

Appendix B

APPENDICES

Appendix A

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program were effective. The results of the survey showed that participants felt the activity log and the ACT program were effective.

Conclusion

After conducting the study, gathering the data, and evaluating the implications, the data did support the hypothesis and rejected the null hypothesis. Significant BMI change was shown at the end of the program for those who used the activity log. Also, families felt the activity log and the ACT program equipped them to eat healthy and remain active outside of the ACT program.

Recommendations

The literature discussed in this study indicated the direct correlation between exercise, nutrition and overall achievement of a healthy BMI. Various studies have shown that regular exercise with a healthy diet will lead to overall good health.

Since the study group did show a significant amount of growth in BMI reduction between the beginning of the program and the end of the program, the recommendation of the researcher is to continue the use of the weekly activity log for the upcoming ACT sessions. The researcher would also recommend using this method in all other ACT programs across the country.

CHAPTER 5

Summary, Conclusion, and Recommendations

Introduction

This chapter has been organized around the following topic: (a) introduction, (b) summary, (c) conclusions, and (d) recommendations.

Summary

The purpose of this project was to see whether families who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log would show a higher reduction in their BMI than students who participated in an Actively Changing Together (ACT) at the Yakima Family Y who did not use a weekly activity log.

One ACT group was chosen for this study. This class completed a weekly activity log over the twelve week program. The activity log was a topic of discussion each night of the ACT program. The other group of ACT participants were left without the use of the activity log over the twelve week program. At the end of the 12 weeks we compared the difference in BMI from the beginning to the end of the program for both groups. The group who was administered the activity log showed higher reduction in BMI than the group that didn't use the activity log.

The ACT group using the activity log was administered a survey at the end of the 12 week program to determine whether they felt the activity log and ACT

were nine participants who disagreed and zero participants strongly disagreed. The answers to this question showed researchers that some participants wished they could have seen their BMI decrease more over the twelve weeks while some were happy with the results.

To the question “I feel more confident when participating in activities with others.” Participants were asked this question to see if they felt an increase in confidence over the twelve week program. Zero participants strongly agreed while 12 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. Answers to this question showed that participants felt more confident participating in activities with others by the end of the program.

To the question “I would encourage my friends to participate in ACT”. Participants were asked this question to see if they felt the ACT program and its efforts are effective and worth recommending to others. Five participants strongly agreed while seven participants agreed with the statement. There were no participants who disagreed and strongly disagreed. Answers to this question showed that participants enjoyed the program and would recommend it to others.

To the hypothesis “Students who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will report that they feel more able to continue with their activities outside the Y program.” The researcher was able to support his hypothesis with the results of the survey.

days outside of the ACT program. Zero participants strongly agreed while 12 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The answers to this question showed researchers that participants were likely to exercise more when they are lead and held accountable by an instructor.

To the question “I am making better healthy choices as a result of participating in ACT.” Participants were asked this question to see the overall effectiveness of the program. Four participants strongly agreed while 8 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. Answers to this question showed participants had felt they were making healthier choices with there fitness and nutrition as a direct result of the ACT program.

To the question “I found the activity log helped me stay on track.” Participants were asked this question to see if they felt the activity log kept them on track with there fitness routine. Two participants strongly agreed while 10 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. Answers to this question showed participants felt the activity log was effective in keeping them on track with there fitness routine.

To the question “Participating in the ACT program reduced my BMI as much as I hoped.” This question was asked to see if participants were happy with there BMI results. Three participants agreed while zero participants strongly agreed with the statement. There

To the question “It helped to have my family participating every night of the program.” This question was asked to see whether participants felt that having the support of their family there every night helped them stay active and committed to the program. Four participants strongly agreed while 8 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. Answers to this question showed having family present was helpful in keeping the participants committed to the program.

To the question “I found the 30 minutes of physical activity easier to do by the end of the program.” Participants were asked this question to see if they felt their fitness levels had improved over the course of the program. Zero participants strongly agreed while 12 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. Answers to this question showed participants felt they were in better physical shape by the end of the ACT program.

To the question “I ate healthier meals as a result of the program.” Participants were asked this question to see if they felt the nutrition lessons from ACT helped them eat healthier. One participant strongly agreed while 10 participants agreed with the statement. One participant disagreed and none of the participants strongly disagreed. The answers to this question showed that participants felt the ACT program helped them eat healthier.

To the question “I exercised more on days that were ACT nights as a result of participating.” This question was asked to see if participants were more or less active on

Results of survey

Results of the survey indicated that the hypothesis "Students who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will report that they feel more able to continue with their activities outside the Y program" could be supported by the results of survey. Eleven questions were asked in order to rate the effectiveness of the activity log.

To the question "The ACT accountability tracking helped me stay motivated". This question was asked to see whether participants felt more motivated when they were able to track and see what activities they had completed throughout each week and over the course of the twelve week program. Three participants strongly agreed while nine participants agreed with the statement. There were no participants who disagreed or strongly disagreed. Answers to this question showed that participants felt the activity log kept them motivated throughout the program.

To the question "The ACT accountability tracking helped me stay active." This question was asked to see if participants felt being held accountable through the activity log helped them stay active throughout the program. One participant strongly agreed while 11 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. Answers to this question showed that participants felt being held accountable through the activity log was helpful in keeping them active.

Findings

A statistical t-Test was performed to determine whether there was significant difference in BMI change between participants who kept and activity log and those participants who did not consistently keep an activity log. The results of the independent t-test showed the number of scores for group X was 12, the mean score was - 0.75 while the the number of scores for group Y was 12 with a mean score of - 0.25. The t-value was - 2.25 with a degrees of freedom of 22. To show significance at $P=.05$ a t-value of 2.0739 was required with a degrees of 22. The results of this study showed a t-value of - 2.25 with degrees of freedom of 22. Therefore the independent t-test showed that the null hypothesis could be rejected and the hypothesis could be supported.

To the hypothesis” Students who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will show a significant reduction in their BMI”, the researcher was able to support the hypothesis with his findings. Research showed that students who used the activity log had a reduction in their BMI an average of .75 points. The students who did not use the activity log only had a BMI reduction of .25 points. The results of the statistical t-Test was performed to determine whether there was significant difference in BMI change between participants who kept and activity log and those participants who did not consistently keep an activity log. The difference was significant in favor of the participants who consistently kept an activity log.

To the question “I would encourage my friends to participate in ACT”. Five participants strongly agreed while seven participants agreed with the statement. There were no participants who disagreed and strongly disagreed. The mean score was 3.42.

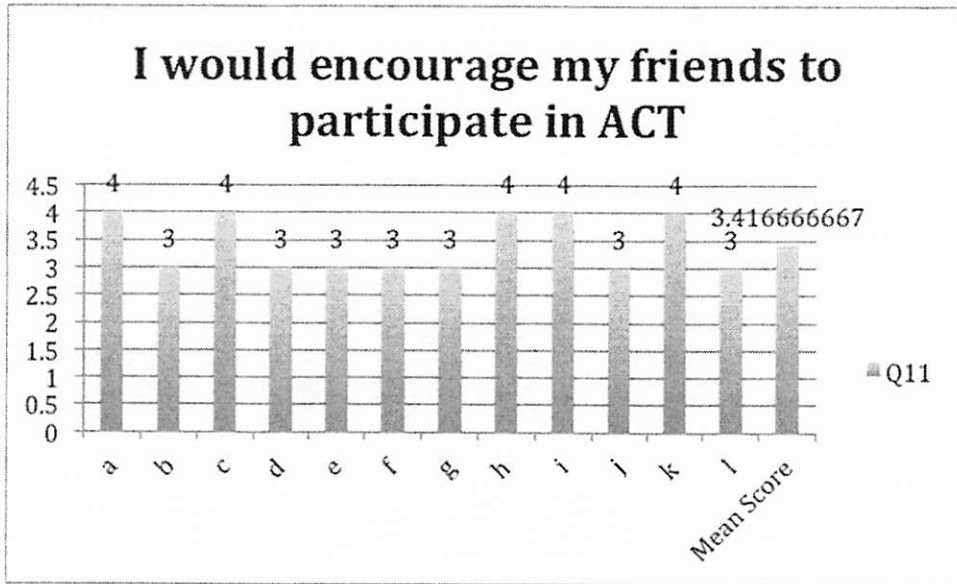


Figure 11

To the question “I feel more confident when participating in activities with others.” Zero participants strongly agreed while 12 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The mean score was 3.

