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Physical Activities and General Family Functioning

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PHYSICAL ACTIVITIES AND GENERAL FAMILY FUNCTIONING

By

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I dedicate this thesis to my family and friends. Without their support I never would have made it this far. I also dedicate this to my husband, Brian, thank you sweetheart. I don’t know where I’d be without your encouragement.
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Finally, to the newest member of my family, Brian my husband. I never would have made it without you. You have always been there for me, even when I could not see it. I look forward to growing our family in the coming years.
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ABSTRACT

Few studies have examined how physical activities of family members affect the overall functioning of a family in general. This study utilized a family-systems perspective with the idea that what happens in one area of family system will impact others, specifically the impact of physical activity on overall family functioning. The purpose of this study was to examine the effects of physical activities of family members on the functioning of the family. Within the family system perspective, it was hypothesized that participants whose family reported higher levels of physical activities would report better family functioning. Eighty-four college students in a parenting class answered a survey regarding their own and their parents’ physical activities, and family functioning. Family functioning was assessed using the General Functioning Subscale of the McMaster Family Assessment Device (Epstein, Baldwin, & Bishop, 1983). This study used a simple linear regression analysis to analyze the data. The findings suggested there was no direct association between participation in physical activities and general family functioning. Furthermore, no direct relationship was found from physical activity to stress. However, there was a relationship between stress and general family functioning. Implications of the findings were also discussed.
CHAPTER 1

INTRODUCTION

There have been studies that have shown that health and family functioning are interrelated (Palmer & Glass, 2003). A physically active family is a happy and functional family. Good functionality is important in order to help families cope better with negative life events that may occur. The current study examines the relation between family physical activity and the functioning of the family. This would have implications for use in the field of family therapy and family life education. Participating and promoting physical activities among families would provide an opportunity for those families to develop better functioning (Ford-Gilboe, 1996).
CHAPTER 2

LITERATURE REVIEW

2.1 Theoretical Framework

Families are a system because they are made up of interrelated individuals that must interact because they are interdependent upon one another (Broderick, 1993). One area of family life is bound to affect another. There are relationships and patterns interconnecting all of the members of a family (Broderick, 1993). When one of these patterns is unhealthy the family system can become confused and badly organized (Broderick, 1993). This would lead to a lack of healthy functioning. Unfortunately, the family-systems perspective has a limitation. It assumes equal influence among those involved in the system. This assumption could lead to problems when faced with a strongly patriarchal family.

Within the family system, physical activity can vastly impact general family functioning. According to the family-systems perspective, family members interact as part of a complex system with established arrangements of rules, relationships, and roles within those relationships (Broderick, 1993). These rules and relationships determine how the family unit is affected by various circumstances. It would stand to reason that the overall health of various family members can have a profound impact on the general functioning of the family as a whole.

2.2 Family Functioning

In family therapy, strong family functioning is something to strive for. Family functioning is defined as the way family members interact and meet the needs of others within the family unit. Strong family functioning can act as a buffer to stressors and negative life events (Farrell, Barnes, & Banerjee, 1995; McKeown et al., 1997; Palmer & Glass, 2003). McKeown and colleagues (1997) asked a sample of 3,197 adolescents about their perceived emotional
bonding within their family, overall family functioning, and cohesion, and their own possible depressive symptoms or suicidal thoughts. They found that greater family functioning was negatively associated with depressive symptoms even after they controlled for family structure.

Families lacking in functionality, as assessed by the have a harder time dealing with negative influences and negative life events (Denton & Kampfe, 1994; Farrell et al., 1995; Palmer & Glass, 2003). With a sample of 658 families with adolescent children (ages 13 to 16), Family cohesion is an aspect of family functioning (Bloom, 1985). Farrell and colleagues (1995) found that higher family cohesion led to lower levels of psychological distress and deviant behavior in the adolescents. According to Denton and Kampfe (1994), adolescents with poorly functioning families will be more likely to engage in drug use. Although, these findings were correlational, not causational.

Using a family systems perspective, Palmer and Glass (2003) investigated the whether the level of family functioning had an impact on recovery after a stroke. They found that family’s with better general functioning was associated with an easier recovery process. Those with less general functioning had harder recoveries. Unfortunately, it is hard to label the above findings for either study as anything other than correlation.

Since strong family functioning is important for helping a family cope with negative events, any way of strengthening functioning is important as well. Therefore, interventions such as an increase in physical activity might help to strengthen functioning and the family will be better able to cope with influences inside and outside the family system.

