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FAMILY-LEVEL INFLUENCE ON ATTENDANCE
IN A PREVENTIVE INTERVENTION PROGRAM

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Abstract

This study examined the association between family-level and demographic characteristics and attendance in the Strengthening Families Program for Families and Youth (10-14), a seven-week universal preventive intervention program. The variables included in this study were: family communication, family adaptability, parent-adolescent communication, perceived need, annual income, marital status, and parent education. Contrary to all hypotheses, the only variable that was associated with attendance was marital status, with two-parent families and their youth attending more sessions than single-parent families. Post-hoc analyses revealed differences in attendance predictors between single-parent and two-parent families. When the sample was split by marital status, there was some support for family-context variables predicting above demographic and individual-level variables, though these results must be interpreted with caution due to the small sample size. The paper concludes with a discussion of all of the results, the limitations of this study, and implications for future research in this area.

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Introduction

Youth substance use has been studied extensively due to its frequency and the potential severity of its consequences. Research on family-level influences on substance use suggests that youth are less likely to use substances if they come from families that are cohesive, communicative, and flexible in response to change (Anderson & Henry, 1994; Cleveland, Feinberg, & Greenberg, 2010; Johnson & Pandina, 1991; Wills & Yaeger, 2003). In light of these findings, prevention efforts are increasingly focused on enhancing these aspects of family functioning. One program that seems to hold significant promise for reducing adolescent substance use through improving family functioning is the Strengthening Families Program for Families and Youth (10-14) [SFP 10-14] (Foxcroft, Ireland, Lister-Sharp, Lowe, & Breen, 2003). Despite the potential positive effects of this program, engagement and retention in family-level programs has been low. Researchers have found certain demographic characteristics to be predictive of attendance, however these variables may not adequately explain the processes underlying family engagement and retention. A new area of investigation suggests that family-level variables may be better predictors of attendance (Richmond & Stocker, 2006).

The current study was conducted to examine the association between family systems variables: family cohesion, family adaptability, and parent-adolescent communication, and attendance in SFP 10-14. The main research question was: Do cohesion, adaptability, and communication add to the prediction of demographic and individual level variables: marital status, income level, parent education, and perceived need for intervention? The rationale behind this study was that if family system variables are associated with attendance, recruitment efforts can be modified such that families at risk for not engaging or dropping out could receive pre-

intervention services to prepare them for the commitment. To complete this study, data from the first cohort in the Strengthening Families in Pennsylvania Project were analyzed.

Literature Review

Youth substance use is cause for concern. In addition to the legal consequences of underage drinking and drug use, youth physical and mental health, academic performance, friendships, finances, and family life can also suffer (Crowe & Bilchik, 1998; Snyder, Bank, & Burraston, 2005). Negative outcomes associated with youth substance use are not limited to the short-term. Early initiation of alcohol and/or drug use is associated with increased alcohol and drug issues later in adolescence, and even in midlife (Hawkins et al., 1997; Huurre et al., 2010; Stuart & Green, 2008).

Though the consequences can be severe, youth substance use appears to be common. In 2009, 3.5% of 12 or 13 year olds reported that they had consumed at least one alcoholic drink in the past 30 days, as did 13.0% of 14 or 15 year olds, and 26.3% of 16 or 17 year olds (Substance Abuse and Mental Health Services Administration, 2010). Reports of illicit drug use in the past 30 days during 2008 were: 3.6% of 12 or 13 year olds, 9.0% of 14 or 15 year olds, and 16.7% of 16 or 17 year olds (Substance Abuse and Mental Health Services Administration, 2010). The percentage of adolescents who have ever tried drugs and alcohol is even more alarming. In 2009, 24.0% of 12-17 year olds had ever used marijuana, and 47.9% had ever consumed alcohol (Substance Abuse and Mental Health Services Administration, 2010).

Given the prevalence of adolescent substance use and its negative consequences, many researchers have sought to identify the variables that influence youth substance use. Positive family processes, or family strengths, have been found to have a protective effect

against substance use (Anderson & Henry, 1994; Cleveland, Feinberg, & Greenberg, 2010; Johnson & Pandina, 1991; Wills & Yaeger, 2003). Three family strengths that have been consistently identified by multiple theorists are cohesion, communication, and adaptability (Olson & Gorall, 2003; Benokraitis, 2008). While all families experience stress and conflict, families who exhibit these three traits tend to respond to challenges in healthier ways. By doing so, they are more able to resolve their problems and continue to thrive.

Several theories underlie the research on family strengths. One theory is Bowen's Family Systems Theory (Bowen, 1966). Bowen (1996) asserts that families are connected emotional units that respond to change as a whole. These unique family characteristics influence the way the individuals within the family are able to differentiate, or separate, his/her emotions and behaviors. Because of this, it is easier to understand and modify individual behaviors when the family context is known (Bowen, 1966). The family system is made up of individuals, dyads, triads, the nuclear family (parents and children), and the extended family (aunts/uncles, grandparents, etc.). This study will focus on the individual, dyadic, and nuclear family levels.

Two additional theories that explain family processes are the Circumplex Model of Family Systems (Olson, Russell, & Sprenkle, 1989) and the Family Strengths Model (Stinnett & DeFrain, 1985). These two models can be combined to gain a deeper theoretical understanding of family strength (Benokraitis, 2008). The Circumplex Model (Olson et al., 1989) identifies family cohesion, family communication, and family adaptability as essential domains of family functioning. Briefly, cohesion is emotional bonding, communication is disclosing and listening to facts and emotions, and adaptability is the capacity to change family roles and relationships (Olson & Gorall, 2003). The terms adaptability flexibility will be used interchangeably in this

study. Strong families tend to be balanced in each of these areas which allows them to adapt and develop in healthy ways (Olson et al., 1989).

The Family Strengths Model (Stinnett & DeFrain, 1985) identifies six behaviors that are common among strong families. The qualities are: commitment, time together, appreciation and affection, positive communication, spiritual wellbeing, and successful coping strategies in times of crisis (Stinnett & DeFrain, 1985). The Family Strengths Model traits coincide with the categories in the Circumplex Model, and may offer an explanation of how the Circumplex Model dimensions develop (Benokraitis, 2008). Commitment and time together relate to cohesion in that cohesive families prioritize the family relationship and dedicate the time necessary to maintain and grow their emotional bond. Appreciation and affection, and positive communication are related to communication because they stress the importance of daily verbal and nonverbal affirmations of love and respect among family members. Frequent positive communication also allows families to share freely about their pressures, which may help to keep problems from escalating. Finally, spiritual well-being and successful coping strategies can be grouped under family flexibility. Families who are able to adapt to crises may draw their courage from spiritual wellbeing. Flexible families also tend to face their problems directly, and use difficulties as an opportunity for growth (Stinnett & DeFrain, 1985). Together, these two models explain the broad dimensions and specific behaviors that result in positive family functioning.

Based on the evidence that family processes can prevent substance use, several prevention programs are aimed at the family (Hogue & Liddle, 1999). One program that shows significant promise for reducing and delaying adolescent alcohol and drug use is the Strengthening Families Program: For Parents and Youth 10-14 (SFP 10-14). This is a family-

focused preventive intervention that aims to reduce substance use and other antisocial behaviors in youth by promoting protective factors and decreasing risk factors (Molgaard, Spoth, & Redmond, 2000). It is a universal intervention that has been shown to benefit youth participants regardless of demonstrated family risk (Guyll, Spoth, Chao, Wickrama, & Russell, 2004). The program consists of seven sessions in which parents and youth meet separately for the first hour, followed by a family session where parents and youth join together to practice the skills they learned during the first hour (Molgaard et al., 2000). Some examples of skills covered in SFP 10-14 include building family communication, dealing with stress, and following established house rules (Molgaard et al., 2000). By using a family skills training approach, SFP 10-14 is able to cover a wide range of risk and protective factors, and thus has more significant positive effects than programs that do not use this approach (Kumpfer & Alvarado, 2003).

The first section of this review introduces how family cohesion, family communication, and family adaptability are associated with youth substance use. The second section demonstrates how SFP 10-14 decreases the likelihood of youth substance use. The third section discusses the low engagement and retention rates in family-focused preventive interventions. The fourth section covers the sociodemographic and individual level variables that are associated with rates of engagement and retention. The fifth section introduces the theory behind family participation in prevention programs. The final section addresses how family cohesion, family communication, and family adaptability may be associated with engagement and retention.

Family-Level Influences on Youth Substance Use and Delinquent Behavior

Numerous family-level factors are associated with youth substance use and other problem behaviors. This is true for youth from various ethnic backgrounds (Bradley & Corwyn, 2000).

The family-level variables considered in this review are family cohesion, family communication, and family adaptability. These three variables were selected because they have been consistently identified as essential aspects of family functioning (Olson & Gorall, 2003; Benokraitis, 2008).

One theory that explains the correlation between family functioning and youth behavior problems is Patterson's Coercion Theory (Patterson, DeBaryshe, & Ramsey, 1990). Patterson (1990) suggests that the first step in the development of antisocial behavior is a break down in the parent-child relationship. Youth who are exposed to poor parenting behaviors such as harsh verbal and physical discipline, lack of monitoring, and low warmth, tend to be more antisocial in early childhood. Patterson et al. (1990) suggest that this is because children become "trained" to use coercive, power seeking, behaviors in order to get their needs met. When these kids enter the school environment, their aggressive behavior and lack of positive social skills often results in rejection by normal, well-functioning peers, and academic failure (Patterson et al., 1990). After children are excluded from healthy peer groups and are placed with other academically challenged kids, they tend to form deviant friendships. These negative peer relationships encourage more antisocial behaviors such as fighting, skipping school, and later substance use (Patterson et al., 1990). Overall, the view that experiences within the family underlie development is essential to understanding the role of family-level influences on youth behaviors.

Family cohesion. Several empirical studies have confirmed the link between family functioning and youth substance use and other delinquent behavior. One family-level variable that is influential in youth positive and negative behavior is family cohesion. Family cohesion is defined as the closeness and emotional bonding among family members (Olson & Gorall, 2003). Ideally, families should have balanced levels of cohesion that allows each member to feel

connected to the other members, yet maintain a separate identity (Olsen & Gorall, 2003). When the level of family cohesion is overly high, family members may be spending too much time together and become overly dependent on each other to establish their identities. When families are very low in cohesion, the individual members may feel unsupported and lack adequate supervision. A balanced level of family cohesion can have a protective-enhancing effect when adolescents are exposed to a risky environmental situation (Luthar et al., 2000).