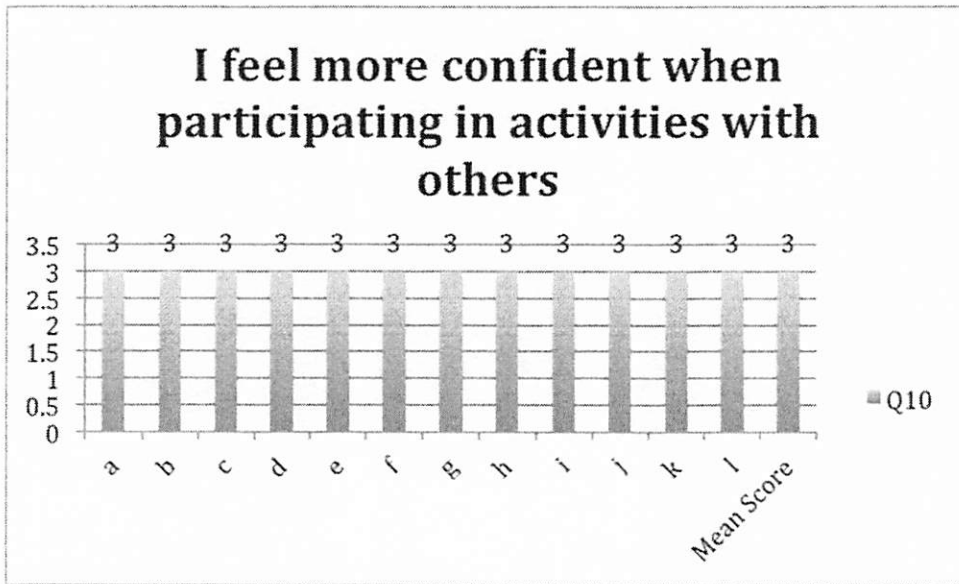


Figure 10

To the question “Participating in the ACT program reduced my BMI as much as I hoped.”

Three participants agreed while zero participants strongly agreed with the statement. There were nine participants who disagreed and zero participants strongly disagreed. The mean score was 2.25.

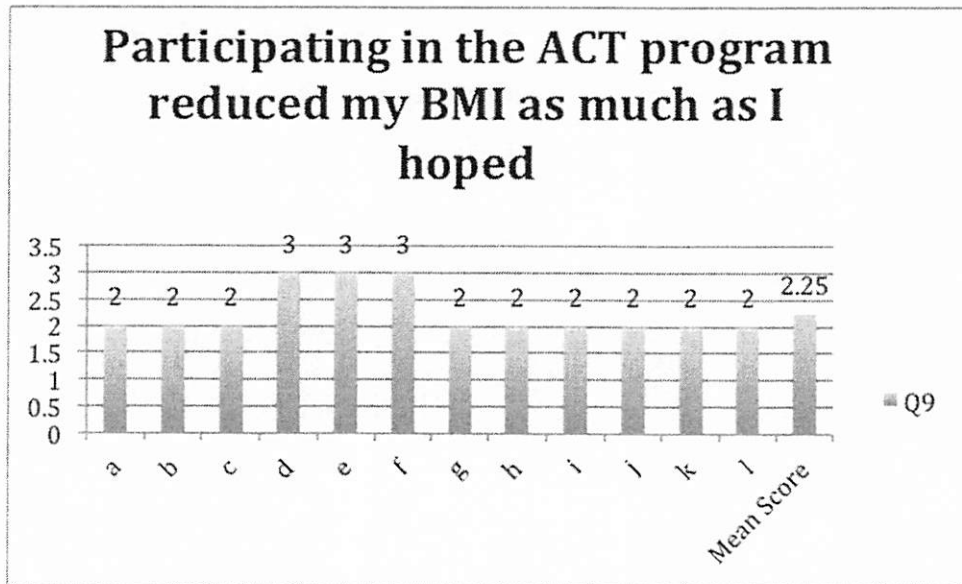


Figure 9

To the question “I found the activity log helped me stay on track.” Two participants strongly agreed while 10 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The mean score was 3.16.

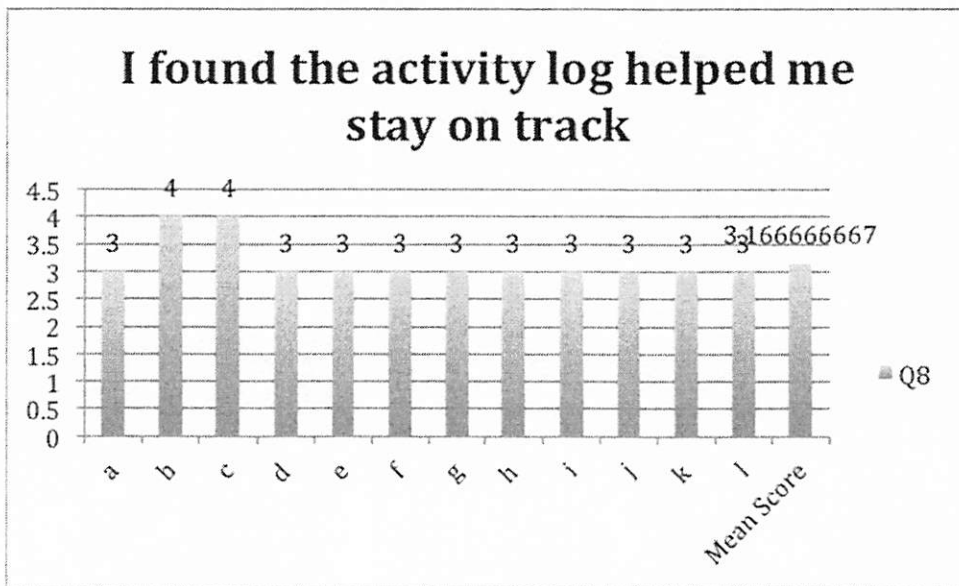


Figure 8

To the question “I am making better healthy choices as a result of participating in ACT.”

Four participants strongly agreed while 7 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The mean score was 3.3.

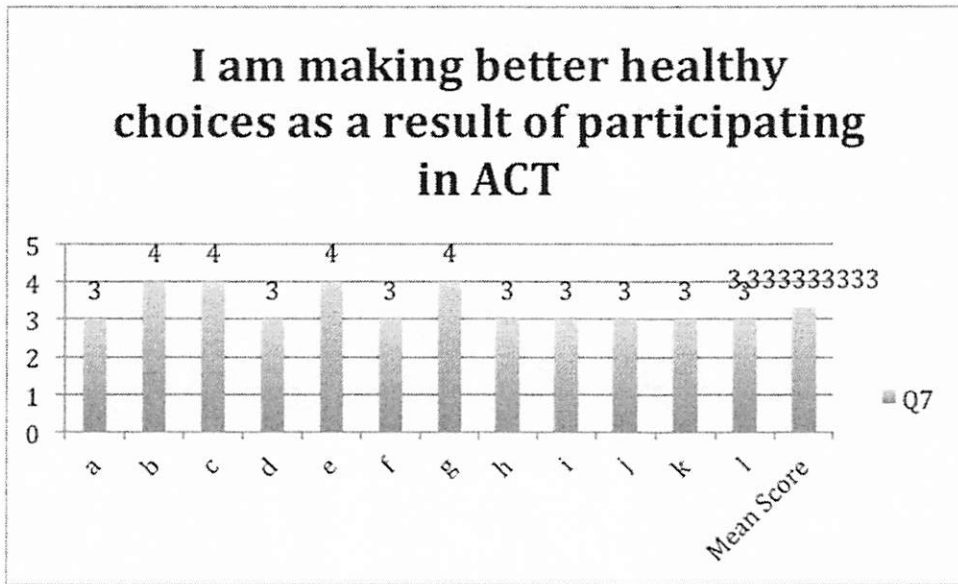


Figure 7

To the question “I exercised more on days that were ACT nights as a result of participating.” Zero participants strongly agreed while 12 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The mean score was 3.

