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Physical Activity Levels in First-Year University Students

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in *Health Sciences and Kinesiology*.

By

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Under the mentorship of *Dr. Matthew Williamson*

Abstract

The purpose of this study is to see if physical activity (PA) is affected for students since transitioning from high school to their first semester in college. The study was conducted by asking questions pertaining to PA via an online survey through the platform Qualtrics. It will be administered to students at Georgia Southern University. However, only the data from freshmen students that meet specific criteria will be accounted for in this study. The data will be analyzed using Chi-squared to determine how PA is affected due to this transition. The data will compare the results from high school senior year PA levels to their current PA levels within their first semester to determine if PA has changed.

Table of Contents

Abstract	2
Introduction	5
Method	5
Purpose	7
Design	
Participants	7
Participants Requirements	
Instrumentation	8
Procedures	8
Data Analysis	9
Results	14
Conclusion	18
Discussion	18
Limitations	19
Implications	19
References	21
Appendix	22

Introduction

Physical activity (PA) is considered any body movement that requires using your muscles and using more energy than you would use when you are resting (National Heart, Lung, and Blood Institute, 2022). Physical activity for young adults matters because obesity is a continuous threat to the health status of many United States citizens (Changmo and Cruz, 2022). It is important for this age group to build healthy habits that they can carry with them through their entire adulthood including adequate amounts of physical activity in their daily lives. By doing so, this helps to combat those statistics on obesity in that age range, as well as assist in improving the overall health status for Americans and first year college students.

There are significant changes that take place in the transition to college and they can make adjustment to the transition more challenging for a freshman. These changes include weight gain and psychological stress. Freshman 15 is a common name given to students who experience rapid weight gain (around 15 pounds) since attending their first year in college (Mihalopoulos, et al., 2008). This rapid weight gain can occur due to students now having an unlimited buffet style with the meal plan which is different from the standardized high school lunches that give portion sized servings. Therefore, this vast change in serving size will promote the risk of obesity and “Freshman 15” to occur in first-year students. Changmo and Cruz (2022) looked at physically-oriented Korean male and female first-year students and to see if there were changes in their body weight and body composition. This is an important issue to explore because previous studies have found that during this transition, students are more susceptible to developing unhealthy habits that are reflected in body composition and weight.

They found that there were significant increases in body composition, body fat, skeletal mass, and fat mass. However, compared to the baseline, there were no significant changes in regards to weight gain. After seven months, over half of female students gained fat mass and skeletal mass while most males gained fat mass but showed no significant changes in skeletal mass. They also found that in the beginning of the second semester for students, percent body fat increased compared to their baseline. In addition, the average BMI scores were almost in the overweight ranges based on Asian populations. For instance, around 60% of male students gained weight and over half were considered obese according to the BMI Asian classification. Almost 70% of the females and over 70% of males in their study presented significant increases in fat mass.

Ultimately, researchers have found that the decreased levels of PA is a defining characteristic for weight gain and stress management, so PA can reduce both of these problems. Jung et al. (2008) looked at tracking physical activity and dietary patterns in first- year university women. They wanted to effectively track diet and physical activity using repeated measurements. The women had to be between the ages of 18-19 years of age and must live on campus. This study was part of a larger study, however they measured body composition, physical activity, and a three day food log. To measure body composition they used a mechanical scale and made sure that participants wore light clothes. To measure physical activity, they used the format from GLTEQ and had participants report their different levels of physical activity that they engaged in. To measure the three day food log, participants recorded everything they ate and drank. To improve accuracy, a research assistant weighed food items that were not prepackaged. After the baseline study was done, they contacted the participants a year later to arrange a posttest appointment. The posttest appointment is identical to the baseline testing that was done. This

study used statistical analysis and independent t-test to see the pre and post test differences. Results concluded that the participants' weight and BMI increased in their first year of college. They also found that, surprisingly, there was a decline in caloric intake from pre to post testing. Those that gained weight found there was a trend in a decrease in physical activity. Ultimately, they concluded that the reduction of physical activity is a key factor in freshmen weight gain.

