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Influences on Active Family Leisure and a Healthy Lifestyle Among Adolescents

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*The purpose of this study was to examine how attitude, subjective norm, and perceived behavioral control influence adolescents' intent to participate in active family leisure within the theory of plan behavior framework. Adolescents (*N = *472) completed an online questionnaire about their perceptions and actual participation in active family leisure. Structural equation modeling was used to analyze the data. A post-hoc analysis also considered individual leisure and its role on active family leisure. Attitude, subjective norm, and perceived behavioral control were significant predictors of intent to participate in active family leisure.*

Keywords active family leisure, adolescents, leisure, physical activity, theory of planned behavior

Introduction

Active family leisure is one way to incorporate physical activities to combat many challenges faced by adolescents (Goldberg & King, 2007; Janiszewski & Ross, 2007; Rodearmel et al., 2007; Van Der Horst, Paw, Twisk, & Van Mechelen, 2007). Some of these challenges may include low self-esteem, sedentary life styles, engaging in unhealthy behaviors, and obesity (Goldberg & King; Janiszewski & Ross; Rodearmel et al.; Van Der Horst et al.). Active family leisure is any nonwork activity that is freely chosen, benefits those involved, is participated in with the whole family, and includes physical movement by the participants (Russell, 1996). Participation in active family leisure may include playing basketball, riding bikes, throwing a ball, or going on an evening walk together as a family. One purpose of active family leisure is to get children involved in regular voluntary physical activities with their families. When this happens, adolescents are most likely to start adopting the behaviors of an active lifestyle that reduce the likelihood of becoming obese and facing the challenges that arise from little physical activity (Rodearmel et al.; Shaw & Dawson, 2001).

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Adolescent obesity is a problem in the United States. Body weight has increased in adolescents over the last 20 years, and obesity is now considered an epidemic by the Institute of Medicine (Institute of Medicine, 2010). Weight-related conditions, which typically were not seen until adulthood, are now being diagnosed in children and teens. Illnesses such as diabetes, hypertension, and dyslipidemia are rising in frequency among adolescents (Rodearmel et al., 2007). Beyond the physical health consequences, children and adolescents also face weight stigmas and psychosocial problems (Rodearmel et al.). Understanding risk factors and finding interventions is necessary to manage the obesity epidemic (Liou, Liou, & Chang, 2010).

Leisure time physical activity has been viewed by many as a means to influence an individual's weight (Davidson & Birch, 2002; Sizer & Whitney, 2003). Russell (1996) has defined leisure as any nonwork activity undertaken in free or spare time, is freely chosen, and has a purpose. Numerous activities such as swimming, biking, or walking can be physically challenging yet are also viewed as leisure. In addition, these types of activities have been shown to help individuals maintain a healthy weight, as well as reducing the risk for other chronic illnesses (Thompson, Rehman, & Humbert, 2005).

Adolescents can meet some of their health needs and find enjoyment by participating in physically active leisure. Unfortunately, many adolescents spend their discretionary time in passive activities, such as playing video games and watching television (Godbey, 1997; Goldberg & King, 2007; Strauss, Rodzilsky, Burack, & Colin, 2001). Parents also often struggle to motivate adolescents to voluntarily participate in physically active family leisure (Kanters, Bocarro, & Casper, 2008; Shaw, 1997).

Parents have an influence on the leisure patterns their children develop and can promote active family leisure within the home (DHHSCDCP, 2010; Thompson et al., 2005). For many, the family environment is the most common arena for the development of habits around leisure activities (Sabiston & Crocker, 2008; Shaw & Dawson, 2001). For example, a family may develop the leisure habit of watching DVD movies and eating out on weekends or the active leisure habits of riding bikes and playing basketball together. As parents participate in active leisure with their adolescent children, they model and promote positive behaviors that can influence adolescents well into adulthood and shape their future lifestyle choices (Thompson et al.). Participating in active family leisure is a way for children and adolescents to develop leisure habits and techniques for being active. These habits and techniques could potentially help them maintain a healthier weight throughout their lives. In order to encourage participation, it is important to understand why adolescents choose to be active in their family leisure.

The theory of planned behavior (TPB) may help explain why adolescents participate in active family leisure. The TPB states that an individual's intent to perform a specific behavior, such as active family leisure, influences the likelihood of actually performing that behavior (Ajzen & Fishbein, 1973). Individuals' intent to participate in a certain behavior is influenced by their attitude, subjective norm, and perceived behavioral control toward it (Ajzen & Driver, 1992). For example, examine a family taking a bike ride on a park pathway. If the teenager in the family a) has a positive attitude about bike riding, b) feels that it is important to his family that he be physically active with the family, and c) feels like he is capable of bike riding, the TPB suggests he would have a strong intent to participate in the family bike ride. Thus, the prospect of the adolescent voluntarily wanting to go on the family bike ride increases. While bike riding, the adolescent is involved in active family leisure that combats obesity and associated health problems by contributing to the development of a healthy, physically active lifestyle and the likelihood of the adolescent maintaining a healthy weight. Therefore, the purpose of this study was to examine how attitude, subjective norm, and perceived behavioral control influence adolescents' intention

to participate in active family leisure and how intention affects actual participation in active family leisure.

