

The Self-Fulfilling Influence of Mother Expectations on Children's Underage Drinking

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This research examined whether mothers' expectations about their children's drinking behavior influenced their children's future alcohol use through self-fulfilling prophecies. It also investigated whether children's self-esteem, family social class, or the valence of mother expectations moderated this process. Analyses of longitudinal data from 505 mother-child dyads yielded results consistent with a self-fulfilling prophecy. The inaccurate portion of mother expectations predicted children's future alcohol use after accounting for relevant control variables. Moderation analyses indicated that this effect was stronger among higher self-esteem children and when mother expectations were positively valenced (i.e., when mothers underestimated their children's future alcohol use). The findings are discussed in terms of parent-child relationship quality, peer influences, self theories, and out-group stereotypes.

Self-fulfilling prophecies occur when erroneous beliefs or expectations lead to their own fulfillment (Merton, 1948). Self-fulfilling prophecies have long been thought to create social problems such as poor academic performance, discrimination, and economic downturns (Jussim, Eccles, & Madon, 1996). Empirical investigations of naturally occurring self-fulfilling prophecies have most often examined how such a process affects outcomes related to children's educational achievement (Jussim & Eccles, 1995). However, self-fulfilling prophecies have the potential to influence a wide variety of outcomes (Rosenthal & Rubin, 1978). One outcome of particular importance for children and families is early-onset alcohol consumption. Children who initiate alcohol use at a young age are at increased risk for violent behavior, serious bodily injury, early sexual activity, and alcohol abuse and dependence (Grant & Dawson, 1997; Hawkins, Catalano, & Miller, 1992; Mrazek & Haggerty, 1994), outcomes that can produce considerable costs to society (Harwood, Fountain, & Livermore, 1998; Spoth, Guyll, & Day, 2002). Parents' erroneous expectations about their children's future alcohol use may contribute to children's early use of alcohol through self-fulfilling prophecies. Parents may over- or underestimate how much alcohol their children will drink. Children may, in turn, respond to these erroneous expectations in ways that cause their drinking behavior to more closely conform to their parents' initially erroneous expectations, thereby completing the cycle of a self-fulfilling prophecy (Darley & Fazio, 1980).

Self-Fulfilling Prophecies

The idea that initially false beliefs could lead to their own fulfillment originated in the writings of Merton (1948). Merton proposed that self-fulfilling prophecies could create sociological problems, including bank insolvency, interracial discord, and unfair labor practices. However, it was not until Rosenthal and Jacobson (1968) demonstrated that teacher expectations could shape individual student achievement that self-fulfilling prophecies became a major research topic in education and psychology. In Rosenthal and Jacobson's experiment, teachers were given false information that some students, who had actually been selected at random, were likely to show large gains in their IQs during the coming year. Consistent with a self-fulfilling prophecy, the IQs of the randomly selected students increased more than did the IQs of the other students. Rosenthal and Jacobson's experiment was a landmark study because it demonstrated that perceivers who developed false expectations could change individuals' outcomes through self-fulfilling prophecies, a conclusion that has been supported by numerous experimental replications (for reviews, see Rosenthal & Rubin, 1978; Snyder & Stukas, 1999).

However, experimental findings cannot address whether self-fulfilling prophecies occur in naturalistic settings (Jussim, 1989). Experimental investigations explicitly induce false expectations in perceivers by providing them with invalid information about targets. By contrast, naturalistic studies assess the expectations that perceivers develop naturally. Perceivers in naturalistic settings may have access to valid information about targets that enable them to develop relatively accurate expectations (Madon et al., 2001). Because only inaccurate expectations can be self-fulfilling, the availability of valid information about targets potentially limits the power of naturally occurring self-fulfilling prophecies to affect target outcomes (Jussim, 1991).

Questions concerning the external validity of experimental findings have led researchers to examine self-fulfilling prophecies in naturalistic contexts. Because of the potential influence of perceiver expectations on children's achievement and occupational opportunities, the vast majority of extant research on naturally occurring self-fulfilling prophecies has been conducted in educa-

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tional settings (e.g., Brattesani, Weinstein, & Marshall, 1984; Doyle, Hancock, & Kifer, 1972; Jussim, 1989; Jussim & Eccles, 1992; Madon et al., 2001; Madon, Jussim, & Eccles, 1997; Palardy, 1969; Rist, 1970; Seaver, 1973; Smith et al., 1998; Smith, Jussim, & Eccles, 1999; Sutherland & Goldschmid, 1974; West & Anderson, 1976; Williams, 1976).¹ This body of research has yielded three chief findings. First, consistent with experimental findings, inaccurate teacher expectations assessed in real classrooms create self-fulfilling prophecies. Teacher expectations predict students' future achievement after accounting for relevant background variables. Second, the self-fulfilling effect of teacher expectations on student achievement is relatively small. Unique relations between teacher expectations and students' future achievement range from .1 to .3 in terms of standardized regression coefficients. Third, the main reason that teachers create only small self-fulfilling prophecies is because their expectations are mostly accurate. Teachers primarily base their expectations of students on valid measures of student ability, including grades and standardized test scores.

