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EMPATHY AND DRUG USE BEHAVIORS AMONG AFRICAN-AMERICAN ADOLESCENTS

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Abstract

The current study proposed that empathy may indirectly play a protective role for adolescents in drug use behaviors and that this relationship will be mediated by self-regulatory strategies found in drug refusal efficacy. We predict that empathy will be linked to prosocial behavior and aggression, though we do not believe that they will mediate the relationship between empathy and drug use.

The sample included 498 African-American adolescents in the 6th, 7th, and 8th grade. The results of structural equation modeling provided support for our hypotheses. Empathy was significantly and positively associated with drug refusal efficacy and prosocial behavior. Empathy was negatively associated with aggression. Drug refusal efficacy was negatively related to past 30-day drug use, providing evidence for the fully mediating role of drug refusal self-efficacy on empathy and past 30-day drug use. Consistent with our predictions, aggression and prosocial behavior were not significantly associated with past 30-day drug use. These findings may be useful in the context of programming efforts for drug prevention.

A clearer understanding of the process by which potential protective factors impact adolescent drug use has practical implications for adolescent drug use preventive interventions. Although research has examined the direct effects of psychosocial factors upon adolescent drug use, more studies are needed to explore the mechanisms through which potential protective factors may indirectly affect adolescent drug use. This process is known as mediation and occurs when the effect of an independent variable on a dependent variable can be accounted for by an indirect effect that includes a mediating variable (Baron & Kenny, 1986). For example, research that examines adolescent drug use supports the influence of familial and parental factors on drug use behaviors (Barnes, Welte, Hoffman, & Dintcheff, 2005; Mounts, 2002), but a narrow focus on these direct relationships leaves the reader with an incomplete picture. There is evidence that other psychosocial factors may link familial and parental factors to adolescent drug use such as school attachment or involvement with drug using peers (Henry, 2008), inhibitory control (Pears, Capaldi, & Owen, 2007), and exposure to older siblings' deviant activities (Snyder, Bank, & Burraston,

2005). In a similar light, we believe that empathy may indirectly play a protective role for adolescents in drug use behaviors and that this relationship will be mediated by self-regulatory strategies. Empathy is also closely linked to prosocial behavior and aggression, and these variables will be examined as potential mediators for adolescent drug use.

EMPATHY

Empathy is characterized as the ability to recognize, to take the perspective of, and to respond to another's emotion (Eisenberg, Fabes, Carlo, Speer, Switzer, & Karbon, 1993). Empathy involves observation, memory, knowledge, and reasoning that combine to produce insight into the thoughts, perceptions, and feelings of others (Decety & Jackson, 2004). Empathy includes emotional and cognitive components (Davis, 1983). The emotional component ("empathic concern") includes feelings of warmth, compassion, and concern for other (Davis, 1983). The cognitive component ("perspective taking") develops slightly later, and includes the ability to view situations from a third-person perspective (Eisenberg, 1990). Empathy may encourage pro-social behavior (Hoffman, 2001) and prevent harmful behaviors toward others (Evans, Heriot, & Friedman, 2002) and one's self (Szapocznik, Prado, Burlew, Williams, & Santisreban, 2007).

Empathy is linked to prosocial and helping behaviors and is found to be protective against aggressive and bullying behaviors in children and adolescents. Despite these associations, we do not believe that aggression serves as a link in the relationship between empathy and drug use in adolescent populations. The literature examining the relationship between aggression and drug use offers conflicting results. In some studies, aggression is associated with drug use (Giancola, Mezzich, Clark, & Tarter, 1999; Henn, Bardwell, & Jenkins, 1980; Willoughby, Chalmers, & Busseri, 2004). However, other studies fail to support the direct relationship between aggression and drug use, suggesting that under conditions of peer acceptance, there is no link between childhood aggression and adolescent drug use (Flannery, Vazsonyi, Torquati, & Fridrich, 1994; Prinstein & La Greca, 2004). The aim in the present study is to investigate whether the relationship between empathy and drug use among African-American adolescents is mediated by drug refusal efficacy, aggression, and/or prosocial behavior. While we predict that empathy will serve as an antecedent to aggression, prosocial behavior, and drug refusal efficacy, we propose that drug refusal efficacy will be the sole link to adolescent drug use. We believe that high levels of empathy will predict high levels of drug refusal efficacy due to the self-regulatory strategies that empathetic adolescents possess. This self-regulation encompasses drug refusal efficacy, which is predicted to be associated with lowered levels of drug use. Below, we describe previous research that has examined the variables of interest and offers support for the synthesis of the current study's hypotheses.

