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GAMBLING OUTCOME EXPECTANCIES AND GAMBLING BEHAVIOR  
AMONG AFRICAN AMERICAN ADOLESCENTS:  
GENDER AS A MODERATING VARIABLE

by

Jessica L. Simmons

A Thesis

Submitted in Partial Fulfillment of the

Requirements of the Degree of

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## Abstract

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Most high school adolescents have reported past year gambling and are significantly more likely to gamble and to gamble problematically than females. Ethnic minority adolescents appear to be gambling at a higher rate than Caucasian adolescents. Research has indicated that adolescent gambling outcome expectancies are correlated with gambling behavior, with limited evidence that this relation differs by gender. The present study investigated gender as a moderator in the relation between gambling outcome expectancies and gambling behaviors in an African American high school sample. Males gambled more frequently, gambled more problematically, and held more positive gambling outcome expectancies than females. Gender was found to moderate the relation between the expectations of material gain, affect, self-evaluation, and parental approval and gambling frequency, as well as between the expectations of affect and self-evaluation and gambling problems. These findings should inform future adolescent gambling intervention programs.

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## Introduction

Gambling is illegal for most high school students, yet over half of U.S. teenagers reported having gambled in the past year (e.g., Barnes, Welte, Hoffman, & Tidwell, 2009; Rahman et al., 2012; Welte, Barnes, Tidwell, & Hoffman, 2009). Being male is the most evident demographic risk factor for gambling problems in adolescent samples (e.g., Barnes et al., 2009; Ellenbogen, Derevensky, & Gupta, 2007; Faregh & Derevensky, 2011; Welte et al., 2009). The literature suggests that being an African American teen is another a risk factor (Martins, Storr, Ialongo, & Chilcoat, 2008; Wickwire, Whelan, Meyers, & Murray, 2007; Welte, Wiczorek, Barnes, Tidwell, & Hoffman, 2004), though non-Caucasian populations are understudied in the adolescent gambling literature and further research is warranted. Adolescents' gambling outcome expectancies are also related to high school students' gambling frequencies and gambling problems (Wickwire, Whelan & Meyers, 2010) and these relations may be moderated by gender (Gillespie, Derevensky, & Gupta, 2007b). The current study investigated gender as a possible moderator between gambling outcome expectancies and gambling behavior among urban African American high school students.

Gambling is defined as wagering money or something of value on an unpredictable outcome (Whelan, Steenbergh, & Meyers, 2007). In a random U.S. community survey, 66% of adolescents ages 14 to 19 reported past year gambling (Barnes et al., 2009). Estimates of problem gambling among high school students range from 5.3% to 12.7%, with an additional 8.6% to 22.7% of students at-risk for becoming problem gamblers (Derevensky & Gupta, 2000; Haroon, Gupta, & Derevensky, 2004; Wickwire et al., 2010). These adolescents are more likely than their peers to report other

risky behaviors, including substance use, low grades, sexual activity, depression, and suicidal thoughts (e.g., Fisher, 1993; Lynch, Maciejewski, & Potenza, 2004; Nower, Gupta, Blaszczynski, & Derevensky, 2004; Stinchfield, 2000).

Evidence suggests that ethnic minority youth may be at an increased risk for gambling problems when compared to their Caucasian peers (Lynch et al., 2004; Stinchfield, 2000; Volberg, 2002; Zitzow, 2003). Wickwire et al. (2007) found high rates of gambling problems among urban, mostly African American high school students, with 22% of males and 5% of females reporting problem gambling, and an additional 31% of males and 12% of females being at-risk for problem gambling. Stinchfield (2000) reported that 9.7% of African American students reported gambling daily compared to only 4% of Caucasian students. These studies suggest ethnic minority status could be a risk factor for gambling frequency and gambling problems. However, the research is sparse and further investigation is warranted.

Research has revealed that gender is the most significant socio-demographic factor related to gambling activity among youth. Adolescent males gamble more frequently and problematically than young females (e.g., Barnes et al., 2009; Martins et al., 2008; Jackson, Dowling, Thomas, Bond, & Patton, 2008). Past year gambling rates for North American high school students range from 77.2% to 84.0% for males but only 54.8% to 64.0% for females (Derevensky & Gupta, 2000; Haroon et al., 2004; Wickwire et al., 2010). A U.S. national sample of adolescents found 10.8% of males but only 2.1% of females were classified as at-risk or problem gamblers (Welte et al., 2009). In high-school convenience samples, 11.0% to 21.1% of males reported symptoms of problem gambling versus 1.3 to 6.0% of females; an additional 14.5 to 32.0% of males were

considered at-risk for problem gambling versus 5.3 to 9.5% of females (Derevensky & Gupta, 2000; Martins et al., 2008; Wickwire et al., 2010).

