

Assessing Parent Satisfaction and Child Outcomes:

A Qualitative Evaluation of a Community-Based Exercise and Nutrition Program

Brittany D. McDonald, Anne E. Stevens, Jessica T. Hinojosa,

Judah W. Serrano & Cynthia M. Hartung

University of Wyoming

Abstract

The Healthy Kids Rx program is designed to increase physical activity and nutrition knowledge in youth. Exercise and nutrition, especially when incorporated into a community-based intervention (Inman et al., 2011), has shown to increase health and wellness, cognitive functioning, and academic achievement (Correa-Burrows et al., 2017). The aim of this study is to evaluate the accessibility and feasibility of Healthy Kids Rx using parent feedback from twenty-nine surveys. Survey questions were open-ended and used to query parents on perceived improvements in physical activity, nutrition knowledge, and enjoyment of the program. A variation of grounded theory analysis (Creswell & Poth, 2018) was used to develop emergent themes and sub-themes based on survey responses. Emergent themes included community support/acceptance, parent observed physical/emotional improvements, novelty in activities, and family lifestyle changes. Consistent with research (e.g., Davies et al., 2016; Hannan et al., 2015), these themes reflected the Self-Determination Theory and the Theory of Planned Behavior. The findings demonstrate the program is acceptable to parents because of perceived positive youth outcomes and the motivation for continued participation.

Key words: community interventions, exercise, nutrition, youth

Assessing Parent Satisfaction and Child Outcomes:

A Qualitative Evaluation of a Community-Based Exercise and Nutrition Program

Obesity in youth has been labeled as a “national health priority,” suggesting a need for physical activity and nutrition interventions (Moore et al., 2009). Although school programming has traditionally sought to tackle this problem, research has found school-based education programs are not sufficient for improving rates of physical activity to desired levels (i.e., 60 minutes per day based on CDC guidelines; Marcoux et al., 1999). Thus, interventions beyond the school setting should be considered to best improve and increase healthy behaviors in youth. These interventions, community-based or other, could then improve physical and mental outcomes for participants (Owen et al., 2010).

Physical Activity and Physical Health Outcomes

According to the Center of Disease Control, obesity rates in youth have more than tripled in the last 50 years (CDC, 2018). Further, almost one in five between the ages of 6 to 19 are classified as obese and are at increased risk for developing health problems as adults (e.g., type 2 diabetes, heart disease, some forms of cancer, osteoarthritis, liver disease, and more; NIH, 2015). Thus, there is an impetus to intervene with physical activity programs for children and adolescents to prevent these negative long-term outcomes. Research has suggested increasing physical activity and decreasing sedentary behavior is key to promoting a healthier lifestyle for youth (Rasmussen & Laumann, 2013). For example, Physical activity has also been linked with improved sleep habits, which has been shown to promote physical growth and development in adolescents (Kim, Umeda, Lochbaum & Stegemeiger, 2016). Therefore, the best way to teach and reinforce physical activity skills is by creating programs to focus on the behaviors needed to increase long-term health in youth.

One such program that has focused on physical activity in youth is the Sports, Play and Active Recreation for Kids Program (SPARK; Marcoux et al., 1999). This school-based intervention has demonstrated significant improvements for participating youth in their healthy behaviors and physical outcomes. For example, boys who participated found a significant BMI reduction as a result of the self-management strategies used in the program to promote long-term behavior change. These findings suggest improving rates of physical activity in youth is possible through exercise and nutrition programs that go beyond the traditional school curriculum.

It is important to note that research considering the effectiveness of SPARK found implementation problems in schools could be a potential limitation of the program (Marcoux et al., 1999). Because it is school-based, the program is limited by the curriculum enforced by the school legislature and thus unable to successfully integrate many needed components into the SPARK implementation (e.g., rewards, homework, etc.). This suggests a community-based approach, outside of the school setting, could be a potential improvement in increasing positive physical activity behavior in youth. By implementing a similar program outside the school, healthy behaviors could also be reinforced across many environments, thus increasing the likelihood of long-term behavior change (Chandler, 2015).

Physical Activity and Cognitive Functioning

Further emphasizing the importance of physical activity, consistent exercise in youth has a significant relation to improved cognitive outcomes. For example, physical activity has been positively correlated with classroom concentration, behavior, and general academic performance (Trudeau & Shephard, 2008). In a study on an extra-curricular physical activity program, participating youth found significant increases in self-concept, perceived body fat, and perceived appearance (Eather, Morgan & Lubans, 2016). This program focused on after-school training

sessions in which some students would participate in a focused exercise program, a sport lesson, or a chosen activity without physical activity. Although not all measures of mental health were significant, these findings suggest physical activity programs could be important for improving the general cognitive functioning for youth. In another study looking at improved school-based physical activity programs, significant links to improved academic outcomes were found in youth who increased their physical activity within the school setting (Rasmussen & Laumann, 2013). These positive relations were found even with decreases in academic class time in favor of physical activity programming. This suggests youth who participate in focused physical activity programs, school or community-based, could improve their general cognitive functioning.

In addition to the school-based physical activity interventions, community efforts have found success in promoting healthy behaviors. For example, the Coordinated Approach to Child Health (CATCH) found success in promoting physical activity skills and resulting reported success in youth outcomes (Lytle et al., 1996). By focusing on the community-approach to healthy behavior, the CATCH program was able to increase access to exercise opportunities while maintaining adequate funding and family-focused change for participants. Another community intervention that has received recent support from research is Kids Can Bike! (Chandler et al., 2015). This program focuses on skill training during after school meeting times for elementary aged youth. This research has suggested participating youth enjoyed the program and perceived it as a positive opportunity, thus increasing the likelihood the youth would continue engaging in bicycle riding. The authors also noted the program was successful, in part, due to community support (e.g., funding, cross-environment skill reinforcement, resource support, etc.; Chandler et al., 2015). These two interventions suggest the community approach to

physical activity programming could achieve the same cognitive and academic benefits as school-based approaches while also effecting a larger change on the family/community systems.