Review of Literature

Active Family Leisure

Active family leisure is one way to incorporate physical activity through leisure. In addition, active family leisure may contribute to adolescents adopting the healthy behavior of an active lifestyle (Rodearmel et al., 2007; Shaw & Dawson, 2001). According to Telema, Yang, Laakso, and Viikari (1997), adolescence is the time when physical activity skills, attitudes, values, and behaviors are developed. Indeed, research shows a positive relationship between parental physical activity levels and their children's physical activity levels (Golan & Crow, 2004; Kalakanis, Goldfield, Paluch, & Epstein, 2001; Moore et al., 1991). Furthermore, the behavioral patterns developed in the family during adolescence are thought to continue into adulthood (Scott & Willits, 1998). That is, youth often learn appropriate behavior based on the actions of the parents. Adolescents commonly model what they see their parents doing (Thompson et al., 2005). For example, if youth see Dad eating healthy and being active, they tend to internalize those behaviors as they develop. Often the inverse is true as well. Essentially, the parents' influence contributes to socializing their children into a certain lifestyle as adolescents tend to do what they see their parents do. However, these studies examined individual rather than family-based physical activity. While participation in family leisure has been related to family cohesion, adaptability, and overall family functioning (Dodd, Zabriskie, Widmer, & Eggett, 2009), little is known about what contributes to adolescents' desire to participate in active family leisure.

Family influence on active family leisure. Parents are still likely to have the greatest single influence on the current and future behavior of their children. The family is the basic unit of society (Milardo, 2001). As such, Iso-Ahola (1980) posits that families exert the greatest influence in a child's leisure socialization. This includes acquiring knowledge, attitude, values, skills, and motives about leisure. A family's interaction through leisure time shapes and molds the way an individual views active leisure. The family's influence begins with early childhood interactions and continues through adolescence and young adulthood (Isa-Ahola).

Family and parents' influences can either help or hinder their children's leisure participation. Thompson et al. (2005) found that children of all ages are significantly influenced by their parents to participate in physically active leisure. Parents may be highly influential because home and the family are the most common arenas for leisure activities (DHHSCDCP, 2010; Kelly, 1993; Sabiston & Crocker, 2008; Shaw, 1997; Shaw & Dawson, 2001). Parents' influence comes through role modeling physical activity, as well as by encouraging their youth to participate in organized physical activities and sports (Thompson et al.). Shaw and Dawson found that parents felt active family leisure was a way to keep their children physically fit and to expose them to activities and lifestyle patterns that will benefit them in the future. Likewise, Richter et al. (2000) concluded that the social environment, specifically family practices, plays a role in the physical activity of children and youth. Thus, the family, specifically parents, has a substantial influence on adolescents' leisure involvement. For example, serious runners have found that their children develop an interest in running to the point that it eventually became family leisure and strengthened relationships (Goodsell & Harris, 2011). Researchers, however, have not considered what encourages adolescents to participate in active family leisure. To begin to understand this

phenomenon, two components must be explored: physical activity and the perception of the activity as leisure.

Physical activity as leisure. Physical activity has numerous physiological and psychological benefits. Physical activity is any activity that makes your body muscles work harder than normal and increases energy expenditure (Goldberg & King, 2007; USNLMNIH, 2009). High self-esteem and lower levels of stress and anxiety are seen in youth who are physically active (Van Der Horst et al., 2007). Children and adolescents who participate in regular physical activity also have lower blood pressure, weigh less than those who do not participate in regular physical activity, and have higher bone mineral densities (Purslow, Hill, Saxton, Corder, & Wardle, 2008). There is also some evidence that physical activity can increase academic performance in the form of better grades and higher scores on standardized tests (Strong et al., 2005).

Daily physical involvement which can be achieved through active family leisure is a critical part of weight gain prevention, weight loss, and fighting against a sedentary lifestyle throughout the life span (Goldberg & King, 2007; Liou et al., 2010; Simon et al., 2008). Must et al. (2007) reported that for adolescents low moderate-to-vigorous physical activity levels and high sedentary behavior were associated with obesity. Further, Rodearmel et al. (2007) found increasing physical activity enabled children to reach and maintain a healthy weight. Thus, physical activity is valuable as both a treatment and preventative measure for obesity and to guard against a sedentary lifestyle (Janiszewski & Ross, 2007). Participating in active family leisure can therefore be an enjoyable way to increase daily physical involvement and have it viewed as leisure. Leisure differs from physical activity because leisure has meaning beyond exercise (Godbey, Caldwell, Floyd, & Payne, 2005). Active family leisure creates opportunities to be physically active in ways that may not readily be considered exercise, but rather viewed as leisure (Godbey et al.; Shaw & Dawson, 2001). For example, biking, hiking, playing a game of tag, and many other activities can be enjoyable ways to spend leisure time with family members while simultaneously increasing physical activity and energy expended by the body.