2.3 The Benefits of Physical Activity

Physical activity reduces stress levels and may even increase resilience (Gerber & Pushe, 2009; Gerber et al., 2012). In a qualitative and quantitative study by Iwasaki, MacKay, and
MacTavish (2005), several participants use physical activities such as going to the gym, weightlifting, and Aboriginal dance to lower their stress levels. Therefore, using physical activity as a way to buffer the stress of life may increase positive family functioning.

Gerber and colleagues (2012) set out to understand just how exercise influences health, specifically, how exercise impacts mental toughness, which can have an effect on resiliency. Two hundred and eighty-four Swiss high school students (99 males and 185 females, Mean age = 18.3 years) completed the Mental Toughness Questionnaire and reported on their exercise levels. The participants with the higher physical activity levels were found to be higher in mental toughness.

Nguyen-Michel, Unger, Hamilton, and Spruijt-Metz (2006) surveyed 814 college freshmen and sophomores. The surveys inquired about the subject’s physical activity, and their perceived stress and hassles. A marginal relationship between stress and physical activity was found. A major limitation of this study is that it only measured a couple of types of stress. More significant results may be found with other types of stress.

Physical activity in older adults can have a positive influence on stress levels. In a 4-year longitudinal study, Rueggeberg, Wrosch, and Miller (2011) examined the role of perceived stress with physical activity levels in older adults. With a sample of 157 older adults (Mean age = 72), Rueggeberg and colleagues (2011) measured baseline levels of physical activities and measured perceived stress and physical health symptoms in 3 waves of data. Physical activities were assessed using a questionnaire in which subjects were asked whether they engaged in any regular activity (e.g., walking, jogging, or bicycling). They found that among the participants with high baseline levels of perceived stress, high physical activity predicted a reduction of perceived stress and prevention of physical health problems. Essentially the physical health benefits were
particularly pronounced among those older adults with higher levels of perceived stress. One limitation was that these participants were at a certain age in the lifespan (Mean age = 72) and their experiences may not be generalizable to all ages. Also, due to the age of the participants there may have been issues regarding memory, but capacity for memory was not measured. Finally, the physical health measure did not include more serious health problems such as cancer. The reduction of stress through physical activity can have a significant impact on physical health problems and therefore, reduce stress further by preventing it in the first place.

2.4 Physical Activity and Family Functioning

Being physically active is an important part of everyday life, and health and family functioning are interrelated (Ford-Gilboe, 1997; Palmer & Glass, 2003). Leisure time, particularly recreational, spent together can have an impact on family functioning (Dodd, Zabriskie, Widmer, & Eggett, 2009; Mactavish & Schleien, 1998). Physical activity, such as playing ball, or participating in yard activities and recreation can play a part in family leisure time (Buswell, Zabriskiea, Lundberga & Hawkins, 2012). Iwasaki (2003) investigated how leisure coping (being involved in leisure activities which includes physical activity such as jogging) influences stress. They used the Leisure Coping Strategy Scale (LCSS) to assess how people involve themselves in leisure. They found that engaging in leisure coping strategies helped bring about positive impact on experienced stress.

Zabriskie and McCormick (2001) investigated the impact of family leisure and recreation patterns, or the activities families participate in with each other, on overall family functioning. Using family systems theory, they examined the impact of family recreation on family functioning. Data were obtained from 138 undergraduate college students (Mean age = 19.6 years). They used the Satisfaction with Family Life Scale (SWFL) to measure satisfaction with
family life and as a general measure of family functioning. It is a modified version of the Satisfaction with Life Scale. They used the Family Leisure Activity Profile to measure family leisure involvement. They found that family leisure and recreation patterns were significantly related to family functioning. Even though their study included physical recreation, Zabriskie and McCormick (2001) pointed out the definition of leisure time as *any* time spent together and that this all-encompassing definition of leisure may in fact be too large. This was a major limitation.

Dodd and colleagues (2009) also call for more investigation into specific ideas of what might contribute to the above finding that family leisure is significantly positively related to family functioning. They examined the link between family leisure involvement and family functioning using a sample of 144 parents (Mean age = 42.91) and 60 adolescents (age range from 10 to 17 with Mean age = 13.03). FACES II was used to measure family functioning and the Family Leisure Activity Profile was used to determine family leisure involvement. They found a significant positive relationship between family leisure and family functioning and adaptability. Once again, however, there was a lack of a definitive definition of what family leisure is.