Nutrition and Physical Health Outcomes

Alongside increases in positive levels of physical activity, nutrition can also serve to decrease the likelihood of long-term consequences such as obesity and type 2 diabetes (Owen et al., 2010). Specifically, nutrition can help improve overall physical health by increasing positive nutrients and providing a good foundation for increases in physical activity. Good nutrition behavior is mainly fostered through access to correct information about food and healthy eating (Lytle et al., 1996). Because of this, nutrition should then be addressed through specific interventions that are designed to teach and reinforce good nutrition habits for youth.

In a community-based intervention called We Can! Ways to Enhance Children's Activity and Nutrition, nutrient intake and access to positive nutrient resources were increased for participating youth and families (Moore et al., 2009). By focusing on community access to quality food sources and information, families were able improve overall diets and increase good food intake as a result of their participating youth in the program. Alongside these positive nutrition changes, the We Can! program was able to foster policy change in the community through better attention and awareness of the physical health outcomes with good nutrition. In addition to the success found in the We Can! Program, many of the interventions that address physical activity included curriculum on positive eating habits (e.g., CATCH, SPARK). This suggests physical activity and nutrition are closely related, and likely reinforce one another when looking to improve physical outcomes for participating youth (Rasmussen & Laumann, 2013). Therefore, community interventions that address nutrition in addition to physical activity are

likely to address a larger behavior change for youth and their families that will continue long-term.

Nutrition and Cognitive Functioning

Nutrition also serves to assist in the increased health of students through improved cognitive functioning and motivation (Rasmussen & Laumann, 2013). Although causation has not been demonstrated, strong relations between increased academic achievement and general cognitive performance has been found in a recent review of related literature (Taras, 2005). By measuring micronutrients, supplements, iron deficiency, food insufficiency, and the effect of eating breakfast, this review identified relations between these variables and cognitive outcomes. For example, some research has found that supplementing nutrients lacking in the cultural diet of youth could help improve cognitive outcomes and general cognitive performance. Additionally, iron deficiencies specifically have been linked to lower academic performance, suggesting increases in iron supplements could increase cognition in youth. Generally, there are still limitations in the research on nutrition and cognitive functioning, as it is difficult to measure the direct causes of nutrients on performance. But it is likely adequate nutrients and healthy eating behaviors can serve to enhance and support the positive effects of physical activity in youth (Moore et al., 2009).

There have not been very many nutrition-focused interventions studied for their effects on youths' cognitive outcomes. However, a review on CATCH, SPARK, and other interventions has demonstrated positive physical and mental outcomes are a result of a well-rounded education on physical activity, nutrition, and other healthy behaviors (Inman et al., 2011). For example, with a curriculum on good nutrition, participating youth can better establish long-term change in their eating behaviors. This can then reinforce other healthy behaviors such as physical activity,

decreased substance abuse, and non-risky sexual behavior in youth. Additionally, by targeting the nutrition knowledge of both youth and their families through a community-based approach, long-term healthy eating could be increased (Gibson et al., 1998). By targeting the parents and students, an intervention could also serve as a proactive treatment for a lack of education or opportunity. Thus, nutrition and exercise should both be used in a program that targets general improvements to physical health and well-being.

The Link Between Physical Activity and Nutrition

Because of the high rate of obesity among youth (CDC, 2018), it is important to consider the most likely and effective solutions for improving general health and well-being. Specifically, preliminary research supports nutrition education alongside curriculum to achieve adequate levels of physical activity (Rasmussen & Laumann, 2013; Moore et al., 2009). This suggests that interventions should be designed to increase awareness of food and vitamin uptake alongside programs that promote physical activity in youth in order to achieve significant positive outcomes. By addressing both physical activity and nutrition in an intervention, such as in the We Can! program, youth can then be exposed to skill building and reinforcement of healthy behaviors (Moore et al., 2009). This combined with a community-based approach can then promote family level changes which increases the likelihood of long-term positive outcomes (Lytle et al., 1996).

There are currently very few studied interventions that address both physical activity and nutrition education in a community setting (Inman et al., 2011). As a result, there is a large need in the research to consider programs that address all three of these variables. This will allow program acceptability and feasibility to be evaluated for future use and implementation of the

program. Additionally, research can then measure participating youths' outcomes in order to compare against physical and mental outcomes found in other interventions.

High Intensity Interval Training (HIIT) and Weight Lifting

When considering physical activity, it is important to evaluate research looking at the ideal forms of physical activity or exercise programming. Specifically, exercise programs should be evaluated in their ability to foster well-being, positive physical outcomes, and long-term feasibility for participants (Köteles, Kollsete & Kollsete, 2016). One form of exercise programming is high intensity interval training (HIIT). HIIT has been evaluated in comparison with traditional long form exercise (e.g., running, biking, etc.) for adult participants' enjoyment and perceived feasibility of the workouts. HIIT consists of short, intense workouts which typically last five to ten minutes. Each workout will involve a short duration of an exercise, such as jump roping, following by a short period of rest. This encourages the participant to participate in a time efficient workout that is adaptable to their individual skill and intensity level. Thus, their potential to adapt the behavior long term is likely higher than traditional, long-form exercise (Stork, Banfield, Gibala & Martin Ginis, 2017). Recent findings also suggest this type of exercise for adults has some relation to increases in positive affect and better adherence to long-term participation (Köteles et al., 2016; Stork et al., 2017). Findings are preliminary and focused on adults, but there is a strong argument for implementing HIIT style workouts into youth physical activity interventions.

Many exercise programs that utilize HIIT style workouts also use weightlifting components to better adapt to individual's skill and intensity levels. By integrating various weights and weighted exercises, this exercise combination presents additional positive outcomes. For example, they found programs with this programming increased well-being, higher body

awareness, higher body satisfaction, and increased self-esteem (Köteles et al., 2016).