Adolescent Health

Obesity is an unhealthy significant issue facing many adolescents. In 2004, adolescent obesity was estimated to be 17.4%, nearly triple the 1974 estimate of 6.1% of the adolescent population (DHHSCDCP, 2007). Furthermore, data from the National Health and Nutrition Examination Survey (NHANES) estimated that another 15% of children are at risk of becoming overweight (DHHSCDCP, 2007; Rodearmel et al., 2007). These trends clearly suggest obesity is a potential national issue that must be addressed.

Obesity comes with an extensive list of adverse side effects. For instance, there is an increase in the prevalence of weight related medical problems because of the increase in childhood and adolescent obesity. Illnesses like hypertension, type 2 diabetes, pulmonary complications, dyslipidemia, and musculoskeletal problems, which were typically seen primarily in older adults, are now becoming common diagnoses among children (Ogden, Carroll, McDowell, & Flegal, 2007). There are also social stigmas and psychosocial problems that these overweight and obese children face (Rodearmel et al., 2007). Children and adolescents face negative stigmatization from numerous sources including their families and peers (Eisenberg, Neumark-Sztainer, & Story, 2003; Latner, Simmonds, Rosewall, & Stunkard, 2007). Even though the incidence of childhood obesity is becoming common, it has not changed the way others view an overweight individual and stigmas towards those who are overweight have actually increased over the last four decades (Latner et al.).

Teaching adolescents to establish positive health behaviors and lifestyles is therefore crucial to preventing the occurrence of chronic diseases and reducing the obesity epidemic (Pan American Health Organization, 2005). Because parents have an influence on adolescent physical activity behaviors (Golan & Crow, 2004; Thompson et al., 2005), the TPB may be a useful way to examine parental influence on adolescents' voluntary involvement in active family leisure.

Theory of Planned Behavior

The TPB's central tenet focuses on an individual's intention to perform a specific behavior and the relationship between intent, attitudes, subjective norms, and perceived behavioral control (Fishbein & Manfredo, 1992; Sas-Nowosielski, 2006). As such, the theory of planned behavior (TPB) may be useful in predicting whether adolescents will participate in active family leisure.

Intent is defined as an individual's readiness to perform a given behavior (Ajzen & Driver, 1992) and is influenced by attitude, subjective norm, and perceived behavioral control (Ajzen & Driver, 1991). For this study, the specific behavior being examined is adolescent participation in active family leisure.

Attitude is defined as "an individual's general affective and cognitive orientations toward a given behavior" (Shen, McCaughtry, & Martin, 2008, p. 843). Attitude results from salient beliefs about the consequences of participating in a specific behavior. These beliefs result in a favorable or unfavorable attitude toward the behavior (Ajzen & Albarracin, 2007; Connor & Sparks, 2005).

Subjective norm is "the perceived social pressure to perform or not to perform the behavior" (Ajzen & Driver, 1991, p. 188). Subjective norms are based on perceived expectations from referent groups, such as peers and family members as to whether a particular behavior should be engaged in or not. A person's motivation to comply with these perceived expectations also influences subjective norms (Ajzen & Albarracion, 2007; Connor & Sparks, 2005).

The third element thought to contribute to intent, perceived behavioral control, refers to the perceived capability of performing the behavior based on past experiences, anticipated impediments, and obstacles (Ajzen & Driver, 1991). A person bases their capability to perform a behavior by taking into account factors that may further or hinder their ability to perform the behavior (Ajzen & Albarracion, 2007). These factors can be internal, such as information, skills, abilities and emotions, or external, such as opportunities, dependence on others, and barriers (Connor & Sparks, 2005). Perceived behavioral control is similar to Bandura's construct of self-efficacy (Bandura, 1997), but differs in its operationalization (Ajzen & Albarracion, 2007). Perceived behavioral control tends to focus on the capability of the individual while self-efficacy is centered on task difficulty (Ajzen & Albarracion; Motl et al., 2002).

Attitude, subjective norm, and perceived behavior control each influence intent, which then influences performance of the behavior. The TPB also posits that perceived behavioral control can influence behavior directly (Sas-Nowosielski, 2006). Several assumptions, however, are made about how intent is influenced. First, it is assumed that humans can think about and understand information that is given them (Fishbein & Manfredo, 1992). However, the theory does not assume that the person makes reasonable or correct judgments with the information; it only postulates that the individual is capable of processing information (Sharma & Romas, 2008). The second assumption is that the behavior must be something the individual has a choice to participate in or not. This can be problematic because many youth behaviors are not completely autonomous. For example, parents often require youths

to do things that are not fully volitional (Sharma & Romas, 2008). The variable of perceived behavioral control, however, is thought to remedy this problem (Maddux & DuCharme, 1997). These assumptions allow the TPB to be used in numerous areas of research.

