWEEN EXTRACURRICULAR ACTIVITIES AND THE WELL-  
BEING OF UNDERGRADUATE STUDENTS

by

Angelica Galluzzo

Department of Psychology

Submitted in Partial Fulfillment

of the requirements for the degree of

Bachelor of Arts

in

Psychology

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FACSIMILE OF CERTIFICATE OF EXAMINATION

Advisor: Dr. Mark Cole

Reader: Dr. Tara Dumas

The thesis by:

Angelica Galluzzo

entitled:

The Relationship Between Extracurricular Activities and the Well-Being of Undergraduate  
Students

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Dr. Christine Tsang

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Date

Chair of Department

## Abstract

Extracurricular involvement is a large part of the undergraduate student experience. Mental health can be affected when students are both mandated and encouraged to meet certain requirements, whether they are for an academic program or for experience and well-being. The current study was designed to analyze the relationship between extracurricular participation and well-being. The sample included 70 undergraduate students from the University of Western Ontario. Several hypotheses were proposed based on the type of extracurricular activity and well-being measure. The findings supported two out of the five hypotheses advanced, but also produced several other noteworthy findings. The most significant variable related to overall well-being was quality of sleep. Further, having part-time jobs was associated with higher depression scores. Future research is needed to establish the effects of each type and level of extracurricular involvement on one's well-being.

Keywords: extracurricular activities, undergraduate students, well-being, mental health

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## Introduction

Whereas it is exciting to begin a new chapter of life, the transition from high school to a post-secondary institution (college or university) can be a challenging time for young adults. Students are presented with time-sensitive exigencies and high expectations which unsurprisingly places them at risk for psychiatric disorders or the possibility of intensifying pre-existing problems (Cleary, Walter, & Jackson, 2011). Many students entering their first year of post-secondary education are oblivious of the necessary adjustments required for optimal success in school, work, social life, and extracurricular involvement (Cook, 2007). The lack of preparation and experience in balancing all these demands can be taxing on an individual. Young people aged 15 to 24, which are the traditional college years, are more likely to experience mental illness and/or substance use disorders than are those in any other age group (Pearson, Janz, & Ali, 2013). Additionally, a 2009 United States survey representing a large number of students across 302 institutions revealed that nearly 90% of participants believed that the number of students with severe psychological problems had increased over the past five years; 55.7% reported an increase in self-harm, and 70.6% reported an increase of crisis situations that required an immediate response (Gallagher, 2009). These numbers demonstrate the increasing concern regarding mental health and mental illness among this age group. Therefore, the present study was designed to focus on the unique undergraduate experience, analyzing the potential factors, specifically extracurricular activities, that are either improving or worsening one's mental health status.

A large amount of research has focused on the relationship between participation in extracurricular activities and mental health status. However, past research has predominantly

been centered around youth and high school students. For example, Gilman, Meyers, and Perez (2004) analyzed adolescent active engagement and academic and personal-social variables. Researchers concluded that students participating in Structured Extracurricular Activities [SEAs] experienced a various number of positive outcomes compared to those with no extracurricular participation (Gilman, Meyers, & Perez, 2004). While findings may differ based on the type of extracurricular activity, active engagement is important for cultivating a sense of belonging and is a crucial factor towards increased academic motivation and achievement (Ryan, 2000). A more-recent study examined the outcomes of increased extracurricular participation for youth diagnosed with mental health challenges. Findings demonstrated that increased participation in extracurricular activities was associated with higher intrapersonal strengths and lower internalizing of problems, compared to a lower frequency of participation (Abraczinskas, Kilmer, Haber, Cook, & Zarrett, 2016). This suggests that mental well-being, even if one has previously been diagnosed with an illness, can be improved, or controlled, with increased extracurricular participation, at least for youth.

