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## **Be Your Best S.E.L.F.**

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## 1. ABSTRACT

The goal of our thesis was to use our knowledge as Exercise Science students and personal trainers to improve the health of an underserved population in South Carolina. We created a voluntary exercise and self-defense program for the girls residing at Epworth Children's Home. The program began on October 1, 2018 and concluded on April 29, 2019 with data collecting taking place between October 8th and March 18th. Every other week SASS Defense taught their self-defense program, and on the alternating weeks we facilitated an exercise class. The program also included a mentorship aspect to create a supportive social environment that encouraged participation, and presentations from outside speakers and guests concerning topics related to self-worth, self-esteem, and physical and mental health. Through the use of surveys that were created by the researchers we hoped to find an improvement in the self-esteem self-worth, and self-perception of physical health of the girls who participated in our program. Survey data was analyzed, and results determined that perceptions of physical health increased over the course of the program, but no conclusion was made on feelings of self-worth due to conflicting data.

## 2. INTRODUCTION

As Exercise Science students, we have an obvious passion for the human body and the positive effects that exercise provides. In creating our thesis, we wanted to find a way to share our passion for health and exercise and test the beneficial effects of exercise on a population. We wanted to target a population that would reap the most benefits of our passion and knowledge, therefore we decided to focus on improving the health outcomes of an underserved population. In searching for this population, we first decided to focus on women because "South Carolina has a very interesting culture because women, in too many circumstances, are seen as second-class citizens" (Robinson, 2016). In the wake of all that is occurring in this country with women's rights issues we decided it would be appropriate to start our research here.

A major factor of women's health that cannot be ignored is domestic violence. Domestic violence is an issue that is widespread in the entire United States but is especially an epidemic here in South Carolina. According to a study done through the Violence Policy Center (VPC), South Carolina was ranked fifth in the nation for its amount of female homicides (Violence Policy Center, 2017). Domestic violence is such a huge issue because "the impact of such violence goes far beyond the immediate harm caused, affecting all aspects of a women's future health" (World Health Organization, 2015). The World Health Organization (WHO) conducted a study in 2015 that assessed domestic violence and women's health throughout the world. The study included 24,000 women in 10 countries representing diverse cultural settings. "In the majority of settings (except Japan, Samoa, and urban United Republic of Tanzania), women who had ever experienced physical or sexual partner violence, or both, were significantly more likely to report poor or very poor health than women who had never experienced partner violence" (World Health Organization, 2015). Physical and/or sexual partner violence creates health problems that span way beyond physical pain. A study done in the United States and Canada reported that health problems such as "injury, chronic pain, gastrointestinal and gynecological signs including sexually-transmitted diseases, depression, and post-traumatic stress disorder are well documented by controlled research in abused women in various settings" (Campbell, 2002). These studies exemplify the large array of negative health effects that domestic violence can have on women.

The negative emotional side effects of domestic violence are an area that we believe we can influence with exercise. A well-known benefit of exercise is its effect on mental health. Exercise has been shown to improve "mental health by reducing anxiety, depression, and negative mood and by improving self-esteem and cognitive function" (Sharman, Madaan, & Petty, 2006).

Exercise has also been found to “alleviate symptoms such as low self-esteem and social withdrawal” (Sharman, Madaan, & Petty, 2006). Domestic violence takes a serious toll on mental health which in turn has an overall negative effect on physical health. We believe that by exposing women who have been subjected to domestic abuse to exercise we can help improve their mental and physical health and can leave them feeling empowered and more apt to conquer the adversity they are facing.

A population that is often exposed to domestic violence is children from broken homes. Children who come from broken homes are more at risk for serious health issues than children who come from stable family units. Studies have demonstrated that “children from broken homes are more likely to suffer abuse than those whose parents remain together.” A study on child cruelty conducted in 2011 in the United Kingdom determined that “family breakdown was a risk factor for abuse”. The report found that “those with separated parents reported significantly higher levels of physical violence, coerced sexual acts, regular verbal aggression and parental lack of care and supervision during childhood” (National Society for the Prevention of Cruelty to Children, 2011). Being at higher risk for domestic and sexual abuse puts children at higher risk of developing other health conditions as well. Research indicates that “between 3.3 million and 10 million children in the United States are exposed to domestic violence each year”. Over a decade of empirical studies indicate that this exposure “can have significant negative effects on children’s behavioral, emotional, and cognitive development”. The effects of domestic violence may include “behavioral problems such as aggression, phobias, insomnia, low self-esteem, and depression” (Carter, Weithorn, & Behrman, 1999).

This research lead to our decision to focus our efforts on the young women at Epworth’s Children Home, as they are an at-risk population that we believed we could serve. Children are placed in Epworth as a “result of a fractured family system where children have experienced abuse, neglect or significant loss” (Epworth Children’s Home, 2012). Not only are the children at Epworth at higher risk for having lower self-esteem due to their estranged family situations, they are less likely to participate in exercise as well. Research by Gustafson & Rhodes in 2006 concluded that “children are more active if parents provide encouragement and transportation and if their parents are active with them” (Ward, Saunders, & Pate, 2007). Since the children at Epworth are missing this encouragement from their parents, they are less likely to partake in exercise and are missing out on the potential benefits of physical activity. These factors combined provided justification to focus on this population in order to achieve our goal of giving an underserved population access to resources and fitness instruction that they normally would not receive.

Our research question for this project was, will an exercise and self-defense program increase self-esteem, self-worth, and perceptions of physical health in this population? We hypothesized that final surveys would show higher scores of self-esteem and self-worth and lower scores of negative self-image when compared to initial surveys.

### **3. METHODOLOGY**

#### 3.1 Program Description

After deciding on our target population, we began to create our program. We named the program Be Your Best S.E.L.F. The acronym stands for strength, energy, life skills, fitness which are the core principles/goals of the program. Be Your Best Self is a weekly program held at Epworth for the teenage girls and young women that reside there. There

are about 30 girls ages 12-17 at Epworth that were our target population. The weekly program consisted of resources that are normally not available to this population. Every other week we used our personal training experience to offer group exercise sessions to the girls. On the weeks that we did not offer the group exercise part of the program, SASS Defense offered their self-defense instruction to the girls. The program was held on Monday nights from 7 to 8pm in the basketball gym at Epworth.

We chose to include self-defense in our program specifically to aid in the empowerment of these girls and young women. Through self-defense, we hoped that if these girls ever find themselves in an abusive situation they feel like they can physically defend themselves. Many women who are in abusive situations find it necessary to buy guns to protect themselves from their abuser (Violence Policy Center, 2017). This is an alarming fact because a study found that when there was a gun in the home, the homicide rate against women tripled (Violence Policy Center, 2017). Our goal was to hopefully prevent some of this violence from ever occurring. Self-defense also incorporates physical activity which has positive effects on mental health.

A well-known benefit of exercise is its effect on mental health. A study found that vigorous exercise can “improve self-image, social skills, and cognitive functioning and reduce the symptoms of anxiety” (Taylor, Sallis, & Needle, 1985). The girls and young women residing at Epworth most likely have negative emotional side effects from the broken homes they come from and the potentially abusive situations they have been in. We hoped to alleviate some of these negative feelings through our exercise program. Exercise has been shown to improve “mental health by reducing anxiety, depression, and negative mood and by improving self-esteem and cognitive function” (Sharman, Madaan, & Petty, 2006). Exercise has also been found to “alleviate symptoms such as low self-esteem and social withdrawal” (Sharman, Madaan, & Petty, 2006). We hoped to introduce the girls to exercise programs that they may not have experienced before. In order to do this, we invited guest instructors for some of the exercise sessions to expose the girls to new activities. We included both yoga and Zumba sessions in the program. The hope was that each girl would find a type of physical activity she enjoyed and would start using exercise as an outlet for relieving stress.

There are many factors that influence physical activity and therefore physical activity programs should attempt to address some combination of physiological, environmental, and psychosocial factors in order to get youth involved (Ward, Saunders, & Pate, 2007). We could not change the physical environment where the program would be held since the girls are required to be at Epworth after 4pm each day, so we wanted to focus on the psychosocial factors and create a social environment that would encourage exercise participation. “The social environment, especially the influence of family and peers, has also been shown to be an important influence on physical activity in children and adolescents” (Ward, Saunders, & Pate, 2007). Since the influence of family was absent in our situation, we had to create a positive influence from peers to encourage participation in the program. To foster this positive social environment, we aimed to develop a mentorship aspect of our program by partnering with USC female athletes. This idea was fueled by the theoretical construct that social environment, social norms, and social support/social networks influence exercise behavior. Methods to increase physical activity participation based on this theory are modeling: participants see others who are physically active and are rewarded for it, making physical activity the “cool” thing to do, and

developing social support from new sources (Ward, Saunders, & Pate, 2007). SASS Defense created a flyer that was distributed to all University of South Carolina women's athletic teams to recruit mentors for the program (see appendix A). Members of the women's swim and dive team and the women's tennis team were very interested in our program and became this new source of social support that enforced the idea that physical activity is "cool," fun, and rewarding.

To continue building the social network that would support our program we included a brief educational presentation from the Sexual Trauma Service of the Midlands, also known as STSM. This nonprofit offers resources to survivors of sexual assault and abuse and also offers an assault prevention curriculum to the community. We had STSM come to Epworth and speak to the girls about their job within the community to show the girls that there are resources for them if they ever encounter sexual assault or abuse. We also had a speaker from Lighthouse for Life attend a program session and give an educational talk on human trafficking. We chose to have this speaker talk to the Epworth girls because a lot of victims of human trafficking have "lived a life with compounding vulnerabilities like: trauma, abuse, neglect, disability, violence, family breakdown, homelessness, poverty, or a combination of many factors" (Alliance, 2019). The girls at Epworth have one or multiple of these factors, which could put them at a greater risk of being victims of human trafficking. We hoped to increase participants' knowledge of this issue and reinforce the message that they should value their self-worth and never let others tell them they are worthless and persuade them into situations that degrade their self-esteem. To expand on this support network even further we had mentors Steven and Jessica attend two program sessions. One session was dedicated to healthy relationships, and the second was dedicated to goal setting. Steven and Jessica are an African American couple. Because a large percentage of the girls living at Epworth are African American, we thought that Steven and Jessica would be relatable individuals who could give a great example of a healthy and happy relationship that the girls could use as a model for their future relationships. We believed that these speakers were assets to our program and promulgated a positive social environment that encouraged participation and reinforced the messages of our program.

T-shirts were also created and distributed to program participants to facilitate a sense of community and belonging that we hoped would increase participation. The t-shirts had "Be Your Best S.E.L.F" and the S.E.L.F. acronym printed on the back with a lotus flower. We chose to use a lotus flower as the program's symbol because of its meaning in the Buddhist and Egyptian culture. The lotus flower has roots based in mud and is submerged in murky, dirty river water every night. However, it miraculously re-blooms every morning without any dirt on its petals. The lotus flower is a symbol of rebirth, suggesting that something beautiful can emerge even from unpleasant environments. This symbol worked harmoniously with the concept of our program, that there can be beautiful and positive outcomes even from undesirable situations. A graphic of the t-shirts can be found in appendix B.