Self-Fulfilling Prophecies and Accuracy Across Contexts and Outcomes

Although the self-fulfilling prophecy has historically been characterized as a powerful phenomenon (see Jussim et al., 1996), the findings described above seem to indicate that naturally occurring self-fulfilling effects may be rather small because of high levels of perceiver accuracy in naturalistic settings. However, because nearly all of the naturalistic research examining self-fulfilling prophecies has focused on teacher–student relationships, it remains unknown whether the above findings relating to children's academic achievement reflect general patterns of self-fulfilling influence and accuracy. This issue is particularly important given that some interpersonal relationships may be more conducive to self-fulfilling prophecies than teacher–student relationships. For example, the parent–child relationship is both enduring and characterized by a high degree of interpersonal influence, qualities that would seem to facilitate the occurrence of self-fulfilling prophecies. Moreover, the family context offers a wide range of important outcomes for children that could conceivably be affected by parent expectations, including problem behaviors such as adolescent substance use.

Potential Moderators of Naturally Occurring Self-Fulfilling Prophecies

Even if naturally occurring self-fulfilling prophecies tend to exert only modest effects on average, it is still possible that such effects could be stronger among certain individuals and under certain conditions (Jussim, 1986). In the subsequent sections, we briefly review the theoretical work and empirical evidence that encourages the investigation of three variables as potential moderators of self-fulfilling prophecies on child outcomes: child self-esteem, family social class, and the valence of parent expectations.

Self-esteem. Are children with lower self-esteem more susceptible to self-fulfilling prophecies? To our knowledge, only one naturalistic study has investigated this question. Madon et al. (1997) examined whether teacher expectations created more powerful self-fulfilling prophecies among students with low self-

esteem and among students with low self-concepts of math ability. Although neither students' self-esteem nor self-concepts were found to moderate self-fulfilling prophecies after accounting for relevant controls and the moderating effect of previous achievement, a large body of empirical and theoretical work justifies further investigation of the relationship between targets' self-esteem and self-fulfilling prophecies. Low self-esteem individuals are less clear and confident in their self-concepts, are more influenced by persuasive messages, and are more responsive to self-relevant cues from the social environment (Abelson & Lesser, 1966; Brockner, 1984; Campbell, 1990; Campbell & Lavalley, 1993; Pelham, 1991). Accordingly, theorists have proposed that low self-esteem individuals are generally more susceptible to social influence of all kinds (e.g., Brockner, 1984; Campbell & Lavalley, 1993), including self-fulfilling prophecies (Jussim, 1986). Experimental work has supported this idea, showing that targets who are uncertain of their self-concepts are more likely to confirm perceivers' erroneous expectations (Swann & Ely, 1984). On the basis of this research, one might anticipate that the self-fulfilling effect of parent expectations would be stronger among low self-esteem children.

However, consideration of the child development literature suggests that within the unique context of the parent–child relationship, the self-fulfilling effect of parent expectations might actually be stronger among high self-esteem children. A lack of parental support and approval places a child at particular risk for developing low self-esteem (Harter, 1993). Further, parental rejection of the child and negative parent–child relationships reduce parent–child closeness, inhibit the child's attachment to the parent, and impede the child's internalization of parental values (Catalano & Hawkins, 1996). Thus, a low self-esteem child may be comparatively impervious to their parents' influence and instead be more strongly influenced by valued others, such as peers. This reasoning suggests that parent expectations may produce stronger self-fulfilling prophecies among high self-esteem children.

Social class. Are children from lower social class backgrounds more susceptible to self-fulfilling prophecies? Economic disadvantage, societal devaluation, and negative stereotypes may reduce the ability of lower social class children to reject or disconfirm others' expectations (Jussim et al., 1996; Steele, 1992). Consistent with this idea, Jussim and colleagues found that teacher expectations created more powerful self-fulfilling prophecies among students from disadvantaged social groups, including students from lower social class backgrounds (Jussim et al., 1996; Madon et al., 1997; Smith et al., 1998). However, it remains unclear whether having a low social class background makes a child inherently more susceptible to social influence or whether previous findings might have emerged because the teachers tended to be from higher social class backgrounds than their lower social class students. For this reason, it is important to examine the role of children's social class

¹ This review focuses on naturalistic investigations of self-fulfilling prophecies in which the outcome variable was behavioral in nature. Of studies fitting this criteria, the vast majority have investigated the self-fulfilling effects of teacher expectations on students' achievement (cf. Berman, 1979; Jacobs, 1991). We refer readers interested in broad reviews of the self-fulfilling prophecy literature to recent reviews by Jussim et al. (1996) and Snyder & Stukas (1999).

in other contexts, such as within the family where perceivers and targets share the same social class background.