A major limitation of the above leisure/stress studies is that there is little focus on the type of leisure. In the above leisure studies, physical activities are included in the umbrella of leisure. Leisure, in the above studies, is defined as activities in which are free to pursue their own ends and, even though it includes physical activity, there is no set definition of leisure (Iwasaki, 2003; Iwasaki, MacKay, & MacTavish 2005). Therefore, it is hard to determine if physical activity as a leisure coping strategy is what causes the main effect on reduction of stress.
2.5 Hypotheses

The purpose of this study was to test the association between participation in physical activities and general family functioning. Family functioning is important because it helps families deal with possible negative life events. Strong family functioning also helps to buffer family members from the consequences of negative life events. Participation in physical activities could promote better general family functioning because it helps to reduce stress. The literature in this area is limited; therefore, this study looked at whether the participation in a physically active lifestyle among families would increase family functioning by decreasing stress. Based on family system theory, it is hypothesized that (1) there is a positive association between physical activity and general family functioning (H1) and that (2) this association is explained by reducing stress (H2).
CHAPTER 3

METHOD

3.1 Sample and Procedure

The subjects were students at Florida State University enrolled in CHD4537, a parenting course in the spring semester of 2013. See appendix B for the IRB letter of approval. The sample size was 84 (Mean Age = 21.2). Of the 84 participants, one participant was dropped from the study due to being an extreme outlier with heavily skewed scores. This decision yielded a sample size of 83. Gender distribution was 95.2% female and 4.8% male. Race was categorized as White (74.7%) and Other (25.3%, Hispanic, Black or African American, Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native). 60.2% reported family structure as two biological parent family 39.8% reported other types. Undergraduate classification broke down as sophomore 3.6%, junior 57.8%, and senior 38.6%.

Students were offered extra credit in the course in return for voluntary participation. In this study, all participants answered a series of questionnaires hosted online using the Qualtrics survey site. These surveys included their family of origin’s general family functioning, stress, physical activities, and demographics. Upon completion of the survey, they received extra credit (5 points) as compensation for participation. See appendix A for the complete survey.

3.2 Measures

3.2.1 Family Functioning

The McMaster Family Assessment Device’s General Functioning subscale (Epstein et al., 1983) was used to surmise subject’s general family functioning. This measure was used, instead of the Family Adaptability and Cohesion Evaluation Scale (FACES), because of its shorter length and because only a general measure of family functioning was needed. Participants were
asked to think retrospectively about the year before coming to college when they still lived with their parents and to rate from strongly agree to strongly disagree on 12 items. Sample items included “We are able to make decisions about how to solve problems,” “We don’t get along well together,” and “We confide in each other.” The coding ranged on a 5 point scale from “strongly disagree” (1) to “strongly agree” (5). The answers were reverse coded and then added together to create a composite score. Scores for general family functioning were interpreted as higher score meaning greater general family functioning. A higher score meant better general family functioning. The McMaster Family Assessment Device general functioning subscale has been demonstrated to be a reliable and valid measure of general family functioning (Byles, Boyle, Byrne, & Offord, 1988). In this study, the alpha was .948.

3.2.2 Physical Activity

Subjects were asked to retroactively recall the period during the last year of high school (or the year before starting college) for all of the questions. A revised version of Godin’s Leisure Score Index (LSI) of the self-report Leisure Time Exercise Questionnaire (Godin, Jobin, & Bouillon, 1986; Godin & Shephard, 1985) was used to record the physical activity of the parental figures and the subject’s own physical activity for a 7-day period during the last year of high school (or the year before starting college). The participants were asked to recall and give a general estimation of the number of times and amount of minutes per time they and their parent(s) or guardian(s) spent doing “mild,” “moderate,” or “strenuous” exercises. The amount of times they spent doing a physical activity (mild, moderate, or strenuous activity) in a week and the total number of minutes each time where multiplied to get a total number of minutes for the activity in an average week. This was done for the student and each parent separately for each type of physical activity and a composite score was calculated for the entire family’s
participation physical activities by adding total scores. The composite score was calculated by multiplying the number of times the subject participated in a physical activity by how many minutes they spent doing the activity each time. This composite score was the independent variable. The Leisure Time Exercise Questionnaire is a reliable and valid measure of physical activity (Jacobs, Ainsworth, Hartman, & Leon, 1993). However, in this study, the alpha was .526.

In order to surmise how often they engaged in physical activity with their family the subjects were also asked how often they engaged any physical activities with their family on a five point scale of “never” (1), “seldom,” “sometimes,” “often,” and “all the time” (5). Activities included walking/running, swimming, or play a sport (e.g. baseball, basketball, football, etc.) together. This variable was meant to determine how much of the reported physical activities involved the family. This variable was run separately from the total amount of time spent participating in physical activities. A total score was calculated for this variable, with a higher score meaning that the family participated in more physical activities together. However, this variable was not used in the final analysis because it was not based on any existing measures and only included a limited number of activities.