Additionally, HIIT and weightlifting programs promoted autonomous motivation, a key factor in increasing long-term adherence to physical activity and healthy behaviors (Davies, Coleman & Stellino, 2016). Autonomous motivation is fostered through the components of the Self-Determination Theory (SDT); autonomy, competence, and relatedness (Deci & Ryan, 2008). This allows the individual to build intrinsic motivation (e.g., building skill, long-term health, mental well-being, etc.) rather than extrinsic motivation (e.g., losing weight, praise from others, etc.). Thus, the HIIT and weightlifting combination likely relates to the individual's ability to adhere to the exercise program long term.

Although research on HIIT and weightlifting programs is still in preliminary stages, research does suggest positive outcomes and improved adherence for adults is greater when compared to traditional workout programs (Stork et al., 2017). For youth, the same results could be possible if HIIT and weightlifting is incorporated into physical activity interventions. As a result, participating youth could be taught the skills they need to adhere to a workout program and build autonomous motivation for long-term behavior change. This combined with a nutrition education could then build a community-intervention with the potential to foster improved health and well-being of youth and their families.

Current Study

The Laramie, Wyoming community is home to a free exercise and nutrition program called Healthy Kids Rx. This program is designed for youth aged 3 to 18 and consists of after school classes divided by age-group. Classes are divided by age group; ages 3 to 6 participate on Monday, ages 7 to 11 participate on Wednesday, and ages 12-18 participate on Tuesday and Thursday of each week. Each class involves a nutrition education component, a short high-

intensity interval workout, a game or activity that promotes physical activity, and a healthy snack provided by the Laramie Soup Kitchen. Generally, students will meet for an hour, with youth in middle school and high school meeting twice a week and kids in preschool and elementary meeting once a week. Workouts and skill training typically involve interval training and/or weightlifting components. For example, participants will do an AMRAP, or “as many rounds as possible,” with 20 second rotations of burpees, tuck jumps, and hang cleans. Skills, workouts, and activities change from class to class and will often be designed to reinforce nutrition knowledge through question and answer games. Healthy Kids Rx is currently funded through the University of Wyoming and Albany County School District #1. It is coached by various students and teachers from the Department of Kinesiology, Department of Psychology, and members of CrossFit 7220 in the Laramie community.

The Healthy Kids Rx program focuses on skills involved in high intensity interval training (HIIT) and weightlifting. Research into related programs on adults has focused on measuring affect and general outcomes as a result of adults in these programs, although causative findings on cognitive and mental health variables have not yet been extensively studied. Specifically, research has demonstrated increases in positive affect follows completion of exercise but does not occur during the exercise itself (Köteles et al., 2016). In addition, research has found subjective well-being, body awareness, and body image satisfaction are all increased as a result from continued participation in these programs and communities (Stork, et al., 2017; Köteles et al., 2016). Participation in these programs may fulfill the need to belong, as some researchers have hypothesized components of SDT explain continued participation (Davies et al., 2016).

Based on the research discussed above, community-based interventions for youth are emerging as a valid option for improving physical activity and increasing nutritional knowledge (e.g., Inman et al, 2011; Chandler et al., 2015). Healthy Kids Rx mirrors many of the discussed evidence-based programs in curriculum, community participation, and resources. This suggests the program is likely to reflect similar viewpoints from participating families and support the idea of further research into similar concepts and theories. Moving forward, the acceptability and feasibility of the program should be evaluated in order to demonstrate the long-term potential of the program.

For a community intervention marketed to students, parent satisfaction is essential to maintaining the acceptability and feasibility of the program. When looking at intervention programs geared towards improving physical activity and nutrition education, this becomes even more essential to creating and maintaining long-term participation and enjoyment. Research has demonstrated parents hold a significant role in both beliefs about nutrition (Gibson et al., 1998) and encouraging consistent participation in physical activity opportunities (Inman et al., 2015). As a result, interventions should consider parent satisfaction when evaluating the need for improvements and long-term participation in the program. For the Healthy Kids Rx program, parent feedback about program logistics is also needed because of the transportation and support needs of many of the students.

Using parent feedback from the community-based Healthy Kids Rx program, the current study will examine the acceptability and feasibility of their current program (e.g., what do they like and dislike about the program?). Parent survey responses will be analyzed using qualitative analysis. By adapting a variation of grounded theory (Cresswell & Poth, 2018), the emergent themes can then be related back to existing research and theories on motivation in physical

activity promotion. This will serve to identify if parents are perceiving enjoyment of the program in their youth and if there is potential for long-term adherence to the program. The main research questions are as follows:

- Based on parent feedback, is the Healthy Kids Rx Program feasible for long term participation and success?
- Is the acceptance of the program high enough that participants and parents will continually use the program and see results?

Methods

Participants

Participants were recruited from a pool of all parents who had a child participate in the Healthy Kids Rx study between the spring of 2016 and the spring of 2019. Parent responses were collected by the program directors, and all complete responses were used in the analysis. The final participant pool included 29 parents of youth enrolled in the Healthy Kids Rx program who submitted individual surveys for analysis. These responses represented 57 youth who were between the ages of 2 and 18. This included 30 girls and 27 boys (ages 3-11; $M = 6.71$, $SD = 2.63$, $n = 42$ and ages 12-18; $M = 13.33$, $SD = 1.84$, $n = 15$; see Table 1). The grade levels of participating youth ranged from daycare (i.e., 2-3 years old) to 12th grade (i.e., 17-18 years old). In addition, one student included in the analysis was younger than school age, although they did participate in some of the Healthy Kids Rx classes.

One child represented in the parent feedback was excluded from the demographics due to their non-participation in the Health Kids Rx program. Five surveys were excluded from analysis due to missing demographic data.