Empathy, Drug Refusal Efficacy, and Adolescent Drug Use

Drug refusal efficacy involves one's ability to refuse drugs when offered drugs, when pressured by peers to use drugs, and when tempted to use drugs as a coping device (Ellickson & Hays, 1991; Hays & Ellickson, 1990). In the present study, we hypothesized that the strength of the adolescent's ability to refuse drugs may derive in part from his/her

ability to empathize. That is, drug refusal efficacy is believed to mediate the link between empathy and adolescent drug use.

We believe that empathy may indirectly play a protective role for adolescents in drug use behaviors. This relationship is better understood within Bandura's (1991) social cognitive theory. The theory describes self-regulatory mechanisms through which individuals observe their own behavior (self-observation), judge it in relation to personal or societal standards (normative judgment process), and adjust or maintain their behaviors through self-reactive influence (Bandura, 1991). Through the mechanism of self-regulation, individuals activate self-regulatory strategies to predict, control, and manage their own behavior.

When an individual adopts an empathetic perspective, he or she has heightened insight and awareness of not only the emotional state of others but also of emotional states within the individual (Decety & Jackson, 2004). As Hoffman (1984) discussed, when empathy is activated, there is focus on the *other* and focus on the *self*. This self-awareness may give the individual the ability to self-regulate affective states and to activate strategies in response to situations such as those involving peer pressure in drug use. During self-regulation, the individual exercises control over emotional and behavioral responses (e.g., suppressing temptation and inhibiting drug use behaviors) by comparing it to personal standards (Bandura, 1991).

Self-efficacy beliefs are important components of self-regulation (Bandura, 1991, 1997) as they exert powerful influence on motivation, achievement, and goal attainment (Bandura, 1997; Kitsantas & Zimmerman, 1998; Phan, 2010). Self-efficacy affects health behaviors directly by shaping the outcomes that individuals expect their efforts to produce (Bandura, 2004). To the extent that an adolescent possesses high self-efficacy in refusing drugs, he or she will be more successful in activating strategies to turn down drugs (Corneille & Belgrave, 2007). Studies have found a significant relationship between drug refusal efficacy and drinking (e.g., Aas, Klepp, Laberg, & Edwards, 1995; Burke & Stephens, 1999; Epstein, Griffin, & Botvin, 2000) and smoking behaviors (e.g., Gwaltney, Shiffman, Normal, Paty, Kassel, Gnys, et al., 2001; Gwaltney, Shiffman, Paty, Liu, Kassel, Gnys, et al., 2002) in adolescent samples. In addition, several studies have examined the relationship between drug refusal efficacy and drug use among African-American youth, and found a negative correlation (e.g., Botvin, Baker, & Goldberg, 1992; Nasim, Utsey, Corona, & Belgrave, 2006). While there is initial evidence for the link between empathy and self-regulation (Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003; Eissenberg, 2010; Sanz de Acedo Lizarraga, Ugarte, Cardelle-Elawar, Iriarte, & Sanz de Acedo Baquedano, 2003), there are not any studies, to our knowledge, that have examined the links between empathy, self-efficacy, and drug use. We believe that drug refusal efficacy will fully mediate the relationship between empathy and drug use.