3.2.3 Stress

Stress was also measured using the 14 item Perceived Stress Scale (Cohen, 1988). This measure was used because it is the most widely used for measuring the perception of stress and its items are simple to understand. The score for stress is interpreted as the higher the score, the more stress that is experienced. Stress experienced by the student during the designated time period was measured using items on 5 point scale of “never” (1), “sometimes”, “neutral”, “fairly often”, “very often” (5). Some items included “Felt nervous and stressed?”, “Dealt successfully
It was expected that physical activity would reduce stress, which would in turn have an effect on general family functioning. The answers for the stress variable were reverse coded and then added together to create a composite score. Some participants were missing answers for the stress variable. There was also a mistake on the survey which excluded question number 5 “How often have you felt that you were effectively coping with important changes that were occurring in your life?” This left only 13 items and is noted in the limitations. The Perceived Stress Scale is a reliable and valid measure of stress (Lavoie & Douglas, 2011). In this study, the alpha for stress was .850.

### 3.2.4 Demographics

Students were asked basic demographic questions with seven items. Race and ethnicity was assessed using seven categories (White, Black or African American, Hispanic, Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, and other). Because of the small number of participants in the same categories, a dummy variable was created as 1(white) and 0 (others). Family structure at the requested time of recall (the year before college or last year at home) was assessed using five categories (two biological parents family, step-mother/father family, single mother family, single father family, other). Because of the small number of participants in the same categories, a dummy variable was again created as 1 (two parent biological) and 0 (other). Gender was coded as 1 (male) and 2 (female). Students were asked to give their current age at participation in the study, as a number. They were not asked for their age at the time of recall (the year before college or last year of high school) as they were expected to within the same age range. Students were asked for their undergraduate classification, freshman (1), sophomore (2), junior (3), and senior (4), but this demographic was not used as a control variable. Parental education, at the requested time of recall (the year before
college), was used to assess socioeconomic status. It was coded as less than high school (1), high school degree or equivalent (e.g. GED) (2), some college (3), bachelor’s degree (4), post graduate degree (e.g. PhD, MS, MD) (5), and no mother/father figure was living with me during the year before college (6) was coded as missing. Total parental education level was determined by the mean for fathers and mothers together.

3.3 Analytical Strategy

Because the dependent variable was family functioning, regression analysis in SPSS was used. Regression is used because it is used to estimate the relationship among two continuous variables, the score for general family functioning and total average amount of physical activity. The dependent variable was general family functioning. The independent variable was the family’s and individual’s physical activity. It was expected that physical activity would reduce stress, which would in turn have an effect on general family functioning. To test H1, family physical activities and demographic/control variables (age, gender, race/ethnicity, parent education, and family structure) was regressed on general family functioning. To test H2, a mediating test was used where physical activity, stress, and demographics were regressed on general family functioning. Demographic variables were included as control variables.
CHAPTER 4

RESULTS

In this chapter the results for each of the hypotheses proposed in this study will be reported. The demographics are also included in the results. Please refer to Table 1 which provides the means, standard deviations, minimum and maximum, and sample sizes for the study variables for the whole sample (N=83) as well as percentages for the demographic variables of race/ethnicity, family structure and gender. For total family physical activity, the score was reported in total minutes for the entire family with a higher score being interpreted as a more physically active family. General family functioning was interpreted as a higher score meaning higher general family functioning. The stress score was interpreted to mean that the higher the score, the more stressed the individual.

It was hypothesized that there is a positive association between physical activity and general family functioning (H1). To test H1, the linear regression was run where family functioning was regressed on family physical activities and control variables (age, gender, race/ethnicity, parent education, and family structure). Table 2 provides the results. The coefficient for family physical activities was $b = -0.102$ ($p = 0.408$) which was not significant and H1 was not supported by these data. For gender $b = -0.107$. For race/ethnicity $b = -0.150$. For parental education $b = -0.062$. For family structure $b = 0.007$. Age was positively associated with family functioning ($b = 0.405$, $p < .01$) which suggests that an older participant age at the time of participation in the study was associated with better family functioning. The R-square was $0.217$ suggesting that 21% of the variation in family functioning was explained by these variables.

The hypothesized association in H1 was to be explained by reducing stress (H2). To test H2, first linear regression was run where stress was regressed on family physical activities and
demographic variables. Table 3 provides the results. The coefficient for stress was $b = -.102 (p = .373)$ which was not significant and H2 was not supported by these data. For age $b = .101$. For gender $b = .048$. For race/ethnicity $b = -.211$. For parental education $b = -.015$. For family structure $b = .049$. The R-square was .090 suggesting that 9% of the variation in family functioning was explained by these variables.