Regarding the general positive effects of high family cohesion, Wills, Gibbons, Gerrad, Murry, and Brody (2003) found that adolescents who reported a strong parent-child relationship had more self-control, more negative views on teen sexual activity, and increased resistance efficacy around substance use and sexual behavior. By feeling secure in the family relationship, adolescents may have an easier time avoiding negative behaviors.

Similarly, Lucia and Breslau (2006) found that family cohesion predicted both teacher and parent ratings of internalizing and attention problems in children at ages six and eleven. It may be that youth from families who are low on cohesion express the emotional disorganization they feel in the family through their behavior. During early childhood, this may present as internalizing and attention issues, but later it could lead to substance use initiation as they become increasingly involved with like-minded peers. This is in line with Patterson's model of antisocial behavior development.

In studies that focus on adolescent substance use, higher family cohesion has been associated with decreased substance use and other problem behaviors. Richmond and Stocker (2006) found that family cohesion had a negative association with externalizing behavior, which included drug and alcohol use. They found that family cohesion predicted externalizing behavior

beyond reports on parent-child hostility (Richmond & Stocker, 2006). This finding supports the idea that it is family functioning as a whole, not just the parent-child relationship that influences youth substance use (Richmond & Stocker, 2006).

Family cohesion has also been shown to predict substance use over time. Pilgrim, Abbey, and Kershaw (2004) found that young adolescent perceptions of family cohesion at age 12 were directly and indirectly related to their attitudes about substance use at age 13. Higher reports of family cohesion by youth were directly associated with more negative feelings about substance use (Pilgrim et al., 2004). The association between youth perception of family cohesion and feelings about substance use were also moderated by social support and by school attachment (Pilgrim et al., 2004). Family cohesion seems to also influence youth feelings toward school, which is another environment that may influence youth substance use behaviors.

Another study that examined how family cohesion predicts substance use over time showed that youth who reported higher levels of family cohesion at age 15 reported fewer substance abuse and externalizing behavior problems at age 18 (Reinherz, Giaconia, Paradis, Novero, & Kerrigan, 2008). Higher levels of family support, which is closely related to cohesion, were also associated with decreased substance abuse problems at age 18 (Reinherz et al., 2008). In sum, the current literature on family cohesion suggests that youth from highly cohesive families are less likely to use substances.

Family communication. Family communication is defined as how carefully, attentively, and respectfully the family listens and speaks to one another (Olsen & Gorall, 2003). Day-to-day communication among family members and between adults and youth may be more influential on youth behavior than specific conversations about substance use (Miller-Day, 2002).

In general, low levels of family communication are associated with problematic youth behavior. For example, Davalos, Chavez, and Guardiola (2005) found that adolescents who reported low levels of family communication were more likely to steal, vandalize, and be convicted of any other type of delinquency, including drug use and underage drinking.

The research on family communication and substance use shows that families who communicate better have reduced rates of youth substance use, though the construct is often measured as parent-to-child communication rather than family-level communication. For example, Wills et al. (2003) found that higher reported levels of parent-adolescent communication were associated with more negative views of substance use. Similarly, Andrews, Hopes, Ary, and Tildesley (1993) found that the less parents clearly vocalized their disapproval of substance use, the more likely the youth was to initiate the use of drugs and alcohol. Parent-child communication can be thought of as the dyadic level of the family system.

Results from studies that measure communication at the family-level also trend in the same direction. A study that looked at parental awareness of youth substance use found that parents were more likely to accurately predict substance use when youth rated family communication as high, even if parents rated family communication as low (Williams, McDermitt, Bertrand, & Davis, 2003). The authors speculate that youth who perceive family communication as high may be more likely to share that they are using substances, where as the parents might see the substance use as a result of previously failed communication (Williams et al., 2003).

The benefits of family communication seem to extend to high-risk youth as well (Swaim, Bates, & Chavez, 1998). Swaim et al. (1998) examined how parental communication of

disapproval of alcohol, marijuana, and other drug use impacted substance use among Mexican-American and white high school dropouts. Youth whose parents were disapproving of substance use were less likely to drink alcohol, smoke marijuana, and/or use other drugs (Swaim et al., 1998). Youth whose parents disapproved of substances also viewed their parents as more caring which the authors suggest indicates that the parent-child bond may be strengthened by open communication about substance use (Swaim et al., 1998). The current data on family communication and substance use suggest that more communicative families have fewer issues with youth drug and alcohol use.

Family adaptability. Family adaptability, or flexibility, is defined as the family's ability to adapt to changes in leadership roles, relationships, and rules (Olsen & Gorall, 2003). In general, families who have higher levels of adaptability are able to navigate challenges in democratic and peaceful ways (Olsen & Gorall, 2003). Families who are low in adaptability often suffer from coercive power struggles which result in family conflict. Family conflict is defined as "anger incidents", disagreements, or violence within the family (David, Steele, Forehand, & Armistead, 1996). These disagreements may be a result of a rigid family structure in which rules are unchanging and decisions are made by one person without room for negotiation (Olsen & Gorall, 2003). Conversely, chaotic, or overly flexible families, can cause conflict because the boundaries of responsibility and leadership are unclear (Olsen & Gorall, 2003). As a result, rules and expectations are inconsistent which may lead to destructive behaviors in both parents and youth.

A study done on procedural justice in family conflict resolution shows how family inflexibility and resulting conflict can influence substance use. Stuart, Fondacaro, Miller, Brown,

and Brank (2008) found that youth who feel family conflicts are resolved unfairly are more likely to have deviant friendships. This result was mediated in part by peer conflict. Young teens who reported family conflict resolution was unfair had higher levels of conflict in their own peer relationships, and consequently had increased associations with deviant peer groups (Stuart et al., 2008). Friendships with deviant peers during adolescence is associated with increased substance use, and may have long term implications for young adult marijuana and harder drug use (Dishion & Owen, 2002). Stuart et al. (2008) suggest that family conflict contributes to these relationships, which in turn may increase substance use. The findings from this study support the social-interactional perspective on antisocial behavior development.

Similarly, Sigfusdottir, Farkas and Silver (2004) found that increased family conflict was associated with more frequent delinquent behavior. While anger partially mediated this relationship, it could not fully account for the direct relationship between family conflict and delinquent behavior (Sigfusdottir et al., 2004). This study seems to support the idea that family characteristics (conflict) influence individual characteristics (anger), and subsequent individual behaviors (delinquency).

Higher rates of family conflict are also associated with mental health issues. David et al. (1996) found that family conflict predicted internalizing and externalizing child behavior issues, with higher family conflict resulting in increased disorder. Marital conflict that occurred in front of the child also uniquely predicted internalizing and externalizing co-morbid behaviors, and the presence of these symptoms one year later (David et al, 1996). This finding suggests that when children are embedded in families that have frequent conflict, they may be more likely to turn to drugs and alcohol as a release later in their development.

Family conflict also acts as a moderator for other youth outcomes. Bradley and Corwyn (2000) found that youth (10-15) perception of family conflict moderated the relationship between parenting behaviors and youth outcomes. Family conflict also moderated the relationship between parental responsiveness and self-efficacy, and the relationship between educational resources at home and academic achievement (Bradley & Corwyn, 2000). The authors suggest that the moderation effects indicate that youth who experience conflict in the home become more sensitive to other negative conditions, both positive and negative within the family (Bradley & Corwyn, 2000). This heightened awareness leads to a greater influence of the home environment on behaviors outside of the home. It may be that youth experiences within the home lead them to develop negative expectations for other areas of life such as school and peer relationships. As a result, they may turn to substance use as a release.

One study that analyzed how family conflict influences youth outcomes found that family conflict played a significant role in the pathway into adolescent homelessness and substance use in Australia (Mallet, Rosenthal, & Keys, 2005). In all four of the pathways to homelessness the authors identified, family conflict preceded homelessness (Mallet et al., 2005). Of the three pathways involving youth substance use, family conflict preceded substance use in two of them (Mallet et al., 2005). This study demonstrates that family conflict has the potential to drive youth to substance use and homelessness.

Interestingly, Lucia and Breslau (2006) did not find family conflict to be a significant predictor of child outcomes at age six or eleven (Lucia & Breslau, 2006). It may be that during preadolescence, children are unable to mentally comprehend the issues surrounding family conflict but feel its effects in other ways, such as through the lack of family cohesion as was

discussed earlier in this paper. This lends further support to the notion that preventive interventions should be developmentally situated (Masten, 2001; Richmond & Stocker, 2006). On the whole, family conflict, and a lack of family adaptability, seems to be related to higher levels of negative youth behaviors including substance use.

Strengthening Families Program Effectiveness

Based on the evidence suggesting families play a critical role in preventing youth substance use, SFP 10-14 targets family-level processes for change. Since family-level interventions are more ecologically based by targeting the family system instead of just the adolescent, it is likely that they have a greater impact on health behavior than programs that do not account for the variety of influences on individual decisions (McLeroy, Bibeau, Steckler & Glanz, 1988). The current research on SFP 10-14 supports this idea. SFP 10-14 stands out among other prevention programs as an especially effective way to reduce and delay youth substance use (Foxcroft, Ireland, Lister-Sharp, Lowe, & Breen, 2003). In a review of fifty-six youth alcohol preventive interventions that take place on a variety of levels, SFP 10-14 demonstrated the most significant effects on reducing alcohol consumption (Foxcroft et al., 2003). The authors of this review performed an intention-to-treat analysis and found that for every nine people who participate in SFP 10-14, there will be one less person who has ever used alcohol, used alcohol without parent permission, or has been drunk, four years after the program (Foxcroft et al., 2003). The Life Skills Training intervention, which takes place solely with youth in schools, was found to be less effective in delaying or reducing alcohol use (Foxcroft et al., 2003).

A ten-year longitudinal study on SFP 10-14 demonstrated the great potential of this program in reducing youth substance use. Spoth, Trudeau, Gyll, Shin, & Redmond (2009) were

interested in testing if participation in SFP 10-14 impacted substance use in young adulthood. The authors collected data from 6th graders who had received SFP 10-14, and from a control group of the same age. They then took subsequent measures in 7th, 8th, 10th, and 12th grade, and when participants were age 21 (Spoth et al., 2009). At age 21, participation in SFP was associated with a 19% decrease in problematic drinking, and a 31% decrease in illicit substance use (Spoth et al., 2009).