During this transition, it is crucial to consider the mental health status of students to see if it could influence their amount of PA. Studies have found that there is a relationship between mental health and levels of physical activity. Students who often used wellness centers or recreational activities that involved PA reported no symptoms of depression (Leonard & Liu, 2022). The purpose of this study was to have a better understanding of how recreation centers impact first-year college students' mental and overall well-being, by looking at the relationship between wellness centers and the symptoms of depression. Depression is an important issue to explore because when students or people in general are feeling depressed eating habits are off and physical activity rates are affected. Wellness centers (indoor or outdoor recreation facilities and fitness centers) are good places for students to bond with the university and become physically involved on campus.

The results of the survey used in the study showed that for wellness centers, about the same amount of people say they never use the wellness centers or often use them. For the people who use the wellness centers, the majority say that they go with a friend. In regards to symptoms of depression, few people self reported having symptoms of depression while most reported they show no symptoms. They also found that amount of schoolwork was the most reported stressor, followed by lack of sleep and dietary habits. For freshmen, the most popular programs were weight training and group fitness programs. They also found that when freshmen are involved in

social and group fitness activities where they are able to interact, the chances of developing depression get better.

The psychological well-being for these students in regards to mood and psychological distress have been closely looked at by Bray and Born (2004). For insufficiently active students in the first two months of starting university, values in negative moods (depression, tension, confusion, anger, etc.) and psychological distress (anxiety/insomnia, social dysfunction, etc.) were compared to students that were active. They predicted that if there was any decline in physical activity rates or changes in physical activity that were out of the normal practices, they would see a negative correlation on psychological well-being. They chose 145 freshman students who ranged between 18-19 years of age. They all came from the same university, and over 90% from the same high school. This was a voluntary study where the data was collected through confidential questionnaires. They measured physical activity through a weekly average of vigorous activity. They considered self reporting of frequency and duration to be the best way to measure this for students during last two months of high school and first two months of university. They also measured psychological well being through two questionnaires representing mood and psychological distress. Results in this study found that, as a whole, physical activity rates significantly declined. In terms of vigorous activity levels recommended from the USDHHS, results showed that 44.1% of students in the first 2 months of university were active. There were also no significant differences in results of men versus women. Lastly, the study showed that there was more fatigue, greater tension, negative mood, and negative toll on psychological well being for those who were less active. Similar results were reported by (see Leonard et al., Liu 2022).

Overall, it is clear from previous studies that there is a relationship between PA reductions and first-year college students. However, no studies have been conducted at Georgia Southern University that address physical activity levels among first-year students. If it is found that PA levels at GSU are low, this study may be used as a tool to promote innovations that prevent the increase of obesity levels and give insight on the amount of PA students are likely to be engaged in initially in their first semester.

Method

Purpose

The purpose of this study is to determine if first-year college students PA levels at Georgia Southern University are affected by the transition from high school to college. Hopefully, the conclusions will be used to educate and inform incoming students, and formulate innovations that assist in resolutions. We can also use the results to educate high school students and give them tools and mechanisms that will allow them to sustain an efficient amount of PA.

Design

The participants of the study were assessed through an online questionnaire/survey through the platform Qualtrics. The anonymous survey was composed of fourteen questions that consist of demographic questions and other questions that ask about PA levels in their senior year in high school and first semester in college. The research design, survey, and informed consent were approved by the Georgia Southern University IRB (proposal H24088)

Participants

The participants in this research study were recruited from Georgia Southern University (GSU) located on the Statesboro campus. These participants were given the choice to answer questions pertaining to high school PA that will be utilized as a baseline in the study to compare PA in their first semester. With permission from professors on the Statesboro campus, their classes were used to connect and recruit participants. To increase more student involvement, professors at their own discretion allowed students to receive extra credit for participation.

Participants Requirements

All students on the Statesboro campus were encouraged to take the voluntary survey. However, to be eligible for participation in this study, participants must be first-year students in

their first semester of college. These students must not be an active athlete on a sports team or have taken any dual enrollment classes. It is important that all PA stated by the participants is voluntary and cannot be instructed due to course requirements or part of a sports team on campus. This is important to see if there is a true correlation between first semester students and their PA.

Instrumentation

The survey was administered through the platform Qualtrics. The survey took no longer than 15 minutes to complete and consisted of only multiple choice questions (see appendix). The first few questions are demographic related, and consisted of their classification, age, sex, ethnicity, and current sports if they played any in high school as well as in their first semester. The next set of questions related to their current PA levels. For example, how frequently they are engaged in PA, how vigorous, main methods for participation of PA, and an estimate of their PA when they were high school seniors. The last set of questions asked if they feel like their PA was affected in their first semester of college.