Linear regression was also run where the family functioning was regressed on family activity, age, gender, race/ethnicity, parent education, family structure, and stress. The focus of this model was to look at the association between family physical activity and general family functioning and the association between stress and general family functioning. This model was the key to interpreting and testing a mediating effect. Table 4 shows the results. The coefficient for stress on general family functioning was $b = .516 (p = .000)$ which was significant. For gender $b = -.112$. For race/ethnicity $b = -.008$. For parental education $b = -.040$. For family structure $b = -.050$. Stress was significant on general family functioning. Age was also found to be significant on general family functioning. However, given that table 3 shows that physical activity is not significant on stress and that table 2 shows no direct association between physical activity and general family functioning, the mediating hypothesis was not supported. Age was again found to be positively associated with family functioning ($b = .357, p < .01$). The R-square was .439 suggesting that 44% of the variation in family functioning was explained by these variables.
CHAPTER 5

DISCUSSION

Study general family functioning is important because the better a family functions, the better it can deal with negative life events and the associated stress (Farrell, Barnes, & Banerjee, 1995; McKeown et al., 1997). Based on the family systems theory and previous studies, this study proposed to examine the impact of participation in physical activities on general family functioning. It also proposed that stress would mediate the interaction. Two hypotheses were proposed: H1, there is a positive association between physical activity and family functioning. H2 this association is explained by reducing stress.

5.1 The Association Between Physical Activity and Family Functioning

The above results fail to support the hypothesis (H1) that there is a positive association between physical activity and family functioning. It was found that there is no direct association between physical activity and family functioning. However, age was positively associated with family functioning, suggesting that an older participant age was associated with better family functioning. This finding is significant because it implies that family functioning gets better with age. This could be due to learning how to deal with family members and negative events. However, this finding is limited because the reported measure for age was not the age at the time of recall (last year of high school), but the age at the time of participation in the study. This is discussed further in the limitations.

5.2 The Mediating Test

The above results also fail to support the hypothesis (H2) that stress would mediate any association between physical activity and family functioning. Since there was no direct association between physical activity and family functioning, there was nothing to mediate.
However, it was proposed that there may be an indirect association. Previous studies had found that physical activity did help reduce stress (Rueggeberg et al., 2011). Another model was run to see if there was an association between physical activity and stress and to see if there was an association between stress and general family functioning.

It was found that stress was strongly associated with general family functioning. Age was once again found to be significant, and again, the association was positive. Similar to the study by Nguyen-Michel et al. (2006), there was no association found between physical activity and stress. As there was no associating between physical activity and stress and no association between physical activity and general family functioning, the mediating hypothesis was not supported.

Even though the present study found no direct link between physical activity and family functioning, it may still play a role in the functioning of families. Participating in activities together as a family rather than individuals, may be the key to better family functioning. In studies by Dodd et al., (2009) and Mactavish and Schleien, (1998) recreational leisure time, spent together as a family was shown have an impact on family functioning. Similarly, no association was found between physical activity and stress. However, it should be noted that the scores for physical activity came from a modified version of an existing measure for physical activity. In addition, one question for the stress measure was inadvertently left out of the questionnaire. This mistake may have affected the total stress score that was achieved. Another variable concerning how often families participated in physical activities together, rather than participating in them as individuals, was dropped from the study because it was not based on any existing empirical measures and it only included a limited number of activities that may not have been representative of all possible answers.
5.3 Strengths, Limitations, and Recommendations

5.3.1 Strengths

One strength of this study was the use of only physical activity as a stress reducer. Iwasaki et al. (2005) included physical activity in their definition of leisure, but did not precisely seek it out as a possible stress reducer. Another strength is that this study attempted to find an association between physical activity and general family functioning, which few previous studies have attempted.

5.3.2 Limitations

The findings may have stemmed from a few limitations. First, this study was cross-sectional as it focused only on the point in time where the student had been living at home and casual conclusions cannot be drawn. Second, due to the nature of the sample, all data was retrospective, which may have led to recall bias. All responses for a questionnaire were self-report and came from the student. They were asked to recall the actions of others, which may not have been accurate and may also have been biased. Any reported data on parents was also retrospective from the student’s self-report. Due to the personal nature of the study, social desirability bias may have played a role and students may have over reported their own or their parent’s involvement in physical activities. They may also have reported a higher level of general family functioning.

Since no association was found between overall physical activity of the family and general family functioning, the subjects may have underreported their parent’s physical activity because they may not have known their parent’s habit and guessed. Third, the sample size was small which reduced the power. Also, there was an abundance of female respondents over males. This may have affected results. Fourth, the finding of age being significant was limited because
all participants were, theoretically, the same age or were within the same age range at the time they were asked to recall (the last year of high school). In addition, the actual age that was reported for the measure was the participant’s age at the time of participation in the study, not the age at the time of recall. Finally, college students are not representative of all young adults or the general population.