Outcome expectancies have emerged as an important predictor of adolescent risk-taking behavior (Businelle, Kendzor, Rash, Patterson, & Copeland, 2009; Gillespie, Derevensky, & Gupta, 2007b; Schafer & Brown, 1991). According to social learning theory, the choice to engage in a behavior is influenced by an individual's expectations of the reinforcing or punishing effects of engagement in that behavior (Bandura, 1977). Extensive research in the drug and alcohol field has shown that young adults are more likely to use substances when they endorse positive expectancies strongly and negative expectancies weakly (e.g., Jones, Corbin, & Fromme, 2001; Schafer & Brown, 1991; Wahl, Turner, Mermelstein, & Flay, 2005). Adolescent outcome expectancies are also a possible valuable cognitive component in the clinical treatment of risky behaviors. Research evaluating alcohol and drug treatment programs has shown that changes in outcome expectancies are related to a reduction in the targeted risky behavior (e.g., Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Dunn, Lau, & Cruz, 2000; Young, Connor, & Feeney, 2011). Understanding the role of adolescent gambling outcome expectancies in risk taking and addiction initiation and maintenance could be integral to developing gambling prevention and intervention programs for youth.

The outcome expectancies hypothesis has recently been applied to gambling and the results have been similar to those for alcohol and drug studies. Positive expectancies were related to frequent and problem gambling, and negative expectancies were related to less frequent and less problematic gambling (Gillespie et al., 2007b; Wickwire et al., 2010). Wickwire and colleagues (2010) developed the Adolescent Gambling Expectancy

Survey (AGES) to measure adolescent gambling outcome expectancies. The following five gambling expectancy factors emerged: material gain/loss, affect, self-evaluation, social consequences, and parental approval. Expecting material gain or loss reflects adolescents' ideas about whether or not gambling will be a good experience to gain money and will generally make life better in some material way. The factor of affect relates to how adolescents expect gambling to relate to their emotional well-being, as well as their desire to feel connected to friends. The self-evaluation factor reflects adolescents' expectations of how they believe gambling will affect the respect they have for themselves, whether they feel compelled to gambling, and their general outlook on life. The factor of social consequences depicts whether adolescents are likely to expect gambling to put them in a situation where they are likely to get in trouble, get beat up, or in general, have bad things happen to them. Finally, the factor of parental approval relates to adolescents' expectation of whether their parents would approve or disapprove of them if they were to engage in gambling activity.

Given the gender differences in gambling behavior and the relation between outcome expectancies and gambling behavior, it is not surprising that Gillespie et al. (2007b) found gender differences in the endorsement of gambling outcome expectancies among students ages 11 to 18 years. Gillespie, Derevensky, and Gupta (2007a) developed a gambling expectancies questionnaire, measuring the three positive gambling expectancies of enjoyment/arousal, self-enhancement, and money, and the two negative expectancies of over-involvement in gambling and emotion impact. Males were more likely than females to endorse positive outcome expectancies, more likely to gamble, and more likely to have gambling-related problems (Gillespie et al., 2007b). Females were

more likely to expect negative emotions from gambling, and were less likely to gamble and have gambling-related problems compared to males (Gillespie et al., 2007b).

Interestingly, Gillespie et al. (2007b) did not find negative emotions predicted gambling problems among either males or females. For males, higher scores on the three positive expectancies of enjoyment/arousal, money, and self-enhancement and on the negative expectancy of over-involvement were all predictors of problem gambling (Gillespie et al. 2007b). For females, though positive expectancy of monetary gain and enjoyment/arousal separately predicted problems with gambling, the overall outcome expectancy model was not able to predict gambling problem status, as it was able to for males. Gillespie et al. (2007b) speculated that this finding could be due to a sample with few female problem gamblers. In light of these inconclusive results, further research is warranted on how gender plays a role in the relation between gambling expectancies and gambling behavior in a sample with more problem gambling youth.

The current study used a moderation model to examine gender's role in the relation between gambling expectancies and gambling behavior among African American youth. The aim was to examine whether gender moderates the relation between outcome expectancies and both gambling frequency and gambling problems. An African American high school sample was used in order to begin to fill the gap in the literature on minority youth gambling behaviors. In testing two moderation models, the first hypothesis for both models was that male adolescents would endorse gambling outcome expectancies more positively than female adolescents. For the first moderation model, it was also hypothesized that endorsing gambling outcome expectancies more positively would correlate with higher rates of gambling frequency, that males would gamble more

often than their female counterparts, and finally that gender would moderate the relation between gambling outcome expectancies and gambling frequency. For the second moderation model, it was additionally hypothesized that endorsing gambling outcome expectancies would be positively related to gambling problems, that males would gamble more problematically than their female counterparts, and finally that gender would moderate the relation between gambling outcome expectancies and gambling problems.