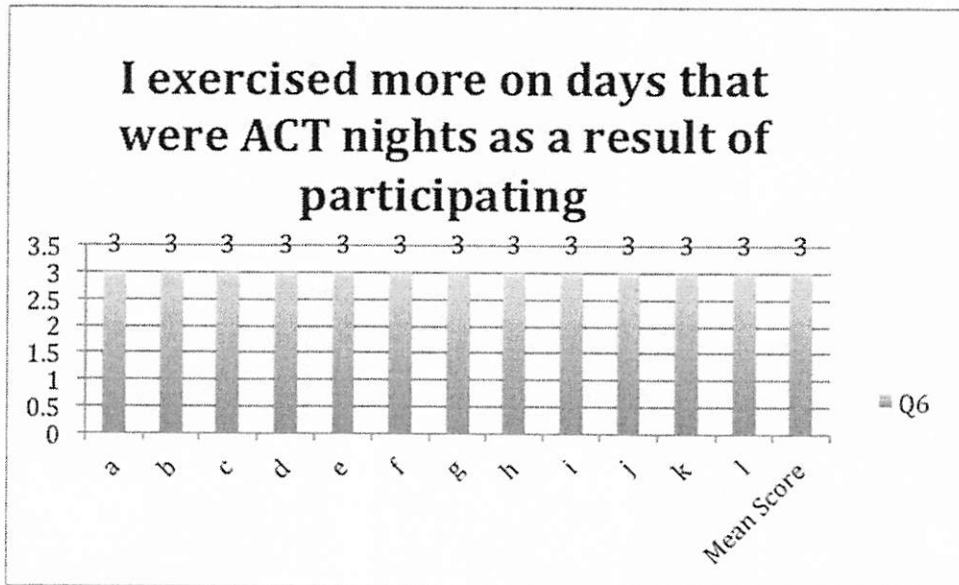


Figure 6

To the question “I ate healthier meals as a result of the program.” One participant strongly agreed while 10 participants agreed with the statement. One participant disagreed and none of the participants strongly disagreed. The mean score was 3.

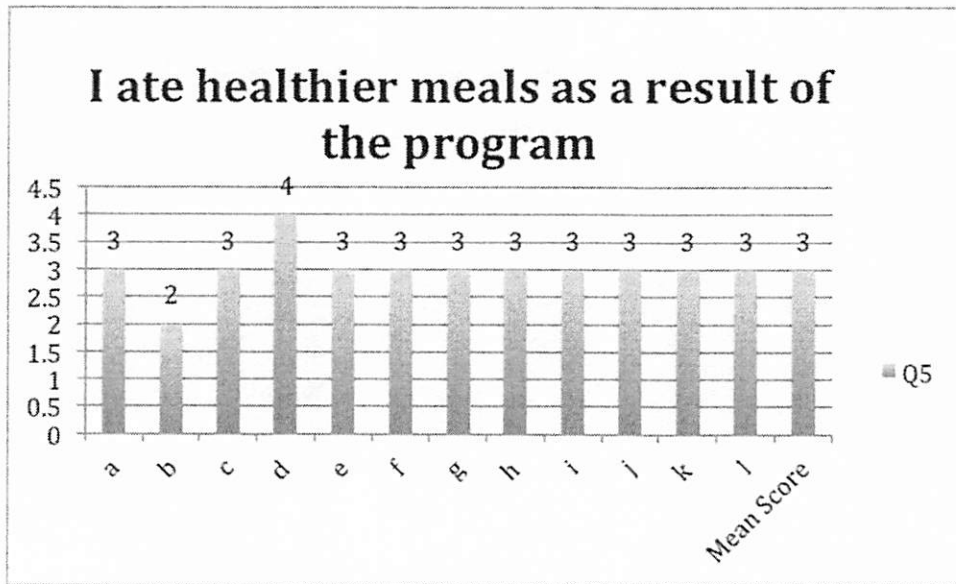


Figure 5

To the question “I found the 30 minutes of physical activity easier to do by the end of the program.” Zero participants strongly agreed while 12 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The mean score was 4.

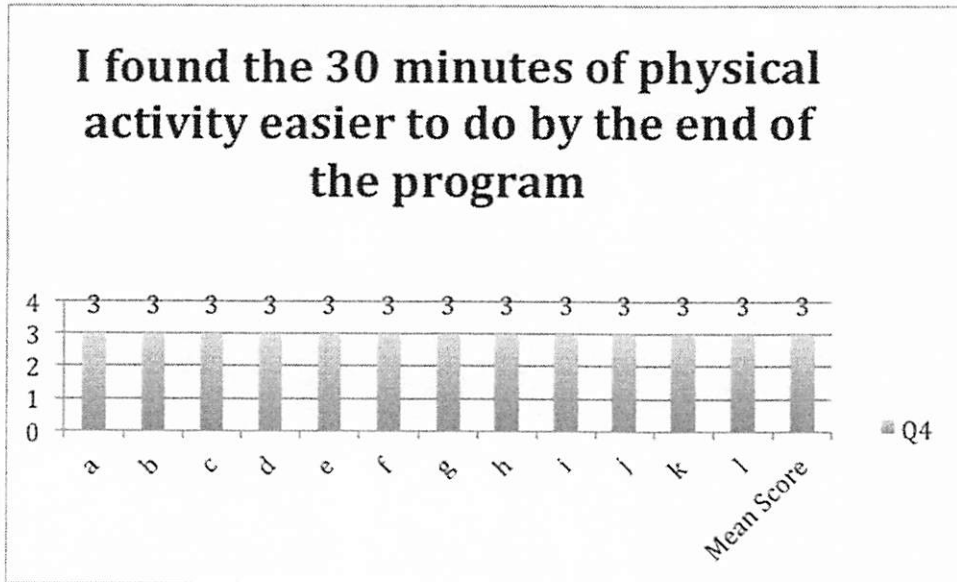


Figure 4

To the question “It helped to have my family participating every night of the program.”

Four participants strongly agreed while 8 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The mean score was 3.3.

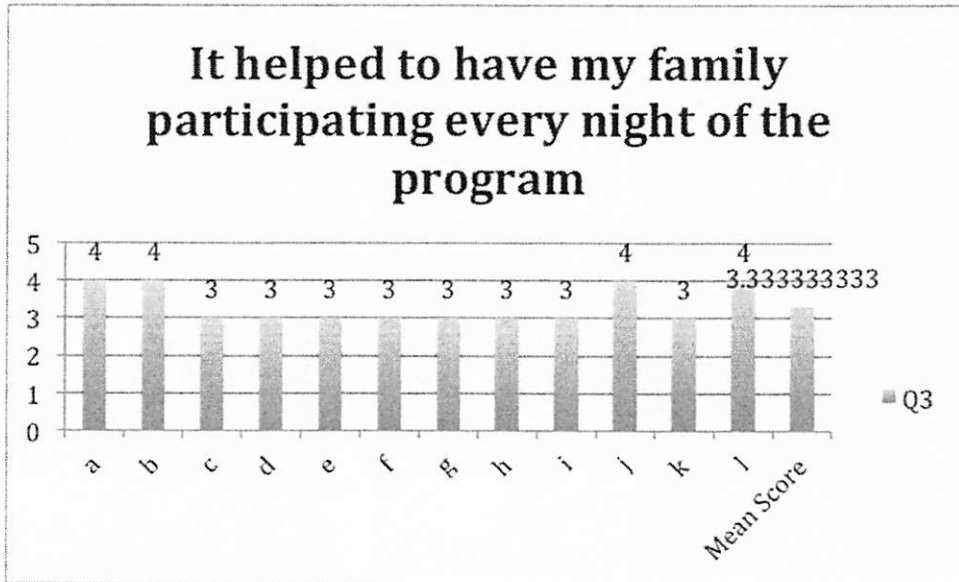


Figure 3

To the question “The ACT accountability tracking helped me stay active.” One participant strongly agreed while 11 participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The mean score was 3.08.