Procedures

The data gathered from GSU students was collected and stored in a secure platform within Qualtrics. The survey was released in the first week of Spring 2024 semester, to allow students to properly reflect on the previous semester. To promote awareness of the survey, there were emails sent to professors with a copy of the flier and a QR code to share with students if they were interested in voluntary participation. Another method to spread awareness was achieved through large social media outlets such as GroupMe. With permission from group owners, a message was sent out within the chat with the link and a flier to recruit participants. The message stated that it is not mandatory to complete or participate in the survey, and that the

survey was anonymous. Finally, a QR code was made for flyers to make it more accessible for participant participation. For all participants, Qualtrics would not let them begin the survey until they agreed to the terms and conditions and gave their consent.

Results

Each category for the number of days per week of physical activity and the number of minutes of physical activity per day were assigned a number (e.g. number of minutes in a day category 0-10 = 1, category 10-20 = 2, etc.). Participants responded with mean PA days per week around 3-4 days in high school and a mean of 3-4 days in college (Table 1). For the number of minutes per week, the mean was 30-60 minutes per day and in college it is also 30-60 (Table 2). Data were then analyzed using the Chi-squared test. There is no significant difference in the number of days of PA per week between high school and college ($df= 4$, $X^2=1.2$, $p\text{-value} > 0.05$) (Table 1). There is also no significant difference in the number of PA minutes per day ($df= 3$, $X^2=2.5$, $p\text{-value} > 0.05$) (Table 2). There were a few other interesting changes however that are overlooked when group means are compared.

When each individual case is considered, only about a third (6 out of 16, 37.5%) of the participants decreased their PA either in the number of minutes per day or the number of days a week and the other variable either also declined or stayed the same. These are the students that would experience the greatest effect of a decline of PA once they entered college. This frequency does not include anyone who experienced a decrease in the number of days but compensated by increasing their number of minutes per day. There was only one student who fit that category. Just looking at the number of days per week of PA, seven people decreased the number of days they worked out while four increased, and five stayed the same (Tables 1 and 2). For the number of minutes per day, five decreased while four increased and seven stayed the same (Tables 1 and 2). When days and minutes are considered together, five people experienced a decline in both days and minutes, three people increased both, five people stayed the same, and one person each decreased days but increased minutes, decreased days but minutes stayed the same and increased

days but minutes stayed the same. The most common answer for the greatest barrier to PA in college was time (10 out of 17, 58.8%). Also, the majority of respondents (11 out of 17, 64.7%) answered that they somewhat agreed that the transition to college affected their PA level.

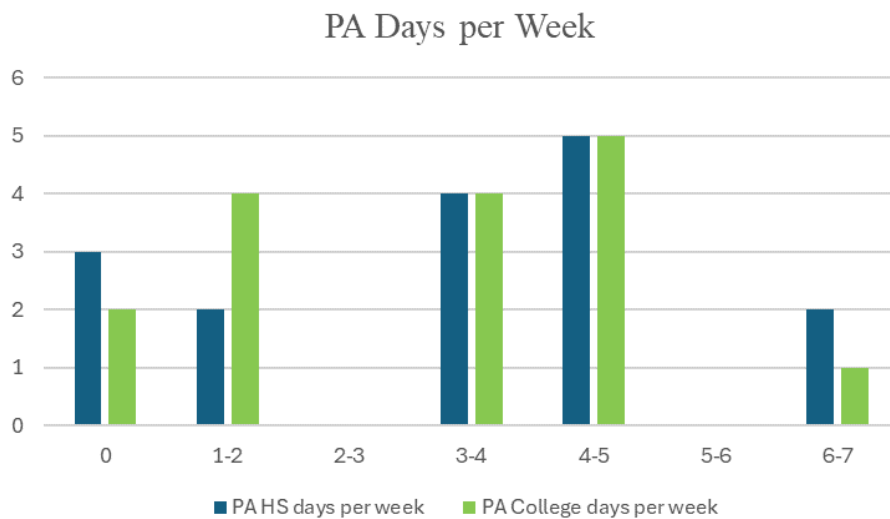


Figure 1. Data represents the total number of participants who estimated their average number of days of physical activity (PA) per week in both high school and first semester in college.