## **Method**

### **Participants**

Wickwire et al. (2010) collected surveys from 1,076 students from four urban public high schools in Memphis, Tennessee. Participants were included in the current study if they identified as African American and completed the outcome expectancy measure. The final sample was comprised of 845 students (56.8% female,  $n = 480$ ) ranging in age from 13 to 20 years ( $M = 16.12$ ,  $SD = 1.04$ ). Almost half of the students were sophomores (46.5%,  $n = 393$ ), 26.6% were juniors ( $n = 225$ ), 16.4% were seniors ( $n = 139$ ), and 10.4% were freshmen ( $n = 88$ ).

### **Measures**

**Demographics.** The demographics questionnaire queried participant gender, age, ethnicity, and year in school. No personal identifying information was collected.

**The South Oaks Gambling Screen Revised for Adolescents (SOGS-RA).** The SOGS-RA (Winters, Stinchfield, & Fulkerson, 1993) measures adolescents' problems associated with gambling over the past year. The SOGS-RA is a 12-item measure utilizing yes-no questions (1 = yes, 0 = no), such as "Have you ever skipped or been absent from school or work due to betting activities" and "Have you had money

arguments with family or friends that centered on gambling” to discriminate between adolescents with and without gambling problems. In accordance with Winters, Stinchfield, and Kim (1995), participants with total scores of 0 or 1 were identified as not having a problem gambling, 2 or 3 as at-risk for a gambling problem, and 4 or greater as having a problem gambling. These categories were used solely for descriptive purposes and scores were kept continuous (ranging from 0 to 12) for analyses. The internal consistency of the SOGS-RA among the present sample was acceptable ( $\alpha = .76$ ).

**Gambling frequency.** The SOGS-RA also contains a separate assessment of gambling frequency. Participants indicated their past-year involvement (0 = no involvement, 1 = less than monthly, 2 = monthly, 3 = weekly, 4 = daily) for each of these activities: played cards; flipped coins; personal skill; sports teams with friends or family; sports with bookmaker; bingo; dice games; slot, poker, or other machines; and casino gambling. Participant gambling frequency scores were calculated for individuals on a rank order scale of 0 to 4, with 0 indicating no involvement in any of the nine gambling activities, 1 signifying a report of less than monthly gambling in any of the nine gambling activity, and a 2, 3, or 4 if monthly, weekly or daily gambling in any of the nine gambling activity was reported, respectively.

**The Adolescent Gambling Expectancy Survey (AGES).** The AGES (Wickwire et al., 2010) evaluated adolescents’ gambling outcome expectancies. For each of the 24 items, participants chose from a bipolar format with two negative response options, a neutral response option, and two positive response options. AGES items were found to cluster into these five factors: material gain/loss, self-evaluation, affect, social consequences, and parental approval. For each participant, an average score for each

outcome expectancy factor was calculated and ranged from 1 to 5, with a score of 1 being the most negative response, 3 being a neutral response, and 5 being the most positive response. The present sample had an excellent internal consistency ( $\alpha = .92$ ).

### **Procedure**

The current study obtained university institutional review board approval to utilize a previously collected dataset for analyses. In the original study (Wickwire et al., 2010), over 1,200 students were recruited from random classrooms at four public high schools chosen to represent different urban neighborhoods. Parents of students in those classrooms were sent letters indicating they could contact the school if they did not want their child to participate in the study, otherwise consent was assumed. Parents of 13 students denied consent for their child. Two weeks after letters were sent, research assistants entered classrooms and handed out questionnaires, including a page defining gambling and examples of types of gambling, to all assenting students who were present on the day of data collection and whose parents did not deny consent. The research assistants reviewed the instructions and the voluntary nature of the study, and an additional 104 students chose not to participate. The remaining students ( $n = 1,076$ ) filled out their questionnaires and returned them to the assistants in sealed, unmarked envelopes. Questionnaires consisted solely of the measures described above and no personal identifying information was collected. Finally, students were debriefed. No compensation was offered for participation.

### **Analyses**

To eliminate nonessential multicollinearity, each outcome expectancy score was standardized into z-scores when interaction terms were computed (Aiken & West, 1991).

When testing gambling frequency and gambling problems, which typically have a skewed frequency distribution, Blom's (1958) transformation was applied to the continuous dependent variables in order to control for extreme scores. Moderation models (Baron & Kenny, 1986) were used to test the role of gender in the relation between gambling outcome expectancies and both gambling frequency and gambling behavior.

In order to test moderation, the first analysis examined the relation between gender and outcome expectancies. Next, the relation between gambling outcome expectancies and gambling frequency was tested. The final step before the moderation analysis was to test the relation between gender and gambling frequency. It was predicted that males would gamble more frequently than females. Then, hierarchical regressions were used to test the hypothesis that gender would moderate the relation between all five outcome expectancies and gambling frequency. In the first block of the regression, the average outcome expectancy score and gender were separately added to test the main effects. In the next block, the interaction term created by the average outcome expectancy score x gender was added to test the unique contribution of the expectancy's interaction with gender, testing moderation. For any significant interactions, post-hoc analyses run with the MODPROBE macro for SPSS (Hayes & Matthes, 2009) was utilized to investigate the direction gender status had on the relation between the significant outcome expectancy and gambling frequency. Next, the analytical steps above were repeated for gambling problems, in order to test gender's role as a moderator between each outcome expectancy and gambling problems. Comparable hypotheses were made.