Thus, a positive relationship has been demonstrated between extracurricular participation and mental health for youth and adolescents. However, limited research has been done analyzing this relationship among undergraduate students. As previously stated, the transition from high school to college or university is difficult and demanding for many. Students must adapt to their new environment and learn to deal with potential stressors, such as changes in peer groups, adapting to new living conditions (e.g., dorms, roommates, etc.), different methods of teaching and learning, and the expectation of increased independence and autonomy (Cleary, Walter, & Jackson, 2011). Furthermore, Martin (2015) examined what makes certain undergraduate students stand out from the rest of their peers. Findings revealed the students who were deemed



“outstanding” possessed several important qualities, but notably were also involved in a variety of extracurricular activities. Additionally, Greenbank (2015) highlighted the importance of student engagement by stating that these experiences are beneficial to have when competing in the graduate labour market (Greenbank, 2015). This study focused on the level to which undergraduates engage in extracurricular activities (ECAs) and demonstrated the significant influence that ECAs can have on labour market outcomes. For example, a candidate with extracurricular involvement on his or her application stands out from others with no extracurricular involvement. These studies identify the importance of extracurricular participation for undergraduate students. Extracurricular activities are an important addition to the undergraduate experience, which can either be viewed as additional stressors or as a benefit to improve one’s mental health. The present research was designed to establish the direction and extent of this relationship in undergraduate students.

A web-based survey consisting of undergraduate students in the UK found that 68% of participants worked in a part-time position during the academic term, with the majority working more than 10 hours per week (Robotham, 2009). He noted that previous literature has reported that combining a degree with employment is associated with absenteeism, less reading and higher stress levels. Likewise, Takamoto & Komura (2018) analyzed the relationship between earning a university degree, working part-time and students’ mental health. Findings revealed that failing to obtain a university credit was related to depression caused by a higher mental workload, and increased absenteeism caused by working late shifts and the accumulation of fatigue, ensued by a short sleep duration (Takamoto & Komura, 2018). This suggests that, while not considered an extracurricular activity, part-time employment is a contributing factor to poor mental health in undergraduate students.

Several studies have examined the relationship between physical activity and mental health (e.g., Dunn, Trivedi, & O'Neal, 2001). In a systematic review, Eime, Young, Harvey, Charity, and Payne (2013) identified that sport participants reported more positive mental health and well-being compared with their peers who did not participate in sports. Furthermore, a longitudinal study analyzed the relationship between sport participation in high school and reported mental health in early adulthood. Findings revealed that adolescent school sport participation resulted in higher self-rated mental health in young adulthood, as well as lower depression symptoms and lower perceived stress (Jewett et al., 2014). These results demonstrate that sport participation is related to lasting positive effects on one's mental health and well-being. However, these studies failed to account for the undergraduate experience that traditionally takes place through the time of young adulthood. This new life experience, with potentially new stressors and adjustments, could alter these positive mental health results, regardless of experience with sport participation.

Another common form of extracurricular activity is playing music. Musicians often have very busy schedules that come with several physical and psychological demands of perfecting their work (Araújo et al., 2017). These researchers collected data on lifestyle and health-related attitudes of musicians in comparison to a sample of similar-aged individuals who did not play an instrument. Results demonstrated that music students reported higher levels of overall wellbeing and lower fatigue. This suggests that playing music aids in improving mental health and reducing stress levels. However, the study also indicated that the perfectionist mindset possessed by many musicians leads to poor coping strategies and an ignorance about health education (Araújo et al.). These findings suggest that musicians are susceptible to higher levels of anxiety.

Volunteering or getting involved in clubs of interest are another way that some undergraduate students make use of their time. Students interested in volunteering typically take part in something related to their field of study or something that will improve their resume for future career interests (e.g., a Kinesiology student volunteering in a physiotherapy clinic). A longitudinal study analyzing the long-term benefits of volunteering in college revealed a positive relationship with well-being lasting up to 13 years after graduation (Bowman, Brandenberger, Lapsley, Hill, & Quaranto, 2010). These effects included personal growth, purpose in life, and life satisfaction, as well as engagement in volunteering and prosocial orientation. This demonstrates that volunteering when younger is associated with mental health later on. However, the current research examined the short-term relationships between volunteering while balancing full-time studies and any additional extracurricular activities and well-being.