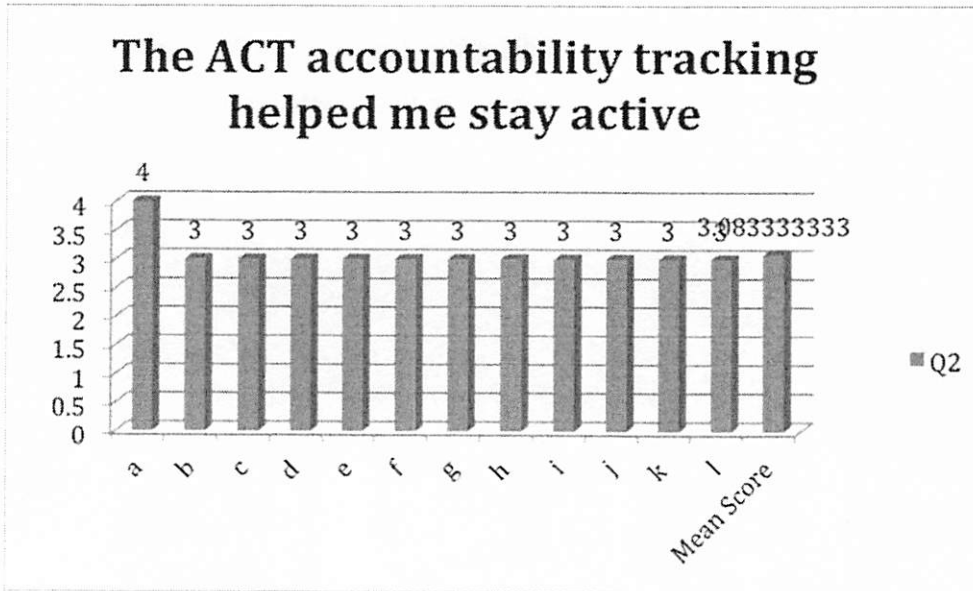


Figure 2

To the question “The ACT accountability tracking helped me stay motivated”.

Three participants strongly agreed while nine participants agreed with the statement. There were no participants who disagreed or strongly disagreed. The mean score was 3.25.

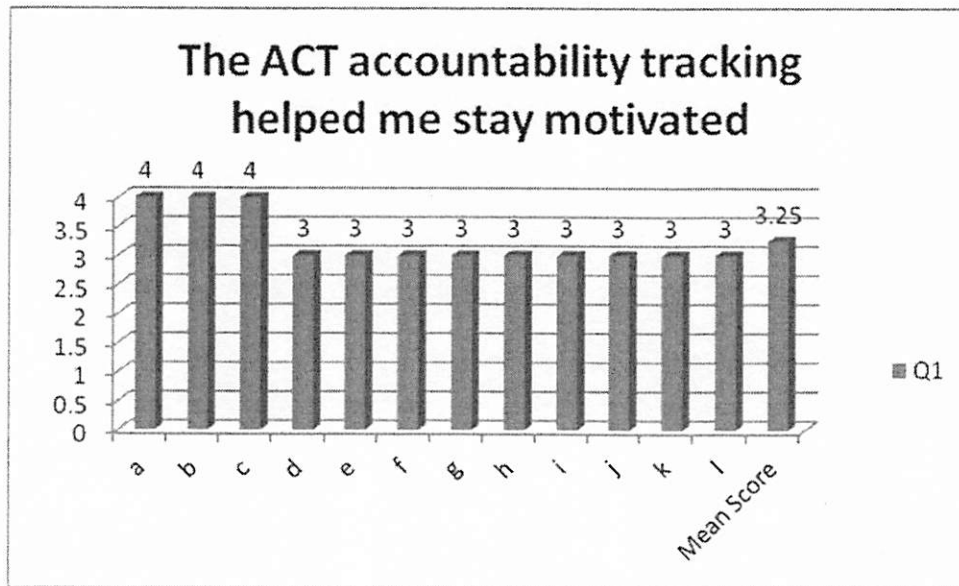


Figure 1

degrees of freedom of 22. Therefore the independent t-test showed that the null hypothesis could be rejected and the hypothesis could be supported.

The table showed that students who used the activity log had a reduction in their BMI an average of .75 points. The students who did not use the activity log only had a BMI reduction of .25 points.

Students who used the activity log				Students who did not use the activity log			
Student	Pre	Post	Difference	Student	Pre	Post	Loss
1	24.001	23	-1.001	1	21.001	21	-0.001
2	21.001	20	-1.001	2	20.001	20	-0.001
3	23.001	23	-0.001	3	22.001	22	-0.001
4	25.001	24	-1.001	4	23.001	22	-1.001
5	22.001	21	-1.001	5	21.001	21	-0.001
6	20.001	20	-0.001	6	24.001	23	-1.001
7	23.001	22	-1.001	7	25.001	25	-0.001
8	23.001	23	-0.001	8	25.001	26	0.999
9	24.001	23	-1.001	9	23.001	22	-1.001
10	24.001	23	-1.001	10	22.001	22	-0.001
11	23.001	22	-1.001	11	21.001	21	-0.001
12	21.001	20	-1.001	12	24.001	23	-1.001
Mean			-0.751				-0.251

Tyler
 group x scores 12
 Mean Score -0.75
 Group Y scores 12
 Mean score -0.25
 Degree of freedom 22
 t-value of -2.25

Table 1

participated in an Actively Changing Together (ACT) at the Yakima Family Y who did not use a weekly activity log. Students who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will report that they feel more able to continue with their activities outside the Y program.

Null Hypothesis

Students who participate in the program Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will not show a higher reduction in their BMI than students who participated in an Actively Changing Together (ACT) at the Yakima Family Y who did not use a weekly activity log. Students who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will not report that they feel more able to continue with their activities outside the Y program.

Results of the Study

A statistical t-Test was performed to determine whether there was significant difference in BMI change between participants who kept and activity log and those participants who did not consistently keep an activity log. The results of the independent t-test showed the number of scores for group X was 12, the mean score was - 0.75 while the the number of scores for group Y was 12 with a mean score of - 0.25. The t-value was - 2.25 with a degrees of freedom of 22. To show significance at $P=.05$ a t-value of 2.0739 was required with a degrees of 22. The results of this study showed a t-value of - 2.25 with

CHAPTER 4

Analysis of the Data

Introduction

Chapter 4 was organized around the following topics: (a) Description of Environment, (b) Hypothesis, (c) Results of the Study, (d) Findings, and (c) summary.

Description of Environment

This study was delimited to families who participated in the ACT program during the Winter of 2015. This included the children who were between the ages of 11-14 and their parents. There were 12 families who participated in the study. All of these families were first time ACT participants.

Each family was assessed using a body fat analysis machine as well as a stadiometer. These assessments took place at the beginning and the end of the 12 week program. The assessments were used to record their BMI at the beginning and end of the 12 week program.

Hypothesis

Students who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will show a significant reduction in their BMI than students who

Together (ACT) at the Yakima Family Y who did not use a weekly activity log. The analysis of data and findings from this study are reported in Chapter 4.

program. Results were tabulated and graphs created. The answers from the survey were tallied, entered into Excel, and analyzed. Results from the study were evaluated and conclusions drawn. Findings of the study were shared at a ACT program staff meeting where a decision was made regarding the weekly use of an activity log for future programs.

Treatment of Data

The data gathered from the activity log survey was calculated and examined using the Microsoft Excel program. Responses from the survey were numerically presented on a scale from 1 – 4. All information from the surveys was represented in Microsoft Graphs.

The data gathered from the survey was graphed by each individual student in the study and reviewed by the researcher during the study. After the survey was administered, the answers were gathered, tabulated, and examined using the Microsoft Excel Program. This program was used to find the mean, mode, and t-score of the classroom based assessments data gathered by the researcher.