Other studies on SFP 10-14 also highlight its ability to reduce youth substance use. Spoth, Redmond, and Shin (2001) examined the number of new users of substances in a group of participants that received SFP 10-14 in 6th grade and control group of the same age. In 10th grade, the intervention group showed 40% lower rates of new users of alcohol, and 56% lower rates of new marijuana users (Spoth et al., 2001).

The reduced rates of substance use and delayed age of onset associate with participation in SFP 10-14 may be due to decreased exposure to substances during adolescence (Spoth, Gyll, & Shin, 2009). The authors suggest that SFP 10-14 has “protective shield effects,” possibly attributable to the program focus on increasing positive parenting practices and increased family relationship quality (Spoth et al., 2031, 2009).

Another way the effectiveness of SFP 10-14 has been demonstrated is through a cost-benefit analysis. It has been estimated that SFP 10-14 results in \$9.60 in savings per every dollar spent on the program (Spoth, Gyll, & Day, 2002). The net benefit per family is \$5,923 after subtracting the \$689 it costs to deliver the program to the family (Spoth et al., 2002).

Issues with Program Participation

Despite the demonstrated benefits of SFP 10-14, it has been challenging to get families into the program. To have a significant positive impact on public health, interventions such as SFP 10-14 need to be widely disseminated (Spoth, Kavanagh, & Dishion, 2002). However, universal prevention programs pose unique challenges to recruitment, and resulting participation, since there is no “captive” audience (Spoth & Redmond, 2000). Consequently, engagement and retention rates have been quite low for many universal, family-focused programs.

Engagement. Engagement can be defined in many ways by prevention researchers, ranging from agreement to enroll in a program, to quality of participation during the program sessions (Dumas, Nissley-Tsiopinis, & Moreland, 2007). For this project, engagement will be defined as family attendance at a minimum of one intervention session. This is consistent with the definition used by Cunningham et al. (2000) who also completed a study on engagement in a universal prevention program with an unspecified community sample.

Rates of program engagement have been low for family-focused interventions (Spoth & Redmond, 2000). For example, In the Strengthening Washington D.C. Families Program, which aimed to gather a sample of largely African American families, Gottfredson et al. (2006) recruited 1400 families. Of those, 715 (51%) agreed to participate (registered and completed baseline measures), and 76% of families enrolled in the parent, child, and family condition attended at least one session. In this sample, only 37.5% of the recruited families engaged.

In a study in which researchers were recruiting families into two possible family based interventions, SFP 10-14, and Preparing for Drug Free Years, 51% (667) families agreed to participate (registered and completed baseline measures). Of the 238 families who were assigned

to SFP 10-14, only 49% attended at least one intervention session (Spath et al., 2009). Only 25% of this recruited sample engaged.

In another study on SFP 10-14, 21.2% (1,334) of eligible families agreed to participate (Spath, Clair, Greenberg, Redmond, & Shin, 2007). 16.9% of the recruited sample qualified as being engaged through attending at least one session (Spath et al., 2007).

There are many reasons why families do not engage in family-level prevention programs. Spoth, Redmond, Hockaday and Shin (1996) sought to identify barriers to engagement in a family-skills preventive intervention that was part of a research project. 167 people who refused to participate answered free response questions about why they declined the program and study. 97 of them also mailed back a survey that measured ten reasons of refusal. For 52% of families, a scheduling conflict was an important reason not to participate (Spath et al., 1996). Concerns about privacy (48%), and not wanting their family to be studied (37%), were important or somewhat important reasons for not engaging (Spath et al., 1996). These logistical concerns are a reality, but researchers expect that other variables may be at work as well.

Retention. Once families engage in the program, it is important to retain them so that they experience the program, and its benefits, as is intended. After engaging in an intervention, however, families follow various retention patterns that often do not result in full program attendance (Coatsworth, Duncan, Pantin, & Szapocznik, 2006). Retention can be defined as categorizing families into “dropout” and “completer” groups, by giving families a rate participation score that reflects the number of sessions attended compared to the number offered, or by looking at patterns of attendance (Coatsworth et al., 2006). Due to the low number of SFP 10-14 sessions, this project will define retention as dosage, or the number of sessions attended.

Compared to engagement rates, retention rates seem high for family-focused preventive interventions. In the Strengthening Washington D.C. Families study, the average number of sessions attended for engaged participants was 9.1 out of 14 offered sessions (Gottfredson et al., 2006). The SFP 10-14 condition of the Spoth et al. (2009) study had similarly high rates of retention; 94% of families who ever attended a SFP 10-14 session attended five or more of the seven possible session (Spoth et al., 2009). In a study on the Strong African American Families Program, 65% of all families attended at least five sessions, and 44% attended all seven offered sessions (Brody, Murry, Chen, Kogan, & Brown, 2006) This data seems to suggest that in high quality programs, families who attend just one session have a greater likelihood of returning for future sessions.

As mentioned, high rates of retention are important so that the full effects of the intervention can be felt by the families (Prado, Pantin, Schwartz, Lupei, & Szapocznik, 2006; Spoth & Redmond, 2000). Proper dosage may be especially important for high risk families (Brody et al., 2006). Brody et al. (2006) found that parenting behaviors did not significantly improve for high-risk families who attended the Strong African American Families Program inconsistently. Parenting behaviors did increase for high-risk families that regularly attended (Brody et al., 2006). Interestingly, low-risk families did not differ significantly on parenting behavior outcomes according to dosage (Brody et al., 2006). Since the average dosage for this sample was so high, these results for low-risk families may not be typical.

Similar to engagement, reasons that families fail to complete interventions are typically logistical. Low-income women who were enrolled in a parent-training preventive intervention most frequently cited work and school conflicts as reasons for dropping out (Gross, Julion, &

Fogg, 2001). Other reasons included safety concerns about being out at night, insufficient childcare for teenage children, and program ending too late to allow for reasonable family bedtime (Gross et al., 2001). These practical concerns are something prevention programmers must keep in mind when planning implementation.

Demographic and Individual-Level Variables Related to Engagement and Retention

While logistical concerns about program participation seem to keep families out of interventions, there are other variables that are associated with engagement and retention. Many studies on intervention program engagement and retention use sociodemographic variables as predictors. The current results on how sociodemographic variables influence program engagement and retention are inconsistent (Spoth & Redmond, 2002). This is especially true for universal interventions, due to a lack of research on this level of intervention (Spoth & Redmond, 2002). Three sociodemographic variables that are commonly examined are marital status, income, and parent education.

Marital status. Researchers have found mixed results on how marital status influences engagement and retention in family-focused prevention programs. In some cases, single-parents engage less frequently than dual-parent families (Spoth & Redmond, 2000). In other cases, marital status is not a significant predictor of engagement (Perrino, Coatsworth, Briones, Pantin, & Szapocznik, 2001; Haggerty et al., 2002).

Regarding retention, at least one study has found that single-parent status increases retention. Dumas, Nissley-Tsipopinis, and Moreland (2007) found that single mothers were more likely to attend 7 or all 8 of the Parenting Our Children to Excellence sessions, and less likely to attend fewer than 2 sessions, compared to married mothers. In general, the influence of marital

status on universal program engagement and retention is unclear due to minimal research and conflicting results (Spoth & Redmond, 2000).

Income. Family socioeconomic status is often tested as an influence on program engagement and retention, but the results are inconsistent (Spoth & Redmond, 2000). Prado et al. (2006) found that families who had incomes above the poverty line were most likely to engage in their parent-centered HIV preventive intervention. Similarly, Coatsworth et al. (2006) found that low-income families were less likely to ever attend a session of Familias Unidas than higher-income families.

Other studies have shown income to be insignificant. Spoth, Redmond, Kahn, and Shin (1997) found that family income was only a significant predictor of program engagement when parent education was removed from the statistical model. Haggerty et al. (2002) also found family income to be an insignificant predictor of attendance at a Raising Healthy Children parenting session. Regarding retention, Dumas et al. (2007) found that low-income families attended fewer sessions overall than mid- or high- income families. Family socioeconomic status may be associated with program participation, but the current results do not yet provide a clear understanding of the trend.

Parent Education. Educational attainment seems to be a fairly consistent predictor of engagement in interventions (Spoth & Redmond, 2000). Parent education was one of only two significant factors associated with engagement among families who had completed baseline measures for the Preparing for Drug Free Years and SFP 10-14 study (Spoth et al., 1997).

Retention rates seem to be higher among families with more education. Haggerty et al. (2002) found that on average, families in which one parent had over a high school education

attended twice as many parenting classes than families in which no parent had over a high school education. Coatsworth, Duncan, Pantin and Szapocznik (2006) found parent educational attainment to be a strong predictor of a variable attendance pattern, such as dropping out.

In sum, most current studies suggest that higher parent education attainment is positively associated with family oriented preventive interventions. More generally, the data on sociodemographic variables and program participation is inconsistent. While demographic variables allow prevention scientists to see which groups are at risk for low participation, it does not adequately explain the motivators or barriers that lead these family to their decision to not engage or to drop out (Gross, Julion, & Fogg, 2001).

Perceived need for intervention. Another area of research on engagement and retention is on perceived need for intervention. Measures in this area often include family stress and/or existing child behavior problems. The rationale behind this area of research stems from theories such as the Health Belief Model. The Health Belief model asserts that people take action on a certain health behavior based on their level of perceived susceptibility, severity, benefits, barriers, and cue-to-action (Janz & Becker, 1984). If individuals or families do not perceive the health behavior as a significant issue in their lives, they may not participate in prevention or intervention programs (Janz & Becker, 1984).

This model has been applied in family-focused prevention research (Winslow, Bonds, Wolchick, Sandler, & Braver, 2009). Some studies suggest that perceived susceptibility to problem behaviors is positively associated program participation. This perception of susceptibility could come from existing issues in the child or family (Winslow et al., 2009). For example, Winslow et al. (2009) found that mothers who reported higher child maladjustment

were significantly more likely to engage in an intervention that aimed to increase positive relationships within divorced families. Similarly, Dumas et al. (2007) found that parents with children who displayed more ODD symptoms were more likely to engage. Prado et al. (2006) also found that family stress increased likelihood of engagement. One group of researchers, Gross et al. (2001) found that low-income parents of color were more motivated to attend the session to change their own parenting behaviors, rather than expecting the intervention to change the behaviors of their children. This is an important distinction because it demonstrates that families are more likely to participate if programs are advertised as targeting parenting practices instead of specific youth behaviors (Gross et al., 2001).