Be Your Best S.E.L.F. began on October 1st with an introduction session. A week prior to the introduction session we handed out flyers to each cottage at Epworth's campus to encourage the girls to attend. The flyer that was distributed can be seen in appendix C. At the introduction session researchers explained the exercise portion of the program and SASS Defense explained the self-defense portion of the program. October 8th was the first

exercise session and October 15th was the first self-defense session. The program alternated in this pattern for the remainder of the semester. December 10th was a Christmas party and marked the end of the first semester. The program started up again on January 14th. The program was re-explained because a lot of new girls were present, and girls participated in a short workout. The program continued until April 29th although data collection was stopped on March 18th, so researchers had time to analyze data. The full schedule of the program can be seen in Appendix D. Appendix E shows the detailed plan of each exercise session.

### 3.2 Purpose of Program

Our research question for this program was: Will exercise and self-defense increase self-esteem, self-worth, and perceptions of physical health in this population? Through this thesis project we expected to create a program that enhanced the health of an underserved population in South Carolina. We expected that through our outreach self-defense classes and personal training sessions we will improve the mental health of the girls and young women that are residing at Epworth Children's Home and induce an increased sense of empowerment and self-esteem in this population. The staff at Epworth "work together to break the cycle of abuse, neglect and shame and replace it with an opportunity for each child to live a life of self-respect, responsibility and productivity" and we hoped that our program would support and propel this mission at Epworth (Epworth Children's Home, 2012). We anticipated that the girls and young women who participated in our classes will see the value of exercise and how it can be a propelling factor in increasing empowerment and self-esteem. We anticipated that the girls and young women who participated in our program would report augmented self-esteem and would report feeling better about their overall health. We also hoped that if our results were positive, it would inspire others in the personal training and exercise science field to reach out to underserved populations and help them reap the benefits of physical activity.

### 3.3 Research Methods

We used a mixed methods study design to answer/address the research questions. Quantitative methods were used to evaluate significant correlations between program interventions and feelings of self-worth, self-esteem, and perceptions of physical health. We recognized the possibility that quantitative research may not give expected results because of the complications that accompany human research. Because of this limitation we also collected qualitative data to see if it provided any different results than the quantitative data.

#### 3.31 Quantitative Research Instruments

The quantitative research aspect of this project was measured through the use of surveys. The goal of these surveys was to gauge the participants' general feelings of empowerment, strength, mental health status, etc. to make conclusions on overall feelings of self-worth, self-esteem, and perceptions of physical health. Surveys were anonymous to protect the participants' privacy. Each participant was assigned a number and was asked to record that number on the top of their survey. Participants were also asked to record their age on the survey. The survey contained statements concerning self-worth and physical fitness, and participants were asked

to circle their level of agreement ranging from strongly agree to strongly disagree for each statement. Each level of agreement was given a different numeric value. Questions 1-5 were positive statements about self-worth. Questions 6-10 were positive statements about perceived physical health and strength. Questions 11-15 were negative statements about self-worth. We expected that levels of agreement would increase for statements 1-10 and levels of agreement would decrease for statements 11-15. The survey also contained three yes/no questions to gauge the participants' level of physical activity and knowledge of self-defense. Finally, there were six true/false questions that gauged the participants' knowledge of sexual and domestic violence. All questions except the six true/false questions were created by the researchers. The six questions that measured knowledge of sexual assault were from the SASS instructors. We only analyzed the initial answers for questions 16-24 to evaluate initial levels of physical activity, knowledge of self-defense and knowledge of sexual and domestic violence. See survey in Appendix F.

### 3.32 Qualitative Research Instruments

Due to the instability of our population size and participation in completing surveys we also utilized qualitative research instruments. Each week after the session we would debrief about how the intervention went. We typed notes in a Word document to keep track of what was accomplished/discussed at each session and how the participants responded to it. These notes give some insight into how the participants were responding to the program. See this qualitative research in appendix G.

### 3.4 Data Management

Any girl that attended the program was asked to complete the survey. The same survey was given at each consecutive group exercise session (every other week). Each survey was used to quantify the girls' general self-confidence level. The survey was given biweekly, so we could measure their change in self-esteem over time. We also chose to administer the survey biweekly because each girl's length of stay at Epworth is fairly unknown. Sometimes the girls receive only a few days notice before they are leaving Epworth. Due to this instability, we wanted to take measures frequently to ensure we would have at least an initial and final survey for each participant. We refrained from administering the survey every week to avoid burnout. We did not want to inundate the girls with a survey every session and frustrate them with the task of completing the survey after every meeting.

The surveys were printed out and given to the girls to fill in with pen/pencil. The results of the surveys were then copied into a Microsoft Excel document. A codebook was made to later analyze the data from the surveys. See codebook in appendix H. Every answer to the questions was given a numerical value. Strongly agree was given the value 4, agree somewhat was 3, disagree somewhat was 2, and strongly disagree was 1. For yes/no questions concerning physical activity levels yes was assigned the value 2 and no the value 1. For the true/false questions about sexual and domestic violence true was assigned the value 2 and false was the value 1.

The excel document was then imported into software package R to analyze the data (R Core Team, 2013). First, descriptive statistics were run on the data to determine average



age of participants and trends in question answers. Next, variables were re-coded to reflect different levels of analysis. See appendix I for the list of R program codes. Questions 1-5 were re-coded to reflect analysis of the construct “positive self-worth”. Questions 6-10 were re-coded to reflect analysis of the construct “physical health”. Questions 11-15 were re-coded to reflect analysis of the construct “negative self-worth”. The sum, mean scores and standard deviation of each construct were calculated and recorded.

The data was then re-coded and subsetted based on the dates the survey was given. The data was split into two different halves due to there being a month break in the program, a slight population change and an adjustment to programming halfway through the data collection. The first survey given was re-coded as the first baseline date and the three dates following the baseline date were re-coded and combined to represent the follow up data. The three follow up dates were combined due to their small sample sizes. These four dates represented the entirety of the first semester and first half of the program. The second half of the program was then re-coded and subsetted similarly. The first date of the semester was combined with the second date to create the baseline measure for this semester. The two dates were combined due to the small sample size of the second date the survey was taken and because the first and second dates both occurred in January while the third date wasn’t measured until late February. The final date of data measurement was then re-coded as the follow up data for this semester. The mean scores and standard deviation of each of the three constructs, “positive self-worth”, “physical health”, and “negative self-worth”, were then calculated and recorded for the baseline measure and the follow up measure for each half of the program.

The researchers set a p-value equal to 0.05 and then used paired T-tests to detect potential differences in the means of the constructs, “positive self-worth”, “physical health” and “negative self-worth”. The T-tests were done to detect differences in the means of the constructs of the baseline measure and follow up measure for each half of the program. A final T-test was done to compare the initial baseline measure of the program to the final follow up measure to detect differences in the means of the constructs across the entire program. All data was then recorded and analyzed.

#### 4. RESULTS

Our research goal for this project was to see if the exercise and self-defense program implemented would increase self-worth and perceptions of physical health and decrease feelings of negative self-worth. Surveys were given every couple of weeks during the program and the results can be seen in the tables below. Table 1 shows the age distribution of the girls who took the surveys over the entire program. Questions 1 through 15 were split into three measurable constructs. Table 2 shows the distribution of answers for each of the questions that aim to measure positive self-worth, Table 3 shows the distribution of answers for physical health and Table 4 shows the distribution of answers for negative self-worth across the entire program. Table 5 shows the distribution of answers from questions 16-18 on the survey which aimed to determine the past fitness history of all the girls who took the surveys. Table 6 shows the distribution of correct answers from questions 19-24 that aimed to determine the girls’ initial knowledge of sexual violence. The question scores were then combined into the three different constructs named above. Table 7 shows the means of the sums of the survey question constructs. T-tests were then run to detect differences in age and the survey questions and the p-value was set to 0.05. Table 8 shows

the results from the t-tests for the first half of the program, Table 9 shows the results from the t-tests for the second half of the program and Table 10 shows the results from the t-tests across the entire program.

Table 1: Frequency Distributions for Age of the Epworth Children's Home Respondents

| Variables | Responses<br>(n=68) |       | M     | SD   |
|-----------|---------------------|-------|-------|------|
|           | N                   | (%)   |       |      |
| Age       |                     |       | 14.58 | 1.12 |
| 12 years  | 1                   | 1.5   |       |      |
| 13 years  | 11                  | 16.1  |       |      |
| 14 years  | 17                  | 25.0  |       |      |
| 15 years  | 23                  | 33.9  |       |      |
| 16 years  | 9                   | 13.2  |       |      |
| 17 years  | 3                   | 4.4   |       |      |
| Unknown   | 4                   | 5.9   |       |      |
| Total     | 68                  | 100.0 |       |      |

*NOTE:* M= mean; SD= standard deviation

Table 1 shows the frequency distribution, mean and standard deviation for age for all of the surveys given at Epworth Children's Home. The ages ranged from 12 years to 17 years. The mean age shown above was 14.58 years  $\pm$  1.12 years although not all respondents provided their age.

Table 2. Frequency Distributions of the Survey Questions that Measured “Positive Self-Worth” from the Epworth Children’s Home Respondents

| Variables  | N* | (%)   |
|--|----|-------|
| I feel that I am a person of worth (I matter).       |    |       |
| Strongly Agree                                       | 48 | 71.6  |
| Agree Somewhat                                       | 13 | 19.4  |
| Disagree Somewhat                                    | 1  | 1.5   |
| Strongly Disagree                                    | 5  | 7.5   |
| Total  | 67 | 100.0 |
| I feel that I have a number of good qualities.       |    |       |
| Strongly Agree                                       | 49 | 72.1  |
| Agree Somewhat                                       | 13 | 19.1  |
| Disagree Somewhat                                    | 3  | 4.4   |
| Strongly Disagree                                    | 3  | 4.4   |
| Total  | 68 | 100.0 |
| I am able to do things as well as most other people. |    |       |
| Strongly Agree                                       | 43 | 63.2  |
| Agree Somewhat                                       | 18 | 26.5  |
| Disagree Somewhat                                    | 6  | 8.8   |
| Strongly Disagree                                    | 1  | 1.5   |
| Total  | 68 | 100.0 |
| I take a positive attitude toward myself.            |    |       |
| Strongly Agree                                       | 45 | 67.2  |
| Agree Somewhat                                       | 11 | 16.4  |
| Disagree Somewhat                                    | 7  | 10.4  |
| Strongly Disagree                                    | 4  | 6.0   |
| Total  | 67 | 100.0 |

Table 2. Frequency Distributions of the Survey Questions that Measured “Positive Self-Worth” from the Epworth Children’s Home Respondents (Continued)

|   |    |      |
|---|----|------|
| On the whole, I am satisfied with myself. |    |      |
| Strongly Agree                            | 44 | 64.7 |
| Agree Somewhat                            | 12 | 17.6 |
| Disagree Somewhat                         | 8  | 11.8 |
| Strongly Disagree                         | 4  | 5.9  |
| Total                                     | 68 | 100  |

*\*N varies due to missing responses*

Table 2 above shows the frequency distributions of questions 1 through 5 on the survey. These questions were aimed to measure positive self-worth in the respondents. These frequencies represent the respondents’ answers over the course of the entire program. Overall, the responses were grouped mainly in the “Strongly Agree” and “Agree Somewhat” categories which indicates an overall high measure of positive self-worth over the entire program.