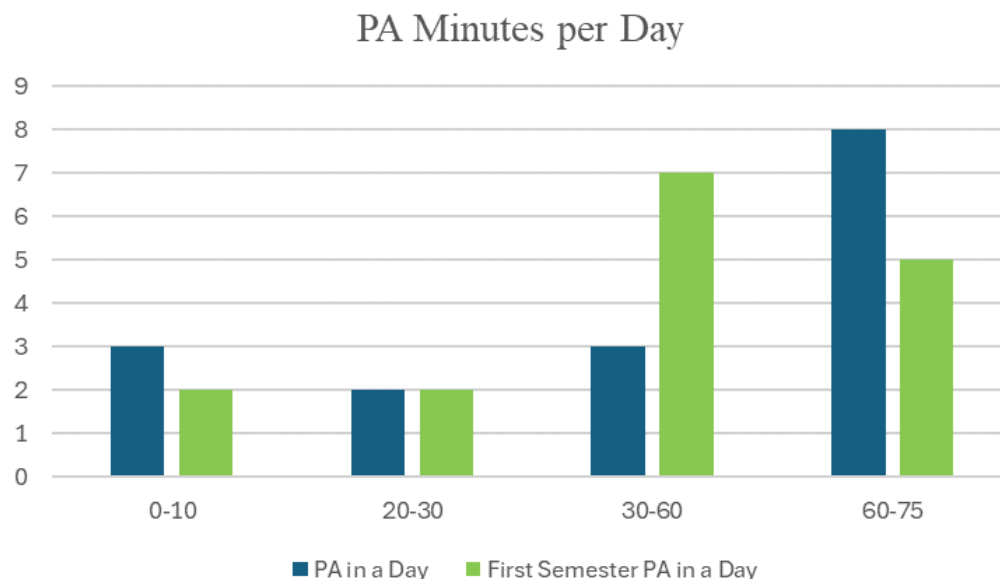


Figure 2. Data represents the total number of participants who estimated their average time of physical activity (PA) per week in both high school and first semester in college.

Table 1. Comparison of survey responses of 16 out of 61 total participants that met criteria. All responses for days of PA per week were coded to use for Chi-square..

Sex	Age	Class	Dual Enrollment	Full Time Freshman	HS Physical Activity	Sport Related	Days of PA per week	Code
Female	19	Freshman	No	Yes	Yes	Yes	3-4 days	3
Female	19	Freshman	No	Yes	Yes	No	3-4 days	3
Female	19	Freshman	No	Yes	Yes	Yes	4-5 days	4
Female	18	Freshman	No	Yes	Yes	Yes	4-5 days	4
Female	18	Freshman	No	Yes	No	No	Around 1-2 days	1
Female	19	Freshman	No	Yes	No	No	0 days	0
Female	18	Freshman	No	No	Yes	Yes	6-7 days	6
Female	19	Freshman	No	Yes	No	No	0 days	0
Female	19	Freshman	No	No	Yes	Yes	3-4 days	3
Female	17	Freshman	No	Yes	No	No	0 days	0
Female	19	Freshman	No	Yes	Yes	Yes	4-5 days	4
Male	19	Freshman	No	Yes	Yes	No	Around 1-2 days	1
Male	18	Freshman	No	Yes	Yes	Yes	6-7 days	6
Male	18	Freshman	No	Yes	Yes	Yes	4-5 days	4
Male	19	Freshman	No	Yes	Yes	Yes	4-5 days	4
Male	19	Freshman	No	Yes	Yes	No	3-4 days	3

Table 2. Continuation of survey responses from Table 1.