Lastly, sleep is an important factor for well-being and the undergraduate experience. Schlarb, Kulesa, and Gulewitsch (2012) found that up to 16% of university students need more than 30 minutes to fall asleep and approximately 8% meet the diagnostic requirements for an insomnia disorder. Sleep programs, such as SWIS, – a German acronym, standing for “Studieren wie im Schlaf” – have identified that adequate sleep is essential for everyday functioning and have involved training to improve sleep in college and university students (Friedrich, Claßen, & Schlarb, 2018). This latter study found long-term positive effects of the SWIS training on mental health, demonstrating that improved sleep can strengthen mental well-being. Hence, the individuals who did not complete the training did not see a significant increase in well-being measures. Therefore, quality of sleep could be a result of factors outside of extracurricular activity. The researchers acknowledge that sleep could be a potential bias influencing poor well-being results, as opposed to extracurricular participation, and controlled for this variable.

The present study was designed to contribute to the existing literature on the relationship between extracurricular participation and mental health, specifically in full-time undergraduate students. The hypotheses of this study varied based on the type of extracurricular activity and well-being measure. Firstly, it was hypothesized that participants who are employed in a part-time job, regardless of additional engagement in extracurricular activities, will have higher anxiety and higher depression scores (H1). In addition, it was also hypothesized that participants who report poor sleep quality, regardless of involvement in extracurricular activities, will have lower self-esteem, and higher depression and anxiety scores (H2). The aforementioned findings also suggest that a positive relationship should exist between participation in both sports and volunteering, independently, with higher self-esteem, lower anxiety, and lower depression scores (H3 & H4). Lastly, the perfectionist mindset that many musicians obtain alluded to the proposition of higher anxiety scores for those heavily involved in playing a musical instrument (H5).

## **Method**

### **Participants**

The sample consisted of 74 full-time undergraduate students from the University of Western Ontario (London, Ontario). Data from four participants were eliminated after they indicated that they were not full-time undergraduate students at the selected institution. The remaining 70 participants had a mean age of 19.6 years ( $SD= 1.69$ ) and were predominantly female (77.1%). First-year Psychology students were recruited via the Huron SONA system, a platform for research participation. Participants received an automatic participation credit towards their grade in that course (Psychology 1100). The remainder of the participants were

personally contacted by the researcher, with the only eligibility requirement being that they were full-time undergraduate students at the University of Western Ontario or one of its affiliates (Huron, Brescia, and Kings University Colleges). Limiting the sample in this way was done so it could be assumed that all participants were involved in relatively the same number of class hours. A full-time undergraduate student at the selected institution is typically enrolled in 10.5-15 hours of class time per week.

## **Materials**

Materials for this study included a letter of information, a consent form, a debriefing statement, and a participant questionnaire package, the latter shown in Appendix I. The letter of information outlined the procedures to be undertaken by the participants, as well as potential costs and benefits. The debriefing statement also provided local well-being resources in case any participant felt emotionally distressed or triggered by the mental health-related questionnaire. The participant package included the following three well-being measures.

### **Rosenberg Self-Esteem Scale.**

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) consists of 10 items designed to measure one's current level of self-esteem. The questionnaire utilizes a 4-point scale (1= *strongly disagree*; 4= *strongly agree*) and includes questions such as, "I feel that I'm a person of worth, at least on an equal plane with others" and, "I feel I do not have much to be proud of". Five of the 10 statements are negatively keyed and thus require reverse scoring. The total score can range from 0-30, 30 representing the maximum self-esteem score. The participant package had this scale titled as, "Personal Reaction Questionnaire" to avoid any potential bias in responses.