Table 3. Frequency Distributions of the Survey Questions that Measured “Physical Health” from the Epworth Children’s Home Respondents

| Variables   | N* | (%)   |
|---|----|-------|
| I feel like I would be able to physically defend myself if I physically had to. |    |       |
| Strongly Agree  | 51 | 76.1  |
| Agree Somewhat  | 12 | 17.9  |
| Disagree Somewhat   | 2  | 3.0   |
| Strongly Disagree   | 2  | 3.0   |
| Total   | 67 | 100.0 |
| I feel like I am physically fit.  |    |       |
| Strongly Agree  | 28 | 42.4  |
| Agree Somewhat  | 20 | 30.4  |
| Disagree Somewhat   | 10 | 15.1  |
| Strongly Disagree   | 8  | 12.1  |
| Total   | 66 | 100.0 |

Table 3. Frequency Distributions of the Survey Questions that Measured “Physical Health” from the Epworth Children’s Home Respondents (Continued)

|  |    |       |  |
|--|----|-------|--|
| I use exercise as a way to relieve stress and relax. |    |       |  |
| Strongly Agree                                       | 31 | 45.6  |  |
| Agree Somewhat                                       | 8  | 11.8  |  |
| Disagree Somewhat                                    | 8  | 11.8  |  |
| Strongly Disagree                                    | 21 | 30.8  |  |
| Total  | 68 | 100.0 |  |
| I enjoy exercising.                                  |    |       |  |
| Strongly Agree                                       | 28 | 42.4  |  |
| Agree Somewhat                                       | 17 | 25.8  |  |
| Disagree Somewhat                                    | 7  | 10.6  |  |
| Strongly Disagree                                    | 14 | 21.2  |  |
| Total  | 66 | 100.0 |  |
| I consider myself strong.                            |    |       |  |
| Strongly Agree                                       | 42 | 61.8  |  |
| Agree Somewhat                                       | 17 | 25.0  |  |
| Disagree Somewhat                                    | 6  | 8.8   |  |
| Strongly Disagree                                    | 3  | 4.4   |  |
| Total  | 68 | 100   |  |

*\*N varies due to missing responses*

Table 3 above shows the frequency distributions of questions 6 through 10 on the survey. These questions were aimed to measure how the respondents view their physical health and physical activity. These frequencies represent the respondents’ answers over the course of the entire program. Overall, the responses were grouped mainly in the “Strongly Agree” and “Agree Somewhat” categories which indicates an overall high opinion of the respondents’ physical health over the entire program.

Table 4. Frequency Distributions of the Survey Questions that Measured “Negative Self-Worth” from the Epworth Children’s Home Respondents

| Variables   | N* | (%)   |
|---|----|-------|
| All in all, I am inclined to feel that I’m a failure. |    |       |
| Strongly Agree  | 14 | 20.6  |
| Agree Somewhat  | 9  | 13.2  |
| Disagree Somewhat                                     | 11 | 16.2  |
| Strongly Disagree                                     | 34 | 50.0  |
| Total   | 68 | 100.0 |
| I feel I do not have much to be proud of.             |    |       |
| Strongly Agree  | 15 | 22.1  |
| Agree Somewhat  | 12 | 17.6  |
| Disagree Somewhat                                     | 7  | 10.3  |
| Strongly Disagree                                     | 34 | 50.0  |
| Total   | 68 | 100.0 |
| I wish I could have more respect for myself.          |    |       |
| Strongly Agree  | 21 | 31.3  |
| Agree Somewhat  | 4  | 6.0   |
| Disagree Somewhat                                     | 7  | 10.4  |
| Strongly Disagree                                     | 35 | 52.3  |
| Total   | 67 | 100.0 |
| I certainly feel useless at times.                    |    |       |
| Strongly Agree  | 17 | 25.0  |
| Agree Somewhat  | 11 | 16.2  |
| Disagree Somewhat                                     | 7  | 10.3  |
| Strongly Disagree                                     | 33 | 48.5  |
| Total   | 68 | 100.0 |

Table 4. Frequency Distributions of the Survey Questions that Measured “Negative Self-Worth” from the Epworth Children’s Home Respondents (Continued)

|  |    |      |
|--|----|------|
| At times I think that I am no good at all. |    |      |
| Strongly Agree                             | 20 | 29.9 |
| Agree Somewhat                             | 8  | 11.9 |
| Disagree Somewhat                          | 6  | 9.0  |
| Strongly Disagree                          | 33 | 49.2 |
| Total                                      | 67 | 100  |

*\*N varies due to missing responses*

Table 4 above shows the frequency distributions of questions 11 through 15 on the survey. These questions were aimed to measure negative self-worth in the respondents. These frequencies represent the respondents’ answers over the course of the entire program. Overall, the responses were grouped mainly in the “Disagree Somewhat” and “Strongly Disagree” categories which indicates an overall low measure of negative self-worth over the entire program.

Table 5. Frequency Distributions of Initial Measures of Past Fitness Experience from the Epworth Children’s Home Respondents

| Variables  | N* | (%)   |
|--|----|-------|
| Have you ever taken a self-defense class?                |    |       |
| Yes  | 8  | 21.6  |
| No   | 29 | 78.4  |
| Total  | 37 | 100.0 |
| Do you exercise on a regular basis? (3-5 times per week) |    |       |
| Yes  | 12 | 32.4  |
| No   | 25 | 67.6  |
| Total  | 37 | 100.0 |
| Do you participate in organized sports?                  |    |       |
| Yes  | 12 | 32.4  |
| No   | 25 | 67.6  |
| Total  | 37 | 100.0 |

*\*N is based on initial surveys given*

Table 5 above shows the frequency distributions of questions 16 through 18 on the survey. These questions were aimed to indicate to the researchers the respondents’ history and current level of

exercise and self-defense. These frequencies represent the respondents' answers from their initial survey given. The responses indicate that the majority of the respondents did not take a self-defense class prior to this program and most of the respondents were not regularly physically active.

Table 6. Frequency Distribution of Knowledge Based Sexual Violence Questions from Epworth Children's Home Respondents

| Variables  | N* | (%)   |
|--|----|-------|
| In the U.S. one in three women experience some form of sexual violence in their lifetime.      |    |       |
| True**   | 40 | 90.9  |
| False  | 4  | 9.1   |
| Total  | 44 | 100.0 |
| One in five women will be raped at some point in their lives.                                  |    |       |
| True**   | 39 | 88.6  |
| False  | 5  | 11.4  |
| Total  | 44 | 100.0 |
| In eight out of ten cases of rape, the victim knew the perpetrator.                            |    |       |
| True**   | 36 | 83.7  |
| False  | 7  | 16.3  |
| Total  | 43 | 100.0 |
| One in four girls will be sexually abused before they turn 18 years old.                       |    |       |
| True**   | 36 | 81.8  |
| False  | 8  | 18.2  |
| Total  | 44 | 100.0 |
| One in three women have been victims of some sort of physical violence by an intimate partner. |    |       |
| True**   | 37 | 84.1  |
| False  | 7  | 15.9  |
| Total  | 44 | 100.0 |



Table 6. Frequency Distribution of Knowledge Based Sexual Violence Questions from Epworth Children's Home Respondents (Continued)

|  |    |       |
|--|----|-------|
| In South Carolina, the femicide rate (when a woman is murdered by a man) is often over twice the national average. |    |       |
| True**   | 32 | 74.4  |
| False  | 11 | 25.6  |
| Total  | 43 | 100.0 |

*\*N is based on initial surveys given and varies due to missing responses*

*\*\*Indicates a correct answer*

Table 6 above shows the frequency distributions of questions 19 through 24 on the survey. These questions were aimed to indicate to the researchers the respondents' initial knowledge of sexual violence. These frequencies represent the respondents' answers from their initial survey given. The responses indicate that the majority of the respondents had a high knowledge of sexual violence at the beginning of the program.

Table 7. Mean and Standard Deviation of Questions Combined to Represent Constructs

| Variables                             | M     | SD   |
|---------------------------------------|-------|------|
| Positive Self-Worth (Questions 1-5)   | 17.58 | 3.53 |
| Physical Health (Questions 6-10)      | 15.81 | 3.62 |
| Negative Self-Worth (Questions 11-15) | 10.56 | 5.80 |

*NOTE: M= mean; SD= standard deviation*

Table 7 above shows the mean and standard deviations for the questions that were divided into new measurable constructs for the entire program. Questions 1-15 of the survey were combined into three groups of five questions in order to measure positive self-worth, physical health and negative self-worth, respectively. The five questions in each construct were added together so that 5 is the lowest score and 20 is the highest score.

Table 8. Differences of Variables from the First Half of Be Your Best S.E.L.F.

| Variables                     | Baseline 1 |      | Follow Up 1 |      | T value | P value |
|-------------------------------|------------|------|-------------|------|---------|---------|
|                               | M          | SD   | M           | SD   |         |         |
| Age                           | 14.50      | 1.58 | 15.80       | 0.79 | -7.71   | <.0001* |
| Positive Self-Worth Questions | 17.75      | 3.44 | 18.50       | 3.06 | -1.86   | 0.065   |
| Physical Health Questions     | 14.83      | 4.30 | 17.64       | 3.20 | -6.26   | <.0001* |
| Negative Self-Worth Questions | 12.15      | 5.51 | 9.36        | 5.57 | 4.43    | <.0001* |

NOTE: M= mean; SD= standard deviation

\*statistically significant at  $\alpha < 0.05$

Table 8 above shows the comparison of values from the baseline and follow up data for the first half of the program. As stated in the table, the p-value was set at 0.05 so statistical significance is detected when  $\alpha$  is less than that value. After performing t-tests, the results provided show that there was a significant increase in age from baseline to the follow up data. The positive self-worth question scores did not change significantly. The physical health question scores increased significantly the negative self-worth question scores decreased significantly from baseline to follow up.

Table 9. Differences of Variables from the Second Half of Be Your Best S.E.L.F.

| Variables                     | Baseline 2 |      | Follow Up 2 |      | T value | P value |
|-------------------------------|------------|------|-------------|------|---------|---------|
|                               | M          | SD   | M           | SD   |         |         |
| Age                           | 14.31      | 0.87 | 14.33       | 0.98 | -0.23   | 0.82    |
| Positive Self-Worth Questions | 16.88      | 4.06 | 17.17       | 3.81 | -0.75   | 0.45    |
| Physical Health Questions     | 13.73      | 3.37 | 17.36       | 2.73 | -11.15  | <.0001* |
| Negative Self-Worth Questions | 9.36       | 6.02 | 11.58       | 6.11 | -3.49   | 0.0006* |

NOTE: M= mean; SD= standard deviation

\*statistically significant at  $\alpha < 0.05$

Table 9 above shows the comparison of values from the baseline and follow up data for the second half of the program. As stated in the table, the p-value was set at 0.05 so statistical significance is detected when  $\alpha$  is less than that value. After performing t-tests, the results provided show that there was no significant change in age from baseline to the follow up data. The positive self-worth question scores also did not change significantly. The physical health question scores increased significantly the negative self-worth question scores increased significantly from baseline to follow up.