## Results

### Gambling Behavior

Sixty-five percent of the participants reported past year gambling ( $n = 550$ ), including 81.6% of males ( $n = 298$ ) and 52.5% of females ( $n = 252$ ). Of the males, 21.9% ( $n = 80$ ) reported daily gambling activity, 21.6% ( $n = 79$ ) reported weekly activity, 18.9% ( $n = 69$ ) reported monthly activity, and 19.2% ( $n = 70$ ) reported less than monthly activity. While the gambling frequency of the males was about evenly distributed, the female distribution of gambling activity was positively skewed. Of the females, 5.6% ( $n = 27$ ) reported daily gambling activity, 8.5% ( $n = 41$ ) reported weekly activity, 11.0% ( $n = 53$ ) reported monthly activity, and 27.3% ( $n = 131$ ) reported less than monthly activity. See Table 1 for gambling frequency means by gender.

Almost a third of all participants ( $n = 241$ , 28.5%) were categorized as either having a gambling problem or being at risk for a gambling problem. The majority of these gamblers were male (67.6%,  $n = 163$ ). Among the males, 21.9% ( $n = 80$ ) were categorized as problem gamblers another 22.7% ( $n = 83$ ) were at-risk. Among the females, 6.3% ( $n = 30$ ) were categorized as problem gamblers and another 10.0% ( $n = 48$ ) were at-risk. Half of the male participants (55.3%,  $n = 202$ ) and the majority of the females (83.8%,  $n = 402$ ) were considered to have no problems with gambling.

### Gender and Outcome Expectancies

Regressions confirmed that gender was significantly related to all outcome expectancies, with males significantly more likely than females to hold positive expectancies for all outcomes. Males were more likely to endorse material gain ( $\beta = .27$ ,  $p < .001$ ), positive affect ( $\beta = .21$ ,  $p < .001$ ), positive self-evaluation ( $\beta = .30$ ,  $p < .001$ ),

positive social consequences ( $\beta = .19, p < .001$ ), and parental approval ( $\beta = .21, p < .001$ ). Gender contributed a significant amount of variance to the expectancies of material gain,  $R^2 = .07, F(1, 843) = 66.88, p < .001$ , affect,  $R^2 = .04, F(1, 843) = 39.45, p < .001$ , self-evaluation,  $R^2 = .09, F(1, 843) = 82.33, p < .001$ , social consequences,  $R^2 = .04, F(1, 843) = 30.21, p < .001$ , parental approval,  $R^2 = .04, F(1, 843) = 38.21, p < .001$ . See Table 1 for outcome expectancy factor mean scores by gender.

### **Gambling Frequency**

**Outcome expectancies.** Linear regressions confirmed that predicted outcome expectancy is positively correlated with gambling frequency. Material gain ( $\beta = .47, p < .001$ ), positive affect ( $\beta = .30, p < .001$ ), positive self-evaluation ( $\beta = .44, p < .001$ ), positive social consequences ( $\beta = .26, p < .001$ ), and parental approval ( $\beta = .37, p < .001$ ), were related to higher rates of gambling frequency. Material gain,  $R^2 = .22, F(1, 843) = 237.03, p < .001$ , positive affect,  $R^2 = .09, F(1, 843) = 81.78, p < .001$ , positive self-evaluation,  $R^2 = .19, F(1, 843) = 196.64, p < .001$ , positive social consequences,  $R^2 = .07, F(1, 843) = 60.30, p < .001$ , and parental approval,  $R^2 = .13, F(1, 843) = 130.48, p < .001$ , significantly explained variance in gambling frequency.

**Gender.** Regressions revealed males gambled more frequently than females ( $\beta = .39, p < .001$ ). Gender also contributed significantly to the variance of gambling frequency,  $R^2 = .15, (1, 843) = 152.82, p < .001$ .

**Moderation.** The moderation hypothesis was confirmed for four of the five outcome expectancies. Hierarchical regressions (see Table 2) revealed gender moderated the relation between gambling frequency and the gambling expectancies of material gain ( $\beta = .07, p = .01$ ), affect ( $\beta = .08, p = .02$ ), self-evaluation ( $\beta = .06, p = .05$ ), and parental

approval ( $\beta = .07, p = .02$ ). The interactions of gender and material gain,  $R^2 = .30, (1, 841) = 6.21, p = .01$ , gender and affect,  $R^2 = .20, (1, 841) = 5.59, p = .02$ , gender and self-evaluation,  $R^2 = .27, (1, 841) = 3.96, p = .05$ , and gender and parental approval,  $R^2 = .24, (1, 841) = 5.08, p = .02$ , each contributed a significant amount of variance in gambling frequency. Gender did not moderate the relation between gambling frequency and social consequences.