Procedure

All procedures were approved by the University of Wyoming IRB. Data analysis was conducted using archival data that was collected by the Healthy Kids Rx program directors. Open-ended surveys were created by the Healthy Kids Rx program directors and included five questions regarding the satisfaction of exercise, nutrition, and general factors of the program. The participant pool included all parents of youth who had participated in the program at any point in time. The surveys were distributed to parents as both physical paper copies and an online survey using *Survey Monkey*. Collection occurred during the Fall of 2018 and the Spring of 2019. Collected surveys were then deidentified by the program directors and provided to the research team.

Analysis

Qualitative analysis was used to evaluate the collected survey data. Specifically, a variation of grounded theory (Cresswell & Poth, 2018) was used to develop codes and emergent themes. Data analysis was inductive in nature, and themes and codes were identified iteratively through open coding and writing memos. The goal of the analysis was to pinpoint patterns in parent feedback in order to identify the perceived acceptability and feasibility of the program. In addition, the identified trends allowed a discussion of related theories. This serves to help explain the general success of the program while also recommending areas of improvement for the program directors.

Survey questions were coded separately for each parent response. Codes were created and eliminated based on responses from parents and emergent patterns within each question. Using the codes as a foundation, overarching themes within each question were then developed and discussed during meetings with co-authors (J.H. and A.S.). Reliability was established by having each of the three researchers independently code randomly chosen responses for each

question. When excerpts of the parent responses were coded differently across researchers, a consensus on how to code was determined after a group discussion.

After evaluating the themes within each question, codes and themes were then evaluated across the survey questions. This allowed several broader themes to emerge that encompassed all of the codes within each question. Themes were then compared against existing theories and discussed within the context of current research surrounding effective and successful exercise and nutrition programs.

Results

Question one: Do your kids enjoy coming each week? The participants identified several responses regarding their participating youths' enjoyment in the program. Specifically, this consisted of four codes; *yes+*, *yes*, *maybe*, and *no*. All 29 responses fell into only one of the four codes (see Table 2 for a summary). In total, two themes emerged from the codes which include *perceived enjoyment* and *dependent on other factors*.

Perceived enjoyment. The first theme was *perceived enjoyment* of the program. This theme encompassed the *yes+* and *yes* codes. A *yes+* response included emphasized positive feedback such as, "Yes, they love it!", "YES!", "Heck yeah!", and "Yes. He looked forward to it every week." In total, 17 of 29 responses (58.62%) were included under this code. A *yes* response included non-emphasized positive feedback such as, "Yes" and "Yes they enjoy the workouts and being with their friends." In total, 8 of 29 responses (27.59%) were included under this code.

Generally, parents reported believing their participating youth were enjoying the program to some degree. This supports the idea that the program is perceived as acceptable and youth want to continue participating over time.

Dependent on other factors. The second theme was *dependent on other factors*. This encompassed *maybe* and *no* responses. A *maybe* response included conditional positive or conditional negative feedback. This included responses such as, “Depended whether or not there were other kids his age. He does not such as being the only older kid,” “They would if we brought them regularly,” “They don’t come every singly week... they enjoy it and look forward to coming about once or twice per month.” In total, 3 of 29 responses (10.34%) were included under this code. A *no* response included negative feedback such as, “they don’t attend anymore.” In total, 1 of 29 responses (3.45%,) were included under this code.

This demonstrates parents who did not respond with a definitive yes, had some factor that may have moderated their child’s overall enjoyment of the program. Parents also state the answer could change if their moderating variable was addressed in a positive way.

Question two: What is their favorite part of Healthy Kids Rx? The second question had a total of 12 codes used to describe the participant responses. These included *all of it, rings, challenge, zip line, row machine, games, workout, adult interactions, acceptance, nutrition, and learning new skills*. The majority of survey answers contained one or more codes due to enjoyment of multiple aspects of the Healthy Kids Rx program. The patterns within this question created four overarching themes. These include *equipment related, activity related, learning, and community* enjoyment.

Equipment related. *Equipment related* enjoyment encompassed the *zipline, rings, and row-machine* codes, a total of seven responses.

These codes demonstrate that a large amount of responses attributed perceived enjoyment to a specific piece of equipment used in the Healthy Kids Rx program. Parents state that

continuing to use and teach skills related to novel equipment can increase overall enjoyment of many participants.

Activity related. The second theme, *activity related* enjoyment encompassed the *workout* and *games* codes, a total of 15 responses.

This theme identifies enjoyment was also related towards a specific aspect of the class. By relating enjoyment to activities, enjoyment could then be increased by structuring the activities according to the needs and wants of participating youth.

Learning. The third theme, *learning*, included the *nutrition*, *learning new skills*, and *challenge* codes, a total of 11 responses. Parents stated their kids' favorite parts are, "learning activities to make them stronger," "...learning about nutrition", and "learning activities to make them stronger."

These codes demonstrate that gaining new ability or understanding is perceived as an enjoyable part of the program, as perceived by parents. Based on responses, participating youth enjoy learning skills that are used in programs outside of typically P.E. programs within school. Healthy Kids Rx utilizes HIIT and weightlifting components, therefore youth are gaining exposure to new types of curriculum that can be used to promote physical activity.

Community. Finally, the *community* theme included the *acceptance* and *adult interactions* codes, a total of 11 responses. Parents stated their kids enjoyed, "socializing with kids who are not super athletic" or gaining the ability to, "talk CrossFit with mom and dad" and "...work out like adults." Parents also stated, "my favorite part is NO FAT-SHAMING."

These codes and quotes demonstrate the belongingness fostered by the program is perceived as a factor in kid's enjoyment of the program. Specifically, parents are seeing an

increase in community for their participating youth and value their participation in a group that is accepting of positive health behaviors.