Ajzen and Driver (1992) suggested the TPB could be a useful theory to study leisure because leisure behaviors can easily be defined and attitudes, subjective norms, and perceived behavioral control can predict intentions to perform leisure activities. In previous research, perceived behavioral control was found to make the greatest significant contribution to leisurely travel (Tsai, 2010). Lee and Tsai (2010) also found that attitude, subjective norm, and perceived behavioral control had a positive influence on an individual's intent to play online games. In addition, the TPB has been used to study youth participation in physical activity (Shen, McCaughtry, & Martin, 2008). Martin et al. (2005) found that youth who have positive attitudes about physical activity, perceive that others expect them to be physically active, and feel they have control over their physical activities have high intentions to participate in physical activity. Thus, the TPB establishes a sound fundamental framework to study adolescent intent to participate in active family leisure activities.

Previously, leisure studies have conducted little research on the physical health benefits of family leisure (Godbey et al., 2005). In an issue of *Leisure Sciences* dedicated to research on active lifestyles, Sallis and Linton (2005) called on leisure professionals to collaborate with public health professionals in studying active lifestyles in order to help combat the increasing health concern of physical inactivity which can lead to obesity. Adolescent intent to participate in active family leisure may be driven by the adolescents' attitude toward being physically active with their family, subjective norms or social influences, and perceived behavioral control. Therefore, the purpose of this study was to examine how attitude, subjective norm, and perceived behavioral control influence adolescents' intention to participate in active family leisure. In addition, the study considered how intention affects actual participation in active family leisure.

Methods

Data Collection Procedures

The study used an online questionnaire through Qualtrics that addressed intent, attitude, subjective norm, perceived behavioral control, active family leisure, individual active leisure, and general demographics. Using online data collection procedures allowed data collection to occur with a large nationally reflective convenience sample by geographical region. Online data collection has similar limitations to other methods of self-report data collection (Ward & Buswell, 2009). Survey Sampling International (SSI), a large international online data collection company, handled the distribution of the web page link to potential subjects. It sent out an email to randomly drawn subjects that met the target characteristics designated by the researchers from within the representative multisource Internet panel. This panel consisted of approximately 2.2 million households that indicated a willingness to participate in online research. The target sample included adolescents ages 12–19 who were nationally reflective by percentage of population in geographical regions across the country. The study team hoped to capture a wide range of adolescents and explore general trends that may contribute to active family leisure. The recruitment email asked parents to allow their child's participation in the study. After the initial wave of invitations, SSI sent out additional electronic invitations until the study reached the target sample size of 500 complete questionnaires from participants. Within 48 hours of the initial email, the study collected 501 questionnaires and transferred data from the Qualtrics site into SPSS 18 and AMOS 18 for analysis.

Instrumentation

The study's questionnaire consisted of existing instruments with demonstrated evidence of reliability and validity among adolescent samples. To measure TPB, the questionnaire contained four sets of questions based on guidelines given by Ajzen (2004) and Ajzen and Madden (1986), including attitude, subjective norm, perceived behavioral control, and their influence on adolescents' intent to participate in active family leisure. Measures of actual participation in active family leisure and individual active leisure participation used modified questions from the Godin Leisure Time Exercise Questionnaire (GLTEQ). The questionnaire also included applicable demographic questions reported below.

TPB questions. The TPB questions asked participants to respond to items on a 7-point Likert scale. Three items measured attitude with the anchors *unhealthy/healthy*, *good/bad*, and *enjoyable/unenjoyable.* Subjective norm asked participants to complete two pairs of questions. The first question of each pair assessed the beliefs of the peers or family members with the anchors *strongly disagree/strongly agree*. The second question of the pair measured participants' motivation to comply with the beliefs and was anchored by *not at all important/very important*. Perceived behavioral control items asked participants to answer four questions. The terms *strongly disagree/strongly agree* anchored the first and fourth questions. The anchor for the second question was *impossible/possible,* and the third question used *no control/complete control*. The anchors measuring intent were *definitely false/definitely true* for the first two items and *definitely do/definitely do not* for the last item. These questions have evidence of validity and reliability in past studies of youth physical activity (Martin et al., 2005; Martin, McCaughtry, & Shen, 2008; Shen et al., 2008).

GLTEQ. The Godin Leisure Time Exercise Questionnaire (Godin & Shephard, 1985) is typically used to measure individual leisure time physical activity participation. For the purpose of this study, however, the researchers modified this instrument to measure adolescents' active family leisure participation by adding the phrase *with my family* to each item. To help the participants understand they were answering questions with regard to participating with their family, the questionnaire provided an example of a family playing basketball together versus playing on a team or as an individual. The researchers also inserted the phrase *individually, with your friends, or with a team* into the GLTEQ questions to collect information on individual active leisure.

Participants completed the GLTEQ by reading the header "How many times in an average week do you do the following kinds of activities with your family for more than 15 minutes during your free time?" and then responding to three statements of physical activity levels: strenuous (unable to talk while participating in the activity), moderate (can talk, but with a little difficulty), and mild (no difficulty talking). Answers for strenuous, moderate, and mild were then multiplied by nine, five, and three metabolic equivalents (METs; the amount of energy used in physical activity), respectively, and summed to create a total active family leisure score. Answers for the questions regarding leisure activities that were participated in individually, with peers, or with a team were multiplied and summed in the same manner to create a total individual active leisure score. The final question was "In an average week, during your free time, how often do you do any physical activity with your family during your leisure time long enough that it causes you to sweat (make your heart beat quickly)?" Participants marked one of the following three choices: often, sometimes, never/rarely. This item served as a check to add validity to the self-reported responses to the GLTEQ. Evidence of validity and reliability has been reported for the use of the GLTEQ with children and adolescents (e.g., Martin et al., 2005; Sallis, Buono, Roby, Micale, & Nelson, 1993; Shen et al., 2008).