Table 10. Differences of Variables from the Entire Be Your Best S.E.L.F. Program

| Variables                     | Baseline 1 |      | Follow Up 2 |      | T value | P value |
|-------------------------------|------------|------|-------------|------|---------|---------|
|                               | M          | SD   | M           | SD   |         |         |
| Age                           | 14.50      | 1.58 | 14.33       | 0.98 | 1.03    | 0.307   |
| Positive Self-Worth Questions | 17.75      | 3.44 | 17.17       | 3.81 | 1.42    | 0.158   |
| Physical Health Questions     | 14.83      | 4.30 | 17.36       | 2.73 | -5.94   | <.0001* |
| Negative Self-Worth Questions | 12.15      | 5.51 | 11.58       | 6.11 | 0.90    | 0.369   |

NOTE: M= mean; SD= standard deviation

\*statistically significant at  $\alpha < 0.05$

Table 10 above shows the comparison of values from the baseline and follow up data for the entire program. As stated in the table, the p-value was set at 0.05 so statistical significance is detected when  $\alpha$  is less than that value. After performing t-tests, the results provided show that there was no significant change in age from baseline to the end of the program. The positive self-worth question and negative self-worth scores also did not change significantly. However, the physical health question scores did increase significantly from baseline to the end of the program.

#### 4.1 Qualitative Results

Our qualitative data gave us some insights to how participants reacted to the program. Our journal showed that participation fluctuated from week to week, but overall participation increased as the program went on. We also noted that the participants seemed to favor self-defense to exercise days and were very receptive to all of the speakers that presented during the program. Participants also responded very well to the mentors, they seemed to participate more when the USC athletes were present and opened up to them about some of their personal issues and life situations.

## 5. DISCUSSION

This program was created to determine if exercise and self-defense could increase feelings of self-esteem, self-worth, and self-perceptions of physical health in girls ages 12-17 at Epworth children's home who represent an at-risk and underserved population in South Carolina. We hypothesized that final surveys would show higher scores of self-esteem and self-worth and lower scores of negative self-image when compared to initial surveys. We hypothesized that levels of agreement would increase for statements 1-10, the positive self-worth and physical health constructs, and levels of agreement would decrease for statements 11-15, negative self-worth, on the survey administered.

The data was split into two halves to be analyzed. Based on the first half of the program, the results above show that the positive self-worth questions did not change significantly between the first baseline measure and follow up measure. This did not support the researchers' hypothesis that feelings of self-worth would improve with the implementation of a comprehensive exercise and self-defense program. In contrast, the age of participants, physical health questions and negative self-worth questions all changed significantly from baseline to the end of the first half of the program. Age increased from baseline to the end of the first half of the program which could have led to discrepancies in the data since the population clearly changed. The scores of the physical health questions increased from baseline to follow up which indicates that the respondents looked at their physical health more positively after engaging in the program. This supports the hypothesis that physical health and body image will improve after implementation of an exercise program. The scores of the negative self-worth questions decreased from baseline to follow up which indicates that negative feelings of self-worth decreased over the first half of the program. This also supports the researchers' hypothesis that feelings of self-worth will improve after implementation of an exercise program. Although some of the data does support the researchers' hypotheses, these results may not be entirely accurate due to the manner of splitting the dates up to categorize them as "baseline" versus "follow up" data. The first date the survey was given was a true baseline measure but the following three dates the surveys were taken were combined to represent the "follow up" data due to small sample size. Since there was not a lot of time between initial and follow up data, the girls may not have attended many days of the program to actually cause a difference in the answers given. Also, since age changed significantly that means population also changed in the middle of the first half of the program which could have caused different trends in the questions and led to the changes detected from baseline to follow up.

The second half of the program was then analyzed to detect for changes from the first day of the second half of the program to the end of the program. There were no significant changes found in age during the second half of the program which may indicate a more stable population. There were also no significant changes in the scores of the positive self-worth questions during the second half of the program. The score of the physical health questions did, however, increase during this half of the program which indicates that the respondents looked at their physical health more positively after being exposed to an exercise program which supports the researchers' hypothesis. The score of the negative self-worth questions increased during the second half of the program which indicated that negative feelings of self-worth increased during this part of the program. This was the opposite of what the researchers hypothesized. This could have been due to how the dates were split up in order to analyze the data, a population change or personal experience/day to day changes.

The entire length of the program was then compared and analyzed from the first baseline measure to the final follow up measure. There was no significant difference for age from the

beginning of the program to the end which indicates a relatively stable population. There was also no significant change in the positive self-worth or the negative self-worth questions from the beginning to the end of the program. This indicated that there was no change in feelings of self-worth over the entire program. Physical health scores increased over the course of the entire program which indicated that the respondents had an improvement in how they view their health.

The positive self-worth questions did not have any significant differences or improvements over the course of the entire program. This could have been due to a general population change over the entire course of the program because of the nature of group homes. It could have also been due to response biases because of the wording of the questions. All of the questions on the survey could have also been affected by an individual's mood for that day which could cause a lot of variability in the data.

Questions 19 to 24 of the survey were aimed to gauge the respondents' initial knowledge level of sexual violence. From the results in Table 6 we concluded that majority of respondents had a high knowledge of sexual violence coming into the program. This could have been due to personal, familial or environmental exposure. These responses also could be biased because of the wording of the questions. Because all correct answers were "True" participants may have been biased to choose that option through deductive reasoning.

Our journal provided supplemental qualitative data that enhanced the results of our program. Participation in the program ultimately increased possibly due to a combination of the USC mentors, population changes, increasing comfort levels and changes being made to the program. The mentors had a big effect on participation, we noted that the girls typically participated more when the athletes were present. Many of the girls opened up to the athletes, sharing personal details about their lives and troubling circumstances. The girls began to form trusting bonds with the mentors which could have increased their participation. The girls were also very receptive to the multiple speakers that presented throughout the program which indicates that they may have taken away some valuable lessons about self-worth and self-esteem from these discussions. At the end of first semester the girls asked us to come twice a week in the following semester and asked to be "emotionally trained." Although we were not able to come twice a week, this request reassured us that they were enjoying the program and wanted it to continue. On April 22nd one of the participants made a remark about the exercise portion of the program that was very encouraging to us researchers. She stated:

*I should do this workout every day, it will make me stronger*

This quotation suggests that the participant made the mental connection between exercise and getting physically stronger. This connection must have also been a positive one in her mind because she expressed the desire to continue doing the exercise and continue getting stronger. This quote was encouraging to us researchers and gives us confidence that the participants are learning the important connection between exercise, strength and overall health and well-being.

### 5.1 Limitations

Our program had a lot of limitations that affected its structure and the collection of data. The first of these limits was a small and inconsistent sample size. There were some days that seven girls attended the session, and some days that 20 girls attended the program. Not every single participant completed the survey every time it was administered which affected the consistency of the survey answers. Small sample sizes were also the reason

why data was combined in ways that may not have measured exactly what the researchers were looking to measure. For example, there were no true baseline and follow up measures for the first and second halves of the program.

The participants were also not required to participate in the exercise or self-defense activities. Many of the respondents would just pick which days they would like to participate and then filled out a survey even if they didn't participate in the program. This could have affected data because all of the respondents were not consistently getting the "treatment" so it is hard to say that exercise and self-defense changed their answers and feelings of self-worth. "Community interventions take place in programs that children and adolescents are not required to attend. Youth can choose to attend or not attend, can come late and leave early, or can drop out entirely" (Ward, Saunders, & Pate, 2007). Also, at Epworth, the children and teenagers residing there do not have a say in when they leave and go back to their families or to different facilities. Many of the girls came to the program once or twice and then left Epworth. This also contributed to the inconsistent sample size.

Participation in the Be Your Best S.E.L.F. program was also inconsistent because of the attitudes of the participants. Often times when the exercise was deemed "too hard" many girls stopped participating or did a very modified version of the workout. This could be explained by the populations' self-efficacy. "A person with low confidence might not even try, will get discouraged easily if things do not go perfectly, and will most likely quit trying when barriers arise" (Bandura, 1986). The girls did not appear to possess a lot of confidence about working out which could have affected their willingness to participate. Also, those with lower self-confidence may have been less willing to participate and less likely to continue participating when aspects of the program became more challenging.

There were psychosocial factors that influenced the program and forced us to change our interventions. Upon returning for second semester and re-starting the program there were a lot of new and younger girls living at Epworth and attending the program. We noticed very quickly that there was a lot of tension and anger between the girls. One of the cottage directors who lives with the girls informed us that we should stop teaching the girls self-defense moves because the girls would most likely use them to fight each other, rather than only use them in life or death situations as they are intended to be used for. SASS Defense teaches how to escape from attackers, but also how to fight your attacker in the event that you cannot flee the situation and must defend your life. We feared that the girls would take this new knowledge of violent moves and use them inappropriately and harm each other. Because of this safety concern we removed the majority of self-defense from our curriculum in the second semester. The only self-defense that was covered in the second semester was wrist-releases. We realized that before we could teach the girls how to defend themselves we had to address underlying issues of self-worth and also address issues of anger management so that self-defense skills did not get misused. We altered the program to focus on exercise and discussing topics like conflict resolution, healthy relationships, career goals, etc. Due to the change in our program our data might not have been accurately measuring what we wanted it to measure. The self-defense portion of the program was a big component of empowerment and self-worth and removing it in the second half of the program could account for the lower scores.

## 6. CONCLUSION

The only conclusion that the researchers can make from the data provided is that perceptions of physical health increased over time after participation in an exercise and self-defense program. While self-worth showed an increase during the first half of the program, no conclusions can be made due to conflicting data during the second half of the program and from baseline to follow up. Because of the inconsistency in attendance and participation the full program did not reach all participants. These limitations of our program indicated that changes may not be direct results of our program, and therefore our findings should be viewed with caution.

### 6.1 Reflections

We learned so much from the Be Your Best S.E.L.F. project. Early in the planning stages we realized how difficult it is to build a community health program from the ground up. Recruiting participants for the program was challenging. Even though most cottages were required to come every week by their cottage leaders, getting all the girls to participate in the program was always a challenge. Dealing with a population with overall low self-efficacy made it extremely difficult to get full participation. Having a population in the age range that we had was also extremely difficult. Middle and high school girls are extremely self-conscious, judgmental, and opinionated. It is hard to be open and vulnerable with your peers at any age, but especially in the teenage years. We really got to witness and understand how social factors strongly influence participation in group exercise and group activities.

We also experienced the frustration of human research trying to administer surveys. It became clear to us why most research studies have such large sample sizes, because participation and willingness to complete surveys is so unpredictable. If further research was done on exercise and self-esteem in this population it would be beneficial to have a much larger sample size to hopefully get more consistent and accurate data.

While there were so many frustrating and complicated aspects of this project, we truly believe that this population is in desperate need of comprehensive programs that focus on exercise, self-esteem, and eventually self-defense. Any future researchers looking to create programs targeted at this population should incorporate the discussion-based portion of the program in the very beginning before any self-defense is introduced. Before participants can learn how to fight for their life, they must learn how to value their lives. As president and founder of SASS Shannon Henry said at one of our sessions, “we are starting on the 10th floor when we haven’t even built a foundation”. Building a solid foundation is the key to any program that aims to improve self-esteem through exercise and/or self-defense. Future programs would also benefit from having consistent mentors that can be paired one-to-one with participants.

While our data showed inconsistent results and our hypothesis was not fully supported by this research, we still believe that with ample time and resources a program like Be Your Best S.E.L.F. can improve the self-esteem and physical health of at-risk, underserved populations like Epworth. These populations need programs that address self-worth and physical health and we hope that future researchers and program planners put in the effort to create programs that can help these populations.