Before moving on, it is important to note that empathy might play an entirely different role. Empathetic adolescents are able to adopt perspectives of another and consequently may have greater understanding of another's positions and affective states. Adolescents who empathize with drug using peers may adopt the perspectives, motivations, and positive affective states associated with drug use. Equipped with perspective taking strategies, empathic adolescents

might devise justification for drug using peers. In addition, empathy may serve as a risk factor for drug use as it may lead to a heightened sense of belonging with peers. Identification with peers who use drugs may lead to the internalization and adoption of normative peer drug attitudes and behaviors (Kim, Kwak, & Yun, 2010; Reboussin, Hubbard, & Ialongo, 2007). In these contexts, empathy may potentially be linked to higher drug use. However, we believe that empathy will offer a protective role as it may lead to better self-regulation and, thus, better decision-making in the event of peer drug pressure.

Empathy, Aggression, and Drug Use

Aggression involves physical and relational components. Physical aggression involves direct physical harm, such as pushing or hitting. Relational aggression involves harming others through manipulation of social relationships (e.g., Crick, 1995; Crick & Grotpeter, 1995), such as social exclusion. In the present study, we focus on both physical and relational aggression. In general, the literature suggests that aggressive youth have lower levels of empathy. Lovett and Sheffield (2007) conducted a systematic review of 17 studies that examined the relationship between empathy and aggressive behavior in children and adolescents. The authors uncovered a general negative relationship between empathy and aggression though not consistent. Mayberry and Espelage (2006) studied 433 Black and White middle school students, and results indicated that nonaggressive youth had higher empathy and lower expectation of reward for using aggression compared to aggressive youth. The underlying mechanism may be due to the inhibitory role that empathy plays on aggression (Carlo & Edwards, 2005; Zhou, Valiente, & Eisenberg, 2003). Youth with higher levels of empathy may be less likely to become angry and may be better at problem solving due to their ability to self-regulate and to take the perspective of the other. Thus, these youth may be better equipped to handle situations that would lead to their counterparts acting aggressively (Strayer & Roberts, 2004). On the other hand, aggressive youth show a delay in empathic skills and interpersonal awareness (Minde, 1992), skills that help deter aggression.

It is possible that childhood aggression is linked to later adolescent drug use, though we do not believe this to be the case. According to Jessor's problem behavior theory (1987, 1991), problem behaviors (such as alcohol use, juvenile delinquency, truancy, and bullying) exist concurrently. Adolescents with a constellation of different problem behaviors may share some underlying personality and psychosocial risk factors. These problems can coexist as a lifestyle for adolescents. However, the literature that examines the direct influence of aggression on drug use is inconsistent (Flannery et al., 1994; Henn et al., 1980; Prinstein & La Greca, 2004; Willoughby et al., 2004). It is also plausible that the reverse effect is at work: perhaps drug use influences aggressive behavior such as intoxicated aggression (Brown, Coyne, Barlow, & Qualter, 2010; DeWall, Bushman, Giancola, & Webster, 2010) or steroid aggression (Kanayama, Hudson, & Pope, 2010).

In our study, we believe that different risk behaviors stem from different motivations. Our position differs from that of problem behavior theory as we believe that etiologies will vary for different risk behaviors. Thus, intervention efforts will need to address and uncover the different motives adolescents possess to initiate any risky behavior, whether it is drug use or aggressive behavior.

Empathy, Prosocial Behavior, and Drug Use

Prosocial behavior is any purposive action on behalf of someone else that involves a net cost to the helper (Hoffman, 1994). Prosocial behavior is exercised by giving blood, volunteering at community agencies, and among children sharing a favorite toy. Prosocial behavior is promoted by empathy, morality, and concern for the welfare of others rather than personal gain. In general, prosocial individuals tend to be more empathetic, having concern for the victim and also attempting to understand the victimizer's point of view (Bengtsson & Johnson, 1992). Conversely, the literature also suggests that empathy predicts prosocial behavior (McMahon, Wernsman, & Parnes, 2006). In a study of African-American adolescents, McMahon and colleagues found that youth with more empathy reported more prosocial behaviors. Individual differences in empathy during adulthood may be related to individual differences in prosocial behavior during adolescence (Bierhoff & Rohmann, 2004; Eisenberg, Carlo, Murphy, & Van Court, 1995) and early adulthood (Eisenberg, Gutbrie, Cumberland, Murphy, Shepard, Zhou, et al., 2002).