**Beck Depression Inventory.**

The Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) has 13 items and participants were asked to indicate which statement best represents the way that they feel in the present moment, ranging from a score of 0-3. Sample items are: “0 = *I don't feel disappointed in myself*; 1 = *I am disappointed in myself*; 2 = *I am disgusted with myself*; and 3 = *I hate myself*”. Thus, total scores can range from 0-39, 39 representing the maximum depression score. The Principal Investigator and her Advisor concluded that any participant with a score of 21 or greater would present a concern about his or her immediate well-being. This score was determined using past literature and the ethical guidelines mandated when measuring depression in psychology research. One participant recorded a score of 21 and was contacted via e-mail. In this case, the researcher referenced the document with corresponding participant numbers and participant names to find the correct individual to be contacted. The Principal Investigator directly contacted that participant and advised that participant to seek counselling. The title of this scale was, “Mood Questionnaire #1” in the participant package.

**State-Trait Anxiety Inventory.**

The State-Trait Anxiety Inventory (Spielberger, 1966) includes 20 general statements about how participants usually feel using a 4-point scale (1= *almost never*, 4= *almost always*). The Trait Version provides a general anxiety score, whereas the State Version provides a score for anxiety in the present moment. Therefore, the Trait Version of this scale was used because the research was concerned with how anxiety generally affects the participant. Seven of the 20 statements are negatively keyed and thus require reverse scoring. The total score can range from 0-80, 80 representing the maximum anxiety score. Sample statements include, “I am happy” and,

“I lack self-confidence”. The title of this scale was, “Mood Questionnaire #2” in the participant package.

## **Procedure**

The researcher met with and collected all data from participants in person, requiring hand-written responses in a participant package. The researcher had to be present to collect all data due to the requirement of name documentation in this study. There was a maximum of 15 participants in the room at a time – this restraint set by the Administrator of the Huron SONA system. Participants were first presented with a detailed letter of information and were advised to read through it. If they remained interested in participating, they were asked to sign a consent form before beginning the study. Participants were reminded that they were free to skip any questions and/or exit the study at any time. Before any data collection began, the researcher explained the necessity of collecting participant names for the study and the participants were asked if they were willing to provide this information. Participants were informed that when a research study involves well-being measures, it is necessary to collect participant names in case any score raises concern for their immediate well-being. If participants were comfortable disclosing this, their name was typed beside a participant number on a password-protected Microsoft Word document. They were given a participant number and were asked to write that number on their participant package before proceeding with the study. Along with the participant number, the first page of the package also asked for age, gender, and a confirmation that they were a full-time undergraduate student at the University of Western Ontario or one of its affiliated colleges. They were then asked to provide the number of hours they spend in a typical week in the categories of work, sports, music, and club/volunteer. Finally, on the same page,

they were asked how many hours they sleep in an average night and to rate their quality of sleep, ranging from 1 (*very poor*) to 10 (*very good*). Then, the remainder of the package consisted of the Rosenberg Self-Esteem Scale, Beck Depression Inventory, and the Trait Version of the State-Trait Anxiety Inventory. Once they completed the package, the participants were given a debriefing letter and were asked if they had any questions for the researcher. The package took approximately 20 minutes to complete. To avoid any potential participant identification with respect to corresponding results, the researcher totaled the scores of the surveys at least two days post-completion and recorded the scores on the matching participant sheet.

## Results

The results of a multiple regression are shown in Table 1.

**Table 1**  
*Results of Regression Analyses*

	Depression		Anxiety		Self-Esteem	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Work Hours	.02	.091	-.05	.22	.15	.11
Sports Hours	.02	.079	.07	.19	-.02	.09
Music Hours	-.03	.169	-.01	.41	-.20	.20
Volunteer Hours	.09	.162	.28	.39	-.18	.19
Sleep Hours	-.53	.652	-1.09	1.60	1.35	.78
Sleep Quality	<b>-1.08*</b>	.429	-1.77	1.04	.58	.51
Age	.12	.321	-.08	.78	.08	.38
Gender	.76	1.33	2.87	3.24	-2.54	1.59

*Note.*  $N = 70$ ; \* $p < .05$



Of the predictors investigated, sleep quality was a significant predictor of depression scores ( $\beta = -1.08$ ,  $t(61) = -2.52$ ,  $p = .014$ ). There were no other significant predictors of the well-being results.