Other studies suggest that perceived susceptibility does not influence engagement. Spoth et al. (1997) found a positive association between parent's perceived child susceptibility to problems during the teen years and engagement, but this association was not statistically significant when they controlled for other variables. Perrino et al. (2001) also found that youth behavior problems were not associated with engagement, nor was family stress.

Regarding retention, Brody et al. (2006) found that low youth resistance to risky activities such as unprotected sex and alcohol, tobacco and marijuana use, resulted in fewer sessions attended in their trial of Strong African American Families. Winslow et al. (2009) found that mothers who reported more negative events in the past month were more likely to drop out after the program started compared to mothers who never engaged. Overall, perceived need for intervention has not consistently predicted program attendance.

Family-Level Factors Influencing Engagement and Retention

The literature on family influences on youth substance use, combined with the inability of sociodemographic or perceived need for intervention variables to consistently predict participation, has led researchers to explore yet another possible arena of influence on engagement and retention: family-level variables. There is evidence to suggest that three family-level variables in particular may be associated with engagement and retention in family-level prevention programs: family cohesion, family communication, and family adaptability.

As previously introduced, Bowen's Family System Theory posits that family-level characteristics influence individual behaviors and choices (Bowen, 1966). Attendance at an intervention program is a result of individual choices that have been influenced in part by the family system (McCurdy & Daro, 2001). Family-level programs such as SFP 10-14 present unique challenges to attendance because they require multiple family members to be present. For this reason, family-level variables may be significantly associated with program engagement and retention (Coatsworth et al., 2006). It may be that strong families, or those who already exhibit cohesion, adaptability, and communication, are more likely to attend the program.

The characteristics of strong families may influence attendance in an intervention program in a few ways. One possible way is through influencing motivation to join the program. For example, cohesive families enjoy spending time together, and want to maintain and improve their relationships (Stinnett & DeFrain, 1985). Individuals in cohesive families may view the program as an opportunity to achieve both of those things, and consequently engage and remain for the duration. Families who are not cohesive may feel uncomfortable with the idea of so much time together, and may not engage, or begin the program but later drop out.

Parent-adolescent communication may work in a similar way. Youth and parents who are already comfortable talking with one another might be more receptive to joining a program that allows them to continue that exchange. Conversely, parents and youth who do not have a history of regular and positive communication might worry that this program could place too much pressure on them, so they avoid signing up.

Lastly, adaptable families are open to change (Stinnet & DeFrain, 1985). Compared to rigid families, adaptable families might attend sessions more often because they are receptive to new ideas about parenting and family skills.

A second way family characteristics may influence attendance is through perceived logistical barriers. Families often report that they are unable to attend an intervention program due to schedule conflicts and lack of time (Spoth et al., 1996). Families who are adaptable may be more able to adjust their schedules to make room for the new commitment. Families who lack adaptability may be less able to consider how they could rearrange their time to accommodate the program.

Beyond the theoretical rationale for studying family-level variables and attendance, there are also practical applications. Examining family-level variables may enhance recruitment and retention strategies since it is easier to intervene at the family-level prior to intervention than it is to change sociodemographic features (Perrino et al., 2001). Family-level variables are also able to capture unique information about families that is not detected with other measures of parent-child relationships, which may provide researchers with a more accurate view of what influences program participation (Richmond & Stocker, 2006).

Family cohesion. There is evidence to suggest that a family makes the decision to participate in a program together, since in many cases more than one family member is expected to attend. For example, Spoth et al. (1996) found that family member disinterest in participating was influential in the family's decision to decline program involvement. For 51% of married respondents, having a spouse with no interest at all in participating was an important reason for declining (Spoth et al., 1996). Similarly, 45% of families in which the child had zero interest reported that this was an important reason for refusal (Spoth et al., 1996). This finding may support the hypothesis that cohesive families will have higher attendance because they are more able to unite around going to the program.

One study that explicitly measured family cohesion, however, found that parent reports of family cohesion did not significantly predict engagement (Perrino et al., 2001). This study was testing a culturally adapted prevention program on a low-income, urban sample that was predominately Hispanic (67%) and African American (33%) (Perrino et al., 2001). Additionally, it seems there are no studies that have explicitly examined the relationship between family cohesion and retention. For these reasons, there is still reason to believe that family cohesion could predict program engagement and retention.

Family communication. Current data seems to suggest that families who are higher in communication are more likely to attend prevention programs. Perrino et al. (2001) found that parents who reported high family communication were more likely to engage in Familias Unidas. It may be that members of highly communicative families are able to elaborate upon their reasons for wanting to participate in the program, and that other members can understand and respect those reasons which results in increased engagement. Since Perrino et al. (2001) seem to

have completed the only study that explicitly measures the influence of family communication on engagement, and because there is seemingly no research on family communication and retention, there is need for further study on this variable.

Family adaptability. It seems that no studies have examined the role of family adaptability in program engagement or retention. A related family-level variable that has been tested is family organization. Family organization is comparable to adaptability because families who are more organized may be better able to adapt their family schedule to accommodate the intervention times. This type of behavior is a key feature of family flexibility (Olsen & Gorall, 2003). Since time constraints are a frequently cited barrier to participation, flexibility may play a critical role in program engagement and retention.

Perrino et al. (2001) found that more organized families were more likely to engage in Families Unidas. For African American families in particular, family organization played a large role in engagement (Perrino et al., 2001). Highly organized African American families engaged at a rate 11.67 higher than families who were unorganized (Perrino et al., 2001). This may suggest that organization and/or adaptability interacts with ethnicity in some way. In a later study of the same sample, Coatsworth et al. (2006) found that less organized families were more likely to have low-variable attendance or drop out of the intervention (Coatsworth et al., 2006).

The sample for both of these studies was the same non-representative group described earlier. Additionally, it is likely that family organization does not truly represent the influence of family flexibility. Since no study has examined this before, research in this area is warranted.

Summary

The literature on family-level influences on youth substance use provides theoretical grounding for the promise of family-focused intervention. Current data on SFP 10-14 youth substance outcomes supports this idea. Though SFP 10-14 seems to be beneficial, program engagement and retention rates have been low. Sociodemographic variables and perceived need for intervention have been tested for association with program participation, but have yielded inconsistent results. As a result of this information, research on the association between family-level variables and program participation is just beginning. To date, it seems no previous studies have tested the association between family cohesion, communication, and adaptability, and engagement and retention in a family-focused, universal prevention program.

Objectives and Hypotheses

The overall research question of this study was: Do family systems variables, including family cohesion, family adaptability, and parent-adolescent communication predict attendance above demographic and individual level variables including socioeconomic status, ethnicity, parent education, and perceived need for intervention? To answer this question, the following four aims were accomplished.

Aim 1

The first aim of this study was to investigate the relationship between parent education and the number of sessions attended, controlling for marital status, family income and perceived need for intervention.

Hypothesis 1. Parent education, but not marital status, income or perceived need for intervention, will be associated with attendance.

Aim 2

The second aim of the current study was to examine the relationship between family context variables, including family cohesion, family adaptability, and parent-youth communication, and attendance.

Hypothesis 2a. Family cohesion will be positively associated with attendance.

Hypothesis 2b. Family adaptability will be positively associated with attendance.

Hypothesis 2c. Parent-adolescent communication will be positively associated with attendance.

Aim 3

The third aim of this study was to investigate the independent and additive effects of family context variables, family cohesion, family adaptability, and parent-adolescent communication on attendance above the sociodemographic and individual level variables of marital status, income, parent education, and perceived need for intervention.

Hypothesis 3a. Family cohesion will predict attendance above marital status, income, parent education, or perceived need for intervention.

Hypothesis 3b. Family adaptability will predict attendance above marital status, income, parent education, or perceived need for intervention.

Hypothesis 3c. Parent-adolescent communication will predict attendance above marital status, income, parent education or perceived need for intervention.

Hypothesis 3d. Family cohesion, but not family adaptability or parent-adolescent communication, will uniquely predict attendance above marital status, income, parent education, and perceived need for intervention.

Methods

Participants

The sample consisted of thirty-four families. There were twenty two-parent families, and fourteen single-parent families. Youth had an average age of 12.91 ($SD = 0.65$), and 52.00% were female. Age and gender information was missing for 32.45% of the youth. The ethnicity of the youth sample was as follows: 47.00% white, 5.90% Hispanic/Latino, 2.90% Asian, 2.90% black, 2.90% more than one race, and 2.90% other. Mothers reported the following ethnicities: 58.80% white, 5.90% black, and 2.90% Asian. Ethnicity information was missing from 35.30% of youth and 32.40% of moms. To maximize the sample size for this study, any missing ethnicity values were entered as white since that was the majority of the sample. Mothers also reported the following income levels: 33.33% less than \$25,000. 23.33% between \$40,000-\$75,000, and 50.00% between \$80,000 - \$200,000. 11.80% of mothers did not respond to the income measure. Missing income data was filled in using means replacement.

Attendance

Attendance varied for parents and youth. The 20 fathers in this sample attended an average of 3.25 sessions ($SD = 2.51$). The 33 mothers attended an average of 5.10 sessions ($SD = 2.21$). The 34 youth attended an average of 5.06 sessions ($SD = 2.31$). For analysis of the aims, an overall family attendance score was calculated out of a total of 14; Each caregiver and each youth received 1 point if they were in attendance. In families where two parents attended, only one was counted. The mean for overall attendance was 10.26 ($SD = 4.45$). Due to low father attendance, only mother report on the measured constructs were used in analyses. Consequently, one father-only family was dropped from the sample.

Recruitment

Participants were recruited from one school district located within a university-community of Pennsylvania. Recruitment was a multistage process. At the start of the school trimester, a letter was sent home to prospective parents describing the study and alerting parents that they would be hearing more about the program. Next, project staff presented information in schools during back-to-school nights, in assemblies and/or in classrooms. Informational packets were then distributed to students in their home rooms. The packet included a letter about the program goals and participation requirements, an attractive flyer highlighting the benefits and incentives of participation, and an interest form. On the interest form, families could indicate if they were interested, not interested, or maybe interested. Students were instructed to return these forms to their homeroom. To incentivize the return, the homeroom with the highest return rate was given a pizza party. Additionally, all students who returned the form were entered into a drawing for a digital music player. This process occurred in each of the two schools involved in this cohort.