5.3.3 Recommendations

Despite the limitations, this study has contributed to the further understanding of what affects or does not affect general family functioning. The finding that physical activity is not directly associated with general family functioning only adds to the question of what is associated with improving general family functioning. Recommendations for future research include a using a larger sample size with the inclusion of more male participants, a more diverse sample, and the inclusion of the parents as respondents. It is also recommended that a different measure should be used for physical activity. Physical activities done together as a family, rather than just as individuals, should also be included in further research.
APPENDIX A

TABLES

Table 1. *Family Functioning, Stress, and Physical Activity Variables, and Demographic Variable: Descriptive Statistics (N = 83)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>M or %</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Family Physical Activity</td>
<td>1126.48</td>
<td>709.24</td>
<td>80.00</td>
<td>3270.00</td>
</tr>
<tr>
<td>Family Functioning</td>
<td>25.68</td>
<td>9.66</td>
<td>12.00</td>
<td>53.00</td>
</tr>
<tr>
<td>Stress</td>
<td>31.96</td>
<td>6.02</td>
<td>19.00</td>
<td>46.00</td>
</tr>
<tr>
<td>Age</td>
<td>21.30</td>
<td>2.59</td>
<td>19.00</td>
<td>40.00</td>
</tr>
<tr>
<td>Parents Education</td>
<td>3.34</td>
<td>0.94</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>74.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>25.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Structure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two Parent Biological</td>
<td>60.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>39.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>04.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>95.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Summary of Linear Regression Analysis for Variables Predicting Total Family Physical Activity on Family Functioning, Controlling for Background Variables

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Total Family Activity</td>
<td>-.001</td>
<td>.001</td>
</tr>
<tr>
<td>Parents Education</td>
<td>-.617</td>
<td>1.192</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>-3.371</td>
<td>2.500</td>
</tr>
<tr>
<td>Age</td>
<td>1.451</td>
<td>.386</td>
</tr>
<tr>
<td>Gender</td>
<td>-4.599</td>
<td>5.176</td>
</tr>
<tr>
<td>Family Structure</td>
<td>.144</td>
<td>2.378</td>
</tr>
</tbody>
</table>

Note: R^2 = .217

**p < .01
Table 3. Summary of Linear Regression Analysis for Variables Predicting Total Family Physical Activity on Stress, Controlling for Background Variables

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Total Family Activity</td>
<td>-.001</td>
<td>.001</td>
</tr>
<tr>
<td>Parents Education</td>
<td>-.095</td>
<td>.818</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>-3.042</td>
<td>1.774</td>
</tr>
<tr>
<td>Age</td>
<td>.233</td>
<td>.263</td>
</tr>
<tr>
<td>Gender</td>
<td>1.334</td>
<td>3.577</td>
</tr>
<tr>
<td>Family Structure</td>
<td>.616</td>
<td>1.590</td>
</tr>
</tbody>
</table>

Note: R² = .090
Table 4. Summary of Linear Regression Analysis for Variables Predicting Stress on Family Functioning, Controlling for Background Variables

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Stress</td>
<td>.814</td>
<td>.147</td>
</tr>
<tr>
<td>Parents Education</td>
<td>-.405</td>
<td>1.020</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>-.177</td>
<td>2.155</td>
</tr>
<tr>
<td>Age</td>
<td>1.294</td>
<td>.328</td>
</tr>
<tr>
<td>Gender</td>
<td>-4.851</td>
<td>4.026</td>
</tr>
<tr>
<td>Family Structure</td>
<td>-.988</td>
<td>1.970</td>
</tr>
</tbody>
</table>

Note: $R^2 = .439$

** $p < .01$
APPENDIX B

CONSENT FORM AND QUESTIONNAIRE

FSU Behavioral Consent Form
Physical Fitness and Families

You are invited to participate in a research study of the effects of physical activity on family functioning. This study is to be conducted through an online survey. You were contacted as a possible participant because you are enrolled in CHD4537. Please read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by Kasey Longley, Family and Child Sciences, FSU.

Background Information:
The purpose of this study is to examine the effects of physical activities of family members on the functioning of the family.

Procedures:
If you agree to participate in the study, you will be expected to complete an online survey containing several short questionnaires concerning you and your family's physical activities, and your family's functioning, and some demographic information. This survey should take no more than 10 minutes of your time. Upon completing the survey, you will receive 5 points as extra credits in CHD4537.