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## 8. APPENDICES

### Appendix A : SASS Defense Flyer to USC Women's Athletic Teams



**VOLUNTEER FOR THEM  
VOLUNTEER FOR YOU**

**EPWORTH CHILDREN'S HOME  
THE UNIVERSITY OF SOUTH CAROLINA & SASS**

Since 1896 Epworth Children's Home has been fostering youth in a loving environment here in Columbia, South Carolina. From October 2018- April 2019, an outreach initiative by students of USC's Exercise Science Program will bring together Epworth and SASS (Surviving Assault Standing Strong) in order to deliver an empowering program to the Epworth girls and we want you to join us!

There are 10 sessions open for volunteering upon approval. You will help mentor the Epworth girls as they learn about respectful relationships, healthy life-styles and train hard in serious self-defense. We have the format, all you have to do is show up to care for an awesome girl!

Discuss it with your team. Find the best date for your schedule and then simply email your 1st and 2nd choices for a date to [team@sassgo.org](mailto:team@sassgo.org). We will reserve a night just for your tribe. Come bond, serve and magnify just how strong you actually are. We can't wait to see you and thanks in advance from all of us and these precious girls, and as always...Go Cocks!

**Dates: October 15, 29 November 12, 26 December 10 January 21  
February 4, 18 March 4, 18 April 1 Each session is on Monday nights from 7pm-8pm.**

**[WWW.SASSDEFENSE.COM](http://WWW.SASSDEFENSE.COM)**

# Appendix B: Be Your Best S.E.L.F. T-Shirt Design



Appendix C: Be Your Best S.E.L.F. Flyer

**JOIN US MONDAY  
OCTOBER 1ST AT  
7 PM FOR FREE  
FOOD AND AN  
INFO SESSION IN  
THE GYM!**



**ALL GIRLS WELCOME**

**BE YOUR  
BEST  
S.E.L.F.**

**STRENGTH  
ENERGY  
LIFE SKILLS  
FITNESS**



**PROMOTING  
SELF-DEFENSE  
SELF-AWARENESS  
&  
SELF-ESTEEM**



UNIVERSITY OF  
**SOUTH CAROLINA**

## Appendix D: Schedule of Be Your Best S.E.L.F.

OCTOBER 1: Intro Session: SASS and Exercise Program

- Introduction session explaining program. Rachel and Casey explained. exercise portion and SASS instructors explained self-defense portion

OCTOBER 8: Exercise Program

- First survey administered

OCTOBER 15: SASS Self-Defense

- USC Swim & Dive Team present

OCTOBER 22: Exercise Program

- Survey administered

OCTOBER 29: SASS Self-Defense

- Lisa from Lighthouse for Life spoke about trafficking

NOVEMBER 5: Exercise Program

- Survey Administered

NOVEMBER 12: SASS Self-Defense

NOVEMBER 19: Exercise Program

- Tina from STSM
- Zumba with Maddie Claire
- Survey administered

NOVEMBER 26: SASS Self-Defense

- USC Swim & Dive and Tennis

DECEMBER 3: Canceled

DECEMBER 10: Christmas Celebration

- Steven and Jessica talked about healthy relationships
- T-shirts and food

JANUARY 14: Exercise Program

- Explained program again because there were a lot of new girls
- Resistance band workout
- Survey administered

JANUARY 21: SASS Self-Defense

JANUARY 28: Exercise Program

- Survey administered

FEBRUARY 4: SASS Self-Defense

- Valentine's Day activity
- Swim and Tennis girls

FEBRUARY 11: Canceled

FEBRUARY 18: SASS Self-Defense

- Swim and Tennis teams and women's engineering society
- Split up into small groups to talk about goals, future, anger management, where they are from, etc. (trying to build trust with the girls)

FEBRUARY 25: Exercise Program

- Survey administered

MARCH 4: Exercise Program

- Basketball

- Talk about teamwork

MARCH 11: Spring break (no exercise program)

MARCH 18: Steven and Jessica

- Talk about goal setting
- Final survey administered

MARCH 25: Exercise Program

- Yoga

APRIL 1: Exercise Program

- Basketball

APRIL 8: Self Defense

- Safety talk

APRIL 15: Canceled - Epworth Spring Break

APRIL 22: Three corners

- Exercise, stretching, self-defense

APRIL 29: End of Year Celebration

- Fun relays and snacks

## Appendix E: Exercise Program for Be Your Best S.E.L.F.

### Workout 10/8/18

Explain why it's important to warm up

- Increased HR/blood flow to muscles= more nutrients and O<sub>2</sub> to your muscles
- Gets heart and lungs ready
- Warming up your muscles reduces risk of overstretching & causing injury

Warm up

- Jog
- Lunge w/ twist
- Inch worms

Workout

- Squats
- Lunges
- Plank
- Circuit 1: groups of 4 - 2 on each side. Partners bear crawl to middle, do 10 crunches, bear crawl back. Partners that are waiting should be doing squats
- Circuit 2: lunge to middle, plank high five, lunge back. Waiting partner squat
- Circuit 3: monster walk to middle, Russian twists, monster walk back. Waiting partner squat

Cool down/Stretching

- Quad pull
- Lizard
- Laying touch toes
- Glute figure 4
- Trunk rotation

Explain why it's important to stretch

- Without stretching muscles shorten and become tight→ leads to joint pain/muscle damage and lack of ROM

### 10/22/18 Workout

Warm Up

- High knees
- Butt kicks
- Side shuffle
- Arm circles
- Arm stretches

Partner Work Out

- Circuit 1
  - Wall sit back to back (30 sec)
  - Pushups/plank while holding partner's feet (person holding squats)
  - Sit ups with high five
- Circuit 2
  - Squat jump to burpee (partners meet in middle)
  - 1- sit ups, 2- hold feet w/ mountain climbers

- 1- leg hold, 2- leg circles around partner's legs
- Circuit 3
  - Back lunge while holding arms/hands with partner
  - 1- starfish plank, 2- jump/step over/between partner's legs
  - 1-tricep dips, 2- soccer taps (on stairs)
- Circuit 4
  - 180 degree jump squat with high five to partner
  - Commandos with high fives to partner
  - Bicycle crunches with feet together

#### Cool Down

- Cat/cow
- On all fours- walk out hands to arch back (puppy pose)
- Thread the needle with partner assistance
- Legs crossed hip stretch (grab ankles and pull)

#### 11/5/18 Workout

##### Warm up

- Jog down and back
- Skip down and back
- Arm circles/side stretches

##### Workout

- Circuit 1
  - Run down, 10 jumping jacks, run back
- Circuit 2
  - Bear crawl down, burpees, bear crawl back
- Circuit 3
  - Crab walk down, 10 mountain climbers, crab walk back
- Circuit 4
  - Side shuffle, 5 jump squats, side shuffle back
- Circuit 5
  - Skip down, soccer taps, skip back

##### Cool down

- Down dog
- Child's pose
- Lizard to pigeon
- Trunk rotation

#### Workout 11/19/18

- Zumba instructor

#### Workout 1/14/19

##### Warm up

- Arm circles
- Side lunges
- Quad hold

- Knee hugs

Exercises (all with resistance bands):

- Pull out with arms bent and elbow at side
- Pull out with arms straight
- Military press overhead (while stepping on band)- both sides
- Bicep curl (while stepping on band)- both sides
- Side steps with band tied around legs (above or below knee)
- Monster walk with band tied around legs
- Bridges with band around legs

Cool down

- Arm circles with band
- Triceps stretch with band
- Lizard pose
- Reclined pigeon (pretzel stretch)

#### Workout 1/28/19

Review of wrist grabs (self-defense)

Create a warm up with the girls to do every session

- Include:
  - How to increase heart rate
  - Shoulder stretch
  - Hip stretch
  - Leg stretches (hamstrings, quads)

#### Workout 2/25/19

Warm up

- Jumping jacks
- Hug knee to chest
- Quad stretches
- Frankensteins
- Arm circles

Partner Workout

- Squat jump with hand hold
- Lunge with high five
- Plank with leapfrog
- Plank with high five (push-up optional)
- Leg raise switch
- Bicycle crunches with feet together

Relays with partner:

- Crab walk while partner squats
- Bear crawl while partner does jumping jacks
- High knee skip while partner does line jumps



- Side shuffle while partner does plank

#### Cool down

- Seated straddle with partner pull
- Pretzel stretch
- Cobra
- Child's pose
- Down dog

#### Workout 3/4/19

##### Warm Up

- 10 jumping jacks
- 10 squats

##### Basketball

- Partner drills
  - Dribble down and back with dominant and non-dominant hand
  - Chest and bounce passes down and back
  - Practice layups
  - Game of knock-out

#### Workout 3/25/19

##### Yoga class with Angie Still

#### Workout 4/1/19

##### Warmup

- Jumping jacks
- High knees in place
- Side lunges
- Squats
- Inch worms

##### Relays (with basketball)

- Lunge and twist with ball & dribble back
- Sit ups with ball w/ pass to partner & side shuffle/chest pass down and back
- Straight leg sit up with ball toss & dribble down and back with non-dominant hand
- Squat hold with rotation/ball pass to partner & side shuffle with bounce pass
- Russian twist with ball pass to partner & each partner dribbles down and back

##### Basketball

- Option to play a pickup game, play knockout or just shoot

#### 3 Corners Exercise 4/22/19

##### 1. Stretching (~20 mins)

- Warm up stretches
  - Standing side bends

- Arm circles/shoulder circles
  - Side lunges
  - Quads and knee hugs
  - Triceps overhead stretch
  - Neck circles
  - Floor stretches
    - Child's pose
    - Down dog
    - Cobra pose
    - Lizard pose with t-spine twist
    - Pigeon pose (reclined or regular)
    - ½ kneel hip opener → hamstring stretch
    - “Pretty lady” stretch (piriformis)
    - Butterfly stretch with arms behind back
    - ½ kneel QL stretch (side bend)
    - Pretzel stretch (t-spine twist with quad grab)
  - Partner stretches
    - Straddle sit and pull
    - Arm pulls with partner lying on ground
    - Leg pulls with partner lying on ground
    - Thread the needle
    - Chest opener (knees in partners back and pull their arms back)
2. Workout (~20 mins)
- Warm up
- Jumping jacks
  - High knees in place
  - Butt kicks in place
  - Arm Circles
- Workout
- Leg Circuit (repeat as many times as possible in 5 minutes)
    1. 10 squats
    2. 10 alternating lunges
    3. 10 X-jumps
    4. 10 side lunges
  - Arm Circuit (repeat as many times as possible in 5 minutes)
    5. 10 push ups
    6. 10 shoulder taps
    7. 10 second side plank each side
  - Core Circuit (repeat as many times as possible in 5 minutes)
    8. 10 sit ups
    9. 10 bicycles
    10. 10 mountain climbers
    11. 10 second plank
3. SASS Self-Defense (~20 mins)
- Wrist grabs OR Topic

Workout 4/29/19

## Warm Up:

- Jumping jacks
- Squats
- Knee hugs
- Quad hold
- Arm circles
- Stretch across chest
- Tricep overhead

## Relay Races

- Crab walk
- Wheelbarrow
- Bear crawl
- Skip
- Sprint
- Inchworm
- Broad jumps
- Karaoke