While most children exhibit some degree of both prosocial and aggressive behavior (Coie & Kupersmidt, 1983; Dodge, 1983), research indicates, in general, a negative relationship between prosocial behavior and aggression (Dobkin, Tremblay, Masse, & Vitaro, 1995); but the relationship is not clear. Several researchers have suggested that prosocial and aggressive behaviors are orthogonal (Pulkkinen, 1984). More recently, McGinley and Carlo (2007) examined the nature of the relationship between aggression and prosocial behavior and reported that the relationship is complex, and prosocial behavior should not be treated as a unitary construct. We include prosocial behavior in our model to examine if it will mirror the relationship between empathy and aggression. We expect youth with higher levels of empathy to report higher levels of prosocial behavior. Empathic youth are more apt to understand other's perspectives and may share in their emotions, and thus may be prompted to behave in prosocial ways. For example, a young girl who understands and identifies with the emotions of children in Haiti who may be displaced due to the 2009 hurricanes and regularly donates half of her weekly allowance has demonstrated prosocial behavior that is a consequence of her ability to empathize. However, like aggression, we do not believe that prosocial behavior will be directly associated with drug use. Although previous researchers have hypothesized that antisocial behavior is directly associated with drug use (e.g., Young, Sweeting, & West, 2008) and vice versa (e.g., Room & Collins, 1988), as highlighted earlier, we believe that different risk behaviors stem from different motivations. Thus, we believe that the etiologies of prosocial behavior and drug use differ. We further believe that psychosocial intervening or mediating variables may help to explain the relationship between prosocial behavior and adolescent drug use. For example, it is possible that low prosocial behavior or antisocial behavior may cause drug use through association with antisocial, drug using peers (Barnow, Schuckit, Lucht, John, & Freyberger, 2002). Hence, we hypothesize that prosocial behavior is not directly associated with drug use.

THE PRESENT STUDY

The present study builds on previous research by exploring the mediating relationship between empathy and adolescent drug use. The purpose of the study was to test a model that

would examine the role of empathy in African-American adolescents and how it may serve as a protective factor for drug use behaviors. We hypothesized:

1. higher levels of empathy will lead to higher levels of drug refusal efficacy;
2. higher levels of empathy will lead to lower levels of aggression;
3. higher levels of empathy will lead to higher levels of prosocial behavior;
4. higher levels of drug refusal efficacy will lead to lower levels of past 30-day drug use;
5. aggression and prosocial behavior will not be associated with past 30-day drug use; and
6. the impact of empathy on past 30-day drug use will be fully mediated by drug refusal efficacy; that is, empathy will not directly affect drug use.

Data Analytic Strategy

Preliminary analyses were conducted to screen data for violations of assumptions. For descriptive information on the study variables, refer to Table 1. In order to test the study's hypotheses, factor analysis and structural equation modeling (SEM) were utilized. Factor analysis was employed to create three parcels for each latent variable: empathy, drug refusal efficacy, and aggression. Item-to-construct balance was employed for parcel construction following guidelines by Little et al. (2002) and Rogers and Schmitt (2004). Past 30-day drug use did not employ the use of parcels as single-item measures for tobacco, alcohol, and marijuana use served as indicators for the latent variable. Pro-social behavior did not employ the use of parcels as each three items served as indicators.

To examine the mediating role of drug refusal efficacy, aggression, and pro-social behavior in the link between empathy and past 30-day drug use, structural equation modeling (SEM) analysis with latent variables was conducted. First, a measurement model was tested (confirmatory factor analysis using SEM), and then the hypothesized structural model was examined. In addition, we compared the hypothesized model to three alternative models:

1. the structural null model that only retains the measurement model;
2. the saturated model that included the direct effect of empathy on past 30-day drug use; and
3. a nested model without the direct path from aggression to drug use and from prosocial behavior to drug use.