The correlations among the various variables appear in Table 2.

**Table 2**  
*Correlations for Main Variables*

Measure	Correlations								
	1	2	3	4	5	6	7	8	9
1. Volunteer Hours	-								
2. Work Hours	<b>.25*</b>	-							
3. Music Hours	.12	<b>.23*</b>	-						
4. Sports Hours	<b>-.30*</b>	-.20	-.02	-					
5. Sleep Hours	.00	<b>-.40**</b>	-.07	.15	-				
6. Sleep Quality	<b>.22*</b>	.10	.07	.10	<b>.38**</b>	-			
7. Age	<b>.36**</b>	-.02	-.04	-.03	-.09	.01	-		
8. Depression	.14	.04	-.03	-.02	<b>-.27*</b>	<b>-.38**</b>	.04	-	
9. Anxiety	.13	-.01	-.01	.02	-.20	<b>-.27*</b>	-.04	<b>.76**</b>	-
10. Self-Esteem	-.18	.07	-.09	-.02	<b>.26*</b>	<b>.25*</b>	.07	<b>-.72**</b>	<b>-.79**</b>

*Note.*  $N = 70$ ; \* $p < .05$ ; \*\* $p < .01$

There was a significant positive relationship between self-esteem scores and the number of sleep hours,  $r(68) = .26$ ,  $p < .05$ , and a significant negative relationship between depression scores and the number of sleep hours,  $r(68) = -.27$ ,  $p < .05$ .

The correlation analyses also revealed a significant negative relationship between anxiety scores and reported sleep quality,  $r(68) = -.27, p < .05$ , a significant negative relationship between depression scores and reported sleep quality,  $r(68) = -.38, p < .001$ , and a significant positive relationship between self-esteem scores and reported sleep quality,  $r(68) = .25, p < .05$ .

There were no other significant correlations found among pairwise correlations for volunteer hours, music hours, sports hours, work hours, gender and age with the well-being measures.

Independent-samples  $t$  tests were conducted to investigate whether the participant responses could be separated by group (e.g., having a part-time job versus not having a part-time job, regardless of the number of hours worked) to produce significant differences related to well-being. For example, the findings revealed that those who reported poor sleep quality (5 and below) ( $M = 7.29, SD = 5.71$ ) had significantly higher depression scores than those who reported good sleep quality (6 and above) ( $M = 3.89, SD = 4.11$ ),  $t(67) = 1.99, p < .05, d = .79$ . Sleep quality scores were determined as 'poor' or 'good' by the researcher, using the 10-point scale from the participant package.

The sample included 19 individuals with a part-time job and 50 individuals with no part-time job. An independent-samples  $t$  test revealed that those who had a part-time job had significantly higher depression scores ( $M = 6.16, SD = 5.16$ ) than those who did not have a part-time job ( $M = 3.50, SD = 3.84$ ),  $t(67) = 2.33, p < .05, d = .63$ .

The sample included 38 individuals who volunteered and 31 individuals who did not volunteer. Contrary to H4, results showed higher anxiety scores for those who volunteered ( $M =$

43.63,  $SD = 10.01$ ) compared to those who did not volunteer ( $M = 37.94$ ,  $SD = 9.84$ ),  $t(67) = 2.37$ ,  $p < .05$ ,  $d = .57$ , higher depression scores for those who volunteered ( $M = 5.68$ ,  $SD = 4.91$ ) compared to those who did not volunteer ( $M = 2.45$ ,  $SD = 2.75$ ),  $t(67) = 3.45$ ,  $p < .01$ ,  $d = .83$ , and lower self-esteem scores for those who volunteered ( $M = 19.67$ ,  $SD = 5.34$ ) compared to those who did not volunteer ( $M = 22.94$ ,  $SD = 4.62$ ),  $t(67) = -2.68$ ,  $p < .05$ ,  $d = .65$ .