Question three: Have they demonstrated an increased knowledge of nutrition? The third question included a total of eight codes which can be defined under two categories; definitive and other. The first group included *yes+*, *yes*, *unknown*, and *no*. The second group included *carb/fat/protein*, *related to family*, *negative outcome*, and *mood*. The majority of survey answers contained one or more codes due to elaboration of answers in the second group beyond the definitive yes or no answers (see Table 2 for a summary). Based on the patterns within this question, three themes emerged; *clear improvement*, *change to everyday life*, and *no noticeable changes*.

Clear Improvement. The first, *clear improvement*, included the *yes+* and *yes* codes. A *yes+* response included emphasized positive feedback such as, “Absolutely!” or “Yes!”. In total, 4 of 29 responses (13.79%) were included under this code. A *yes* response included non-emphasized positive feedback such as, “yes,” or “they have demonstrated an [increased] knowledge of nutrition from the program.” In total, 19 of 29 responses (65.52%) were included under this code.

These demonstrated parent’s perceptions of a clear increase in nutritional knowledge because of their child’s participation in the Healthy Kids Rx program. More specifically, parents directly observed either a change in behavior or an increase in verbal knowledge regarding nutrition and nutrient intake in everyday behavior. Improvement in nutritional knowledge was also related to responses regarding improvements in mindfulness during meals with the family.

Change to everyday life. The second theme, *change to everyday life*, included the codes *mood*, *related to family*, *carb/fat/protein*, and *negative outcome*. *Mood* had one response which

stated, “greater awareness of what they’re putting in their bodies and how they feel. The *related to family* code included three responses and included responses such as, “nice to know mom didn’t invent the idea...” , “combination of our household going through a major shift...” or “consistent nutritional information at home that they hear at the gym too.” The *carb/fat/protein* code included 5 responses. These included responses such as, “my kindergarten is always telling me what things are... on his plate,” and “we talk a LOT about a carbohydrate vs a protein vs a fat.” The *negative outcome* code included one response which stated, “one child started skipping breakfast and lunch in order to lose weight faster... I have asked that he eat at least 300 calories before school.”

This theme demonstrated one or more changes to the lifestyle or general behavior of the child, as perceived by the parent. Additionally, this theme relates to the idea that youth participation fostered an increase in the family’s attention to nutrient intake. By increasing awareness of good and bad foods, families were then more likely to adhere to healthier diets, as reported by parents.

No noticeable changes. The third theme, *no noticeable changes*, included *unknown* and *no* as codes. An *unknown* response included responses such as, “she doesn’t talk about it much but I think she’s learned about nutrition from the program”, “difficult to say...” or “NA.” In total, 5 of 29 responses (17.24%) were included under this code. A *no* response included any negative feedback regarding a lack of increased nutrition knowledge. In total, 1 of 29 responses (3.45%) were included under this code.

This theme demonstrates no change to the participating child’s behavior in regard to an increased knowledge of nutrition, as perceived by the parent. It is important to note a lack of change did not necessarily dictate a lack of improvement in the participating youth. Often parent

responses state they did not directly observe a change or hear a distinct reference to nutrition in response to the program.

Question four: Do you feel the program has encouraged and facilitated more physical activity for your child? The fourth question included a total of seven codes which can be defined under two categories; definitive and other. The first group included *yes+*, *yes*, and *no*. The second group included *importance of strength*, *already active*, *mood*, and *decrease in screen time*. The majority of survey answers contained one or more codes due to elaboration of answers in the second group beyond the definitive yes or no answers (see Table 2 for a summary). Based on the patterns within this question, three themes emerged that were reflective of the themes in the third question. These included *clear improvement*, *change to everyday life*, and *no noticeable changes*.

Clear improvement. The first, *clear improvement*, included the codes *yes+* and *yes*. A *yes+* response included emphasized positive feedback such as, “Definitely!” or “YES!”. In total, 6 of 29 responses (20.69%) were included under this code. A *yes* response included non-emphasized positive feedback such as, “yes,” “more aware of their body movements and push out of their physical comfort zone making them more willing to try something new,” or “facilitated a greater variety of physical activities.” In total, 17 of 29 responses (58.62%) were included under this code.

These codes are reflective of the participating youths increase in physical activity due to the Healthy Kids Rx program, as perceived by their parents. Generally, parents were reporting their youth were more likely to be active because of the program and encouraged to use learned skills outside of the program as well.

Change to everyday life. The second theme, *change to everyday life*, included *importance of strength*, *decrease in screen time*, and *mood*. The *importance of strength* code included four responses. These included responses such as, “encourage good form”, “importance of having a strong body” or “work on their strength for injury prevention.” *Decrease in screen time*, had one response which stated, “would just be going home to screens.” The *mood* code included one response which stated, “they have noticed that they are in better moods on the days they workout.”

These demonstrate a parent perceived difference in one or more behaviors that increases physical activity in response to the Healthy Kids Rx program. Parent responses also indicated changes occurred due to increases in their youths’ desire to participate in adult exercise. This allowed families to increase their overall physical activity because of an improvement in skills related to HIIT and weightlifting style workouts.

No noticeable changes. Finally, *no noticeable changes*, included the codes *no* and *already active*. The *already active* code included 6 responses and included responses such as, “never any need for encouragement... highly motivated...using crossfit style movements to assist in his primary sports” , “she’s a pretty active child... don’t know that’s it’s facilitated more physical activity” or “[no] because she was already very active in sports.” A *no* response included any negative feedback regarding a lack of increased nutrition knowledge. In total, 3 of 29 responses (10.34%) were included under this code.

These demonstrate no changes, as observed by parents, in the behavior of participating youths’ physical activity levels. It is important to note the lack of improvement was, according to parents, due to a preexisting active lifestyle. Because some participating youth were already

highly physically active, the Healthy Kids Rx program parents did not perceive an improvement in their overall levels of exercise.

Question five: Any other comments or suggestions below. The fifth question included 16 codes. These included *weight loss, financial, good form, coaches, community, acceptance, positives/gratitude, recommended to the program, lifestyle, parent-child relationship, different times, specialized programming, separate age groups, and combined age groups*. The majority of responses included one or more codes. Based on the patterns within the question, three themes emerged to describe the various codes.