After the initial recruitment process, families who indicated that they were interested were contacted by phone to set up a pre-intervention assessment. Families who marked maybe were called and offered more information about the program, and were offered a brief home visit by project staff. School counselors identified families who were of high need, and these families were offered a home visit in which project staff would give more specific information about the program to the family. Students who did not return the form were placed on a cold call list. Project staff called these families to remind them of the program and gauged their interest. Families who returned the form who indicated they were not interested were not contacted.

Assessment

After the target number of families was recruited, efforts to attract more families ceased. Participating families were then sent a paper survey by mail to complete prior to a in-home assessment to gather baseline measures of the family. During the in-home assessment, parents and youth completed additional self-report measures electronically. There was also a videotaped problem solving task in which youth had twelve minute discussions with each parent separately, and then with both parents together if applicable. The assessors were trained community members. One week following the intervention, this process was repeated to gain post-test information. As an incentive for their participation, families were given \$75 for completing the pre-test assessment and \$100 dollars for completing the post-test assessment.

Retention Strategies

To reduce some of the common barriers to attendance, a free dinner was offered at the start of each session. Free child care was provided, as well as transportation if needed. As an additional incentive, families received gift bags each week that they attended a session that included items that would appeal to both parents and youth such as a board game. The value of the gift bags received at each session was about \$5. Families who completed at least four sessions received a gift valued at about \$25. At each session, youth were entered into a drawing for a single small prize. At the final session, families received a framed family photo.

Intervention

Participants were assigned to three groups using an urn randomization procedure which balances groups based on demographic characteristics which may influence program outcomes (Wei & Lachin, 1968): 34% were assigned to the regular Strengthening Families Program for

Parents and Youth (10-14), 38% were assigned to a slightly modified version of SFP (10-14), and 28% were assigned to self study. Both the regular and modified SFP (10-14) groups attended the program once a week for seven weeks.

As described in the literature review, during the first hour, parents and youth met separately to discuss topics relevant to the challenges they may face as parents of adolescents and adolescents. During the second hour, parents and youth joined together to enjoy time playing games together and discussing ways they can become stronger as a family. The self study condition received two mailings within the same time frame that the SFP 10-14 sessions were held. Parents were the target audience of these mailings. The mailings included packets of information about parenting issues similar to those that were covered in the SFP 10-14 sessions.

Measures

Demographics. Parent participants indicated their gender, ethnicity, work status (employed full-time, unemployed, retired, etc.), marital status, and their highest level of education (ranging from less than 7th grade to graduate training). Families also provided an estimate of their yearly, monthly, and weekly income. Youth participants reported their age, gender, and ethnicity. Missing values were filled in using means replacement.

Attendance. Program facilitators reported attendance at each session for each parent participant and each youth participant.

Family Adaptability and Cohesion Evaluation Scales II (FACES II). FACES II is a 30-item scale that measures the family system variables of flexibility (i.e. adaptability) and cohesion. The flexibility sub-scale contains 14 items, and the cohesion sub-scale contains 16 items. Respondents indicate the frequency of the described behavior on a 5-point scale of

‘Almost never,’ ‘Once in a While,’ ‘Sometimes,’ ‘Frequently,’ and ‘Almost Always.’ Sample items for the flexibility sub-scale include: “We shift household responsibilities from one person to another,” and “In solving problems, the children’s suggestions are followed.” Sample items from the cohesion sub-scale include: “In our family everyone goes his/her own way,” and “Family members feel very close to each other.” Participating mothers, fathers, and youth responded to these measures individually. Any missing data in the parent report of FACES II was filled in using means replacement. Due to a large percentage of missing data in the youth report of FACES II (43%), missing values were imputed using a single imputation method. An automatic imputation method was used which automatically chose between fully conditional specification or monotone based on a scan of the data. In validation studies, the alpha reliability for the adaptability and cohesion sub-scales have been .81 and .89 respectively (Naar-King, Ellis, & Frey, 2004, p. 122). In the current study, the alpha for both scales was .63 for parents and .87 for youth.

Parent-adolescent communication. To measure parent view of parent-adolescent communication, a scale was created by selecting three-items out of the battery of measurements included in the Strengthening Families in Pennsylvania Project. Parents individually reported how true the statement was in describing their interactions with his/her child on a 5-point scale of ‘Never True,’ ‘Seldom True,’ ‘Sometimes True,’ ‘Usually True,’ ‘Always True.’ Items from this scale included, “I find myself listening to my child with one ear because I am busy doing or thinking about something else at the same time,” “I listen carefully to my child’s ideas, even when I disagree with them,” and “When I am upset with my child, I calmly tell him/her how I am feeling.” Any negatively worded items were reverse coded such that a high score indicated

positive communication. Missing values were filled in using means replacement. The alpha reliability for the scale in this study was .76.

Youth view on parent-adolescent communication was measured using a 7-item scale that was created from the battery of measurements. The youth answered how often a behavior was exhibited by his/her parent during the past month when they were talking or doing things together. Respondents chose from a 7-point scale, with 1 indicating 'Always,' and 7 indicating 'never.' Sample items include: "Get angry at you," "Criticize you or your ideas," and "Lecture you." All of the items in this scale were reverse coded such that a high score indicated positive communication. Any missing values were filled in using means replacement. In this study, the alpha reliability was .92

Perceived need for intervention. A perceived need for intervention measure was constructed by selecting thirteen items from the battery of measurements. Parents reported how true statements describing children's behavior in the past six months were on a 3-point scale of 'Not true,' 'Sometime what or sometimes true,' and 'Very true.' Example items from this scale include: "Argues a lot," "Cruelty, bullying, or meanness to others," and "Disobedient at home." It was assumed that parents who indicated that their children had these behavior problems would see the value of an intervention that aims to increase parenting skills and positive youth behavior. Means replacement was used to fill in any missing values. The alpha reliability for this scale was .71 in this study.

Results

Analytic Strategy for Aims 1-3

The descriptive statistics and zero order correlations for each variable used in the analysis of Aims 1-3 are found in Table 1 (Appendix). The sample size for analyses completed for Aims 1-3 was thirty-three families. Given the small sample size, statistical findings of the alpha $<.10$ level were considered.

Aim 1: To address Aim 1, which was to investigate the relationship between parent education and the number of sessions attended while controlling for marital status, family income, and perceived need for intervention, a hierarchical multiple regression was run using the enter method. Marital status, family income, and perceived need for intervention were entered into the first block as independent variables. Parent education was entered into the second block as an independent variable. Overall attendance was entered as the dependent variable. Table 2 shows the results addressing Aim 1, Hypothesis 1 (Appendix).

Hypothesis 1. The hypothesis that parent education will be positively correlated with attendance but not marital status, income or perceived need for intervention, was not supported by this analysis.

Among these variables, marital status was the only variable that was significantly related to overall attendance (model 1: $B = -3.24$, $SE = 1.64$, $p < .10$, model 2: $B = -3.08$, $SE = 1.70$, $p < .10$). The negative direction of this parameter suggests that two-parent families had higher overall attendance than single-parent families.

Aim 2: To complete Aim 2, examining the relationship between context variables, including family cohesion, family adaptability, and parent-youth communication, and attendance,

three separate simple regressions were run to compute an R-Square for family cohesion, family adaptability, and parent-adolescent communication with overall attendance as the dependent variable in each three. Table 3 shows the results pertaining to Aim 2 and the following hypotheses based on youth report, and Table 4 shows the results based on mother report (Appendix).

Hypothesis 2a. This analysis partially support the hypothesis that family cohesion will be positively associated with attendance. The relationship was not significant for youth report of family cohesion, but was significant for mother report ($B = -.28$, $SE = .14$, $p < .05$). The modest negative direction of the parameter suggests that as family cohesion increases, overall attendance decreases. This was not the hypothesized relationship.

Hypothesis 2b. The hypothesis that family adaptability will be positively correlated with attendance was not supported by this analysis for either youth or mother report.

Hypothesis 2c. The data did not support the hypothesis that parent-adolescent communication, as reported by either youth or mothers, will be positively correlated with attendance.

Aim 3: The third aim was completed by running four separate hierarchical multiple regression models predicting attendance. In the each analysis, marital status, income, parent education, and perceived need for intervention were entered into the first block as independent variables. Family cohesion was entered into the second block as an independent variable in the first analysis.. In the second analysis, family adaptability was entered into the second block. In the third analysis, parent-adolescent communication was entered into the second block. In the

fourth analysis, family cohesion was entered into the second block, and family adaptability and parent-adolescent communication were entered into the third block.

Hypothesis 3a. The hypothesis that family cohesion will predict attendance above marital status, income, parent education, or perceived need for intervention was not supported by this analysis. The increase in model explanation of variance was not significant. Marital status remained a significant predictor of overall attendance. Table 5 shows the results addressing this hypothesis based on youth report, and Table 6 shows the results based on mother report (Appendix).

Hypothesis 3b. This data did not support the hypothesis that family adaptability will predict attendance above marital status, income, parent education, or perceived need for intervention. Adding family adaptability to the model did not significantly increase the amount of variance accounted for by the demographic and individual-level variables. Marital status was again significant. The results addressing this hypothesis based on the youth report can be found in Table 7, and results based on the mother report can be found in Table 8 (Appendix).

Hypothesis 3c. The hypothesis that family communication will predict attendance above marital status, income, parent education, or perceived need for intervention was not supported by this analysis. Marital status was a significant predictor. Table 9 shows the results addressing this hypothesis based on youth report, and Table 10 shows the results based on mother report (Appendix).

Hypothesis 3d. The data did not support the hypothesis that family cohesion, but not family adaptability or parent-adolescent communication will uniquely predict attendance above marital status, income, parent education, or perceived need for intervention. The variance

explained by the models did not increase significantly after adaptability and communication were added into the model. Marital status was a significant predictor in all three models in the youth report analysis, and in the first model in the parent report analysis.. Table 11 shows the results addressing this hypothesis based on youth report, and Table 12 shows the results based on mother report (Appendix).

Post-hoc Analyses

Since the most significant predictor of attendance was marital status, with two-parent families attending more sessions than single-parent families, post-hoc analyses were completed in which the sample was split according to marital status. The descriptive statistics for the variables used in the the post-hoc analyses can be found in Table 13 (Appendix). Table 13 (Appendix) displays that two-parent families reported significantly higher annual incomes ($p < .10$), levels of cohesion ($p < .05$), and attendance ($p < .05$). The zero order correlations can be found in Table 14. The results found during the post-hoc analyses should be interpreted with caution due to the small sample size. As mentioned, there were 14 single-parent families and there were 19 two-parent families.