Demographics. Demographic questions included gender, ethnicity, family social economic status, family size and status, family history questions with regard to obesity, and perception of family satisfaction.

Study Sample

The sample contained adolescents ($n = 472$) between the ages of 10 and 20 ($M = 15.11$, $SD = 2.35$) and was a nationally reflective convenience sample based on the general population distribution of the United States by geographical area. For example, California, the most populated state, had nearly 10% of the participants, and Wyoming, the least populated, represented .2% of the participants. There was approximately equal numbers of males ($n = 215$) and females ($n = 257$). The majority of the participants were White ($n = 370$) followed by African American ($n = 43$), Hispanic ($n = 35$), and Other (Asian, Pacific Islander, Native American, and Other; $n = 24$).

Data Analysis

Prior to inferential analyses, data were screened and cleaned for improbable outliers. Based on the screening, 29 participants did not fall within four standard deviations of the mean for their reported physical involvement on the GLTQ for family or individual activity and were eliminated prior to analysis. Structural equation modeling was then conducted using a maximum likelihood estimation technique in Amos 18.0 to evaluate the model. Maximum likelihood estimation is a robust procedure that can be applied even when data are not normally distributed (Chou & Bentler, 1995).

As specified by the TPB, direct paths were placed from attitude, subjective norm, and perceived behavioral control to intent, from perceived behavior control to behavior, and from intent to behavior. In addition, attitude, subjective norm, and perceived behavior control were allowed to correlate. A four-step approach (Kline, 2005) estimated the relationships of attitude, subjective norm, perceived behavioral control on intent and intent on behavior:

1. Model specification tested if the structural model was consistent with the data. This involved building a path diagram and testing it. The path analysis first tested deleted paths based on the theory, tested the specified paths, and finally trimmed the model. Revisions to the path diagram were based on both theory and statistical diagnostics.
2. A confirmatory factor analysis (CFA) was used to test attitude, subjective norm, perceived control, intent, and active family leisure.
3. Model estimation combined the path diagram and measurement models to construct the hybrid model. Analysis tested the specified paths and trim paths based on the model's theory and statistical diagnostics.
4. The model's fit was estimated using model fit indices to determine if the modified model was better than the null (Kline, 2005).

As recommended by Kline, a variety of conservative model fit indices were examined to evaluate overall model fit. Tests of model fit first used the chi-square test. With such a large sample size, a nonsignificant chi-square statistic is unlikely (Kline) and a significant chi-square test is typically not used to reject a model. To account for the large sample size, a χ^2/df ratio was examined. Second, the comparative fit index (CFI) was considered to evaluate the model's absolute or parsimonious fit relative to the null or hypothetical model. For CFI, an index score of .95 or greater is desired for good model fit. Last, the root mean square error of approximation (RMSEA) was considered to assess fit based on

the magnitude of the residuals. Using RMSEA, an index score of .08 or less is desired for good model fit.

Results

The majority of adolescents in the study were from family sizes with four or five members (59.9%). Families with three members were 20.3% followed by families of six (9.7%), seven or greater (5.6%), and two or fewer (4.2%). Sixty-one percent of the sample reported living in an intact family with both parents with or without siblings in the home. Twenty percent lived only with their mother with or without other siblings. Respondents living with a biological parent and a step-parent with or without siblings were 13%. The remainder of the sample (6%) reported living in a different family situation. In response to a question that explored if participants felt their families had enough money to provide for their needs, 82.4% agreed and 59.1% responded to having some or most of their wants satisfied. On the extremes, 13.6% felt they did not have their needs provided, and 4% felt they had all of their needs and wants provided. Approximately 75% were satisfied with their family life. When asked about their family's obesity history, 43.4% said obesity was a factor in their families while 48.3% said it was not. Approximately 8% were not sure if they had obesity in their families, and one-third of participants reported one or both parents were considered obese. Means and standard deviation for attitude, subjective norm, perceived behavior control, intent, total active family leisure, and total individual active leisure can be found in Table 1. All variables had acceptable estimates of skewness and kurtosis.

The just identified path analysis tested TPB in relationship to active family leisure (Fam Leis). The path analysis yielded the following relationships at the .05 alpha level: attitude (Att) to Intent ($b = .158$), subjective norm (SN) to Intent ($b = .637$), perceived behavioral control (PBC) to Intent ($b = .140$), and Intent to Fam Leis ($b = .322$). All remaining paths were trimmed from the model. Moderately positive correlations were present between SN and Att ($r = .562$), PBC and Att ($r = .534$), and SN and PBC ($r = .473$).