Tangible positives. The first theme, *tangible positives*, included the *weight loss, financial, good form, and coaches* code. The *weight loss* code included one response which stated, “his BMI [body mass index] has come down significantly as he has lost 80lbs so far, replacing fat tissue with muscle and cutting back on unhealthy carbs in his regular diet.” The *financial* code included two responses. These responses included, “we wish we had more money to give” and “I was delighted the program was free, or it would not have been financially possible for him to attend!” The *good form* code included 2 responses which included statements such as, “VERY important that my child learn and demonstrate proper form... becoming strong is only good if it is support by healthy correct form.” The *coaches* code had three responses which included statements such as, “I have been really impressed with how good all the coaches are with the kids. You can tell they really enjoy what they are doing... ran into a healthy kids coach at a local store... he remembered that I had kids that came... really appreciate that.”

These demonstrate a physical or tangible positive outcome/benefit, as perceived by parents, due to participation in the Healthy Kids Rx program. For example, as a result of

participating students lose weight, gain friends, or save money due to the program. Each of these positive gains is visible to the parents and participating youth, thus it is a tangible benefit.

Intangible positives. The second theme, *intangible positives*, included the *community*, *acceptance*, *positives/gratitude*, *recommended to the program*, *lifestyle*, and *parent-child relationship* codes. The *community* code had two responses and included statements such as, “If it had not been for the other kids’ positive welcoming... he would not have continued... the other participants were so welcoming and nonjudgmental... regardless of each person’s progress on the path to greater health through fitness” and “They’ve formed a little community together- they talk about how much they love Healthy Kids and encourage us to integrate those movements into our days at school.” The *acceptance* code had one response in which a parent wrote,

“He was very reluctant to go... I thought everyone would be overweight and told him he’d “fit right in”... arrived the first time... his BMI was higher than anyone’s there and not by a small margin... embarrassed about his appearance and inability to keep up... there was not fat-shaming in the program and that was CRITICAL for his continued participation.”

The *positives/gratitude* code included 16 responses. This included statements such as, “we are so thankful for 7220... please know how appreciative we are!!”, “one of the most fantastic programs I can imagine taking my children to!” The *recommended to the program* code included one response which stated, “...he was told about (and encouraged to attend) Crossfit’s Healthy Kids program by his doctors.” The *lifestyle* code had two responses which stated, “cutting back on unhealthy carbs in his regular diet” and “we hope that good movement patterns and healthy nutrition is something that starts young and continues through the rest of their lives.” The *parent-child relationship* code included four responses and included statements such as, “we love

sharing that with our kids while they're young" or "benefit to my daughter and is a great option for parents, too."

These demonstrate a parent perceived intangible or internal, positive outcome/benefit as a result of the Healthy Kids Rx program. For example, by participating in the program parents witnessed an increase in mood, feeling of acceptance, or improved family communication as a result of the program. These benefits are not directly visible, but a general feeling described by parents when reflecting on their enjoyment of the program. Therefore, they are intangible advantages to the family and participating youth.

Desired changes. The third theme, *desired changes*, included *different times*, *specialized programming*, *separate age groups*, and *combined age groups* as codes. The *different times* code included two responses which stated, "would be great if there [were] more times available for teens" and "would be great if later classes were offered to the younger ones." The *specialized programming* code included one response in which a parent wrote,

"Just as you have special workouts for the high school female swim team, so you could do special versions of healthyRXkids for youth playing basketball, or soccer, or football, or softball, or volleyball, etc. (concentrating on pre-season conditioning) and work closely with those teams/programs."

The *separate age groups* and *combined age groups* codes included one response each with statements specific towards either separating classes further or combining classes for more convenience.

These represent parent's suggestions for improving or adjusting the program to better fit their needs and desires. These changes are specifically directed towards the program directors, as they want different curriculum or infrastructure of the program. It is important to note these changes are not related to the participating youth or their perceived enjoyment of Healthy Kids Rx. Instead they are structural changes for the program as a whole.

Analysis Across Questions

The emergent themes across questions included *community support and acceptance*, *parent observed positive outcomes*, *novelty in activities*, and *lifestyle changes* (see Figure 1 for a summary). There was overlap between the within question themes when considering overall patterns to generalize to across question themes.

The first theme, *community support and acceptance*, included the within question themes such as *community*, *abstract positives*, and *change to everyday life*. Generally, this theme demonstrates the program is enhancing a sense of belonging for the participating youth. Across all questions, parents relate their perceptions of enjoyment in some part to the benefit of the program's attention to acceptance. This demonstrates an accepting community is key to participants' enjoyment and acceptability of Healthy Kids Rx.

The second theme, *parent observed positive outcomes*, included question themes such as *perceived enjoyment*, *learning*, *clear improvement*, *change to everyday life*, *tangible positives*, and *intangible positives*. Parents are reporting increases in physical activity and nutrition knowledge in their participating youths as a result of the Healthy Kids Rx program. Additionally, parents are reporting their observations of improvement have impacted their family behavior. These responses describe participation in the program promotes a general awareness of positive habits to foster improved physical activity and nutrition.

The third theme, *novelty in activities* included question themes such as *equipment related* and *activity related*. The fourth theme, *lifestyle changes*, included question themes such as *learning*, *community*, *clear improvement*, *change to everyday life*, *visible positives*, and *abstract positives*. Parents state enjoyment of Healthy Kids Rx is closely related to participants' ability to use new equipment and skills that are exclusive to the program. By introducing HIIT and

weightlifting style workouts, which are not typically used in school curriculum, there is then an increase in value for participating in this community program.

Discussion

Related Theories

Research has found community-programs, similar to Healthy Kids Rx, have demonstrated a strong reflection of the Self-Determination Theory (SDT) and the Theory of Planned Behavior (TPB) in predicting long-term adherence and acceptability of physical activity or exercise programs (Davies et al., 2016; Hannan, Moffitt, Neumann, & Thomas, 2015). These theories help identify the specific program factors that are linked with participation in exercise and nutrition programs.