## Plank challenge

## Appendix F: Survey for Be Your Best S.E.L.F.

| EPWORTH SURVEY   |                |                |                   |                   |
|--|----------------|----------------|-------------------|-------------------|
| Directions: Please circle the number for each question that best describes your agreement with each statement.         |                |                |                   |                   |
|  | Strongly Agree | Agree Somewhat | Disagree Somewhat | Strongly Disagree |
| 1. I feel that I'm a person of worth (I matter).   | 3              | 2              | 1                 | 0                 |
| 2. I feel that I have a number of good qualities.  | 3              | 2              | 1                 | 0                 |
| 3. I am able to do things as well as most other people.  | 3              | 2              | 1                 | 0                 |
| 4. I take a positive attitude toward myself.   | 3              | 2              | 1                 | 0                 |
| 5. On the whole, I am satisfied with myself.   | 3              | 2              | 1                 | 0                 |
| 6. I feel like I would be able to physically defend myself if I physically had to.                                     | 3              | 2              | 1                 | 0                 |
| 7. I feel like I am physically fit.  | 3              | 2              | 1                 | 0                 |
| 8. I use exercise as a way to relieve stress and relax.  | 3              | 2              | 1                 | 0                 |
| 9. I enjoy exercising.   | 3              | 2              | 1                 | 0                 |
| 10. I consider myself strong.  | 3              | 2              | 1                 | 0                 |
| 11. All in all, I am inclined to feel that I'm a failure.  | 3              | 2              | 1                 | 0                 |
| 12. I feel I do not have much to be proud of.  | 3              | 2              | 1                 | 0                 |
| 13. I wish I could have more respect for myself.   | 3              | 2              | 1                 | 0                 |
| 14. I certainly feel useless at times.   | 3              | 2              | 1                 | 0                 |
| 15. At times I think that I am no good at all.   | 3              | 2              | 1                 | 0                 |
| Directions: Please circle yes or no for the following questions.   |                |                |                   |                   |
| 16. Have you ever taken a self-defense class?  | Yes            | No             |                   |                   |
| 17. Do you exercise on a regular basis? (3-5 times per week)   | Yes            | No             |                   |                   |
| 18. Do you participate in organized sports?  | Yes            | No             |                   |                   |
| Directions: Please circle true or false for the follow statements.   |                |                |                   |                   |
| 19. In the U.S. one in three women experience some form of sexual violence in their lifetime.                          |                |                | TRUE              | FALSE             |
| 20. One in five women will be raped at some point in their lives.  |                |                | TRUE              | FALSE             |
| 21. In eight out of ten cases of rape, the victim knew the perpetrator.  |                |                | TRUE              | FALSE             |
| 22. One in four girls will be sexually abused before they turn 18 years old.   |                |                | TRUE              | FALSE             |
| 23. One in three women have been victims of some sort of physical violence by an intimate partner.                     |                |                | TRUE              | FALSE             |
| 24. In South Carolina, the femicide rate (when a women is murdered by a man) is often over twice the national average. |                |                | TRUE              | FALSE             |

## Appendix G: Qualitative Data for Be Your Best S.E.L.F.

### 10/1/18

- Kickoff event
- About 16 girls and 5 staff members
- Girls seemed a little skeptical at first about the program. It was hard to get their attention and gather them together and they didn't seem super excited when Rachel and I explained the exercise portion
- Once Shannon told her story the whole room changed. The girls had tons of questions, they were excited about the program and they were eager to learn self-defense
- Girls asked, "what if I have to leave and go home", they are already concerned about missing out on some of the lessons
- By the end of the meeting the girls were all so involved and excited and did a much better job of listening to us and taking everything seriously

### 10/8/18

- First exercise session
- Around 15 girls and 3-4 staff
- Only 10 girls opted to take the survey
- Around 10 girls participated in the exercise portion (the girls who participated seemed engaged and like they enjoyed the program)
- Did intro to squat, lunge, plank & circuits
- Many of them were not wearing exercise clothes/gym shoes
- We need to find a better way to engage the girls in the program
- Possibly going to look into local stores donating shoes/exercise clothes for the girls

### 10/15/18

- First self-defense session
- 15 girls
- USC swimming and diving team came- helped to keep the girls engaged (offered to come to the fitness portion as well)
- Almost all the girls there participated (2 opted out of participating)
- Went over wrist, arm, shirt grabs & reviewed pyramid (getting out of choke)
- 1 girl is already leaving Epworth and was sad that she was going to miss out on the program
- Girls seemed to really bond with the swim team and we think it would keep the girls better engaged to always have a partner to work with
- They seemed to remember a lot when Brett asked them questions, so it appears like they are retaining the information

### 10/22/18

- Workout session
- 10 girls showed up but only about 5-6 participated
- Partner workout
- Girls who did participate were engaged and asked us to come more often
- Girls were excited to talk to us about college, where we're from, etc.

- We may take more time during the exercise sessions to sit and talk with the girls about school, college, life in general, etc.

### 10/29/18

- Self-defense session
- About 15 girls showed up (more than last week- new cottage just opened)
- Lisa from Lighthouse for Life talked to the girls about trafficking
  - Explained what it was
  - How it happens
  - It's never the victim's fault
    - Some of the girls had the opinion that trafficking can be the victim's fault because they should have been smarter. Thought this was interesting. Wonder if they have been taught or conditioned that everything that happens to them in their life is their fault and if something goes wrong it's because they made a mistake and we're being smart.
- Girls were engaged but you could tell that they wanted to be moving
  - Was really glad that the girls got to hear this presentation but would have liked them to be moving at least half of the time versus for only 5 minutes
- Some girls mentioned that their moms were prostitutes
- Girls asked where USC swimming and diving team were
  - We want to have the same people consistently coming so the girls can get comfortable with them and have someone they can trust
- Girls are getting more comfortable with Casey, Rachel, Lisa, Shannon because they have seen them consistently

### 11/5/18

- Exercise session
- 9 girls actively participating
- Haven't seen some girls that used to come all the time, so we are questioning why they haven't come
- A couple new girls came which is great that they decided to come but it is hard to have new people every time because the dynamic changes and it's hard for all of us to bond when the group changes every week
  - Talked with Liza about how it must be hard for the girls to live with different people from week to week. The dynamic must change all the time and it must be hard to adapt to always being around new people
- Trying to think of ways to get the girls to keep coming back. There seems to be more girls at the self-defense sessions, so we are trying to think of what would make them all come to the exercise class as well
- Don't think we will be able to progress with exercises as much as we would like because the girls give up when things are too hard. When we said that certain people could do modifications because of injuries they all wanted to do modifications
- They respond well to partner workouts and relay races. I think the competition makes it more enjoyable for them. Definitely still very "prize" driven so the sooner we can give out real prizes I think we might see an increase in girls

- Maybe we should start giving out prizes for best form and best attitude and things like that, so it encourages the girls to not only participate but to work on their form and get a good workout.

#### 11/12/18

- Self-defense
- 9 girls showed up (about 7 participated the whole time)
- Learned “the fight”
- Had competition to see who had the strongest hit- Kiana won t-shirt
- At first the girls were very goofy and kept interrupting but by the middle/end of the class they were very engaged and participated a lot
- They seemed excited to be learning the moves
- Told the girls to come on December 10th because we have a “big surprise” for them (gift cards from the athletic teams)
- Going to get a suggestion box for next week- to give us ideas of what they liked/didn’t like
  - Hopefully on December 3rd we will sit down with the girls and discuss more of what they want/need from us

#### 11/19/18

- STSM speaker Tina
  - Very good with the girls, didn’t get too intense with the conversation but told them a lot of important info
  - The conversation was triggering for one of the girls and she had to leave. Cottage Mom asked that in the future we give them a heads up when we are bringing in speakers, so girls can be prepared and possible not come if it is a sensitive topic.
- Zumba with Maddie Claire
  - Girls had a lot of fun with it even though only 6 of them were there. Really wish more of them had been there because they all had been asking about zumba
  - Had to rein the girls back in a few times because they got silly and distracted with the dancing. Sometimes it is a hard balance of wanting them to have fun but also making sure they are really participating and trying
- Surveys are definitely not going to be accurate because, so few girls were there and 2 of them didn’t want to do the survey.
- Frustrating that less and less girls seem to be coming but the ones who do come really enjoy it so at least we are helping a few of them

#### 11/26/18

- Self-defense with Brett and USC athletes
- About 12 girls there, 8 participating
- The girls did well pairing up with the USC girls. I think they listen more when there are people there besides just them. I think they took a bit of ownership having to teach the USC girls different moves
- The ones who were participating were doing a good job and were focused
- One girl who usually doesn’t participate much was doing so well with her partner and was more involved than we have ever seen her

12/10/18

- Christmas celebration for end of 1st semester
- Did not use gifts from athletes (they got them toys for elementary school aged kids)
- Passed out t-shirts and food
- Had guest speakers Steven & Jessica talk to the girls about relationships
  - The girls were VERY engaged (asked a lot of questions) and asked them to come back
  - I think it was really important that the girls see a healthy relationship example
  - They talked about setting boundaries
  - Many of the girls do not have father figures at all so it was cool to see them seeing things from a man's perspective
- For next semester:
  - Girls do want us to come 2 days a week
  - SASS stuff one day and exercise or talk the other
  - Girls said that they want to be "emotionally trained"
    - Relationships
    - Suicide and depression (one girl mentioned that a lot of these girls have suicidal/depressive thoughts and they are being prescribed medicine but it's not working)

1/14/19

- First day of 2nd semester
- A lot of new girls came (new to Epworth or just a new cottage? We weren't really sure)
- About 15 girls total- not all participated
- Explained the program to them & did quick resistance band workout
- Hard to keep their attention for the whole time

1/21/19

- Self-defense with Brett (no athletes this time)
- About 15 girls (not all participated)
- Trying to find a new way to keep everyone's attention & give them what they need
- Girls seem to thrive/pay most attention when teaching other people
- Looking ahead:
  - Think of a tribe name so girls feel connected and part of a strong community
  - Teach the girls a quick warm-up to teach the athletes that are coming the next SASS day

1/28/19

- Casey and Rachel reviewed wrist releases because the girls had not had self-defense in a while
- Helped girls create warm-up that we would use during next session
  - This doubled as a workout. We had the girls create what they wanted the warm-up to be for the next session and we ran through it a few times
  - Girls liked having input in the workout. We think they are more engaged and more willing to exercise when they have a say in what the workout is

2/4/19



- Self-defense day with Shannon
- USC tennis and swimming athletes came
- About 12 were there
- Shannon created Valentine's day craft for the cottages. Split into 5 groups and each group made a gift bag for another cottage.
- We noticed a lot of tension between the girls. The plan was to do the valentine's day craft and then go over self-defense, but the girls were glaring at each other across the room and told us that they wanted to fight each other. To prevent any harm from happening we did not do any self-defense.
- Girls were reluctant to do the craft at first because they did not want to be doing something nice for the other girls because a lot of them are fighting with each other. However, they opened up to the idea as we went along, and each group did the project. We really focused on being nice to people even when you are mad at them and loving people even when it is hard. Some of the girls took this to heart, some of them didn't want to hear it and were too focused on being mad.
- We realized we need to address conflict resolution and anger management
- Not going to be able to teach as much (if any) self-defense because the girls will use it to fight each other. One of the cottage moms told us that we needed to stop doing self-defense because the girls will use it to fight each other.
- New plan is to make self-defense days speaker days and maybe minimal self-defense that is harmless, and exercise days will be half exercising and half talking with USC athletes
- We are disappointed that we cannot teach the girls more self-defense but know that their safety is top priority. Shannon mentioned that we were building a program without the foundation. Self-defense is great for this population but before we can do self-defense we need to teach the girls self-respect and anger management and give them a good foundation to work off of.