Each comparison was conducted separately, allowing comparisons of nested models using the chi-square difference test. LISREL 8.80 was used to test all models.

The hypotheses are presented schematically in Figure 1. The structural model specifies that empathy will be positively associated with drug refusal efficacy and prosocial behavior but negatively associated with aggression. It is hypothesized that increased drug refusal efficacy will predict lower past 30-day drug use. We predict that aggression and prosocial behavior will not be significantly linked to past 30-day drug use. It is also important to note that we

believe that the relationship between empathy and past 30-day drug use will be fully mediated by drug refusal efficacy.

METHODS

Data were collected from students in middle schools in the southeastern part of the United States. Students were enrolled in a culturally-enriched drug prevention and life skill program. The program integrated and included components of two curriculums: life skills training (Botvin & Griffin, 2004) and a cultural curriculum (Belgrave, Reed, Plybon, Butler, Allison, & Davis, 2004). Botvin's Life Skill Training curriculum targets improvements in general life skills such as goal setting, peer relationships, and anger management skills along with drug refusal skills. The cultural curriculum is designed to enhance cultural pride and awareness and to increase positive relationships among students and adults. Pre-test data collected prior to students' participation in the program was used in this study.

Participants

The sample included 498 African-American adolescents. There were slightly more females than males in the study. Fifty-seven percent ($n = 284$) of the sample were female and 43% ($n = 214$) are males. Thirty-one percent of the sample were sixth graders ($n = 152$), 36% ($n = 179$) seventh graders, and 33% ($n = 164$) eighth graders. On average the participants were between the ages of 11 and 15 years of age ($M = 12.95$, $SD = 1.08$). Approximately 56% ($n = 276$) of participants lived with one parent, 38% ($n = 188$) lived with two parents, and 7% ($n = 33$) lived with neither parent. The majority of students reported that their mothers worked full-time ($n = 308$, 63%). Twenty-one percent of mothers ($n = 101$) worked part-time, 12% ($n = 58$) were unemployed, and 5% ($n = 22$) of students reported "*I don't know*." Sixty percent ($n = 273$) of the participants' fathers worked full-time, 12% ($n = 55$) part-time, 10% ($n = 44$) not at all, and 19% ($n = 85$) of students reported "*I don't know*."

Measures

Independent variables—Empathy—Empathy was measured by Bryant's Index of Empathy in Children and Adolescents (1982). This self-report questionnaire consists of 22 items which assess empathetic (e.g., "It makes me sad to see a girl who can't find anyone to play with") and non-empathetic tendencies (e.g., "Kids who have no friends probably don't want any"). Participants reported whether they agree with the statement by circling "yes = 1" or "no = 0." Higher scores on the scale indicate more empathy, and lower scores indicate less empathy.

Because our item responses are discrete rather than continuous, this lowers the variability in participant responses and the split half reliability coefficient was .65. Though this coefficient is modest, it is due to inter-item correlations being conducted on discrete responses. Bryant (1982) offered item responses in both dichotomous and continuous format: younger respondents were provided with a dichotomous (yes/no) response format while older adolescents (seventh grade and older) were provided with a continuous Likert scale response format. Bryant found lower reliability coefficients when response formats were dichotomous than when response formats were continuous. Because the sample in the present study

included younger participants in the sixth grade, we offered the dichotomous (yes/no) format in order to increase comprehension. Sufficient factor loadings in $\lambda \times$ matrix described later in our structural equation model below provide evidence for the reliability of our scale.