The SDT utilizes the three main components of competence, autonomy, and relatedness (Deci & Ryan, 2008). The first, competence, involves developing and possessing the skills necessary to engage in the target behavior. For example, research on HIIT and weightlifting workout programs has found participants engage in long-term participation due to the belief in the knowledge they possess for the various workouts and skills required to participate (Davies et al., 2016). The second aspect, autonomy, is the presence and possibility of options when looking at the motivation for implementing a target behavior. This is also present in programs like Healthy Kids Rx, as participants hold the ability to modify and change workouts as needed based on ability level and preferences. In addition, autonomy is fostered through the various activities involved in each workout. For example, Olympic lifting is very individual and based on the individual's level of skill, strength, and desire to improve. The final component, relatedness, is a sense of belonging that encourages positive beliefs about community surrounding the target behavior. As research has suggested, attending group exercise programs foster a community

mindset of support and accountability (Davies et al., 2016). This allows individuals to feel acceptance within their program and promote better long-term adherence to the workout program.

The TPB is based in forming an intention, or plan of behavior, and following through with the intention (Ajzen, 1991). Intentions are then reinforced through subjective norms, the attitude towards the behavior, and the individual's perceived behavior control. In a study conducted by Hannan, Moffitt, Neumann, and Thomas (2015) on adults, all factors of the TPB were significant predictors of exercise follow through with attitudes having the strongest relation. In addition, the same study found that mental toughness is a likely moderator in the ability to form intentions and follow through with intended behaviors. This occurs because mental toughness helps mediate high levels of subjective norms, positive attitudes about the behavior, perceived behavior control, and the formation of the intention.

Implication of Theories

The first theme, *community support and acceptance*, is related most closely with relatedness in the SDT. This suggests the Healthy Kids Rx program is providing a perceived sense of belonging for participants, as reported by parents. This could be an important factor in what is leading the program to be feasible for long-term participation and enjoyment. Research suggests building community maintains a better level of accountability and helps promote positive behaviors within exercise programs (Davies et al., 2016). In addition, this research has found relatedness is linked with building autonomous motivation, which is a strong predictor of future behavior and participation in healthy behaviors. *Community support and acceptance* is also related to the subjective norms in the TPB. By building relatedness, healthy behaviors within the program then become more acceptable and “normal” to participants. Research has

found providing people with a firm community that promotes the same values involved in performing a behavior, like exercising, future participation is then reinforced (Hannan et al., 2015). Therefore, by building a strong community, as perceived by the parents of Healthy Kids Rx participants, future participation and long-term adherence to the program is likely to increase.

The second theme, *parent observed positive outcomes*, is related to competence in the SDT. Parents are observing improvements in skills and knowledge as a result of the Healthy Kids Rx program, therefore participating youth are likely increasing their competence. Research suggests an increase in competence also increases long-term adherence to behaviors (Davies et al., 2016). In other words, if participants are truly learning skills and nutrition knowledge from the program they will continue to come and participate long-term. In addition, parents are more likely to participate in bringing and encouraging their youth to participate if they see observed improvements in competency. *Parent observed positive outcomes* are also related to the participant's attitude about the behaviors, as discussed in the TPB (Ajzen, 1991). As a result of seeing positive outcomes, participating youth and their parents then likely to have a more positive outlook towards the program. This positive attitude towards Healthy Kids Rx, could then help increase long-term participation and enjoyment of the program.

The third theme, *novelty in activities*, is related to attitudes about the behavior, as discussed in the TPB. In other words, new skills, games, and workouts, are part of the participants' reasons for enjoyment, therefore increasing these will likely increase overall enjoyment of the program. According to the TPB, this increase in enjoyment will result in an increase of long-term participation and acceptability of the program (Hannan et al., 2015). Thus, by increasing participating youths' access to new skills and equipment, enjoyment can be fostered over time and maintained for long-term participants.

The fourth theme, *lifestyle changes*, is related to autonomy in the SDT (Deci & Ryan, 2008). Parent feedback suggested participants found the program gave them the ability to choose a healthier nutrition and exercise behaviors. In addition, this theme demonstrated the program gave families the ability to pursue a healthier lifestyle together, thus increasing the participants' autonomy in choosing their desired behavior. According to the SDT, this increase in autonomy, or having the ability to choose your behavior, then motivates participants and parents to continue participating in the program. *Lifestyle changes* is also related to perceived behavior control in the TPB (Ajzen, 1991). Like autonomy, this also established that as participants perceive their ability to choose a healthy behavior over their current behavior, their desire to continue in the Healthy Kids Rx program will increase. Consistent with research, having a feeling of control over your behavior and participation in exercise programs helps increase future engagement in the desired behavior (Davies et al., 2016).

Recommendations

Based on the current findings, the Healthy Kids Rx program could expand by increasing the number of classes offered and the overall presence within the Laramie community and beyond. This is based on the general finding of acceptability and enjoyment reported by parents in the surveys. Additionally, the program should continue to teach new skills and utilize new activities and equipment within each class. This is based on the theme found in the survey question discussing what is most enjoyed within the program. Related to the idea of attitudes towards a behavior in the TPB, maintaining high enjoyment and positive regard towards the program could help increase long-term participation and foster an increase in behavioral follow-through for participating students. Integrating new skills also targets the competence variable in SDT, which could also increase participation of students and parents. Finally, the program

directors should continue, and potentially increase, the welcoming community between students, coaches, and parents. Based on the SDT, increasing the belongingness with the program could also help foster better participation and commitment from participants. Additionally, a community mindset would help create positive subjective norms for students. By creating a community in which physical activity and positive nutrition habits become part of a weekly or daily routine, students may be more apt to participate and integrate these changes into their daily lives.