2/18/19

- Self-defense day with Brett
- USC tennis, swimming teams came & so did society for women engineers
- SASS invited women engineers to be able to talk to the girls about their career choices and inspire the girls to pursue any career they want - even if it is a career that people usually consider a male career.
- Went around the room and had USC students say what they were studying, and Epworth girls say what they think they want to study in college/what they think they want their career to be
- Split up into small groups to talk about goals, future, anger management, where they are from, etc. (trying to build trust with the girls)
- No self-defense was taught (girls are fighting/bullying each other)
- GOALS:
  - Find stress relievers for the girls/some way to decrease aggression (communicating with yoga teacher)
  - When taking, split up so there are 2 athletes/USC students to 1 Epworth girl if possible. We are finding that they do not want to open up in front of their friends but do open up when they feel safe with USC students
  - Have conversation topics for each session

- Boyfriends
- Friends
- Family
- Anger

### 2/25/19

- Exercise session
- Partner workout with USC athletes
- Strength partner exercises & team/partner relays
- Girls were very engaged and participating with the USC athletes
- They seemed to have fun and were excited to have so many athletes/USC students there

### 3/4/19

- Did a basketball workout
- Ran through relays/drills in teams & then broke out into groups to play knockout
- Epworth girls partnered up with USC athletes/engineers
- Spent time at the end talking in small groups with the Epworth girls about teamwork
  - Asked girls if they thought of Epworth as a team and they said no
  - Asked girls if they had ever been on a team and most of them had (cheerleading and basketball were common answers).
  - Asked girls what happened when there were issues on these teams. If girls ever weren't getting along what would happen? How would they solve the problem? Their answer was "record it" and I was very confused what they meant by this. After a few minutes of them explaining I realized they meant when two girls get into a fight they video record it on their phone. I was so sad to realize that was their answer. I had not meant for the question to be about physical fights but that is what the girls assumed I was talking about. It made me so sad to know that "conflict" automatically means physical fighting to these girls, and that their response is not to stop the fighting but to record it, so they can show their friends. Made me realize that there is a lot about this population that we still don't understand, and their thought process is so different than ours because of their experiences and environment.

### 3/18/19

- Stephen and Jessica came to talk with the girls
- Focus of the talk was goal setting. Stephen and Jessica asked the girls what some of their goals are, what steps they need to take to meet those goals, what would prevent those goals from happening, etc.
- A lot of the goal setting was about career goals but also talked a little bit about goal setting with relationships
- Jessica made a point to tell girls to set high goals for their relationships because they deserve to be treated well and should not settle for people that make them feel unworthy
- I think the girls responded very well to seeing a father figure (Stephen) who is so devoted to his wife and family. A lot of the girls are not in contact with their fathers and I think it was good for them to see a man that is such a good role model. Stephen was very kind and encouraging with the girls but also demanded attention and let them know he was

there to help them but also deserved respect. He would not let the girls talk over him and be disrespectful.

- Stephen and Jessica are African American and so are many of the girls at Epworth. I think the girls responded to them so well partially because they are the same race. I think they feel like they can connect to Stephen and Jessica more because of this factor and I'm glad that they got to see an example of a healthy and happy African American relationship.

### 3/25/19

- Practiced yoga with the girls
- USC athletes/engineers participated and did yoga
- Angie Still (certified yoga instructor) came to instruct the girls
  - Angie has yoga in prisons and in underprivileged schools, so we thought she would be a great fit working with this population
- Some of the girls participated but many of them just sat on the side and watched/talked
- The girls who participated seemed to enjoy it- some would take breaks and then come back to it
- The girls were very easy to give up on "hard" poses. This has been a problem all semester. The girls give up when the exercise is slightly hard.
- Goal was to give the girls a chance to practice breathing and give them some ways to relax
- We did breathing at the beginning and the end of the yoga practice
- It seemed like the girls were getting antsy while trying to just lay and breathe because not everyone was participating, and some girls were being loud/distracting on the side
- I think the girls would have responded better if everyone was participating and if the atmosphere was quieter. We asked the girls who weren't participating to be quiet but that didn't really work. It can be hard to get girls engaged when half of them put off the attitude that they are "too cool" to be participating.

### 4/1/19

- Basketball partner workout
- Started the session with a partner/group workout that involved basketballs
- We wanted to involve basketball into the workout because many of the girls play or like to play basketball and we wanted to find a way to keep them more engaged during the exercise portion of the session
- Broke off and let the girls play a pickup game/shoot/etc.
- About half participated during the actual workout and more started to filter in to shoot/play a game
- USC athletes were not able to come but a few USC women engineers came

### 4/8/19

- Original plan was to do another yoga session, but yoga teacher was sick
- 3 USC athletes attended
- Reviewed wrist grabs with the girls- many of them had not learned them or had not reviewed them in a long time

- Sat down and had a talk with the girls about safety in light of what happened recently with Samantha Josephson
- We talked about safely walking to and from school, what to do if someone is following them, emergency features on their phones & safety of Uber (which most of them do not use yet- but we still wanted to mention because many of them are in high school and will likely use Uber in the near future)
- The cottage moms were helpful in this talk and reviewed Epworth's policies on safety with the girls

4/22/19

- 3 corners activity
- 1 corner was circuit workout with Casey, 1 corner was stretching/yoga with Rachel, one corner was self-defense with Lisa. Split girls into groups and had them work through circuits. Each circuit was about 15 minutes long
- Went over pyramid (move to get out of choke-hold). This move does have contact and can be used to harm someone, but we decided to teach it to the girls because it can't be used on someone who isn't choking you. The girls wouldn't be able to use this move to harm their peers if they were in a fight. It would be valid to use this move if someone had their hands on your throat even if that person was a peer and not an attacker.
- Participation was so much better in smaller groups. Each group had 4 people. About 5 girls did not participate but a lot of them did and I think more of the girls did participate because they were in smaller groups and there was less group bias to not participate.
- All of the groups participated in the full workout. We were so surprised and so impressed how many of them completed the full workout.
- When girls weren't participating in the workout the other girls would encourage them to participate and try their hardest. They also shut down any girls who were being disrespectful and asked them to not distract them from the workout. This rarely happens, and it was so interesting to see that in smaller groups the girls are more willingly to speak their minds and to ask the disrespectful girls to stop even though that might not be the "cool" thing to do.
- One girl said "I should do this workout every day, this will make me stronger"

4/29/19

- Seven girls came, six participated
- We were concerned at first that none of the girls would want to participate because they came in with bad attitudes. One girl was upset that a cottage mom took her phone away and a lot of the girls were talking to her about it
- Once we got their attention we had to bribe the girls to participate a little bit. We told them we had treats for them if they participated
- We did fun relay races and the girls even had some races of their own at the end. They had fun with the relay races and enjoyed the friendly competition.
- After the races we sat and ate snacks and let the girls have a few pieces of candy for participating.
- All the girls talked with us and seemed to really enjoy the conversation. One girl who has been a part of the program for a while had a big change in attitude by the end of the night.

She is usually rude and wants to be the center of attention and is sometimes disrespectful to us. However, Casey had a conversation with her after the races about her singing and her boyfriend and at the end of the conversation she said, "thank you." She also asked if they could leave and Casey said yes but she noticed that some of the girls were still talking with Rachel and she said, "I don't want to rush them so I will wait." After months of never seeming to appreciate us coming to Epworth and always wanting to run on her own agenda, she thanked us and was looking out for the other girls at Epworth. Even this small act meant so much for us

- Some of the girls gave us hugs goodbye and told us they would miss us. We really do think they enjoyed their time in the program and are sad it is over.



110518→ 2

111918→ 2

1→ BASE1 (first baseline measure)

2→ FOLLOW1 (first follow up measure)

2nd semester dates:

11419→ 3

12819→ 3

22519→ 4

31819→ 5

3→ BASE2 (second baseline measure)

4→ FOLLOW4 (second follow up measure)

5→ FOLLOW5 (last follow up measure)

Questions:

Q1-5 (MATTER+QUAL+WELL+ATTIT+SATIS) → WELLBNG

Q6-10(DEFEND+FIT+RELAX+ENJOY+STRONG) → PHYSICAL

Q11-15(FAIL+PROUD+RESPEC+USEL+NOGOOD) → BAD

Re-coding for analysis:

1st semester- BASE1 + FOLLOW1 → total

2nd semester- BASE2 + FOLLOW5→ total2

Entire program- BASE1 + FOLLOW5→ total3

## Appendix I: RStudio Output for Quantitative Data for Be Your Best S.E.L.F.

### **RECODING DATES**

```
> epworth_data$DATE[epworth_data$DATE=="100818"]<- "1"
> epworth_data$DATE[epworth_data$DATE=="102218"]<- "2"
> epworth_data$DATE[epworth_data$DATE=="110518"]<- "2"
> epworth_data$DATE[epworth_data$DATE=="111918"]<- "2"
> epworth_data$DATE[epworth_data$DATE=="11419"]<- "3"
> epworth_data$DATE[epworth_data$DATE=="12819"]<- "3"
> epworth_data$DATE[epworth_data$DATE=="22519"]<- "4"
> epworth_data$DATE[epworth_data$DATE=="31819"]<- "5"
```

### **RECODING QUESTIONS**

```
epworth_data$WELLBNG<-
(epworth_data$MATTER+epworth_data$QUAL+epworth_data$WELL+epworth_data$ATTIT+
epworth_data$SATIS)
```

```
epworth_data$PHYSICAL<-
(epworth_data$DEFEND+epworth_data$FIT+epworth_data$RELAX+epworth_data$ENJOY+e
pworth_data$STRONG)
```

```
epworth_data$BAD<-
(epworth_data$FAIL+epworth_data$PROUD+epworth_data$RESPEC+epworth_data$USEL+e
pworth_data$NOGOOD)
```

### **CREATING NEW SUBSET**

```
BASE1<-subset(epworth_data, DATE==1)
FOLLOW1<-subset(epworth_data, DATE==2)
BASE2<-subset(epworth_data, DATE==3)
FOLLOW4<-subset(epworth_data, DATE==4)
FOLLOW5<-subset(epworth_data, DATE==5)
```

### **RENAME COLUMNS**

```
names(FOLLOW1) <- c("DATE2", "IDNUM2", "AGE2", "MATTER2", "QUAL2", "WELL2",
"ATTIT2", "SATIS2", "DEFEND2", "FIT2", "RELAX2", "ENJOY2", "STRONG2", "FAIL2",
"PROUD2", "RESPEC2", "USEL2", "NOGOOD2", "SELFDEF2", "REGEX2", "SPORTS2",
"SEXVIOL2", "RAPE2", "KNEW2", "SEXABUSE2", "PARTVIOL2", "FEMICID2",
"WELLBNG2", "PHYSICAL2", "BAD2")
```

```
names(FOLLOW4) <- c("DATE4", "IDNUM4", "AGE4", "MATTER4", "QUAL4", "WELL4",
"ATTIT4", "SATIS4", "DEFEND4", "FIT4", "RELAX4", "ENJOY4", "STRONG4", "FAIL4",
"PROUD4", "RESPEC4", "USEL4", "NOGOOD4", "SELFDEF4", "REGEX4", "SPORTS4",
"SEXVIOL4", "RAPE4", "KNEW4", "SEXABUSE4", "PARTVIOL4", "FEMICID4",
"WELLBNG4", "PHYSICAL4", "BAD4")
```

```
names(FOLLOW5) <- c("DATE5", "IDNUM5", "AGE5", "MATTER5", "QUAL5", "WELL5",
"ATTIT5", "SATIS5", "DEFEND5", "FIT5", "RELAX5", "ENJOY5", "STRONG5", "FAIL5",
```



```
"PROUD5", "RESPEC5", "USEL5", "NOGOOD5", "SELFDEF5", "REGEX5", "SPORTS5",
"SEXVIOL5", "RAPE5", "KNEW5", "SEXABUSE5", "PARTVIOL5", "FEMICID5",
"WELLBNG5", "PHYSICAL5", "BAD5")
```