Confirmatory factor analyses (CFA) were conducted for Att, SN, PBC, Intent, Fam Leis, and individual active leisure (Ind Leis). All the CFAs had beta weights that were significant and ranged from .370 to .934 (see Table 2). In addition, all of the individual CFA models had an acceptable check fit indices of chi-square/degrees of freedom of less than three (Kline, 2005; Tabachnick & Fidell, 2001).

The hybrid model, a combination of the path analysis and measurement model, was tested next. This initial model resulted in a strong positive correlation of SN and Att ($r = .833$), thus these constructs were collapsed, as recommended by Kline (2005), into the new variable subjective norm/attitude (SN & Att) and used in further analysis. The new

TABLE 1 Means and SDs for TPB Variables, Active Family Leisure, and Individual Leisure

Variable	M	SD
Att	5.31	1.24
SN	21.10	12.66
PCB	5.26	1.24
Intent	4.46	1.68
Fam Leis	25.77	32.091
Ind Leis	56.25	40.37

TABLE 2 Confirmatory Factor Analyses of TPB variables, Active Family Leisure, and Individual Active Leisure

Variable	Beta Weights	Cronbach's Alpha
Attitude (Att)	.649 to .843	.774
Subjective Norm (SN)	.463 to .871	.811
Perceived Behavioral Control (PBC)	.438 to .870	.790
Intent	.787 to .934	.909
Active Family Leisure (Fam Leis)	.553 to .836	
Individual Active Leisure (Ind Leis)	.370 to .816	

variables' (SN & Att) CFAs had a satisfactory fit with the chi-square/degrees of freedom and beta weights of indicator items ranging from .453 to .889. The structural equation model yielded the following results at a .05 alpha level: SN & Att to Intent and Intent to Fam Leis. PBC to Intent was significant at .1 alpha level (see Figure 1). The correlation between SN & Att and PBC was significant and moderate. Fit indices for this model were acceptable using CFI = .967 and RMSEA = .051, CI (.043, .059). Hoelter was used due to the large sample size, and it suggested the model would have not been significant using chi-square as a fit index with a sample size of 260. Thus the model's significance does not appear to be driven by its large sample size.

A post-hoc analysis was conducted to control for the effects of participants' individual active leisure, hereditary obesity history, and general social demographics on activity family leisure. These control variables did not make a significant contribution to the model and were therefore removed. However, a significant post-hoc model that included individual active leisure as an indicator to active family leisure was found (see Figure 2). This model yielded the following results at a .05 alpha level: SN & Att to Intent and Intent to Fam Leis. PBC to Intent was significant at .1 alpha level. The correlation between SN & Att and PBC was moderately positive. The correlations between SN & Att and Ind Leis and PBC and

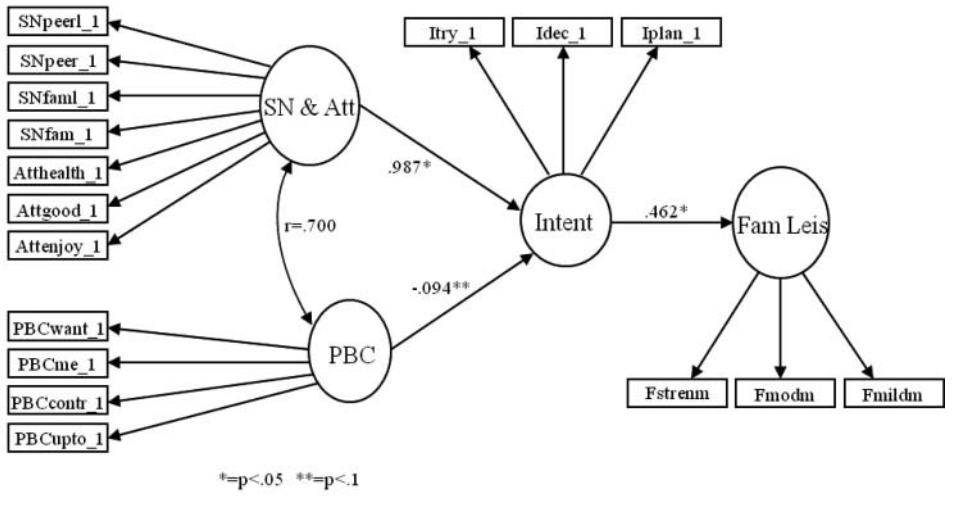

FIGURE 1 Structural equation model of SN&Att, PBC, Intent, and Fam Leis.