PA in a day	Code	First Semester PA in a week	Code	First Semester PA in a day	Code
60-75 minutes	4	3-4 days	3	60-75 minutes	4
20-30 minutes	2	Around 1-2 days	1	60-75 minutes	4
60-75 minutes	4	4-5 days	4	60-75 minutes	4
30-60 minutes	3	4-5 days	4	30-60 minutes	3
30-60 minutes	3	0 days	0	0-10 minutes	1
0-10 minutes	1	3-4 days	3	30-60 minutes	3
60-75 minutes	4	Around 1-2 days	1	20-30 minutes	2
0-10 minutes	1	0 days	0	0-10 minutes	1
30-60 minutes	3	Around 1-2 days	1	30-60 minutes	3
0-10 minutes	1	3-4 days	3	20-30 minutes	2
60-75 minutes	4	6-7 days	6	60-75 minutes	6
20-30 minutes	2	4-5 days	4	30-60 minutes	3
60-75 minutes	4	4-5 days	4	30-60 minutes	3
60-75 minutes	4	3-4 days	3	30-60 minutes	3
60-75 minutes	4	4-5 days	4	60-75 minutes	6
60-75 minutes	4	Around 1-2 days	1	30-60 minutes	3

Table 3. Continuation of survey responses from Table 2.

Barrier in college	Barrier in HS	Transition to college has affected my amount of desired PA
Time barrier	No barriers	Somewhat Agree
Time barrier	Lack of resources	Somewhat Agree
Time barrier	Financial barrier	Somewhat Agree
Time barrier	Lack of resources	Somewhat Agree
Time barrier	Lack of resources	Completely Agree
No barriers	Time barrier	Completely Agree
Time barrier	No barriers	Somewhat Agree
Financial barrier	No barriers	Somewhat Disagree
No barriers	No barriers	Somewhat Agree
Time barrier	Lack of resources	Somewhat Agree
Time barrier	Time barrier	Somewhat Agree
No barriers	No barriers	Completely Agree
Lack of resources	No barriers	Somewhat Agree
No barriers	No barriers	Neither disagree or agree
Time barrier	Time barrier	Neither disagree or agree
Time barrier	Financial barrier	Somewhat Agree

Conclusion

Discussion

Based on the survey responses, our conclusion is that there is no significant effect on PA when transitioning to college in the first semester and only six of the 16 experienced a decline in either days per week of PA or minutes per day of PA when the other variable stayed the same or declined also. Results showed that when in high school the average amount of days of PA was around 3-4 days per week. However, we found that there were some students who carried the same amount of PA into their first semester. Specifically, five out of 16 of the participants responded with their amount of PA of 4-5 days per week is synonymous to college. As well as, three out of 16 of the participants responded with having 3-4 days per week as the same amount in their first semester. This shows that PA was not affected for some participants despite the transition. One participant noted that in high school that they participated in zero amounts of PA per week, but in their first semester PA levels increased to 3-4 days per week. There was also one respondent that stated that they were involved in 6-7 days per week of PA in high school, but PA drastically declined to 1-2 days per week. For that same respondent, time was noted as a barrier in college and no barriers while in high school. That raises the question of whether time management might be an issue for students in their first semester.

We also found that eight out of 16 of the participants participated in around 60-75 minutes of PA in high school, and four of their PA declined to around 30-60 minutes when in college. There was also an increase in the amount of time spent in PA. Specifically, three participants stated they participated in around 30-60 minutes of PA in high school and seven participants stated that they participated in around 30-60 minutes of PA in their first semester. This showed that for some participants their PA levels improved with the transition.

On the basis of the results of this study, the hypothesis presented above was not supported with PA reducing when transitioning to college in the first semester. Statistical analysis using Chi-square rejected the hypothesis due to the insignificance of the p-values (PA minutes per day $p = 0.476$; PA days per week $p = 0.8780$).

Limitations

With all studies there are a few limitations to consider that may potentially have an effect on the results of a study. One limitation that was encountered was that we had a total of 61 survey respondents. However, only 16 of the students met the criteria for data analysis purposes. This limited our study, because if we had more respondents that met criteria, then we may have seen more variation in responses as well as improved the validity of the results due to having more data to analyze.

Another limitation is that this study was completely voluntary. Professors that agreed to release the survey link on their Folio pages for their students did not give students any incentives for participation or gave any indication that participation was mandatory for participation. The survey was released through Folio to hundreds of students, but with it being voluntary only a few students willingly participated on their own discretion. Therefore, if there were incentives attached for students then most likely there would be more participation.