Drug refusal efficacy—Drug refusal efficacy was measured using an adapted version of the Specific Event Drug and Alcohol Refusal Efficacy measure (SEDARE; Conners, Bradley, Whiteside-Mansell, & Crone, 2001). The scale is comprised of eight items that present potentially stressful or pressured situations (e.g., “If there were problems with my family”). Participants are asked to report how likely they are to use alcohol or marijuana in these eight situations by using a 5-point Likert scale. The responses were coded so that 1 = *YES*!, 2 = *Yes*, 3 = *Not Sure*, 4 = *No*, 5 = *NO*! Cronbach’s alpha for the drug refusal efficacy scale was .88.

Aggression and prosocial behavior—Aggression and prosocial behavior were measured using an adapted version of the Children’s Social Behavior Scale (CSBS) (Self-Report) (Crick & Grotpeter, 1995). The scale is comprised of three subscales which measure overt aggression, relational aggression, and prosocial behavior. Participants are asked to report how often they participate in various aggressive and prosocial behaviors by using a 5-point Likert scale. The responses were coded so that 1 = *Never*, 2 = *Almost Never*, 3 = *Sometimes*, 4 = *Almost All the Time*, 5 = *All the Time*.

The overt aggression subscale consists of four items that measure overt aggression (e.g., Some kids hits other kids at school. How often do you do this?). The relational aggression subscale consists of five items that assess behaviors that harm or manipulate a peer’s relationship in a negative fashion (e.g., Some kids tell lies about a classmates so that other kids won’t like the classmate anymore. How often do you do this?). Because we were interested in general aggression, we combined overt and relational aggression items in order to form an aggression latent variable. Cronbach’s alpha for the aggression scale was .91.

The prosocial behavior subscale consists of three items that assess behaviors that help others (e.g., Some kids help other kids when they need it. How often do you do this?). Higher scores reflect higher pro-social behavior, and lower scores indicate lower levels of prosocial behavior. Cronbach’s alpha for the scale was .80.

Dependent Variables—Past 30-day drug use—Past 30-day drug use was assessed using three items that were provided by the funder, Center for Substance Abuse and Prevention (CSAP). The items are pulled from the Participant Outcome Measures of Discretionary Programs manual (CSAP, 2007). Three items were used. Participants self-reported alcohol and marijuana use by responding to the items, “During the past 30 days, how many days have you used any alcohol/marijuana?” Participants self-reported cigarette use by responding to the item, “During the past 30 days, have you smoked part or all of a cigarette?” Responses were offered in a yes/no format.

Procedure

This study was approved by the university’s Institutional Review Board. Parental consent and student assent were obtained from all participants. Trained research assistants visited the Health/PE classes at six middle schools to inform students about the study and to answer any

questions. Students took consent forms home along with a letter for parents to review. The letter provided parents with information about the study as well as contact information in case they had questions. Participants could be enrolled in the drug and sex education program without participating in the survey and this was stated on the consent form. Data were collected during school hours, primarily during Health/PE class periods. Students were seated far enough apart to ensure privacy. Following protocol, a survey prompt was read aloud that included information about how to complete the survey and reminded the students that their participation was voluntary and their responses were anonymous. Small incentives were provided to students when they completed the questionnaire.

RESULTS

Overall, the composite model displayed acceptable global fit, $\chi^2(84, N = 498) = 182.00$, $p = .08$. The RMSEA was .05, indicating acceptable fit, and RMSEA's 90% confidence interval was .04 to .06. The CFI was .97, indicating good fit.

Measurement Model

In examining the measurement model, all indicators loaded significantly on their latent constructs, supporting the measurement model's adequacy. All loadings of manifest indicators on corresponding latent constructs were significant at $\alpha = .05$ (see Table 2). Overall, the squared multiple correlations for y variables and for x variables ranged from .13 to .90. All parameters in the theta delta and theta epsilon matrix were significant at the .05 level.