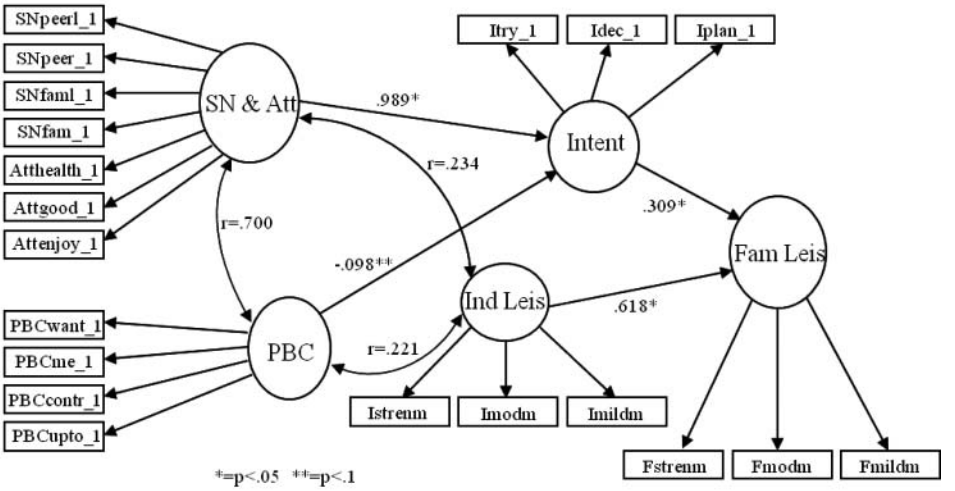

FIGURE 2 Post-hoc structural equation model of SN&Att, PBC, Intent, and Fam Leis.

Ind Leis were weakly positive. Fit indices for this model were acceptable using CFI = .963 and RMSEA = .047, CI (.040, .054). Hoelter was again used due to the large sample size. It suggested the model would not have been significant using chi-square as a fit index with a sample size of 273.

Discussion

The purpose of this study was to examine how attitude, subjective norm, and perceived behavioral control influence adolescents' intent to participate in active family leisure within the TPB framework. Subjective norm and attitude were strongly, positively correlated and thus collapsed into a single variable. Statistically significant relationships were found and modeled between the combined variable subjective norm/attitude, perceived behavioral control to intent, and then from intent to active family leisure, as was predicted by the TPB.

Attitude and subjective norm were combined because they were strongly, positively correlated ($r = .833$). While the TPB indicates that subjective norm and attitude are related but different variables (Connor & Sparks, 2005), Miniard and Cohen (1981) noted that the distinction between the determinants, or indirect measures, of attitude and subjective norm is undetermined; thus suggesting error may be shared between these two constructs. These determinants are often highly correlated and scholars have argued that subjective norm and attitude are closely related, if not the same construct (O'Keefe, 1990; Trafimow, 2007). With this particular sample, highly correlated shared error between attitude and subjective norm may have been present although could not be accounted for. As a result, this could suggest that adolescents may not be able to distinguish between the attitude that it is good to participate in active family leisure and the perceived family pressure to participate based on the reason that it is what the family does. This may be explained due to many adolescents being strongly influenced by their parents, while at the same time trying to establish their own behavioral norms (Muuss, 1996). The shared error may have been influencing the direct independent measures of attitude and subjective norm. To fully

understand adolescents' attitude and subjective norms, indirect and direct measures must be taken into account in order to distinguish the two constructs in future work.

In this study, subjective norm combined with attitude made the greatest single contribution to an adolescent's intent to participate in active family leisure. This varies from previous studies that have shown perceived behavioral control to be the stronger predictor (Hagger, Chatzisarantis, & Biddle, 2002). Ajzen (1991), however, stated the prediction power of attitude, subjective norm, and perceived behavior control will vary across behaviors and situations. Also, perceived behavior control is less predictive when a strong subjective norm is present (Connor & Sparks, 2005). That is, the influence of subjective norm will override the other influences.

During adolescence, for example, behavior is often driven by what youth have become accustomed to within their family environment. If a family's general standard is that participation in active family leisure is expected, then the youth may be participating based on what they perceive as the established subjective norm. Furthermore, if the same standards are held in their peer groups, these attitudes and subjective norms may have a greater influence on adolescent's intent to participate. This logic makes sense for adolescents because they are often highly influenced by the opinions and attitudes of their family and friends, particularly parents (Muuss, Velder, & Parton, 1996). The influence of friends and family would appear to be strong for active family leisure, which may have lessened the strength of their perceived ability to participate in active family leisure. This possibility highlights the important role families and friends can play to encourage adolescents' intent to participate in active family leisure.

The idea that the family's standards of expectation become the subjective norm warrants a deeper look at the variable active family leisure. Active leisure activities may be a subset of having an active family. Families who are active together through their leisure time may also incorporate physical activity into daily life, such as walking to the corner store instead of driving. Furthermore, parents often establish the family environment. Parents who continuously model active family leisure foster the attitudes that active leisure is important. In addition, if active leisure is discussed and adolescent family members are expected to participate in active family leisure, then the subjective norm of this behavior becomes part of the family environment.

With a strong subjective norm combined with attitude, perceived behavioral control was a weak negative indicator of intent to participate in active family leisure for adolescents in this study. It is important to note, however, the effect of the negative direction of perceived behavioral control. The greater the perceived behavior control adolescents had about a certain activity, the less intent they reported to participate in the activity. In other words, adolescents who have little perceived behavior control are more likely to participate in active family leisure than adolescents with greater amounts of perceived behavior control. This may, in part, be explained by the structure of the family. The family can be a place to learn new skills in a safe, supportive environment (Kitzman-Ulrich et al., 2010). If adolescents believe their skills are adequate, then their intent to participate in active family leisure is reduced. Adolescents may feel the freedom to participate without needing the familial support, and leisure interests may evolve to exercising their freedom of when, where, how and with whom they wish to participate instead of the acquisition of skills and resources (Caldwell & Baldwin, 2005). Furthermore, adolescents with less perceived behavioral control may need family members as facilitators to give them the encouragement to participate in active family leisure activities (Caldwell & Baldwin) Thus, one possible way to keep adolescents' intent to participate higher is to have active family leisure that is new and challenging for family members.