Summary

This chapter was designed to review the methodology and treatment of data related to the study to determine if participants who used a weekly activity log would show a higher reduction in their BMI than students who participated in an Actively Changing

administered to all 12 participants. The survey was the tool that was used to gather data showing the efficacy of the activity log sheet.

After the data was gathered the researcher entered it into the spreadsheet program, Excel. Excel was the software program written and distributed by Microsoft. Excel was used to create graphs and charts. Statpak was the statistical calculator used to determine significance of the data results.

Design

The group of twelve participants in the study were predetermined. This study group fell into the category of Children with a BMI greater than 19 because the group was predetermined. The researcher prepared a survey the students took at the end of the study. This survey was to show how the students felt the daily activity log helped them to be successful at decreasing there BMI.

Procedure

The researcher wanted to determine if the participants found the ACT program more effective if the participants were asked to hold themselves accountable by tracking there own activities weekly. The researcher gathered data at the end of the ACT program in January of 2015. This occurred at the YMCA while all families were present for program ending ceremony. The data from the assessments and the survey were entered into an Excel

simplicity of data analysis. Graphs were created to represent both surveys and assessment data.

The collected data was entered into a statistical calculator (Stat Pak) and a t-chart. The results of the t-chart were then compared to distribution of t table to ascertain if the treatment did provide a significant change in student mathematic skills.

Participants

The researcher chose 12 students who ranged in age from 11-13 who were from East Yakima, West Yakima and Central Yakima. The students had been assigned this group by the administrators of the ACT program. All participants were referred to the ACT program by there Primary Care Physician. All families were employed and able to committ to all nights of the 12 week ACT program. This group included 12 students and all participated in this study. The study group contained 7 girls and 5 boys. All students who participated were entering the program with a BMI of greater than or equal to 19.

Instrument

A seven day weekly log sheet was administered to all 12 participants on every Monday night. Each participant was asked to share what different activities they had tried the previous week. At the end of the 12 week program a 10 question survey was

CHAPTER 3

Methodology and Treatment of the Data

Introduction

This chapter was organized around the following topics: (a) Methodology, (b) Participation, (c) Instruments, (d) Design, (e) Procedure, (f) Treatment of Data, and (g) Summary.

Methodology

The researcher chose to do an action research project. The researcher was given permission to conduct this study by the General Director, Bob Romero. The researcher sought to determine if after administering a weekly activity log sheet to the participants of the ACT program, that the participants would be more successful in reaching a lower BMI by the end of the 12 week program.

The researcher collected data at the end of the 12 week program. The participants were asked to use the weekly activity logs throughout the 12 week program in order to track their physical activity progress. At the end of the program each participant was administered a survey on the effectiveness of the weekly activity log. The data from both the surveys and assessments were entered into the spreadsheet program, Excel, for

family members or on their own that simply involve more activity. ("Tips for Parents | Healthy Weight | DNPAO | CDC," n.d.)

One part of balancing calories is to eat foods that provide adequate nutrition and an appropriate number of calories. You can help children learn to be aware of what they eat by developing healthy eating habits, looking for ways to make favorite dishes healthier, and reducing calorie-rich temptations. ("Tips for Parents | Healthy Weight | DNPAO | CDC," n.d.)

Another part of balancing calories is to engage in an appropriate amount of physical activity and avoid too much sedentary time. In addition to being fun for children and teens, regular physical activity has many health benefits, including strengthening bones, decreasing blood pressure, reducing stress and anxiety, increasing self-esteem, and helping with weight management. ("Tips for Parents | Healthy Weight | DNPAO | CDC," n.d.)

Children and teens should participate in at least 60 minutes of moderate intensity physical activity most days of the week, preferably daily. Remember that children imitate adults. Start adding physical activity to your own daily routine and encourage your child to join you. ("Tips for Parents | Healthy Weight | DNPAO | CDC," n.d.)

In addition to encouraging physical activity, help children avoid too much sedentary time. Although quiet time for reading and homework is fine, limit the time your children watch television, play video games, or surf the web to no more than 2 hours per day. The American Academy of pediatrics (AAP) does not recommend television viewing for children age 2 or younger. Instead, encourage your children to find fun activities to do with

siblings. These findings highlight the influential role that families play in childhood obesity.

Additionally, they suggest that health care providers should consider the structure of children's families in discussions with families regarding childhood obesity. ("CDC Stacks | Family Structure and Childhood Obesity, Early Childhood Longitudinal Study — Kindergarten Cohort - 20457 | PCD," n.d.)

More recently, studies have found that family structure also affects children's health care and physical health outcomes. Studies of childhood immunization have found that mothers who had more children were less likely to bring them for vaccination. What is known about the influence of family structure on family dynamics suggests that family structure may also affect childhood obesity. ("Preventing Chronic Disease: May 2010: 09_0156," n.d.)

To help children maintain a healthy weight, parents balance the calories your child consumes from foods and beverages with the calories your child uses through physical activity and normal growth. According to the Centers for Disease Control and Prevention, A healthy diet pattern follows dietary guidelines which emphasizes eating whole grains, fruits, vegetables, lean protein, low-fat and fat-free dairy products and drinking water. The Physical Activity Guidelines for Americans recommends adults do at least 150 minutes of moderate intensity activity or 75 minutes of vigorous intensity activity, or a combination of both, along with 2 days of strength training per week. ("Obesity Causes | Adult | Obesity | DNPAO | CDC," n.d.)

Reinvestment Act of 2009, the Obama Administration is working to ensure every American has the opportunity to live their healthiest life possible. ("CDC Features - National Prevention Strategy: America's Plan for Better Health and Wellness," n.d.)

Family Focus on Nutrition and Fitness

Family represents the primary source of social learning, influence, and exposure to and adoption of health habits. Family provides social and interpersonal support that is instrumental in shaping and maintaining children's eating habits and physical activity patterns. Furthermore, physical and compositional characteristics of the family influence family behaviors. One key characteristic is family structure. For example, research suggests that family rules, parental involvement, sibling interactions, and emotional support — all of which are determinants of health behaviors — are integrally linked to family structure. ("Preventing Chronic Disease: May 2010: 09_0156," n.d.)

According to a study done by the Center for Disease Control and Prevention, "Other things being equal, children living with single mothers were more likely to be obese by fifth grade than were children living with 2 parents (26% vs 22%, $P = .05$). Children with siblings had lower BMI and were less likely to be obese than children without siblings. Also found that living with a single mother or no siblings was associated with larger increases in BMI from kindergarten through fifth grade." The study concluded that children from single-mother families and, especially, children with no siblings are at higher risk for obesity than children living with 2 parents and children with

abuse and excessive alcohol use, healthy eating, active living, injury and violence-free living, reproductive and sexual health, mental and emotional wellbeing. ("CDC Features - National Prevention Strategy: America's Plan for Better Health and Wellness," n.d.)

The Affordable Care Act called for The National Prevention Council, which is composed of the heads of 17 Federal agencies and chaired by the Surgeon General. The National Prevention Strategy was developed by the Council with input from stakeholders, the public, and the Advisory Group on Prevention, Health Promotion, and Integrative and Public Health. Under the coordination of the National Prevention Council and the advice of the Advisory Group, Federal agencies and private and public partners have worked together to help implement the Strategy at the national, state, tribal, and local levels, recognizing the importance of a broad approach to addressing the health and well-being of our communities. ("CDC Features - National Prevention Strategy: America's Plan for Better Health and Wellness," n.d.)