Table 3 shows more details with respect to the data collected.

**Table 3**  
*Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
Anxiety	70	24	66	41.0	10.19
Depression	70	0	21	4.3	4.35
Self-Esteem	70	6	30	21.2	5.24
Sleep Quality	70	4	10	7.2	1.36
Sleep Hours	70	5	9	7.0	.99
Volunteer Hours	70	0	20	2.1	3.48
Music Hours	70	0	15	1.1	3.10
Sports Hours	70	0	24	10.9	7.11
Work Hours	70	0	33	3.2	6.66

The *State-Trait Anxiety Inventory* scores ranged from 24-66 ( $M = 41.04$ ,  $SD = 10.19$ ).

The *Beck Depression Inventory* scores ranged from 0-21 ( $M = 4.27$ ,  $SD = 4.35$ ). The *Rosenberg Self-Esteem* scores ranged from 6-30 ( $M = 21.19$ ,  $SD = 5.24$ ).

Volunteer hours ranged from 0-20 ( $M = 2.14$ ,  $SD = 3.48$ ), music hours ranged from 0-15 ( $M = 1.13$ ,  $SD = 3.10$ ), sports hours ranged from 0-24 ( $M = 10.94$ ,  $SD = 7.11$ ), work hours ranged from 0-33 ( $M = 3.16$ ,  $SD = 6.66$ ), sleep hours ranged from 5-9 ( $M = 7.00$ ,  $SD = .99$ ), and reported sleep quality ranged from 4-10 on a 10-point scale ( $M = 7.20$ ,  $SD = 1.36$ ).

## Discussion

Although the data only supported two of the hypotheses advanced, the results revealed several noteworthy findings. Firstly, the researcher intended on conducting only a regression analysis to find the overlaps in extracurricular activity while controlling for the external variables (e.g., sleep). However, this initial analysis demonstrated that there were other factors to consider while analyzing the results. For example, the first hypothesis was that part-time employment would be associated with higher anxiety and higher depression scores. Correlation analyses were used to test these hypotheses and produced no significant results. However, this meant merely that the number of hours that participants were working was not correlated with depression and anxiety. The researcher extended these results by conducting a *t* test analysis to demonstrate that there was a significant difference in anxiety scores between those who held a part time job and those who did not have a part time job. Therefore, H1 was partly supported in revealing that part-time employment was related to higher depression scores. However, no similar significant difference was found for anxiety scores. Although this study did not consider academic performance as a variable, these results are consistent with Takamoto and Komura's findings, such that increased mental workload was associated with increased depression. Additionally, Richardson, Evans, and Gbadamosi (2009) found that the majority of full-time students working a part-time job did so due to financial necessity and not related to their field of study. This suggests that working students are virtually obligated to work and that this is associated with increased mental stress. Furthermore, Peltz, Bodenlos, Kingery, and Rogge (2020) found the same association with part-time employment and full-time studies, but also analyzed sleep disturbance and financial status. Findings revealed that higher levels of financial stress were associated with an increased risk of being affected by this association (Peltz, Bodenlos, Kingery,

& Rogge, 2020). This demonstrates the importance of creating and implementing successful programs for those needing to support themselves, at least partially, by part-time work. These students are at high risk of experiencing clinical mental health symptoms due to financial pressures and deserve to be supported. Post-secondary institutions should aim to provide these students with additional resources to support their mental health and well-being.