### **MERGE DATA**

```
total<- merge(BASE1, FOLLOW1)
total2<- merge(BASE2, FOLLOW5)
total3<-merge(BASE1,FOLLOW5)
```

### **RESULTS**

#### ***QUESTIONS FROM ENTIRE DATA SET***

```
summary(epworth_data$WELLBNG)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.   NA's
  5.00  17.00  19.00  17.58  20.00  20.00     2
sd(epworth_data$WELLBNG, na.rm=TRUE)
[1] 3.525994
```

```
summary(epworth_data$PHYSICAL)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.   NA's
  5.00  13.00  16.00  15.81  20.00  20.00     4
sd(epworth_data$PHYSICAL, na.rm=TRUE)
[1] 3.615992
```

```
summary(epworth_data$BAD)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.   NA's
  5.00  5.00   9.00  10.56  16.00  20.00     2
sd(epworth_data$BAD, na.rm=TRUE)
[1] 5.796893
```

#### ***AGE (whole program)***

```
> summary(epworth_data$AGE)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.   NA's
 12.00  14.00  15.00  14.58  15.00  17.00     4
> sd(epworth_data$AGE, na.rm=TRUE)
[1] 1.124118
```

#### ***AGE (BASE1)***

```
summary(BASE1$AGE)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.   NA's
```

```

12.00 13.25 14.50 14.50 15.75 17.00    3
> sd(BASE1$AGE, na.rm=TRUE)
[1] 1.581139

```

### **AGE (FOLLOW1)**

```

summary(FOLLOW1$AGE2)
  Min. 1st Qu.  Median    Mean 3rd Qu.  Max.   NA's
  15.0   15.0   16.0   15.8   16.0   17.0     1
> sd(FOLLOW1$AGE2, na.rm=TRUE)
[1] 0.7888106

```

### **AGE (BASE2)**

```

summary(BASE2$AGE)
  Min. 1st Qu.  Median    Mean 3rd Qu.  Max.
  13.00 14.00 14.00 14.31 15.00 16.00
> sd(BASE2$AGE, na.rm=TRUE)
[1] 0.8732125

```

### **AGE(FOLLOW5)**

```

> summary(FOLLOW5$AGE5)
  Min. 1st Qu.  Median    Mean 3rd Qu.  Max.
  13.00 13.75 14.50 14.33 15.00 16.00
> sd(FOLLOW5$AGE5, na.rm=TRUE)
[1] 0.9847319

```

### **BASE 1**

```

summary(BASE1$WELLBNG)
  Min. 1st Qu.  Median    Mean 3rd Qu.  Max.   NA's
  10.00 17.00 19.50 17.75 20.00 20.00     1
> sd(BASE1$WELLBNG, na.rm=TRUE)
[1] 3.441062

```

```
summary(BASE1$PHYSICAL)
```

```

  Min. 1st Qu.  Median    Mean 3rd Qu.  Max.   NA's
  10.00 10.75 14.00 14.83 19.25 20.00     1
> sd(BASE1$PHYSICAL, na.rm=TRUE)
[1] 4.302924

```

```
summary(BASE1$BAD)
```

```

  Min. 1st Qu.  Median    Mean 3rd Qu.  Max.
   5.00   7.00  12.00 12.15 16.00 20.00
> sd(BASE1$BAD)
[1] 5.505242

```

### **FOLLOW 1**

```
summary(FOLLOW1$WELLBNG2)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.   NA's
  11.00  19.25  20.00  18.50  20.00  20.00      1
> sd(FOLLOW1$WELLBNG2, na.rm=TRUE)
[1] 3.064129
```

```
summary(FOLLOW1$PHYSICAL2)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.
  10.00  16.00  19.00  17.64  20.00  20.00
> sd(FOLLOW1$PHYSICAL2, na.rm=TRUE)
[1] 3.202272
```

```
summary(FOLLOW1$BAD2)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.
  5.000  5.000  5.000  9.364  13.000  19.000
> sd(FOLLOW1$BAD2, na.rm=TRUE)
[1] 5.572661
```

## **BASE2**

```
summary(BASE2$WELLBNG)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.
  5.00  14.75  18.00  16.88  20.00  20.00
sd(BASE2$WELLBNG)
[1] 4.06407
```

```
summary(BASE2$PHYSICAL)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.   NA's
  5.00  13.00  13.00  13.73  15.50  20.00      1
> sd(BASE2$PHYSICAL, na.rm=TRUE)
[1] 3.369329
```

```
summary(BASE2$BAD)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.   NA's
  5.000  5.000  5.500  9.357  14.250  20.000      2
> sd(BASE2$BAD, na.rm=TRUE)
[1] 6.020569
```

## **FOLLOW 4**

```
summary(FOLLOW4$WELLBNG)
  Min. 1st Qu.  Median      Mean 3rd Qu.  Max.
  8.00  17.00  19.50  17.88  20.00  20.00
> sd(FOLLOW4$WELLBNG, na.rm=TRUE)
[1] 3.324154
```

```
summary(FOLLOW4$PHYSICAL)
```

```

Min. 1st Qu. Median Mean 3rd Qu. Max. NA's
11.0 14.0 16.0 16.2 19.5 20.0 1
> sd(FOLLOW4$PHYSICAL, na.rm=TRUE)
[1] 3.189268

```

```

summary(FOLLOW4$BAD)
Min. 1st Qu. Median Mean 3rd Qu. Max.
5.00 5.00 7.50 10.38 16.00 20.00
> sd(FOLLOW4$BAD, na.rm=TRUE)
[1] 6.03186

```

### ***FOLLOW5***

```

summary(FOLLOW5$WELLBNG)
Min. 1st Qu. Median Mean 3rd Qu. Max.
9.00 16.25 18.50 17.17 20.00 20.00
> sd(FOLLOW5$WELLBNG, na.rm=TRUE)
[1] 3.809876

```

```

summary(FOLLOW5$PHYSICAL)
Min. 1st Qu. Median Mean 3rd Qu. Max. NA's
12.00 16.00 18.00 17.36 20.00 20.00 1
> sd(FOLLOW5$PHYSICAL, na.rm=TRUE)
[1] 2.730301

```

```

summary(FOLLOW5$BAD)
Min. 1st Qu. Median Mean 3rd Qu. Max.
5.00 5.00 12.00 11.58 17.00 20.00
> sd(FOLLOW5$BAD, na.rm=TRUE)
[1] 6.11196

```

### **COMPARISONS:**

P-value= 0.05

### ***BASE1 VS FOLLOW1***

```
t.test(total$AGE, total$AGE2, paired=TRUE)
```

Paired t-test

data: total\$AGE and total\$AGE2

t = -7.7163, df = 99, p-value = 9.677e-12

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-1.634291 -0.965709

sample estimates:  
mean of the differences  
-1.3

t.test(total\$WELLBNG,total\$WELLBNG2, paired=TRUE)

Paired t-test

data: total\$WELLBNG and total\$WELLBNG2  
t = -1.8621, df = 119, p-value = 0.06505  
alternative hypothesis: true difference in means is not equal to 0  
95 percent confidence interval:  
-1.54751552 0.04751552  
sample estimates:  
mean of the differences  
-0.75

t.test(total\$PHYSICAL,total\$PHYSICAL2, paired=TRUE)

Paired t-test

data: total\$PHYSICAL and total\$PHYSICAL2  
t = -6.2565, df = 131, p-value = 5.177e-09  
alternative hypothesis: true difference in means is not equal to 0  
95 percent confidence interval:  
-3.68932 -1.91674  
sample estimates:  
mean of the differences  
-2.80303

t.test(total\$BAD, total\$BAD2, paired=TRUE)

Paired t-test

data: total\$BAD and total\$BAD2  
t = 4.4349, df = 142, p-value = 1.832e-05  
alternative hypothesis: true difference in means is not equal to 0  
95 percent confidence interval:  
1.546500 4.033919  
sample estimates:  
mean of the differences  
2.79021

**BASE2 VS FOLLOW5**

```
t.test(total2$AGE, total2$AGE5, paired=TRUE)
```

#### Paired t-test

```
data: total2$AGE and total2$AGE5
t = -0.22736, df = 191, p-value = 0.8204
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -0.2015749  0.1599082
sample estimates:
mean of the differences
 -0.02083333
```

```
> t.test(total2$WELLBNG, total2$WELLBNG5, paired=TRUE)
```

#### Paired t-test

```
data: total2$WELLBNG and total2$WELLBNG5
t = -0.75125, df = 191, p-value = 0.4534
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -1.0574612  0.4741279
sample estimates:
mean of the differences
 -0.2916667
```

```
> t.test(total2$PHYSICAL, total2$PHYSICAL5, paired=TRUE)
```

#### Paired t-test

```
data: total2$PHYSICAL and total2$PHYSICAL5
t = -11.154, df = 164, p-value < 2.2e-16
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -4.272951 -2.987655
sample estimates:
mean of the differences
 -3.630303
```

```
> t.test(total2$BAD, total2$BAD5, paired=TRUE)
```

#### Paired t-test

```
data: total2$BAD and total2$BAD5
t = -3.4913, df = 167, p-value = 0.0006151
alternative hypothesis: true difference in means is not equal to 0
```

95 percent confidence interval:

-3.4850791 -0.9673019

sample estimates:

mean of the differences

-2.22619

### ***BASE1 VS FOLLOW5***

```
> t.test(total3$AGE, total3$AGE5, paired=TRUE)
```

Paired t-test

data: total3\$AGE and total3\$AGE5

t = 1.0262, df = 119, p-value = 0.3069

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-0.1549226 0.4882560

sample estimates:

mean of the differences

0.1666667

```
> t.test(total3$WELLBNG, total3$WELLBNG5, paired=TRUE)
```

Paired t-test

data: total3\$WELLBNG and total3\$WELLBNG5

t = 1.4192, df = 143, p-value = 0.158

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-0.2291547 1.3958214

sample estimates:

mean of the differences

0.5833333

```
> t.test(total3$PHYSICAL, total3$PHYSICAL5, paired=TRUE)
```

Paired t-test

data: total3\$PHYSICAL and total3\$PHYSICAL5

t = -5.9427, df = 131, p-value = 2.386e-08

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-3.372602 -1.688004

sample estimates:

mean of the differences

-2.530303

```
> t.test(total3$BAD,total3$BAD5, paired=TRUE)
```

Paired t-test

data: total3\$BAD and total3\$BAD5

t = 0.90047, df = 155, p-value = 0.3693

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-0.6810401 1.8220658

sample estimates:

mean of the differences

0.5705128