Risks and Benefits of Being in the Study:
The risks in participating this survey is minimal, including feeling uncomfortable talking about personal/family activities, feeling embarrassed about physical inactivity, or reminding you of some family issues. A second risk is that you may feel uncomfortable talking about your family's personal habits and preferences. The participation is completely voluntary and you may stop at any time if you feel uncomfortable. You can choose an alternative activity (i.e., writing a short essay on a topic related to CHD4537) for the opportunity to earn the extra credits. However, I expect that the risk is minimal and the benefits of the study (e.g., examining how physical activity promotes family functioning) outweighs the risks.

Compensation:
You are being asked to voluntarily participate in this study. Upon completion of the survey, you will receive extra credits (5 points) as compensation for your participation. There is no partial credit offered for not half-completing the survey. However, should you choose not to participate in this study, you have the option of completing a short one page double-spaced essay on a topic related to the CHD4537 parenting class for a maximum of 5 points extra credit. The details of the essay requirement will be provided separately later in the semester.

Confidentiality:
The records of this study will be kept private and confidential to the extent permitted by law. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Survey data will be stored securely in a password protected computer in a locked office. The data will be used for a thesis and will be kept for a minimum of two years.

Voluntary Nature of the Study:
Participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your current or future relations with the Florida State University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:
The researcher conducting this study is Kasey Longley. If you have questions, you are encouraged to contact her at or you may contact my advisor, Dr. Ming Cui, by email at

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the FSU IRB or by email at

You will be given a copy of this information to keep for your records.

Statement of Consent:
By entering your FSU ID and name below, you agreeing to the following:
I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

__________________________________________________________________________________________
The following question is only meant to record the fact that you completed the survey and to receive your class credit. It will be removed once credit has been given and the survey will remain completely anonymous.

☐ Please print your full name.

☐ Please enter your FSU email address.

Please answer the following questions to the best of your ability.

What is your current undergraduate classification?

☐ Freshman
☐ Sophomore
☐ Junior
☐ Senior

What is your race and ethnicity? Please choose one or more.

☐ White
☐ Hispanic
☐ Black or African American
☐ Asian, Native Hawaiian or other Pacific Islander
☐ American Indian or Alaska Native
☐ Other (please specify)

What is your age?

☐ In years
What is your gender?
- Male
- Female

What is your family structure during the last year of high school the year before attending college?
- Two biological parents family.
- Step-mother/father family.
- Single mother family.
- Single father family.
- Other (Please Specify) ____________________________

What is the highest level of education of the mother figure (e.g. biological, step, foster) who lived with you during the year before college?
- Less than high school
- High school degree or equivalent (e.g. GED)
- Some college
- Bachelor's degree
- Post graduate degree (e.g. PhD, MS, MD)
- No mother figure was living with me during the year before college

What is the highest level of education of the father figure (e.g. biological, step, foster) who lived with you during the year before college?
- Less than high school
- High school degree or equivalent (e.g. GED)
- Some college
- Bachelor's degree
- Post graduate degree (e.g. PhD, MS, MD)
- No father figure was living with me during the year before college
The following questions ask you to recall your level of exercise during the last year of high school (or the year before starting college).

Think about the exercise you did during your free time (i.e. not occupation or housework) during an average 7-day period (a week).

<table>
<thead>
<tr>
<th>Exercise Description</th>
<th>Minutes each time</th>
<th>How many times per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Mild exercise (minimal effort, no perspiration) (e.g., easy walking, yoga,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>archery, fishing, bowling, lawn bowling, shuffleboard, horseshoes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Moderate Exercise (not exhausting, light perspiration) (e.g., fast walking,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>baseball, tennis, easy bicycling, volleyball, badminton, easy swimming,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>alpine skiing, popular and folk dancing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Strenuous exercise (heart beats rapidly, sweating) (e.g., running, jogging,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hockey, soccer, squash, cross-country skiing, roller skating, vigorous swimming,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vigorous long distance bicycling, vigorous aerobic dance classes, heavy weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>training)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please recall the level of exercise of your mother figure or female head of the household during the last year of high school (or the year before starting college).

Considering an average 7-day period (a week) think about the exercise they did during their free time (i.e. not occupation or housework).

<table>
<thead>
<tr>
<th>Exercise Description</th>
<th>Minutes each time</th>
<th>How many times per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Mild exercise (minimal effort, no perspiration) (e.g., easy walking, yoga,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>archery, fishing, bowling, lawn bowling, shuffleboard, horseshoes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Moderate Exercise (not exhausting, light perspiration) (e.g., fast walking,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>baseball, tennis, easy bicycling, volleyball, badminton, easy swimming,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>alpine skiing, popular and folk dancing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Strenuous exercise (heart beats rapidly, sweating) (e.g., running, jogging,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hockey, soccer, squash, cross-country skiing, roller skating, vigorous swimming,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vigorous long distance bicycling, vigorous aerobic dance classes, heavy weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>training)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please recall the level of exercise of your father figure or male head of the household during the last year of high school (or the year before starting college).