Post-hoc analyses using MODPROBE (see Table 3) found that for males, expecting material gain,  $t(844) = 10.76, p < .001$ , positive affect,  $t(844) = 6.26, p < .001$ , positive self-evaluation,  $t(844) = 8.57, p < .001$ , and parental approval,  $t(844) = 7.95, p < .001$ , were positively related with gambling frequency. For females, expecting material gain,  $t(844) = 7.79, p < .001$ , positive affect,  $t(844) = 4.18, p < .001$ , positive self-evaluation,  $t(844) = 7.62, p < .001$ , and parental approval,  $t(844) = 5.98, p < .001$ , were also positively related with gambling frequency.

### **Gambling Problems.**

**Outcome expectancies.** Regressions confirmed that outcome expectancies were positively correlated to gambling problems. Expecting material gain ( $\beta = .30, p < .001$ ), positive affect ( $\beta = .19, p < .001$ ), positive self-evaluation ( $\beta = .30, p < .001$ ), positive social consequences ( $\beta = .10, p < .01$ ), and parental approval ( $\beta = .18, p < .001$ ), were related to higher rates of gambling problems. Material gain,  $R^2 = .09, F(1, 843) = 82.17, p < .001$ , positive affect,  $R^2 = .03, F(1, 843) = 30.05, p < .001$ , positive self-evaluation,  $R^2 = .09, F(1, 843) = 83.30, p < .001$ , positive social consequences,  $R^2 = .01, F(1, 843) = 7.94, p < .01$ , and parental approval,  $R^2 = .03, F(1, 843) = 26.48, p < .001$ , significantly explained variance in gambling problems.

**Gender.** Linear regressions confirmed males gambled more problematically than females ( $\beta = .32, p < .001$ ). Gender also contributed significantly to the variance of gambling problems,  $R^2 = .10, (1, 843) = 98.26, p < .001$ .

**Moderation.** The hypothesis that gender would moderate the relation between outcome expectancies and gambling problems was confirmed for two of the five outcome expectancies. Hierarchical regressions revealed that gender moderated gambling problems and the gambling outcome expectancies of affect ( $\beta = .11, p = .001$ ) and self-evaluation ( $\beta = .12, p < .001$ ) (see Table 4). The interactions of gender and affect,  $R^2 = .13, (1, 841) = 11.25, p = .001$ , and gender and self-evaluation,  $R^2 = .16, (1, 841) = 12.86, p < .001$ , each contributed a significant amount of variance in gambling problems. The relation between gambling problems and the expectancies of material gain/loss, social consequences and parental approval were not moderated by gender.

MODPROBE post-hoc analyses (see Table 5) found that for males, expecting positive affect,  $t(844) = 4.94$ , and positive self-evaluation,  $t(844) = 7.00$ , was also positively related to gambling problems ( $ps < .001$ ); whereas for females, only the expectation of positive self-evaluation,  $t(844) = 3.07, p < .01$ , was positively related to gambling problems. Positive affect was not related to gambling problems for females.

## Discussion

High school aged males and females gamble differently (e.g., Shaffer, LaBrie, Scanlan, & Cummings, 1994; Welte et al., 2009) and ethnic minorities appear to be at-risk for gambling problems in comparison to their Caucasian peers (e.g., Welte et al., 2009). Furthermore, outcome expectancies have been found to be highly related to adolescent risk-taking behavior (e.g., Businelle et al., 2009), including gambling (e.g.,

Wickwire et al., 2010) and evidence suggests gender may play a role in this relation (Gillespie et al., 2007b). The present study confirmed that among African American high school students, more positive outcome expectancies were related to higher gambling rates and more gambling problems, males were more likely than females to hold positive outcome expectancies, and males were more likely than females to gamble frequently and problematically. Additionally, adolescents' gender moderated the relation between gambling outcome expectancies and gambling frequency and to a more modest degree with gambling problems.

Regarding the initial analyses, males were more likely than females to expect material gain, positive affect, positive self-evaluation, positive social consequences, and parental approval. These results were very similar to Gillespie and colleagues' (2007b) research, which found males were more likely than females to endorse the two positive expectancies of money, similar to the AGES' factor of material gain, and enjoyment/arousal, similar to positive affect. The present study found that females, when compared to males, were less likely to expect these positive outcomes. When thinking about engaging in gambling, females expected more negative emotions and believed it could make them feel ashamed. Females also had negative social expectations about gambling and believed that by engaging in gambling, they could end up being around dangerous people or could get into trouble with the law or with their parents. These findings were supported by years of literature that has found boys tend to engage in risky behaviors at a much higher rate than girls, throughout childhood and adolescence (Morrongiello & Rennie, 1998; Steinberg, 2004).