According to The Center for Disease Control and Prevention, a number of Obama Administration efforts are underway to help support and achieve the goals outlined in the National Prevention Strategy. Members of the President's Cabinet are taking action to work together to implement programs to improve Americans' lives, including the Great Outdoors Initiative, the Neighborhood Revitalization Initiative, and Executive Order 13548 to make the federal government a model employer of persons with disabilities. Through these efforts and others like the President's Childhood Obesity Task Force and the First Lady's Let's Move! initiative aimed at combating childhood obesity, as well as programs supported by the American Recovery and

home and not just in the doctor's office. For example, businesses and employers can adopt practices to encourage their workforce to increase physical activity and reduce pollution (e.g., workplace flexibility, rideshare and vanpool programs, park-and-ride incentives, travel demand management initiatives, and telecommuting options). The second direction will be Expanding Quality Preventive Services in Both Clinical and Community Settings: When people receive preventive care, such as immunizations and cancer screenings, they have better health and lower health care costs. For example, expanding the linkages between clinical and community prevention efforts, such as diabetes prevention programs that support preventive efforts among underserved groups and can improve access to preventive services. Thirdly, empowering people to make healthy choices: Policies and programs can make healthy options the easy and affordable choice, and when people have access to actionable and easy-to-understand information and resources, they are empowered to make healthier choices. For example, health care professionals can use multiple communication tools (e.g., mobile phone applications, personal health records, and credible health websites) and culturally competent methods to support more traditional written and oral communication. Lastly, eliminating health disparities. By eliminating disparities in achieving and maintaining health, we can help improve quality of life for all Americans. For example, health care providers can train and hire more qualified staff from underrepresented racial and ethnic minority groups and people with disabilities. To help achieve these goals, the strategy identifies evidence-based recommendations that are most likely to reduce the burden of leading causes of preventable death and major illness. The Strategy's seven priority areas are tobacco free living, preventing drug

Americans each year were from chronic diseases (such as cancer and heart disease), and almost one out of every two adults had at least one chronic illness, many of which were preventable. Racial and ethnic minority communities experience higher rates of obesity, cancer, diabetes and AIDS. Children have also become increasingly vulnerable. Today, almost one in every three children in our nation is overweight or obese which predisposes them to chronic disease and the numbers are even higher in African American and Hispanic communities. ("CDC Features - National Prevention Strategy: America's Plan for Better Health and Wellness," n.d.)

Focusing on preventing disease and illness before they occur creates healthier homes, workplaces, schools and communities so that people can live long and productive lives and reduce their healthcare costs. Better health positively impacts our communities and our economy. With better health, children are in school more days and are better able to learn. Numerous studies have found that regular physical activity supports better learning. Student fitness levels have been correlated with academic achievement, including improved math, reading and writing scores. ("CDC Features - National Prevention Strategy: America's Plan for Better Health and Wellness," n.d.)

The goal of the National Prevention Strategy was to increase the number of Americans who are healthy at every stage of life. The strategy provided evidence-based recommendations that are fundamental to improving the nation's health through the active engagement of all sectors of society to help achieve four broad strategic directions which are Building Healthy and Safe Community Environments through prevention of diseases that start in our communities and at

skiing, most competitive sports, and jumping rope. ("Physical Activity | Healthy Weight | DNPAO | CDC," n.d.)

Government Role

According to the Center for Disease Control and Prevention The National Prevention Strategy has a comprehensive plan that will help increase the number of Americans who are healthy at every stage of life. Created by the National Prevention, Health Promotion, and Public Health Council in consultation with the public and an Advisory Group of outside experts, the Strategy recognizes that good health comes not just from receiving quality medical care but from stopping disease before it starts. Good health also comes from safe outdoor spaces for physical activity, healthy foods, violence-free environments and healthy homes. Prevention should be woven into all aspects of our lives, including where and how we live, learn, work and play.

Everyone—businesses, educators, health care institutions, government, communities and every single American—has a role in creating a healthier nation. Called for by the Affordable Care Act, the National Prevention Strategy includes actions that public and private partners can take to help Americans stay healthy and fit. It helps move the nation away from a health care system focused on sickness and disease to one focused on wellness and prevention. ("CDC Features - National Prevention Strategy: America's Plan for Better Health and Wellness," n.d.)

The focus on disease prevention has become more important with the amount of deaths from chronic diseases. Increasing the focus on prevention in our communities will help improve America's health, quality of life and prosperity. For example, seven out of 10 deaths among

When it comes to weight management, people vary greatly in how much physical activity they need. To maintain your weight you should work your way up 150 minutes of moderate-intensity aerobic activity, 75 minutes of vigorous intensity aerobic activity, or an equivalent mix of the two each week. Strong scientific evidence shows that physical activity can help maintain your weight over time. However, the exact amount of physical activity needed to this is not clear since it varies greatly from person to person. It's possible that you may need to do more than the equivalent of 150 minutes of moderate-intensity activity a week to maintain your weight. ("Physical Activity | Healthy Weight | DNPAO | CDC," n.d.)

To lose weight and keep it off you will need a high amount of physical activity unless you also adjust your diet and reduce the amount of calories you're eating and drinking. Getting to and staying at a healthy weight requires both regular physical activity and a healthy eating plan. ("Physical Activity | Healthy Weight | DNPAO | CDC," n.d.)

There are two types of physical activity; moderate and vigorous. Moderate while performing physical activity, if your breathing and heart rate is noticeably faster but you can still carry on a conversation. Examples of moderate physical activity would be walking briskly, light yard work, light snow shoveling, actively playing with children and biking at a casual pace. Vigorous physical activity will cause your rate to increase substantially and you are breathing too hard and fast to have a conversation. Examples could include: jogging/running, swimming laps, rollerblading/inline skating at a brisk pace, cross country

May 2012, that waist-to-height ratio is a superior predictor than BMI of type 2 diabetes and cardiovascular diseases. Dr. Ashwell said "Keeping your waist circumference to less than half your height can help increase life expectancy for every person in the world." Ashwell explained that BMI does not take into account the distribution of fat around the body. Abdominal fat affects organs like the kidney, liver and heart more severely than fat around the bottom or hips. Waist circumference gives an indication of abdominal fat levels. ("Why BMI is inaccurate and misleading - Medical News Today," n.d.)

Regular physical activity is important for good health, and it's especially important if you're trying to lose weight or to maintain a healthy weight. When losing weight, more physical activity increases the number of calories your body uses for energy or "burns off." The burning of calories through physical activity, combined with reducing the number of calories you eat, creates a "calorie deficit" that results in weight loss. Most weight loss occurs because of decreased caloric intake. However, evidence shows the only way to maintain weight loss is to be engaged in regular physical activity. Most importantly, physical activity reduces risks of cardiovascular disease and diabetes beyond that produced by weight reduction alone. Physical activity also helps to maintain weight, reduce high blood pressure, reduce risk for type 2 diabetes, heart attack, stroke, and several forms of cancer. Physical activity also can reduce arthritis pain and associated disability; reduce risk for osteoporosis and falls, reduce symptoms of depression and anxiety.

diseases, osteoarthritis, and liver and gallbladder diseases. Being obese heightens the risk of premature death. However, a number of studies have demonstrated that some obese individuals have lower cardiovascular risk and an improved metabolic profile, while a subset of “normal BMI” people are metabolically unhealthy and have increased mortality risk. (“Beyond BMI: The Value of More Accurate Measures of Fatness and Obesity in Social Science Research,” n.d.)

Nick Trefethen, Professor of Numerical Analysis at Oxford University’s Mathematical Institute, in a letter to The Economist that BMI leads to confusion and misinformation. Professor Trefethen believes that the BMI height/weight term divides the weight by too much in short people and too little in tall individuals. This results in tall people believing they are fatter than they really are, and short people thinking they are thinner. (“Why BMI is inaccurate and misleading - Medical News Today,” n.d.)

Researchers from the Medical Research Council (MRC) Epidemiology Unit, UK, reported in PloS Medicine that waist circumference is strongly and independently associated with type two diabetes risk, even after accounting for BMI. Study leader, Dr Claudia Langenberg and team suggested that waist circumference should be measured more widely for estimating type 2 diabetes risk. (“Why BMI is inaccurate and misleading - Medical News Today,” n.d.)