Structural Model

The structural model provides support for the study's hypotheses. Empathy was significantly and positively associated with drug refusal efficacy and prosocial behavior. Empathy was negatively associated with aggression. Drug refusal efficacy was negatively related to past 30-day drug use, providing evidence for the fully mediating role of drug refusal self-efficacy on empathy and past 30-day drug use. Consistent with our predictions, aggression and prosocial behavior were not significantly associated with past 30-day drug use. Refer to Figure 2 for standardized path coefficients. The squared multiple correlations for structural equations are presented from smallest to greatest: drug refusal efficacy (.02), aggression (.03), past 30-day drug use (.09), and prosocial behavior (.27).

Alternative Models

The theoretical model was compared to a structural null model using a chi-square difference test. Results showed that the theoretical model provided better model fit from the structural null model, $\chi^2(6) = 138.96$, $p < .05$, so we retained our theoretical model.

The theoretical model was compared to a partially mediated model that included an additional direct path from empathy to past 30-day drug use. The theoretical model and the partially mediated model were compared using a chi-square difference test for nested models. Results showed that the direct path of the partially mediated model did not improve

the model fit, $\chi^2(1) = 1.36, p > .05$, so the theoretical model was retained providing support for the full mediation model.

Lastly, the theoretical model was compared to more a parsimonious model that left out two beta coefficients: (a) the direct path between aggression and drug use; and (b) a direct path between prosocial behavior and drug use. Results of the chi-square difference test showed that the theoretical model did not provide a better fit than the parsimonious alternative model, $\chi^2(2) = 1.13, p > .05$, so we accept the parsimonious model. These results further suggest that aggression and prosocial behavior are not directly linked to drug use behaviors.

DISCUSSION

In this study, we were interested in understanding how empathy might serve as a protective factor against drug use. There has been limited research linking empathy and drug use, and we wanted to better understand mediating factors for drug use given prevention implications. In our sample, we found that empathy served as an antecedent for aggression, prosocial behavior, and drug refusal efficacy. The results also showed that the relationship between empathy and drug use was fully mediated by drug refusal efficacy. Consistent with our expectations, prosocial behavior and aggression did not play a mediating role between empathy and drug use in the current study.

We proposed that drug refusal efficacy mediates the relationship between empathy and drug use due to the self-regulatory strategies activated by insight to internal states in empathic individuals. However, there exist other plausible explanations for the link between empathy, drug refusal efficacy, and drug use. Students who are empathic are more likely to be socially adept and skillful in interpersonal communication and relations than those who are not (Rubin & Martin, 1994). It is these social skills and attitudes that may be especially beneficial in situations involving offers of drug use and responding to interpersonal situations where drug use might be encouraged. Our measure of drug refusal efficacy asked respondents how they would react to drugs being offered mostly within the context of interpersonal situation. For example, items asked “how tempted would you be to use drugs if there were problems with your friends” and “I would be tempted to use drugs if I thought that my friends would like me more if I did it.” Using these examples, empathic students might be more likely to anticipate that problems with friends could be resolved. Empathic students might also be more likely to take the perspective of their friends and realize that their friends would not reject them because of drug refusal.

Another possible reason for the link between empathy and drug refusal efficacy could be related to empathetic students having different values and morals than those who are less empathetic. This suggestion is augmented by the finding that empathy was strongly correlated with prosocial behavior. In addition, research indicates that empathy may be linked to adolescents’ perceived importance of religious beliefs (Markstrom, Huey, Stiles, & Krause, 2010) and an Afrocentric social ethos that espouses values in spirituality, affect, and communalism (Jagers, Smith, Mock, & Dill, 1997). These values and morals among empathic youth may be linked to norms and standards that are resistant to peer pressure to

use drugs and to self-regulation with regard to refusal efficacy in situations in which drug use might be normative.