The second hypothesis was that poor sleep quality is associated with lower self-esteem, and higher depression and anxiety scores. Interestingly, sleep quality and the number of sleep hours turned out to be the most predictive variables for well-being measures. From the multiple regression analyses conducted, sleep quality was the only significant predictor of depression scores. Unsurprisingly, correlational analyses demonstrated a significant negative relationship between sleep quality and both anxiety and depression, as well as a positive relationship between sleep quality and self-esteem. Further, sleep hours were positively correlated with self-esteem and negatively correlated with depression. The researcher then decided to distinguish ‘poor’ and ‘good’ sleep quality – determining 5 and below as poor and 6 and above as good, using the 10-point rating scale from the participant package. Although the two groups in this sample were quite numerically different (*poor* = 7, *good* = 62), consistent with the literature, a *t* test revealed significantly higher depression scores for those in the poor sleep quality group. This was done to highlight the significance of the relationship between sleep quality and depression. A large body of research has demonstrated the association between sleep and mental health (e.g., Kenney, Lac, LaBrie, Hummer, & Pham, 2013; Taylor et al., 2011; Peach, Gaultney, & Gray, 2016). However, a limited amount of research has been done focusing on full-time undergraduate students and extracurricular activity, measuring sleep as a covariate. A noteworthy study conducted by Lushington et al. (2015) compared Asian-Australians and Caucasian-Australians examining

extracurricular activity, sleep habits and mental health. Although this study focused on Grade 12 students, it revealed that sleep habits and extracurricular activity varied by culture. Importantly, findings demonstrated that after school hours, Asian-Australian adolescents spent more time doing homework compared with Caucasian-Australian adolescents who spent more time participating in extracurricular activities (Lushington et al., 2015). Future researchers should consider culture and ethnic backgrounds as influencing factors on sleep and extracurricular participation in undergraduate students.

The third hypothesis was that sport participation would be related to higher self-esteem, lower anxiety, and lower depression scores. However, the results did not support this. After further consideration, it became apparent that “Sports Hours” in the participant package (Appendix I) could have been more specific and distinguishable. For example, participants could have been asked to specify/explain what their commitment consisted of. Previous literature has demonstrated that different levels of and different types of sport participation produce different results. For example, Johnston, Roskowski, He, Kong, and Chen (2020) demonstrated that team sports were associated with reduced depression and improved sleep quality but found no association with anxiety. Another study found that recreation programs (i.e., meditation, yoga, exercise) were associated with reduced anxiety, depression, and negative mood (Fenton, White, Hamilton-Hinch, & Gilbert, 2018). Conversely, college student athletes have been identified as an at-risk group for experiencing and developing increased mental health problems compared to their non-athlete peers (e.g., Norseth, 2018) and also for increased substance abuse (e.g., Perkins, 2002). These findings imply that levels and types of sport participation have varying relationships with mental health and well-being. Future researchers might consider redesigning the present study and conducting analyses more specific to level and type of sport participation.

For example, team versus individual sports and recreation versus varsity levels of competition. Previous literature suggests that these differences should generate the significant results that the current study failed to produce.

The fourth hypothesis was that volunteering would be related to higher self-esteem, lower anxiety, and lower depression scores. As in the case of H1, regression and correlation analyses produced no significant results, meaning that the number of hours spent volunteering was not related to well-being results. However, when separated by those who volunteered and those who did not volunteer, *t* tests revealed the opposite of the proposed hypothesis – lower self-esteem, higher anxiety and higher depression for those who volunteered. These were the most surprising findings that this study produced. After further research, it became evident that there is much more to volunteering than simply focusing on the hours devoted to it. For example, Robinson (1999) found that college students typically volunteer for egoistic rather than for altruistic motivations. His study also found gender and age differences between types of motivation and the number of hours spent volunteering (Robinson, 1999). Moreover, King, Jackson, Morrow-Howell, and Oltmanns (2015) examined the relationship between personality traits and volunteering, using the Five-Factor Model of Personality. Regression analyses demonstrated that the personality traits of the volunteers may have been the reason for the positive health outcomes associated with volunteering. For example, lower levels of neuroticism and higher levels of extraversion were related to future positive well-being results (King, Jackson, Morrow-Howell, & Oltmanns, 2015). This suggests that it might not be about the actual experience of volunteering, but rather about the personalities of the individual people. Some university/college programs require volunteerism as a part of earning a degree, meaning that the act of volunteering might not necessarily be a preference. Thus, it is also important to specify and distinguish the

type and motivation for volunteering when analyzing its effects on mental well-being. Similar to sport participation, these results might vary quite a lot when analyzed separately.