Dr Margaret Ashwell, an independent consultant and former science director of the British Nutrition Foundation, explained at the 19th Congress on Obesity in Lyon, France,

Although the BMI number is calculated the same way for children and adults, the criteria used to interpret the meaning of the BMI number for children and teens are different from those used for adults. For children and teens, BMI age- and sex-specific percentiles are used for two reasons. One reason being the amount of body fat changes with age. The second reason would be the amount of body fat differs between girls and boys. The CDC BMI-for-age growth charts take into account these differences and allow translation of a BMI number into a percentile for a child's sex and age. ("About Child & Teen BMI | Assessing Your Weight | Healthy Weight | DNPAO | CDC," n.d.)

Virtually all social science research related to obesity uses body mass index (BMI). Yet there WAS wide agreement in the medical literature that such measures WERE seriously flawed because they do not distinguish fat from fat-free mass such as muscle and bone. More accurate measures of fatness such as total body fat, percentage body fat and waist circumference have greater theoretical support in medical literature. ("Beyond BMI: The Value of More Accurate Measures of Fatness and Obesity in Social Science Research," n.d.)

BMI has also been described as being an inaccurate measure of body fat content and does not take into account muscle mass, bone density, overall body composition, and racial sex differences, say researchers from the Perelman School of Medicine, University of Pennsylvania. People with a BMI of 30 or more, i.e. obese individuals, have a significantly higher risk of eventually becoming diabetic, developing cancer, cardiovascular

specific and is often referred to as BMI-for-age. ("About Child & Teen BMI | Assessing Your Weight | Healthy Weight | DNPAO | CDC," n.d.)

After BMI is calculated for children and teens, the BMI number is plotted on the CDC BMI-for-age growth charts to obtain a percentile ranking. Percentiles are the most commonly used indicator to assess the size and growth patterns of individual children in the United States. The percentile indicates the relative position of the child's BMI number among children of the same sex and age. The growth charts show the weight status categories used with children and teens (underweight, healthy weight, overweight, and obese). ("About Child & Teen BMI | Assessing Your Weight | Healthy Weight | DNPAO | CDC," n.d.)

BMI is used as a screening tool when identifying possible weight problems for children. CDC and the American Academy of Pediatrics (AAP) recommend the use of BMI to screen for overweight and obesity in children beginning at 2 years old. For children, BMI is used to screen for obesity, overweight, healthy weight, or underweight. However, BMI is not a diagnostic tool. For example, a child may have a high BMI for age and sex, but to determine if excess fat is a problem, a health care provider would need to perform further assessments. These assessments might include skinfold thickness measurements, evaluations of diet, physical activity, family history, and other appropriate health screenings. ("About Child & Teen BMI | Assessing Your Weight | Healthy Weight | DNPAO | CDC," n.d.)

individual children—including acute and chronic physical and psychological complications—and for the larger social environment. The importance of social work intervention and collaboration within primary, secondary, and tertiary prevention levels is explored. ("ERIC - Understanding and Acting on the Growing Childhood and Adolescent Weight Crisis: A Role for Social Work, Health & Social Work, 2010," n.d.)

Body Mass Index

Overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height. The terms also identify ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems. ("About Child & Teen BMI | Assessing Your Weight | Healthy Weight | DNPAO | CDC," n.d.)

Body Mass Index (BMI) is a number calculated from a child's weight and height. BMI is a reliable indicator of body fatness for most children and teens. BMI does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat, such as underwater weighing and dual energy x-ray absorptiometry (DXA). BMI has been considered an alternative for direct measures of body fat. Additionally, BMI has been considered inexpensive and an easy-to-perform method of screening for weight categories that may lead to health problems. For children and teens, BMI is age- and sex-

The rise in adolescent obesity has become a public health concern, especially because of its impact on disadvantaged youth. There is a strikingly high prevalence of adolescent obesity among underprivileged groups, including racial/ethnic minorities and those living in households affected by poverty and low levels of education. These vulnerable populations of adolescents not only contend with disadvantage at the family level but also at the peer group, neighborhood, and school level. Schools have served as a primary setting for obesity prevention efforts. Because obesity in adolescence tracks into adulthood, it is important to consider prevention efforts at this stage in the life course, in addition to early childhood, particularly among disadvantaged populations. ("ERIC - Multiple Levels of Social Disadvantage and Links to Obesity in Adolescence and Young Adulthood, Journal of School Health, 2013-Mar," n.d.)

Since 1960, the prevalence of childhood obesity in the United States increased dramatically from 5% to 16.9%. To date many interventions to address obesity in schools have focused on healthy changes to the content of vending machines, school lunches, and the addition of afterschool activities to increase physical activity. ("ERIC - The Role of School Counselors in the Childhood Obesity Epidemic, Journal of School Counseling, 2011," n.d.)

Numerous individual, family, community, and social factors contribute to overweight and obesity in children and are explored. If left unaddressed, the epidemic of childhood and adolescent overweight and obesity may lead to amplified problems for

Causes, Treatment - What are the risks, complications, and long-term health effects of childhood obesity? - MedicineNet," n.d.)

Behavior and learning problems are common amongst overweight children.

Overweight children tend to have more anxiety and poorer social skills than normal-weight children have. At one extreme, these problems may lead overweight children to act out and disrupt their classrooms. At the other, they may cause children to socially withdraw. Low self-esteem can create overwhelming feelings of hopelessness in some overweight children. When children lose hope that their lives will improve, they may become depressed. A depressed child may lose interest in normal activities, sleep more than usual or cry a lot. Some depressed children hide their sadness and appear emotionally flat instead. Either way, depression is as serious in children as in adults. ("Childhood obesity

Complications - Mayo Clinic," n.d.)

In addition to suffering from poor physical health, overweight and obese children can often be targets of early social discrimination. The psychological stress of social stigmatization can cause low self-esteem which, in turn, can hinder academic and social functioning, and persist into adulthood. While research is still being conducted, there have been some studies showing that obese children are not learning as well as those who are not obese. Further, physical fitness has been shown to be associated with higher achievement. ("Health Problems and Childhood Obesity | Let's Move!," n.d.)

other health problems. The cluster of conditions includes high blood pressure, high blood sugar, high cholesterol and excess abdominal fat. A child can develop high blood pressure or high cholesterol if he or she eats a poor diet. These factors can contribute to the buildup of plaques in the arteries. These plaques can cause arteries to narrow and harden, which can lead to a heart attack or stroke later in life.

Asthma and other breathing problems can be caused by obesity. The extra weight on a child's body can cause problems with the development and health of a child's lungs, leading to asthma or other breathing problems.

Nonalcoholic fatty liver disease (NAFLD) is a disorder that can stem from childhood obesity which causes fatty deposits to build up in the liver. NAFLD can lead to scarring and liver damage. All of the stages of NAFLD are now believed to be due to insulin resistance, a condition closely associated with obesity. In fact, the BMI correlates with the degree of liver damage, that is, the greater the BMI the greater the liver damage. ("Obesity and Fatty Liver disease on MedicineNet.com - Page 2," n.d.)

Social and emotional complications can be caused by childhood obesity. Low self-esteem and bullying is common because children often tease or bully their overweight peers, who suffer a loss of self-esteem and an increased risk of depression as a result. Depression, leading to possible further eating or an exaggerated overcorrection leading to eating disorders such as bulimia and anorexia nervosa. ("Childhood Obesity Symptoms,

Frechen, Germany, 1998 states that: "Affirming the Paris Basis adopted in 1855 as the ongoing foundation statement of the mission of the YMCA, at the threshold of the third millenium we declare that the YMCA is a world-wide Christian, ecumenical, voluntary movement for women and men with special emphasis on and the genuine involvment of young people and that it seeks to share the Christian ideal of building a human community of justice with love, peace and reconciliation for the fullness of life for all creation."

("YMCA International - World Alliance of YMCAs: Mission," n.d.)

Childhood Obesity

Obesity is an illness that occurs due to a combination of genetic, environmental, psychosocial, metabolic and hormonal factors. The prevalence of obesity has shown a great rise both in adults and children in the last 30 years. One third of children who are obese in childhood and 80% of adolescents who are obese in their adolescent years continue to be obese later in life. Obesity is an important risk factor in serious illnesses such as heart disease, hyperlipidemia, hyperinsulinemia, hypertension and early atherosclerosis. ("ERIC - Childhood Obesity, InTech, 2012-Mar-28," n.d.)