Gambling outcome expectancies were also found to be highly related to gambling frequency. The adolescents who positively endorsed these expectancies were also likely to be gambling more often. Previous research has demonstrated that regular gamblers often have illogical beliefs about gambling (Steenbergh, Meyers, May, & Whelan, 2002), and that teaching the odds of winning does not impact their gambling behavior (Delfabbro, 2004; Williams & Connolly, 2006). It seems that the saliency of expecting material gain from gambling is strong and our research supports these previous findings that believing in gain from gambling does relate to gambling frequency. In regard to the expectancy of parental approval, research conducted by Vachon, Vitaro, Wanner, and Tremblay (2004) found that adolescents were more likely to gamble frequently when their parents also gamble frequently. Some insight into why endorsing parental approval was related to higher gambling rates in the current study is that perhaps having gambling parents leads to expecting parental approval of gambling and therefore results in higher gambling frequency. Because parent gambling tends to be a common factor associated with gambling activity (Vachon et al., 2004), future studies should include family gambling history as a variable.

Be it that all five gambling outcome expectancies were positively related to gambling frequency and that males were more likely than females to positively endorse these expectancies, it was logical the next confirmed hypothesis was that males reported gambling more frequently than females. As was previously mentioned, boys tend to be more risk-taking than girls (Morrongiello & Rennie, 1998; Steinberg, 2004), and this finding that males are also gambling at higher rates than females is heavily supported in

the gambling literature (e.g., Barnes et al., 2009; Welte et al., 2009). No known research has suggested otherwise.

Given the significant relation between gender and gambling outcome expectancies, the expectancies and gambling frequency, and gender and gambling frequency was confirmed, it was expected that gender would moderate the relation between gambling outcome expectancies and gambling frequency. The relation between the expectancies and gambling frequency was stronger for males compared to females. For example, this moderation model states that if a male and a female expect the same amount of positive affect from gambling, the male would still be gambling at a higher frequency than the female. However, the relation between social consequences and gambling frequency was not moderated by gender. This finding means that even though female are more likely than males to expect negative social consequences and to gamble less frequently, if a female did match a male's more positive expectation of social consequences, her gambling frequency would theoretically match that male's gambling frequency. The slope in regards to the relation between expecting social consequences and gambling frequency is the same for both genders.

Now in looking at the results for the gambling problem analyses, the AGES' gambling expectancies were also positively related to gambling problems. In regard to parental approval, research by Vachon and colleagues (2004) found that adolescents who gambled problematically were more likely to have parents who gambled frequently. As for parental problem gambling, only a father's problem gambling was associated with youth problem gambling (Vachon et al., 2004). Wickwire et al. (2007) found that even students' perceptions of their parents' gambling positively influenced their engagement in

problematic gambling. As mentioned along with gambling frequency, a family history of gambling has been found to be related to youth gambling activity and this parental influence may have an affect on adolescents' expectations, especially in regards to expecting parental approval. In terms of social expectancies, peers seem to have a role in influencing deviant behavior, including problem gambling, as well as gambling frequency (Kroneman, Loeber, & Hipwell, 2004; Wickwire et al., 2007) and the current study found that adolescents expecting peer approval from engaging in gambling activity indeed are more likely to gambling and to do so problematically.

Similar to the model with gambling frequency, given that males were more likely than females to positively endorse these gambling expectancies and that all five gambling outcome expectancies were positively related to gambling problems, it was logical the next confirmed hypothesis was that males reported more gambling problems than females. As was previously mentioned, boys tend to be more risk-takers than girls (Morrongiello & Rennie, 1998; Steinberg, 2004), and this finding that males are also gambling in a more dangerous way than females is supported in the addiction literature as well (e.g., Barnes et al., 2009; Welte et al., 2009).

Given the confirmed relations between gender and gambling outcome expectancies, the expectancies and gambling problems, and gender and gambling problems, it was predicted that gender would moderate the relation between gambling outcome expectancies and gambling frequency. However, gender was only found to moderate the relation between the two expectancies of affect and self-evaluation and gambling problems. For both males and females, expecting positive affect, or in other words, expecting to feel good about themselves, was related to experiencing more

problems gambling. However, this positive effect was stronger for males than for females, meaning that the females who endorsed this expectancy similarly to males were still less likely to be a problem gambler. For males, expecting positive self-evaluation was related to higher problem gambling problems, but no relation between the two factors was found for females. For females, engaging in problematic gambling is not affected by their beliefs of positive or negative self-evaluation. Gillespie et al. (2007b) found that females' expectation of negative emotions from gambling did not predict of gambling problems. Although the negative emotions factor is more similar to the AGES' affect factor, these findings together provide evidence that females emotions may not be the driving factor when it comes to more problematic gambling. The expectancies of affect and self-evaluation are the two factors that are feeling and emotion-driven, suggesting that males and females' experiences with their emotions affect their behavior differently, if it is affected at all, in regard to problematic gambling.