While one could speculate that empathy might affect drug use through increased prosocial and decreased anti-social behavior, this was not supported in our study. Previous research on the link between prosocial and aggressive behavior and drug use has been equivocal, and our findings confirm that these relationships may not exist. Clearly, more research is needed on this topic. Understanding the mechanism for how empathy reduces drug use has both theoretical and research implications. Theoretically, empathy may contribute to better skills at negotiating and maintaining positive interpersonal relationships. At the same time, whether or not drugs are used is often dependent upon relationships with others; especially so among youth in early adolescence where peers are so important. Further elucidation of aspects of empathy that might be linked to interpersonal and social skills especially within the peer refusal domains is an area for further research. Our findings may also be useful in the context of programming efforts for drug prevention. Curriculums that offer empathy training for adolescents may be helpful in reducing aggressive behavior and bullying and increasing prosocial behaviors, but they may also prevent substance use by strengthening self-regulatory strategies.

The study has some limitations. The sample consisted of African-American youth recruited from an urban setting so the nature of the relationship between empathy and drug use might differ for youth who are different. The use of a cross-sectional data for testing our hypotheses is also a study limitation and longitudinal data would have provided a more definite test of our hypothesis. This study also relied on self-report data, which is another limitation.

Another limitation was the low reliability coefficient of our empathy measure that was adapted from Bryant's Index of Empathy in Children and Adolescents (1982). It is likely that the discrete nature of our item response format lowered inter-item correlations as Bryant (1982) found similar patterns. However, we believe our measure of empathy was appropriate for a few reasons. First, factor loadings in lambda $\times$ matrix provided evidence for the reliability of our scale. Second, we were able to demonstrate construct validity as our measure of empathy was positively associated with prosocial behavior and negatively associated with aggression in our sample.

With these limitations noted, we believe our findings may be useful when devising strategies to prevent and reduce drug use among youth, particularly African-American youth who comprised the study sample. There has been limited research on empathy as a protective factor against drug use, and our findings suggest that one of the ways to prevent drug use might be through increasing empathy. Increases in empathy would be favorable for reasons other than possible reductions in drug use because of its overall relevance to social and psychological competence. One way to increase empathy is through role playing which can be used across a variety of situations. Consider parents and teachers role playing a typical scenario in which drugs are offered to youth by a close friend; having an adult role play the youth might increase empathic understanding of the emotions the youth go through in accepting or refusing drugs from a friend. Having the youth play the role of the adult might

foster empathy for the adult's stand against drug use. These exercises raise empathy by allowing individuals to identify with and emotionally connect to other's situations. Additional strategies such as social skills training (SST) can be used to raise empathy in children and adolescents by teaching them how to detect and interpret subtle cues and signals in the social environment (Mrug, Hoza, & Gerdes, 2001; Nixon, 2001). These strategies can be potentially modified to help adolescents detect the many nuances in social interactions and help them to successfully negotiate drug refusal efficacy (Corneille & Belgrave, 2007).

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Figure 1.
Schematic diagram of theoretical model.

Figure 2.
Theoretical model with path coefficients. (*Significant at $p < .05$.)

Table 1.

Descriptives of Study Variables

Measure	Mean average	<i>SD</i>	Min.	Max.
Empathy	0.59	0.15	0	1
Peer drug refusal efficacy	4.60	0.54	2	5
Aggression	2.37	0.96	1	5
Pro-social behavior	3.48	0.95	1	5

Table 2.

Standardized Factor Loadings

		Latent Variables				
		Endogenous	Exogenous			
		Empathy	Drug refusal self-efficacy	Aggression	Prosocial behavior	Past 30-day drug use
<i>LX</i>	Empathy1	0.59	—	—	—	—
	Empathy2	0.55	—	—	—	—
	Empathy3	0.82	—	—	—	—
<i>LY</i>	Efficacy1	—	0.89	—	—	—
	Efficacy2	—	0.77	—	—	—
	Efficacy3	—	0.95	—	—	—
	Aggression1	—	—	0.89	—	—
	Aggression2	—	—	0.86	—	—
	Aggression3	—	—	0.92	—	—
	Prosocial1	—	—	—	0.72	—
	Prosocial2	—	—	—	0.78	—
	Prosocial3	—	—	—	0.79	—
	DrugUse1	—	—	—	—	0.59
	DrugUse2	—	—	—	—	0.88
	DrugUse3	—	—	—	—	0.36