All of the analyses that were completed for Aims 1-3 were run again on the split sample. Only the significant results are presented in this paper. There were three significant findings for single-parent families. The first significant result was that mother report of family cohesion ($B = -.66$, $SE = .19$, $p < .01$), and family adaptability ($B = 0.51$, $SE = .22$, $p < .05$) were significant predictors of overall attendance. The results displaying these findings are in Table 15 (Appendix). The finding that family adaptability was positively correlated with attendance supports Hypothesis 2b.

The second significant finding was that in single-parent families, youth report of family cohesion predicted overall attendance above demographic and individual-level variables, which supports Hypothesis 3a. The amount of variance explained increased from .19 to .50, which was an increase of .31 ($p < .05$). The relationship between cohesion and overall attendance was negative, which suggests that as cohesion increased, attendance decreased ($B = -0.45$, $SE = .19$, $p < .05$). Table 16 displays these results (Appendix).

The third significant finding was that youth report of parent-adolescent communication predicted overall attendance above demographic and individual-level variables, which supports Hypothesis 3c. When parent-adolescent communication was added into the model, the amount of variance explained increased by .04, from .19 to .23 ($p < .10$). The relationship between communication and overall attendance was positive, which suggests that as communication increased, overall attendance increased ($B = .57$, $SE = .30$, $p < .10$). Table 17 shows these findings (Appendix).

There were three significant findings for two-parent families. The first was that mother report of family adaptability was negatively related to attendance ($B = -.40$, $SE = .22$, $p < .10$). The negative direction of this parameter was not what was hypothesized. These results are found in Table 18 (Appendix).

The second significant finding was that youth report of parent-adolescent communication predicted overall attendance above demographic and individual-level variables. When parent-adolescent communication was added into the model, the variance explained increased by .27, from .12 to .38 ($p < .05$). This supports Hypothesis 3c. In this analysis, parent-adolescent communication and overall attendance had a negative relationship ($B = -0.24$, $SE = .10$, $p < .05$).

The higher the youth reported communication to be, the fewer sessions the family attended.

Results for this analysis are found in Table 19 (Appendix).

Annual income became a significant predictor of attendance when youth report of parent-adolescent communication was added into the model ($B = -4.27 \text{ E } -5$, $SE = 0.00$, $p < .05$). The negative direction suggests that as income increased, attendance decreased. This result should be interpreted with extreme caution based on the lack of economic diversity in this small sample.

Discussion

This study examined the association of family-context variables on attendance in a universal preventive intervention program, SFP 10-14. The original analyses completed for the study aims failed to provide support for any of the hypotheses. Post-hoc analyses, however, provided some support. Hypothesis 2b, that family adaptability will positively correlated with attendance, was supported by analyses run on mother report in single-parent families. Hypothesis 3a, that family cohesion would predict above demographic and individual-level variables, was supported by analyses run on youth report in single-parent families. Hypothesis 3c, that parent-adolescent communication would predict above demographic and individual-level variables was supported by analyses run on the youth report in both single-parent and two-parent families. Though significant, these results should be interpreted with caution because of the small sample size which increases the likelihood of spurious findings.

The data also revealed some significant relationships which were not originally hypothesized. For example, in the complete sample (including both two-parent and single-parent families), marital status was the most robust predictor of attendance. In this sample, two-parent families attended significantly more sessions than single-parent families. One explanation for

this may be that families with two caregivers have more options as they plan for attendance during the week. If one parent needs to work, or take a sibling to a sporting event, the other parent may be able to step in and attend the program with the target child.

When significant, the relationship between family cohesion and overall attendance was negative, with families who were higher in cohesion attending fewer sessions. It may be that families who agreed to join the program that we already high in cohesion realized that they already knew a lot of the family skills taught in the curriculum and were less motivated to come.

An interesting difference that was revealed through post-hoc analyses was that family adaptability predicts attendance differently for single-parent and two-parent families. For single-parent families, the relationship was positive, with mother report of higher adaptability resulting in more sessions attended. For two-parent families, the relationship is negative, with mother report of higher adaptability resulting in fewer sessions attended. One possible explanation of this finding is that adaptability might be expressed different in single-parent and two-parent families. In single-parent families, being high on adaptability might mean that the parent-child dyad has grown accustomed to working together as a unit such that they are more willing to compromise with one another and agree on the decision to attend. In two-parent families, higher adaptability might mean that each member of the family has more control over the family decision to attend. As a result, if one person does not want to attend, the other family members may honor their decision and decide not to attend that evening.

The relationship between parent-adolescent communication and overall attendance also differed by marital status. Youth from single-parent families who reported higher levels of communication had higher family attendance, where as youth from two-parent families who

reported lower levels of communication had lower overall attendance. It may be that a third variable led to this finding. One possible third variable explanation is time together. Single-parent families might feel that they have good communication, but want more time together to talk since the parent is probably often working to support the family. In two-parent families, it may be that a parent is home more often with the youth and they may not feel that they need the extra time to communicate that the intervention provides.

Regarding the overall association of demographic and individual-level variables with attendance, this study had mixed results. Marital status was a robust and significant predictor of attendance. Annual income also reached significance, but only in a model that included youth report of communication in two-parent families. Attendance among two-parent families with higher incomes may have been lower because they were less motivated by the retention incentives such as the family gifts. Level of education and perceived need for intervention both failed to reach significance in any of the analyses. These results were not particularly surprising given the lack of consensus within the existing literature about the influence of demographic and individual-level variables on program attendance.

The theory that family-context variables add to the prediction of attendance in prevention programming was partially supported by this study. While the original analyses did not provide support for the theory, all three of the measured variables reached significance in some way within the post-hoc analyses. The results found during the post-hoc analyses may suggest that marital status moderates the association between family-level variables and attendance.

Though many of these findings were not significantly related to attendance, they are still illuminating. For example, they suggest that for the most part, SFP 10-14 is successful in

attracting diverse family types. A lack of significant relationships between our study variables and attendance suggests that families from a range of demographic backgrounds and functioning levels attended the program, which is desirable in a universal intervention program. These findings also suggest that single-parent and two-parent families may have different motivations, barriers, or incentives to participate in a family-level program. This study also demonstrated that both youth and mother reports were predictive of attendance, which indicates the importance of appealing to both children and parents during recruitment efforts, and of having multi-reporters on family construct measures.

Limitations

There were several limitations to the analyses completed for this study. A major limitation was the sample size. The limited number of participants requires a very cautious interpretation of any significant results. This is especially true of the post-hoc analyses. Conversely, it may be that the small sample size was unable to reveal significant relationships that a larger sample might. The small number of participants also limited the analysis to dosage, rather than engagement and other attendance patterns.

A second limitation is the lack of diversity among participants. Almost all of the families involved in this study were white. Ethnicity may influence the relationships measured in this study in ways that were not captured by this homogenous sample. The location of this study is another limitation. Results found within a university-community may not be generalizable to rural, urban, or suburban individuals based on the concentration of highly educated individuals that have high annual incomes.

A third limitation is that the father report on the studied variables was not included in the analyses. This was done due to a low level of father response, however, it may be that father reports predict attendance differently than suggested by the mother and youth reports.

This study did not account for within-group factors that may have influenced attendance, which is a fourth limitation. Cohesion among group members, relationships with the program facilitators, or other similar factors may have increased or decreased attendance, but were not included in our investigation.

A fifth limitation of the present study was that barriers to attendance such as work conflicts, child activity conflicts, or disinterest in research participation were not measured. These factors have been shown to be associated attendance in other studies, so they may have influenced our sample as well.

The final noted limitation is that the scales used to measure parent-adolescent communication and perceived need for intervention were newly created. These scales are in need of validation studies in order to be confident that they measure the intended constructs.

Implications for Future Research

Given the promising results that can be achieved through family-level prevention, efforts to understand what motivates or limits family attendance should continue. Researchers may gain valuable information from asking recruited families who failed to engage about their limitations to attendance. Relatedly, if researchers use a larger sample size, they may be able to determine attendance patterns, such as the ones identified by Coatsworth et al. (2006). Families who are then identified as dropouts could also be polled to see what led to their decision to stop attending.

Based on results found during the post-hoc analyses, future researchers may wish to explore how marital status moderates the association between family-level variables and attendance on a larger sample size. Other studies may also want to test for interactions between demographic and family-level variables.

Macro-level changes may also be beneficial for prevention scientists. As Spoth and Redmond (2000) pointed out, there is no “captive” audience for universal intervention programs, yet the evidence suggests that parents have a long-lasting influence on their youth. Family-level prevention programs may benefit from a trend in the media or in social policy that stresses the importance of the family. If parents adopt the mentality that the job of parenting is of critical importance, they may begin to look for more outside help to do their best to achieve. It may be that in order for programs such as SFP 10-14 to be broadly appealing, parents and youth must first see the value of family strength.

Lastly, future researchers should not rule out the possibility that the family-level variables that influence youth substance use are not the same ones that influence attendance in family-level interventions. It may be that the family-level processes involved in the individual decision to use substances are different than those used by families to engage in a group decision of intervention participation.