Considering an average 7-day period (a week) think about the exercise they did during their free time (i.e. not occupation or housework).

<table>
<thead>
<tr>
<th>Exercise Description</th>
<th>Minutes each time</th>
<th>How many times per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Mild exercise (minimal effort, no perspiration) (e.g., easy walking, yoga,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>archery, fishing, bowling, lawn bowling, shuffleboard, horseshoes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Moderate Exercise (not exhausting, light perspiration) (e.g., fast walking,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>baseball, tennis, easy bicycling, volleyball, badminton, easy swimming,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>alpine skiing, popular and folk dancing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Strenuous exercise (heart beats rapidly, sweating) (e.g., running, jogging,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hockey, soccer, squash, cross-country skiing, roller skating, vigorous swimming,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vigorous long distance bicycling, vigorous aerobic dance classes, heavy weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>training)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Again thinking back to the last year of high school (or the year before starting college) how often did your immediate family, as a group, do the following things during a typical week? Immediate family is limited to you, your parental figures, or caregivers, and your siblings.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>All the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go hiking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go walking/running</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go swimming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play ballgames (e.g. Baseball, Basketball, Football, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go dancing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go biking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thinking back to the last year of high school (or the year before starting college) how often did you feel the following things over a typical one month period?

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Never</th>
<th>Sometimes</th>
<th>Neutral</th>
<th>Fairly often</th>
<th>Very often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Been upset because of something that happened unexpectedly?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Felt that you were unable to control the important things in your life?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Felt nervous and “stressed”?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Dealt successfully with irritating life hassles?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Felt confident about your ability to handle your personal problems?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Felt things were going your way?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Found that you could not cope with all the things that you had to do?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Been able to control the irritations in your life?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Felt you were on top of things?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Been angered because things happened that were outside of your control?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Found yourself thinking about the things that you have to accomplish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Been able to control the way you spend your time?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Felt difficulties were piling up so high that you could not overcome them?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Think back to the last year of high school (or the year before starting college) and please read each statement carefully and decide how well it described your immediate family. Immediate family is limited to you, your parental figures, or caregivers, and your siblings.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Planning family activities was difficult because we misunderstood each other.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>2. In times of crisis we could turn to each other for support.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>3. We could not talk to each other about the sadness we felt.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>4. Individuals were accepted for who they were.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>5. We avoided discussing our fears and concerns.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>6. We could express feelings to each other.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>7. There were lots of bad feelings in the family.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>8. We felt accepted for who we were.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>9. Making decisions was a problem for our family.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>10. We were able to make decisions about how to solve problems.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>11. We didn’t get along well together.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>12. We confided in each other.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
APPENDIX C

IRB LETTER OF APPROVAL

The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673, FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 1/22/2013

To: Kasey Longley

Address: ****************************************
Dept.: FAMILY & CHILD SCIENCE

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Physical Fitness and Families

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and one member of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR Â§ 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 1/18/2014 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol
change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Ming Cui, Advisor
HSC No. 2012.9629
REFERENCES


BIOGRAPHICAL SKETCH

Kasey Longley was born in Tallahassee, Florida on June 24, 1989. She graduated cum laude from Lawton Chiles High School in 2007. She was a recipient of the Parent Teacher Organization scholarship award. In 2011, she received her B.S. in Psychology from Florida State University with a double minor in English and Philosophy. While working on this degree she was heavily involved with the Social Psychology labs on campus as a DIS student. She worked in the lab of Dr. Jon Maner, studying the automatic processes involved in assessing romantic rivals and relationship alternatives. She also worked on studies involving maintaining social relationships, specifically romantic ones. She worked in the lab of Dr. Ashby Plant studying social judgment, bias, and implicit prejudice. She also worked in the lab of Dr. Roy Baumeister studying the perceptions of free will. Her duties in the various labs included memorizing scripts, training other research assistants, running participants, working with the computer programs and other technologies (camera, headphones etc.), and coding data.

In 2011, she was accepted to the Master’s program in Family and Child Sciences at Florida State University. While in graduate school, she worked as a Research Assistant. She also worked as a Teaching Assistant for four semesters in undergraduate Family and Child Science classes. She also worked in the College of Human Sciences advising office for two consecutive semesters. For the first two semesters of her program, she also worked for a family law lawyer as a legal assistant.

Kasey’s research interests include physical fitness and its effects on the family, social interactions, the effects of child-hood obesity, romantic relationships, parent/child relationships, general family functioning, and social rejection.