In contrast, the relation between expectations of material gain, social consequences, and parental approval were not moderated by gender, meaning that although females tend to have negative expectations and lower gambling problems and males tend to have more positive expectations and are more likely to gamble, the slope of the relation between these two variables is the same for both genders. For example, if a female and a male similarly expected gambling would make their parents very upset, they would theoretically have similar problems with gambling. The expectations of material gain, social consequences, and parental approval are more non-emotionally-driven beliefs than the expectations of affect and self-evaluation, supporting the idea that in regard to

less emotion-ridden beliefs, males and females' behavior are similarly affected in terms of developing gambling problems.

A strength of the current study is that it was able to capture expectations for gambling and gambling behaviors among a very risky and understudied population. Though the self-reported wagering among this African American sample mirrored many previous findings, in terms of gambling frequency (e.g., Derevensky & Gupta, 2000; Hardoon et al., 2004), the students' reported gambling problems soared above age-matched national norms (Welte et al., 2009). Problem gambling rates were four times higher for males (44.6% vs. 10.8%) and seven times higher for females (16.3 vs. 2.1%; Welte et al., 2009). It is pertinent to address the high rate of at-risk and problem gambling among the present population, especially among the females who are not typically considered a risk group. Environmental influences, such as growing up in a disadvantaged neighborhood, could be a large factor in this finding (Martins et al., 2008) rather than the ethnic minority status of this sample.

Although this study did not assess family socioeconomic status, the participants came from schools that draw from disadvantaged, urban neighborhoods and previous literature has found that girls who come from neighborhoods such as these are more likely than girls in more advantaged neighborhood to engage in problem behaviors (Kroneman et al., 2004). Martins et al. (2008) found that urban, African American adolescent girls who were involved in risky gambling also had high comorbidity with conduct disorders and other risky behaviors. Overall, neighborhood factors, such as poverty level, employment rate, low family cohesion and parental supervision, contributed to juvenile delinquency for both girls and boys (Kroneman et al., 2004; Zahn,

Hawkins, Chiancone, & Whitworth, 2008). Previous research has reported that adults in disadvantaged communities gamble more frequently and problematically and suffer more from the negative effects associated with engaging this illegal activity (Welte et al., 2004).

Though the present study sheds light on the relations between gender and risky gambling behaviors in an understudied population, it is not without limitations. Sampling issues, for one, could be seen as a limitation. The data was collected from four public high schools in the US and as with many studies, the results may not be generalizable to all African American high school students. The possible confound of urban, low-socioeconomic status, African American student sample could also be seen as a limitation. This data collection did include an assessment of socioeconomic status and limited data collection to urban schools. Future research would ideally be able to independently examine each variable's roles in gambling cognitions and behaviors. A study looking at the intersection between gender, race, and class, with males and females, low, middle, and high socioeconomic status, and African American and Caucasian would help to parse out these variables' affects on gambling behavior. The cross-sectional design of the current study is not necessarily ideal. The current study's results are based on correlations and therefore, longitudinal data could be more helpful in determining causations. While it is currently unknown whether outcome expectancies are predictive of gambling behavior or vice versa, and how gender plays a role forming these expectancies or behavior, a longitudinal study could explore such inquiries and the current study's findings could help to inform such studies.

In looking toward the future for high school students who are gambling at high rates and experiencing problems, it should be noted that adolescent high-risk behavior is correlated with many other high-risk behaviors, such as a low graduation rate and drug use, setting these teens up for a risky lifestyle (e.g., Fisher, 1993; Lynch et al., 2004; Nower et al., 2004; Stinchfield, 2000). The present study's findings, in conjunction with the current literature, should be used to inform research-based, gambling intervention and prevention programs for at-risk youth. Lab studies have successfully altered risk behaviors, such as gambling and alcohol use within a study session (Floyd, Whelan, & Meyers, 2006) and studies in the alcohol literature have done so utilizing participants' outcome expectancies (Sharkansky & Finn, 1998; Stein, Goldman, & Del Boca, 1997). According to the present study, although males and females differ in regard to both gambling outcome expectancies and gambling behavior, the relation between expectancies and problem gambling may not be too different for each gender, especially when in regard to non-emotional expectations, such as material gain, positive social consequences, and parental approval. Therefore, when targeting problem gamblers as a group, perhaps attempted to curb these three expectancies could be most beneficial because they are salient for both genders. However, because the present study did find such a high rate of female at-risk and problem gamblers, it is important for future researchers to further investigate what drives these disadvantaged teen girls to gamble at such high rates if outcome expectancies are not the answer. Protective factors must be identified in order to decrease the high rate of gambling problems among both male and female students in environments similarly risky to that which was investigated in the current study.