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Appendix

Table 1: *Descriptive Statistics and Zero Order Correlations for Study Variables (N = 33)*

Variables	M (SD)	1	2	3	4	5	6	7	8	9	10	11
1: Education	5.87 (.84)	-										
2: Marital status	1.42 (.50)	-0.24	-									
3: Annual Income	72288.73 (5200)	0.09	-0.35*	-								
4: Perceived Need	20.95 (3.45)	-0.06	-0.06	0.07	-							
5: Cohesion (mom)	62.00 (7.26)	0.01	0.21	-0.10	-0.41*	-						
6: Adaptability (Mom)	48.86 (5.21)	0.14	-0.06	0.15	-0.40*	0.58**	-					
7: Communication (Mom)	10.26 (2.00)	0.00	-0.20	0.17	-0.39*	-0.08	0.16	-				
8: Cohesion (Youth)	58.85 (8.06)	0.32	-0.33†	.47**	-0.08	0.20	0.22	0.11	-			
9: Adaptability (Youth)	47.11 (6.81)	0.35*	-0.09	0.25	-0.14	0.26	.36**	0.09	.78**	-		
10: Communication (Youth)	15.14 (7.23)	-0.18	0.04	-0.11	0.05	-0.15	-0.15	-0.24	-0.31	-0.35*	-	
11: Overall Attendance	10.27 (4.58)	0.15	-0.40*	0.21	0.17	-0.30	-0.06	-0.10	0.14	0.13	-0.02	-

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 2: *Hierarchical Regression Predicting Overall Attendance Using Marital Status, Income, Perceived Need for Intervention, and Parent Education (N = 33)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.18	0.18					
Marital status			-3.24	1.63	-0.35†	-1.98	-6.60 - 0.11
Annual Income			7.16 E-6	0.00	0.08	0.45	0.00 - 0.00
Perceived Need			0.19	0.22	0.15	0.86	-0.27 - 0.65
Model 2	0.19	0.01					
Marital status			-3.08	1.7	-0.34†	-1.8	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.66
Education			0.41	0.96	0.07	0.42	-1.56 - 2.37

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 3: *Simple Regression Predicting Overall Attendance using Youth Report of Family Cohesion, Family Adaptability, and Parent-Adolescent Communication (N = 33)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.22	0.22					
Cohesion			0.06	0.17	0.11	0.37	-0.28 - 0.41
Adaptability			0.04	0.20	0.06	0.19	-0.37 - 0.45
Communication			0.02	0.13	0.03	0.17	-0.23 - 0.28

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 4: *Simple Regression Predicting Overall Attendance using Mother Report of Family Cohesion, Family Adaptability, and Parent-Adolescent Communication (N = 33)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.13	0.13					
Cohesion			-0.28	0.14	-0.44*	-2.01	-0.56 - .01
Adaptability			0.20	0.19	0.22	1.01	-0.20 - 0.59
Communication			-0.40	0.41	-0.17	-0.96	-1.24 - 0.45

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 5: *Hierarchical Multiple Regression Predicting Overall Attendance Using Marital Status, Annual Income, Education, Perceived Need for Intervention and Youth Report of Family*

Cohesion (N = 33)

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Marital status			-3.08	1.70	-0.34†	-1.81	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.67
Education			0.41	0.96	0.74	0.42	-1.5 - 2.37
Model 2	0.19	0.00					
Marital status			-3.11	1.75	-0.34†	-1.77	-6.71 - 0.49
Annual Income			7.91 E-6	0.00	0.09	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.84	-0.28 - 0.68
Education			0.44	1.02	0.08	0.43	-1.65 - 2.52
Cohesion			-0.01	0.12	-0.02	-0.12	-0.26 - .23

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 6: *Hierarchical Multiple Regression Predicting Overall Attendance Using Marital Status, Annual Income, Education, Perceived Need for Intervention and Mother Report of Family Cohesion (N = 33)*

Cohesion (N = 33)

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Marital status			-3.08	1.70	-0.34†	-1.81	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.67
Education			0.41	0.96	0.74	0.42	-1.56 - 2.37
Model 2	0.22	0.03					
Marital status			-2.73	1.74	-0.30	-1.57	-6.30 - 0.83
Annual Income			6.85 E-6	0.00	0.08	0.43	0.00 - 0.00
Perceived Need			0.10	0.25	0.07	0.39	-0.41 - 0.61
Education			0.44	0.96	0.08	0.46	-1.53 - 2.42
Cohesion			-0.12	0.12	-0.19	-1.01	-0.37 - 0.13

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 7: Hierarchical Multiple Regression Predicting Overall Attendance Using Marital Status, Annual Income, Education, Perceived Need for Intervention and Youth Report of Family

Adaptability ($N = 33$)

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Marital status			-3.08	1.70	-0.34†	-1.81	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.67
Education			0.41	0.96	0.74	0.42	-1.56 - 2.37
Model 2	0.19	0.01					
Marital status			-3.13	1.74	-0.34†	-1.81	-6.69 - 0.42
Annual Income			5.02 E-6	0.00	0.06	0.30	0.00 - 0.00
Perceived Need			0.22	0.23	0.16	0.93	-0.26 - .70
Education			0.24	1.04	0.04	0.23	-1.89 - 2.37
Adaptability			0.06	0.13	0.09	0.47	-0.21 - .33

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 8: *Hierarchical Multiple Regression Predicting Overall Attendance Using Marital Status, Annual Income, Education, Perceived Need for Intervention and Mother Report of Family*

Adaptability (N = 33)

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Marital status			-3.08	1.70	-0.34†	-1.81	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.67
Education			0.41	0.96	0.74	0.42	-1.56 - 2.37
Model 2	0.19	0.00					
Marital status			-3.08	1.73	-0.34†	-1.78	-6.64 - 0.48
Annual Income			7.83 E-6	0.00	0.09	0.47	0.00 - 0.00
Perceived Need			0.17	0.25	0.13	0.68	-0.35 - .69
Education			0.44	0.98	0.08	0.44	-1.58 - 2.45
Adaptability			-0.05	0.17	-0.05	-0.27	-0.40 - 0.30

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 9: Hierarchical Multiple Regression Predicting Overall Attendance Using Marital Status, Annual Income, Education, Perceived Need for Intervention and Youth Report of Parent-Adolescent Communication ($N = 33$)

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Marital status			-3.08	1.70	-0.34†	-1.81	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.67
Education			0.41	0.96	0.74	0.42	-1.56 - 2.37
Model 2	0.19	0.00					
Marital status			-3.07	1.74	-0.34†	-1.78	-6.64 - 0.48
Annual Income			7.11 E-6	0.00	0.08	0.43	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.86	-0.28 - 2.45
Education			0.41	0.99	0.08	0.42	-1.62 - 2.45
Communication			0.00	0.11	0.01	0.97	-0.23 - .24

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 10: *Hierarchical Multiple Regression Predicting Overall Attendance Using Marital Status, Annual Income, Education, Perceived Need for Intervention and Mother Report of Parent-Adolescent Communication (N = 33)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Marital status			-3.08	1.70	-0.34†	-1.81	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.67
Education			0.41	0.96	0.74	0.42	-1.56 - 2.37
Model 2	0.21	0.02					
Marital status			-3.07	1.75	-0.37†	-1.93	-6.96 - .22
Annual Income			8.95 E-6	0.00	0.10	0.55	0.00 - 0.00
Perceived Need			0.11	0.25	0.84	0.44	-0.41 - 0.63
Education			0.33	0.97	0.06	0.34	-1.66 - 2.32
Communication			-0.37	0.45	-0.16	-0.83	-1.30 - .55

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 11: *Hierarchical Regression Predicting Overall Attendance Using Marital Status, Annual Income, Perceived Need for Intervention, Education, and Youth Report of Family Cohesion, Adaptability, and Parent-Adolescent Communication (N = 33)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Marital status			-3.08	1.70	-0.34†	-1.81	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.67
Education			0.41	0.96	0.74	0.42	-1.56 - 2.37
Model 2	0.19	0.00					
Marital status			-3.11	1.75	-0.34†	-1.77	-13.45 - 29.95
Annual Income			7.91 E-6	0.00	0.09	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.84	-0.28 - 0.68
Education			0.44	1.02	0.08	0.43	-1.65 - 2.52
Cohesion			-0.01	0.12	-0.02	-0.12	-0.26 - 0.23
Model 3	0.21	0.02					
Marital status			-3.43	1.87	-0.39†	-1.89	-7.37 - .32
Annual Income			9.82 E-6	0.00	0.11	0.53	0.00 - 0.00
Perceived Need			0.21	0.24	0.16	0.89	-0.28 - 0.71
Cohesion			-0.14	0.19	-0.24	-0.71	-0.53 - .26
Adaptability			0.18	0.21	0.27	0.86	-0.25 - .61
Communication			0.02	0.12	0.02	0.13	-0.23 - 0.26

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 12: *Hierarchical Regression Predicting Overall Attendance Using Marital Status, Annual Income, Perceived Need for Intervention, Education, and Mother Report of Family Cohesion, Family Adaptability and Parent-Adolescent Communication (N = 33)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Marital status			-3.08	1.70	-0.34†	-1.81	-6.57 - 0.41
Annual Income			7.05 E-6	0.00	0.08	0.44	0.00 - 0.00
Perceived Need			0.20	0.23	0.15	0.88	-0.27 - 0.67
Education			0.41	0.96	0.74	0.42	-1.56 - 2.37
Model 2	0.22	0.03					
Marital status			-2.73	1.74	-0.30	-1.57	-6.30 - 0.83
Annual Income			6.85 E-6	0.00	0.08	0.43	0.00 - 0.00
Perceived Need			0.10	0.25	0.07	0.39	-0.41 - 0.61
Education			0.44	0.96	0.08	0.46	-1.53 - 2.42
Cohesion			-0.12	0.12	-0.19	-1.01	-0.37 - 0.13
Model 3	0.26	0.04					
Marital status			-2.95	1.80	-0.32	-1.65	-6.64 - .073
Annual Income			7.94 E-6	0.00	0.09	0.48	0.00 - 0.00
Perceived Need			-0.03	0.29	-0.03	-0.12	-1.72 - 2.32
Cohesion			-0.19	0.15	-0.31	-1.28	-0.50 - 0.12
Adaptability			0.09	0.20	0.10	0.45	-0.33 - 0.51
Communication			-0.54	0.47	-0.23	-1.14	-1.50 - 0.43

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 13: *Descriptive Statistics for Single-Parent and Two-Parent Family Post-Hoc Analysis**Variables*

	Single-Parent (N = 14)	Two-Parent (N = 19)
Variables	M (SD)	M (SD)
Education	5.64 (.89)	6.04 (.78)
Annual Income	51689.32 (55137.42)	87467.16 (45058.00)
Perceived Need	20.71(2.43)	21.13 (4.11)
Cohesion (mom)	64.78(7.00)	61.67(7.35)
Adaptability (Mom)	48.49(5.95)	49.13(4.75)
Communication (Mom)	9.80 (1.93)	10.59(2.01)
Cohesion (Youth)	55.83 (5.06)	61.08 (9.20)
Adaptability (Youth)	46.37 (4.39)	47.65(8.24)
Communication (Youth)	15.46 (6.07)	14.91(8.13)
Overall Attendance	8.21 (5.26)	11.79 (3.41)