Implications

Investigations of PA at Georgia Southern have important implications for incoming students on campus. We can see from the results that here at Georgia Southern there is an adequate amount of resources for students to be engaged in PA. However, we can take this information from this study to promote more awareness for students who may have a more rigorous experience in their first semester, due to various reasons. This awareness can be

essential to continuing to provide students with the tools, mechanisms, and resources needed to engage in sufficient amounts of physical activity. In addition, we can use results from the study to address the barriers the participants noted in their response. This awareness will be beneficial for incoming students on our campus, because it can give them insight on potential obstacles they may face when aiming for their desired PA goals.

References

- 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. <https://doi.org/10.3200/JACH.52.4.181-188>
- Changmo, C., & Cruz, A. B. (2022). Changes in weight and body composition in physically active first year university students. *Trends in Sport Sciences*, 29(3), 123–131. <https://doi.org/10.23829/TSS.2022.29.3-6>
- Jung, M. E., Bray, S. R., & Ginis, K. A. M. (2008). Behavior change and the freshman 15: Tracking physical activity and dietary patterns in 1st-year university women. *Journal of American College Health*, 56(5), 523–530.
- Leonard, A., & Liu, H.-L. (2022). College freshmen's wellness center usage, physical activity, and symptoms of depression. *Recreational Sports Journal*, 46(2), 166–174.
- Mihalopoulos NL, Auinger P, Klein JD. The Freshman 15: is it real? *J Am Coll Health*. 2008 Mar-Apr;56(5):531-3. doi: 10.3200/JACH.56.5.531-534. PMID: 18400665; PMCID: PMC2532948.
- National Heart, Lung, and Blood Institute. (2022, March 24). What Is Physical Activity? <https://www.nhlbi.nih.gov/health/heart/physical-activity>

Appendix

1. Please indicate your assigned sex at birth:
 - a. Male
 - b. Female
 - c. Intersex
 - d. Prefer not to state
2. Please indicate your age:
 - a.16
 - b. 17
 - c. 18
 - d.19
 - e. 20+
 - d. Prefer not to state
3. Please indicate your classification:
 - a.Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
4. If you are a freshman, please indicate if you participated in dual enrollment in your senior year of high school:
 - a. Yes
 - b. No
 - c. I do not classify as a freshman
5. If you are a freshman, please indicate if you were enrolled as a full time student (12 more credit hours) in your first semester at Georgia Southern:
 - a.Yes
 - b. No
 - c. I do not classify as a freshman
6. If you are a freshman, please indicate if you participated in any physical activity in high school:
 - a.Yes
 - b. No
 - c. Prefer not to state
 - d. I do not classify as a freshman
7. If you stated yes to the previous question, please indicate if the physical activity was sport related:
 - a.Yes
 - b. No
 - c. Prefer not to state

8. If you are a freshman, please estimate how much physical activity in high school that you participated in about every week (eq. Can be through sports, fitness workouts) :

a. 0 days b. Around 1-2 days c. 3-4 days d. 4-5 days e. 6-7 days

f. I prefer not to state g. I am not a freshman

9. If you are a freshman, please estimate how much physical activity in high school you participated in a day (eq. Can be through sports, fitness workouts, etc.) :

a. 0-10 minutes b. 20-30 minutes c. 30-60 minutes. d. 60-75 minutes

e. I prefer not to state f. I am not a freshman

10. If you are a freshman, please estimate how much physical activity in your first semester of college you participated in about every week (eq. Can be through sports, fitness workouts) :

a. 0 days b. Around 1-2 days c. 3-4 days d. 4-5 days e. 6-7 days f. I

prefer not to state g. I am not a freshman

11. If you are a freshman, please estimate how much physical activity in your first semester of college you participated in a day (eq. Can be through sports, fitness workouts) :

a. 0-10 minutes b. 20-30 minutes c. 30-60 minutes. d. 60-75 minutes

e. I prefer not to state f. I am not a freshman

12. Please indicate the highest rank barrier/ IF there is any, that you feel has/ or may have impacted your amount of physical activity in your first semester of college:

a. Time Barrier b. Lack of resources c. Financial barrier d. No Barriers

13. Please indicate the highest rank barrier/ IF there is any, that you feel has/ or may have impacted your amount of physical activity in high school:

a. Time Barrier b. Lack of resources c. Financial barrier d. No Barriers

14. Please indicate if you feel like the transition to college has affected your amount of desired physical activity participation:

a. Completely Agree b. Somewhat Disagree c. Neither disagree or agree d. Somewhat Agree e. Prefer not to answer