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Table 1

*Means of Gambling Variables and Outcome Expectancies by Gender*

Gambling Variable	<u>Males</u>		<u>Females</u>		<u>All</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gambling Frequency	6.7	6.6	2.5	4.2	4.3	5.8
Gambling Problems	1.9	2.2	0.7	1.4	1.2	1.9
Outcome Expectancies						
Material Gain/Loss	2.87	.70	2.49	.65	2.66	.70
Affect	2.96	.50	2.73	.56	2.83	.54
Self Evaluation	2.98	.51	2.64	.56	2.78	.56
Social Consequences	3.11	.62	2.85	.71	2.96	.68
Parent Approval	2.47	.68	2.18	.71	2.30	.71

Table 2

*Moderation of Gender on the Relation between Outcome Expectancies and Gambling Frequency*

Outcome Expectancy	Block 1			Block 2			$\Delta R^2$
	<i>b</i>	$\beta$	$R^2$	<i>b</i>	$\beta$	$R^2$	
Material Gain/Loss (MG)							
MG	.35	.39***	.29	.36	.40***	.30	.01** <sup>1</sup>
Gender	.26	.29***		.26	.28***		
MG x Gender				.07	.07**		
Affect							
Affect	.20	.23***	.20	.22	.24***	.21	.01* <sup>2</sup>
Gender	.31	.34***		.31	.34***		
Affect x Gender				.07	.08*		
Self-Evaluation (SE)							
SE	.31	.35***	.26	.33	.36***	.27	.01* <sup>3</sup>
Gender	.26	.29***		.25	.28***		
SE x Gender				.06	.06*		
Social Consequences (SC)							
SC	.17	.19***	.19	.19	.21***	.19	.01 <sup>4</sup>
Gender	.32	.36***		.32	.35***		
SC x Gender				.05	.06		
Parental Approval (PA)							
PA	.27	.30***	.24	.28	.31***	.24	.01** <sup>5</sup>
Gender	.30	.33***		.30	.33***		
PA x Gender				.06	.07*		

Note: \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

<sup>1</sup> $F(1, 841) = 6.21, p = .01$

<sup>2</sup> $F(1, 841) = 5.59, p = .02$

<sup>3</sup> $F(1, 841) = 3.96, p = .05$

<sup>4</sup> $F(1, 841) = 3.09, ns$

<sup>5</sup> $F(1, 841) = 5.08, p = .02$

Table 3

*Gender's Effect on the Relation between Outcome Expectancies and Gambling Frequency*

Outcome Expectancy	Males			Females		
	<i>b</i>	<i>t</i>	<i>CI</i>	<i>b</i>	<i>t</i>	<i>CI</i>
Material Gain/Loss	.42	10.76*	.35-.50	.29	7.79*	.22-.36
Affect	.29	6.26*	.20-.38	.15	4.18*	.08-.22
Self Evaluation	.38	8.57*	.30-.47	.27	7.62*	.20-.34
Parental Approval	.34	7.95*	.26-.43	.22	5.98*	.15-.29

Note: \*  $p < .001$

Table 4

*Moderation of Gender on the Relation between Outcome Expectancies and Gambling Problems*

Outcome Expectancy	Block 1				Block 2				$\Delta R^2$
	<i>b</i>	<i>SE b</i>	$\beta$	$R^2$	<i>b</i>	<i>SE b</i>	$\beta$	$R^2$	
Material Gain/Loss (MG)									
MG	.19	.03	.23***	.15	.19	.03	.23***	.16	<.01 <sup>1</sup>
Gender	.22	.03	.26***		.21	.03	.26***		
MG x Gender					.04	.03	.05		
Affect									
Affect	.10	.03	.12***	.12	.12	.03	.15***	.13	.01*** <sup>2</sup>
Gender	.25	.03	.30***		.24	.03	.29***		
Affect x Gender					.09	.03	.11***		
Self-Evaluation (SE)									
SE	.18	.03	.22***	.15	.21	.03	.25***	.16	.02*** <sup>3</sup>
Gender	.21	.03	.26***		.20	.03	.24***		
SE x Gender					.10	.03	.12***		
Social Consequences (SC)									
SC	.03	.03	.03	.11	.04	.03	.04	.11	<.01 <sup>4</sup>
Gender	.26	.03	.31***		.26	.03	.31***		
SC x Gender					.02	.03	.02		
Parental Approval (PA)									
PA	.09	.03	.11***	.12	.10	.03	.12***	.12	<.01 <sup>5</sup>
Gender	.25	.03	.30***		.25	.03	.30***		
PA x Gender					.04	.03	.05		

Note: \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

<sup>1</sup> $F(1, 841) = 1.45, ns$

<sup>2</sup> $F(1, 841) = 11.25, p = .001$

<sup>3</sup> $F(1, 841) = 12.86, p < .001$

<sup>4</sup> $F(1, 841) = .35, ns$

<sup>5</sup> $F(1, 841) = 2.10, ns$

Table 5

*Gender's Effect on the Relation between Outcome Expectancies and Gambling Problems*

	Males				Females			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>CI</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>CI</i>
Outcome Expectancy		<i>b</i>				<i>b</i>		
Affect	.22	.04	4.94***	.13-.30	.03	.03	.88	-.04-.10
Self Evaluation	.31	.04	7.00***	.22-.39	.11	.03	3.07**	.04-.17

Note: \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p < .001$