Physical complications can arise as a result of childhood obesity. Type 2 diabetes in children is a chronic condition that affects the way a childs body metabolizes sugar. Obesity and a sedentary lifestyle increase the risk of type 2 diabetes. Metablobic syndrome is a cluster of conditions that can put a child at risk of developing heart disease, diabetes, and

CHAPTER 2

Review of Selected Literature

Introduction

This chapter was organized around the following topics: (a) YMCA Structure, Purpose and Membership, (b) Childhood Obesity (c) Body Mass Index, (d) Government Role, and (e) Family Focus on Nutrition and Fitness.

YMCA

The YMCA was founded in 1844 in London, England by 12 young men led by George Williams. The objective was “improvement of the spiritual condition of the young men engaged in houses of business, by the formation of Bible classes, family and social prayer meetings, mutual improvement societies, or any other spiritual agency.” George Williams and his other founding members wasted no time in organising YMCA branches throughout England, Scotland and Ireland. YMCA movements then began to develop across Western Europe, USA, Australia, New Zealand, and India. (“YMCA International - World Alliance of YMCAs: Mission,” n.d.)


The World Alliance of YMCAs was founded in 1855 at its first World Conference, held in Paris. The first mission statement was developed at this time known as the Paris Basis. The YMCA’s mission statement has since changed in order to reflect the contemporary realities. Challenge 21, adopted at the 14th World Council of YMCA’s,

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ABSTRACT

Youth Obesity Prevention

Researcher: Tyler Johnson, B.S. in Social Sciences. Interdisciplinary Studies,
CWU

M.Ed., Heritage University

Chair Advisory Committee: Robert P. Kraig, PhD.

The purpose of this project was to see whether families who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log would show a higher reduction in their BMI than students who participated in an Actively Changing Together (ACT) at the Yakima Family Y who did not use a weekly activity log.

The research showed significant BMI changes at the end of the program by those who used the activity log. Families felt the activity log and the ACT program equipped them to eat healthy and remain active outside of the ACT program.

Childhood obesity- defined as a BMI at or above the 95th percentile for children and teens of the same sex and age.

Physical Activity- defined as any bodily movement produced by skeletal muscles that requires energy expenditure.

Muscle Mass- is a determinant of metabolic homeostasis, physical strength and daily activities. Higher lean mass equates to higher nutritional reserve and strength whereas lower muscle mass is a major contributor to disability and increased mortality.

Bone Density- The amount of bone tissue in a certain volume of bone. It can be measured using a special x-ray called a quantitative computed program.

Calorie- A unit of food energy.

Acronyms

ACT- Actively Changing Together

BMI- Body Mass Index

YMCA- Young Men's Christian Association

2. A review of selected literature was conducted at WPES, Heritage University, and internet search engines.
3. All students were given a body composition pretest before the study began. Results were shared with staff of the YMCA and Memorial Hospital
4. The weekly log was implemented in January of 2015.
5. Activity log sheets were checked weekly in order to track progress.
6. At the end of the 12 week program the body composition test was administered and then shared with staff at the YMCA and Memorial Hospital.
7. At the end of the 12 week program the group was given a survey regarding how they felt about the activity log.
8. The findings of the survey were tabulated and presented.
9. Results of this study were shared with staff.
10. A conclusion was drawn regarding the use of a weekly activity log sheet.

Definition of Terms

For the purpose of this study, the following words were defined:

Body Mass Index- is a measurement that shows the amount of fat in your body in which is based on your weight and height.

Obesity- a condition characterized by the excessive accumulation and storage of fat in the body

Yakima Family Y using a weekly activity log will report that they feel more able to continue with their activities outside the Y program.

Null Hypothesis

Students who participate in the program Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will not show a higher reduction in their BMI than students who participated in an Actively Changing Together (ACT) at the Yakima Family Y who did not use a weekly activity log. Students who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will not report that they feel more able to continue with their activities outside the Y program.

Significance of the Project

The purpose of this project was to determine the effectiveness of a weekly log sheet in tracking the participants BMI through out the ACT program. The results of this study were shared staff at the Yakima YMCA and the community health coordinators at Memorial Hospital.

Procedure

For the purpose of this project, the following procedures were implemented:

1. Permission to conduct research at the Yakima YMCA was granted by the General Director Bob Romero.

Delimitations

This study was delimited to families who participated in the ACT program during the Winter of 2015. This included the children who were between the ages of 11-14 and their parents. There were 12 families who participated in the study. All of these families were first time ACT participants.

Each family was assessed using a body fat analysis machine as well as a stadiometer. The measurements obtained were used in measuring each participant's BMI. These assessments took place at the beginning and the end of the 12 week program to track progress.

Assumptions

For this study it was assumed that all families listed all forms of activity they had participated in throughout the program. Secondly, it was assumed that the participants would increase their knowledge of leading a healthy lifestyle through eating healthy and staying active. Finally, this study assumes that all participants were truthful in their activity tracking sheet.

Hypothesis

Students who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log will show a significant reduction in their BMI than students who participated in an Actively Changing Together (ACT) at the Yakima Family Y who did not use a weekly activity log. Students who participate in an Actively Changing Together (ACT) at the

minutes was spent with the kids doing physical activity while the parents worked with a nutritionist on eating healthy at home. The last 30 minutes was spent with the whole family and the nutritionist where they continued the nutrition lesson as well as learn how to cook a healthy meal.

Statement of the Problem

According to the Washington State Department of Health, 23% of the children in Washington State are considered obese. Also, 27% of the adults in Washington State are also obese. The state of Washington has a problem with obesity and it must be addressed with parents and families. ("Obesity :: Washington State Dept. of Health," n.d.)

The ACT program has fallen short in getting the families to exercise outside of the program nights. This has resulted in attendance dropping by the end of the program. Also, it has resulted in lack of weight loss and healthy lifestyle decisions. The problem being addressed with this study is the lack of tracking the families outside activities. ("Obesity :: Washington State Dept. of Health," n.d.)

Purpose of the Project

The purpose of this project was to see whether families who participate in an Actively Changing Together (ACT) at the Yakima Family Y using a weekly activity log would show a higher reduction in their BMI than students who participated in an Actively Changing Together (ACT) at the Yakima Family Y who did not use a weekly activity log.

CHAPTER 1

Introduction

Background for the Project

The ACT program was a program that was designed in order to combat childhood obesity. ACT which stands for Actively Changing Together was first brought to Yakima in the Fall of 2012. The program involved community partners such as the Yakima Family YMCA, Memorial Hospital, Pacific Northwest University, Sage Fruit, Seattle Childrens Hospital, and the Safeway Foundation. These organizations came together to produce a program that would be successful in addressing the issue of childhood obesity in the Yakima Valley.

The ACT program was designed for families with kids between the ages of 8-14 that have a BMI greater than the 85th percentile. Kids in this percentile were to obtain a referral from a doctor or a qualified nurse in order to gain entrance into the program. Once the families had gone through the referral process they were scheduled for a fitness evaluation that involved body fat testing, height and weight measurements. These tests were used to track the progress of the child throughout the program. Not only did the child go through the testing but the parents were also asked to go through the testing in order to track the whole families progress. The program then started the following week and ran for twelve weeks straight. The families spent 90 minutes a week at the Yakima YMCA in which they spent 30 minutes doing physical activity as a family with a certified trainer. The next 30

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FACULTY APPROVAL

Youth Obesity Prevention

A Master's Special Project

by

Tyler Johnson

Approved for the Faculty

Robert P. Kraig, Faculty Advisor

Dr. Robert P. Kraig

Dec 5, 2015, Date

Youth Obesity Prevention

A Special Project

Presented to

Dr. Robert P. Kraig

Heritage University

In Partial Fulfillment

of the Requirements for the Degree of

Masters in Education –Organizational Leadership

Tyler Johnson

12/1/15