Finally, the last hypothesis was that participation in music would be related to higher anxiety scores, however the results did not support this. Previous literature has demonstrated that performance stress is very common for musicians and have aimed to implement programs to manage this anxiety (e.g., Pargman, 2006; Jordan, 2018). However, these results come from measuring anxiety specifically related to performance, not from assessing general anxiety. The current study demonstrated that individuals who play an instrument do not have increased general anxiety scores, but this research did not measure performance anxiety. The STAI used in this study would not be suitable for research concerned with performance anxiety. In any case, the sample of students involved in music was not large. Only 12 participants reported that they were involved in music, whereas 57 did not. As previously described, the increased stress and intense demands that musicians deal with (Araújo et al.) is worth exploring. It is possible that there is a relationship between musical involvement and general anxiety, and future research should examine this with a larger and more balanced sample.

Notably, several correlations were found between variables as demonstrated in Table 2. These are worth exploring as different amounts of participation (e.g., hours) might be related to our well-being. Different combinations of extracurricular activities and the number of hours devoted to each activity should be examined to identify what the effects are on our mental health and well-being. Future research should be designed to measure both the type of extracurricular involvement, and the time committed to it, to determine the direction and association with well-being.



There are several limitations to consider in discussing the present study. Firstly, the sample of this study was restricted to one university. The sample was also predominantly female (77.1%), indicating a potential gender bias in results. That said, the findings did not demonstrate any effects of gender on the selected measures. When conducting several *t* tests, it became apparent that there was a large difference between group sizes (e.g., *sport participation* = 61, *no sport participation* = 8) for sports, music, work, and sleep quality, thus implying that the collected sample was not adequate for producing significant results. Future researchers should aim to replicate this study with a larger and more diverse population as it is now understood that there is a difference between hours of participation and participation itself.

Further, this study was designed using self-report measures, meaning that the accuracy and validity of participant responses cannot be verified. The participant package also only asked for number of hours of extracurricular participation and did not provide any space for description. As previously stated, there are many differences among different extracurricular activities and future research should be designed to target these differences. Lastly, the participant package asked for the number of extracurricular hours in a typical week. However, these answers might vary based on time of the year (e.g., exam season compared to early in the semester). Future researchers should consider using a longitudinal design to analyze the differences between the relationships over time.

Overall, there remains a large amount of research needed in this area of interest. The current study added to the existing literature by demonstrating that there are several other factors to consider when examining undergraduate extracurricular participation and mental well-being. The findings also highlighted the importance of distinguishing the type and level of sport and

volunteer participation as different types likely have varying effects on our mental well-being. In conclusion, an abundance of factors contributes to the mental health of undergraduate students. The pressures and demands that one is required to meet, including academics, social life, and extracurricular involvement, can be very taxing on a young adult. Future research should continue focusing on well-being in undergraduate students as it is a growing concern. Post-secondary institutions should implement programs that will provide the knowledge and tools necessary to have an optimal undergraduate experience.

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**APPENDIX I**

Participant #: \_\_\_\_\_

Age: \_\_\_\_\_

Gender:    M            F            Other: \_\_\_\_\_

Are you a full-time undergraduate student at Western University?            YES            NO

Please provide the number of hours you spend in a typical week doing the following:

Work: \_\_\_\_\_

Sports: \_\_\_\_\_

Music: \_\_\_\_\_

Club/Volunteer: \_\_\_\_\_

How many hours do you sleep (on average) in one night? \_\_\_\_\_

How would you rate your average quality of sleep? – 1 = very poor, 10 = very good

1   2   3   4   5   6   7   8   9   10



## Curriculum Vitae

Name: Angelica Galluzzo

Secondary School Diploma: Senior Matriculation, St. Maximilian Kolbe CHS, Aurora, Canada

Experience: Student Athlete Mental Health Initiative (SAMHI) Co-Lead

Awards: Transfer Student Scholarship 2018 in the amount of \$1000

Dean's Honour List (2017, 2018)