Table 14: *Post-Hoc Zero Order Correlations for Study Variables (N = 33)*

Variables	1	2	3	4	5	6	7	8	9	10
1: Education	-	0.29	-0.3	0.10	0.31	0.02	0.46	0.46*	0.07	0.03
2: Annual Income	-0.26	-	-0.05	0.07	0.43	0.17	0.50*	0.31	-0.36	-0.29
3: Perceived Need	0.34	0.25	-	-0.45	-0.47*	-0.33	-0.01	-0.25	0.02	0.11
4: Cohesion (mom)	0.02	-0.15	-0.34	-	0.65*	-0.32	0.32	0.27	-0.08	0.16
5: Adaptability (Mom)	-0.04	-0.12	-0.37	0.59*	-	-0.04	0.36	0.34	-0.18	-0.21
6: Communication (Mom)	-0.14	0.04	-0.64*	0.40	0.37	-	-0.01	0.09	-0.14	-0.07
7: Cohesion (Youth)	-0.10	0.28	-0.11	0.24	-0.04	0.21	-	0.90**	-0.42†	0.14
8: Adaptability (Youth)	0.16	0.13	0.32	0.36	0.47	0.04	0.34	-	-0.44	0.19
9: Communication (Youth)	-0.57*	0.28	0.17	-0.32	-0.12	-0.43	0.00	-0.04	-	-0.34
10: Overall Attendance	0.10	0.37	0.29	-0.62*	-0.01	-0.33	-0.18	-0.02	0.40	-

Note. Correlations below the diagonal are for single-parent families (N=14). Correlations above the diagonal are for two-parent families (N=19). † $p < .10$, * $p < .05$, ** $p < .01$

Table 15: *Post-Hoc Simple Regression Predicting Overall Attendance using Mother Report of Family Cohesion, Family Adaptability, and Parent-Adolescent Communication in Single-Parent Families (N = 14)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.60	.60*					
Cohesion			-0.66	0.19	-0.88**	3.46	-1.09 - -.24
Adaptability			0.51	0.22	0.58*	2.31	.02 - 1.00
Communication			-0.52	0.60	-0.19	-0.86	-1.86 - .83

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 16: *Post-Hoc Hierarchical Multiple Regression Predicting Overall Attendance Using Annual Income, Education, Perceived Need for Intervention and Parent Report of Family Cohesion in Single-Parent Families (N = 14)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Annual Income			3.52 E-5	0.00	0.37	1.16	0.00 - 0.00
Perceived Need			0.33	0.71	0.15	0.47	-1.25 - 1.90
Education			0.83	1.93	0.14	0.43	-3.47 - 5.14
Model 2	0.50	0.31*					
Annual Income			3.47 E-5	0.00	0.36	1.38	0.00 - 0.00
Perceived Need			-0.18	0.62	-0.08	-0.26	-1.59 - 1.23
Education			1.38	1.62	0.23	0.85	-2.29 - 5.04
Cohesion			-0.45	0.19	-0.60*	-2.35	-.88 - -.02

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 17: *Post-Hoc Hierarchical Multiple Regression Predicting Overall Attendance Using Annual Income, Education, Perceived Need for Intervention and Youth Report of Parent-Adolescent Communication in Single-Parent Families (N = 14)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Annual Income			3.52 E-5	0.00	0.37	1.16	0.00 - 0.00
Perceived Need			0.33	0.71	0.15	0.47	-1.25 - 1.90
Education			0.83	1.93	0.14	0.43	-3.47 - 5.14
Model 2	0.43	0.23†					
Annual Income			3.54 E-5	0.00	0.37	1.31	0.00 - 0.00
Perceived Need			-0.27	0.70	-0.12	-0.38	-1.85 - 1.32
Education			3.65	2.27	0.62	1.61	-1.49 - 8.78
Communication			0.57	0.30	0.67†	1.90	-0.11 - 1.26

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 18: *Post-Hoc Simple Regression Predicting Overall Attendance using Mother Report of Family Cohesion, Family Adaptability, and Parent-Adolescent Communication in Two-Parent Families (N = 19)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.19	0.19					
Cohesion			0.25	0.15	0.54	1.64	-0.08 - 0.58
Adaptability			-0.40	0.22	-0.55†	-1.78	-0.87 - 0.08
Communication			0.13	0.43	0.08	0.31	-0.78 - 1.04

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 19: *Post-Hoc Hierarchical Multiple Regression Predicting Overall Attendance Using Annual Income, Education, Perceived Need for Intervention and Youth Report of Parent-Adolescent Communication in Two-Parent Families (N = 19)*

Variable	R ²	Δ R ²	B	Std. Error	β	t	95% CI
Model 1	0.12	0.12					
Annual Income			-2.49 E-5	0.00	-0.33	-1.30	0.00 - 0.00
Perceived Need			0.11	0.21	0.14	0.54	-0.34 - 0.56
Education			0.72	1.16	0.17	0.62	-1.74 - 3.18
Model 2	0.38	0.27*					
Annual Income			-4.27 E-5	0.00	-0.57*	-2.36	0.00 - 0.00
Perceived Need			0.14	0.18	0.17	0.76	-0.25 - 0.53
Education			1.22	1.02	0.28	1.19	-0.97 - 3.40
Communication			-0.24	0.10	-.57*	-2.47	-0.44 - -0.03

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Vita
Allison Doub

- Education** The Pennsylvania State University, University Park, PA
B.S. Human Development and Family Studies *December 2010*
Option: Lifespan Developmental Science
Minor in Psychology
Schreyer Honors College Scholar
- Villanova University, Villanova, PA *Fall semester 2007*
Honors Program
- Westtown School, West Chester, PA *June 2007*
Lenfest College Preparatory Scholar
- Professional Development** **PNC Leadership Assessment Center** *November 2010*
• A five-hour business simulation measuring leadership potential
- The Women's Leadership Initiative** *August 2009 - May 2010*
• Developed leadership competencies through experiential education
• Selectively offered to 30 women in the College of Health and Human Development
- Society of Distinguished Alumni Mentoring Program** *September 2010-Present*
• Mentored by 1997 Distinguished Alumnus Tom Tewksbury
- LeaderShape Institute** *May 2008*
• Chosen to attend a six-day retreat on goal setting and attainment
- Research Experience** **Strengthening Pennsylvania Families Project** *August 2009-Present*
• *Senior Honors Thesis:* Family-system predictors of attendance in prevention programs
• Used SPSS to complete a regression analysis on data from 33 families
• Assisted in the development of the home visitation protocol used during recruitment
• Certified as a program facilitator
• Recruited families through cold-calls and home visits
• Trained as an in-home assessor for pre and post intervention data collection
- Caregiving, Attachment, and Regulation of Emotion Lab** *August 2010-Present*
• Trained by Susan Woodhouse, Ph.D. in a video-coding system she developed
• Redefined how the coding system identifies mother ignoring behavior
• Coded videos of infant-mother dyads for regulation of distress and security
• Aided in the revision of the coding training manual
- Rethinking Urban Poverty** *January 2010-July 2010*
• Selected as one of ten students in the 2010 Philadelphia Field Project class
• Applied post-structural theory to research methods
• Formed a proposal for a month-long study of infant feeding in West Philadelphia
• Reviewed the literature on contextual influences on infant-feeding decisions
- Honors Research Methods MUSIC Study Project** *Fall 2009 Semester*
• *Title:* Paternal disrespect and antisocial behavior in college students
• Partnered with a fellow student to analyze data from 7,108 participants
• Co-authored an empirical paper reporting our findings

Work Experience	Mental Health Practicum with High Risk Youth <i>August 2009 - May 2010</i>
	<ul style="list-style-type: none"> • Administered the Friendship Group curriculum to 6 fourth grade boys in Fall 2009 • Developed and implemented a unique social skills curriculum in Spring 2010 • Utilized best practice emotional and behavioral management strategies • Gained awareness of current evidence based prevention programs for children
	Strengthening Pennsylvania Families Project <i>March 2010- April 2010</i>
	<ul style="list-style-type: none"> • Attended weekly team meetings on project implementation • Served as an on-site coordinator for one of the project sites • Observed program sessions for fidelity
	Stormbreak Adolescent Girl's Group Home <i>February 2009- Present</i>
<ul style="list-style-type: none"> • Volunteered two-four hours each week • Provided academic support during study hours for up to eight residents • Aided staff with resident supervision • Assisted with routine activities such as meal preparation and clean up • Obtained a \$500 Elks National Foundation Cornerstone Grant for the home • Purchased a garbage disposal and kitchenware using the grant 	
HealthWorks: Peer Education and Outreach <i>August 2008-January 2009</i>	
<ul style="list-style-type: none"> • Volunteered 2 hours each week with University Health Services • Trained in motivational interviewing • Delivered nutrition workshops for groups of over 20 undergraduates • Improved signage in dining halls to encourage healthy choices 	
Northside Pool, Waynesboro, PA <i>Summers of 2007-2010</i>	
<ul style="list-style-type: none"> • Created lesson plans for beginner swimmer ages 4-8 • Instructed swim lessons to groups of 1-3 children at a time • Ensured the safety of 300-1,800 daily pool patrons as a lifeguard 	
Activities	Academic Affairs Committee <i>April 2009- May 2010</i>
	<ul style="list-style-type: none"> • Elected to represent the College of Health and Human Development • Resolved student issues with academic policies such as grade-replacement • Hosted events to promote student engagement in academic issues
	Schreyer Honors College Orientation Mentor <i>August 2009</i>
<ul style="list-style-type: none"> • Led orientation activities over three-days for incoming scholars 	
Vegetarian Advisory Board Member <i>Spring 2008-Present</i>	
<ul style="list-style-type: none"> • Discussed on-campus dining options for vegetarian students 	
Awards:	Mary Burket Morrow Scholarship <i>Fall 2010</i>
	<ul style="list-style-type: none"> • Awarded based on academic, leadership, and service achievements, and career potential
	The Frederick and Jeanne Riebel Lord Academic Excellence Scholarship <i>Fall 2010</i>
	<ul style="list-style-type: none"> • Recognized for exceptional academic performance as a Schreyer Scholar in the College of Health and Human Development
Vincent Ragosta Mentoring Award <i>Fall 2009</i>	
<ul style="list-style-type: none"> • Mentored by J. Douglas Coatsworth, Ph.D throughout the senior honors thesis project 	
Elks National Foundation Legacy Award <i>Fall 2007</i>	
<ul style="list-style-type: none"> • Received for exhibiting the Elks core values of knowledge, charity, community, and integrity 	