In a post-hoc analysis, another influence on participation in active family leisure was discovered. Individual active leisure ($M = 56.25$, $SD = 40.37$) was found to have a significant direct effect on active family leisure ($M = 25.77$, $SD = 32.09$). This strong positive relationship ($b = .618$) presents the idea that individual leisure and family leisure do not have to be in opposition to each other; instead, they can be complementary. Adolescents who participate in individual active leisure may play a role in encouraging their families to be engaged in active family leisure. Youth who pursue individual active leisure likely enjoy this type of recreation and may want their family to also participate with them. For example, an adolescent who enjoys playing basketball with friends, might be likely to ask family members to play basketball with him, particularly if the family has already established active family leisure patterns. Conversely, adolescents who are inactive in their individual leisure may also have lower levels of active family leisure and desire their family to participate in sedentary recreational activities. The family environment could explain this finding. Families who place high value on being physically active may encourage their adolescent to become involved in individual active leisure as well as active family leisure. In contrast, families that create a sedentary lifestyle are likely not to convey the importance of being active as a family or individually in leisure time.

Limitations

This study had several limiting factors. First, collecting data from only adolescents limited this study. Adding the parental perception of time spent in active family leisure would have been a way to check the reliability of the data and gain a deeper understanding of active family leisure by considering multiple perspectives from the family. A second limitation was the diversity of the sample. While effort was made to collect a diverse sample, the majority of the adolescents were White with at least a middle class social economic status (SES), thus limiting the ability to more widely generalize the results and make cross subgroup comparisons. Third, the sample was limited to those who access the Internet.

Direction for Further Research

Further research on active family leisure is needed in many areas. Few studies beyond this one have addressed active leisure in the family. Further exploration is needed to better understand what it means to have an active family. Future studies should include data from a parent and possibly another sibling in the family in order to understand how the unit as a whole views active family leisure and the influence of intent on participation from the various perspectives in the family. Perceived behavioral control, subjective norm, and attitude should be examined to determine how these vary by age and gender and whether the interactions of these variables explain variation in intention. The role individual active leisure may play to encourage active family leisure should be further investigated as well. Furthermore, family environments are an area that could impact active family leisure and could be further investigated. In addition, future studies could focus on the connections between sociodemographics and their connection to active family leisure and obesity.

Implications for Practice

The greatest influence on adolescents' intent to participate in active family leisure was the combination of subjective norm and attitude. Therefore, educating parents and helping them realize the importance of being active as a family and modeling active leisure can in turn influence the intent of adolescents to participate in more active leisure. Recreation

professionals can target parents by promoting active family leisure at individual active leisure events where parents will likely be in attendance. For example, sports announcers or coaches can encourage parents to go home and try an activity as a family or practice with their child on the team. The adolescent's intent to continue participating in these active family leisure events or additional activities will likely be influenced by the parent's role modeling and interest (Thompson et al., 2005).

Role modeling is an important aspect of influence on intent and should be taught to parents. Parents who model active family leisure show they place value upon participation in such activities. For example, parents who gather the family to practice basketball together convey the message that active family leisure is important. This value placed on active family leisure by the parents creates the subjective norm and encourages the adolescent to develop the same value which will likely influence intent. The effects of teaching these values can also be cumulative because values learned in adolescence often continue throughout the adult years. In addition, adolescents who value active family leisure and participate in active leisure with their family may be more likely to model active family leisure with their future family.

Peer groups are the other half of the subjective norm and attitude variable. Recreation professionals can use the influence of peers in a similar manner as parents. Effort can be made to direct the adolescent population to view active family leisure favorably. Public service announcements coordinated by recreation professionals can depict families with adolescents engaging in activities such as riding mountain bikes to help adolescents see that it can be "cool" and fun to participate in active family leisure. Running these ads in places teens frequent such as Facebook can broaden the reach of the message. As peers are exposed to and accept the idea of participating in active family leisure as normal, it creates the subjective norm which can then influence intent positively.

Program directors must find ways to promote youth participation in active family leisure because at home, active family leisure is in competition with sedentary leisure activities, such as the computer/Internet, TV, and gaming systems which are readily available. Community recreation professionals should continue to use the influence of the subjective norm and attitude by providing active leisure activities that involve the whole family. For example, sponsoring family bike rides or family day at a park may help change the way families spend their leisure time and influence the intent of adolescents. If within the family setting, children are being taught that leisure activities should be active rather than sedentary, their intent to participate in these activities will potentially increase, and they may be more likely to adopt this model for future leisure activities.

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