Limitations

The main limitation in the current study was the inability to alter the survey questions. Because the surveys were created and distributed by the program directors, specific questions related to competence, autonomy, and relatedness (i.e., theory-driven questions) could not be included. In addition, the current study could have been susceptible to response bias. Due to the idea that parents who enjoy the program more would be more likely to respond to the survey, there is a possibility the findings could be biased towards more overall enjoyment and general acceptability. These limitations could be controlled in future studies by more structured data collection and attention to survey creation.

Future Directions

Based on the current findings, future research should test the impact of the components of SDT and TPB to increase program adherence and enjoyment. For example, future studies should focus on which components (e.g., competence, autonomy, relatedness) predict participation and improvements in physical and mental health. Additionally, participant nutrition knowledge, strength, and cognitive functioning (among other factors) should be measured before and after participating in a program that includes HIIT and weightlifting to determine its effectiveness.

These studies could also be used to confirm parent perceptions of physical changes as a result of Healthy Kids Rx.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Cresswell & Poth (2018). *Qualitative inquiry & research design: Choosing among five approaches*. Thousand Oaks, CA: SAGE Publications.
- Chandler, J. (2015). A community-based after-school program to promote bicycling skills and knowledge: Kids can bike! *Journal of Park and Recreation Administration*, 33(4), 90-99.
- Center for Disease Control (2018). Childhood Obesity Facts. Retrieved from <https://www.cdc.gov/healthyschools/obesity/facts.htm>.
- Davies, M. J., Coleman L., & Stellino, M. B. (2016). The relationship between basic psychological need satisfaction, behavioral regulation, and Participation in CrossFit. *Journal of Sport Behavior*, 39(3), 239-254.
- Eather, N., Morgan, P. J. & Lubans, D. R. (2016). Effects of exercise on mental health outcomes in adolescents: Findings from the crossfit teens randomized controlled trial. *Psychology of Sport and Exercise*, 26, 14-23.
- Gibson, E. L., Wardle, J., & Watts, C. J. (1998). Fruit and vegetable consumption, nutritional knowledge and beliefs in mothers and children. *Appetite*, 31, 205-228.
- Inman, D. D., van Bakergem, K. M., LaRosa, A. C., & Garr, D. R. (2011). Evidence-based health promotion programs for schools and communities. *American Journal of Preventive Medicine*, 40(2), 207-219.
- Kim, Y., Umeda, M., Lochbaum, M. & Stegemeiger, S. (2016). Physical activity, screen-based sedentary behavior, and sleep duration in adolescents: Youth risk behavior survey, 2011-2013. *Preventing Chronic Disease*, 13(E131), 1-6.

Köteles, F., Kollsete, M., & Kollsete, H. (2016). Psychological concomitants of crossfit training:

Does more exercise really make your everyday psychological functioning better?

Kinesiology, 48(1), 39-48.

Lytle, L. A., Stone, E. J., Nichaman, M. Z., Perry, C. L., Montgomery, D. H., Micklas, T. A.,

Zive, M. M., Mitchell, P., Dwyer, J. T., Ebzery, M. K., Evans, M. A., & Galati, T. P.

(1996). Changes in nutrient intakes of elementary school children following a school-based intervention: Results from the CATCH study. *Preventive Medicine, 25(4)*, 465-477.

Marcoux, M. F., Sallis, J. F., McKenzie, T. L., Marshall, S., Armstrong, C. A., & Goggin, K. J.

(1999). Process evaluation of a physical activity self-management program for children:

Spark. *Journal of Psychology and Health, 14(4)*, 659-677.

Moore, K. R., McGowan, M. K., Donato, K. A., Kollipara, S., & Roubideaux, Y. (2009).

Community resources for promoting youth nutrition and physical activity. *American Journal of Health Education, 40(5)*, 298-303.

U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Mental Health. (2015). Health risks of being overweight. Retrieved from <https://www.niddk.nih.gov/health-information/weight-management/health-risks-overweight>

Owen, N., Sparling, P. B., Healy, G. N., Dunstan, D. W., Matthews, C. E. (2010). Sedentary behavior: Emerging evidence for a new health risk. *Mayo Clinic Proceedings, 85(12)*, 1138-1141. doi:10.4065/mcp.2010.0444.

Rasmussen, M. & Laumann, K. (2013). The academic and psychological benefits of exercise in

healthy children and adolescents. *European Journal of Psychology of Education*, 28(3), 945-962.

Stork, M. J., Banfield, L. E., Gibala, M. J., & Martin Ginis, K. A. (2017). A scoping review of the psychological responses to interval exercise: Is interval exercise a viable alternative to traditional exercise? *Health Psychology Review*, 11(4), 324-344.

Taras, H. (2005). Nutrition and student performance at school. *Journal of School Health*, 75(6), 199-213.

Trudeau, F. & Shephard, R. J. (2008). Physical education, school physical activity, school sports and academic performance. *International Journal of Behavior Nutrition and Physical Activity*, 5(10), 1-12.

Table 1

Demographic Statistics for Age in Participating Youths

	Preschool and Elementary Ages 3-11 years	Middle and High School Ages 12-18 years
Mean (SD)	6.71 (2.63)	13.33 (1.84)
Mode	5	12
Range	2 – 11	12 – 17
Total Count	n = 42	n = 15

Table 2

Frequencies (%) of Parent Responses to HKRx Survey Questions

	Yes+	Yes	Maybe	Unknown	No	Total
Do your kids enjoy coming each week?	58.62	27.59	10.35	0	3.45	100.0
Have they demonstrated an increased knowledge of nutrition?	13.79	65.52	0	17.24	3.45	100.0
Do you feel the program has encouraged and facilitated more physical activity for your child?	20.69	58.62	0	0	20.69	100.00

Note. Only frequencies for definitive question answers are listed.

Figure 1

Themes Across and Within Parent Responses to Survey Questions