Expectation valence: Negative and positive self-fulfilling prophecies. The tendency for perceiver expectations to create more powerful self-fulfilling prophecies among targets who are disadvantaged has led to speculation that the effects of self-fulfilling prophecies may be primarily negative (Babad, Inbar, & Rosenthal, 1982; Brophy, 1983). There are several reasons why self-fulfilling prophecies may harm individuals more than they help them. People perceive negative information as more useful than positive information (Kanouse & Hanson, 1971), react more strongly to negative feedback than to positive feedback (Coleman, Jussim, & Abraham, 1987), and weigh costs more heavily than rewards when making decisions (Kahneman & Miller, 1986). If people are particularly sensitive to negative information, as these findings suggest, then negative expectations may create more powerful self-fulfilling prophecies than positive expectations. With respect to the current research, this means that parents may create more powerful self-fulfilling prophecies when they hold negative expectations that overestimate their children's future alcohol use.

In contrast, other research suggests that positive self-fulfilling prophecies may be more powerful than negative ones. Self-enhancement theory, for example, proposes that people are motivated to view themselves favorably (Jussim, Yen, & Aiello, 1995; Sedikides, 1993; Swann, Pelham, & Krull, 1989; for reviews, see, Jones, 1973; Shrauger, 1975). In an attempt to enhance their self-views, individuals may attend more to positive messages than to negative messages during interactions with perceivers, thereby causing positive self-fulfilling prophecies to be especially powerful. Extending this idea to our research suggests that parents may create more powerful self-fulfilling prophecies when they hold positive expectations that underestimate their children's future alcohol use.

Three naturalistic studies have examined the comparative power of negative and positive self-fulfilling prophecies (see Jussim, Palumbo, Chatman, Madon, & Smith, 2000).² Although all three were conducted in educational contexts, they yielded discrepant findings. Two of the studies suggested that teacher expectations disproportionately undermined student performance (Babad et al., 1982; Sutherland & Goldschmid, 1974), whereas the third suggested that teacher expectations primarily enhanced student performance (Madon et al., 1997). The inconsistent nature of these findings may partly reflect the conceptual and analytic complexities that are intrinsic to the assessment and analysis of naturally occurring self-fulfilling prophecies. For example, in one study, negative expectations were less accurate than positive ones (Sutherland & Goldschmid, 1974), raising the possibility that the disproportionate effect of negative expectations on student achievement might have stemmed from their greater inaccuracy rather than from their inherently greater power. In another study (Madon et al., 1997), the tendency for positive self-fulfilling prophecies to be more powerful than negative ones failed to retain statistical significance after the moderating effect of previous achievement was accounted for. The inconsistent nature of these findings highlights the need for additional investigation into the differential power of negative versus positive self-fulfilling prophecies in naturalistic settings.

Overview of the Current Study

This research used longitudinal survey data from 505 mother-child dyads to investigate three conceptual issues relevant to self-fulfilling prophecies. First, we examined whether mothers' expectations about their children's future alcohol use (assessed at the start of the study) predicted their children's future alcohol use (assessed at the end of the study) because of self-fulfilling prophecies. Second, we examined the extent to which the accuracy of mothers' expectations limited their self-fulfilling influence. Third, we examined whether some children are more susceptible to self-fulfilling prophecies than others because of their self-esteem or their family's social class and whether the self-fulfilling effect of mother expectations on children's future alcohol use is primarily harmful or helpful.

Conceptual Model

The reflection-construction model of social perception (Jussim, 1991) relates perceiver expectations to target outcomes and provided the theoretical framework for the current research. Because in-depth presentations of the model and its assumptions have been presented elsewhere (see Jussim, 1989, 1991; Jussim & Eccles, 1992), we only summarize the model here as it pertains to the current investigation (see Figure 1). In presenting the model, we describe relationships with causal language wherever the model proposes causal relationships to exist. However, the data with which we examined these relationships were correlational in nature. For this reason, when discussing our own data we phrase the relationships under investigation in terms of variables "predicting" other variables rather than "causing" them.

Accuracy of mother expectations. The model assumes that valid background variables influence both children's future alcohol use (Path a) and mothers' expectations about their children's future alcohol use (Path b). In terms of the model, mother expectations are accurate to the extent that they are based on valid background variables that influence children's future alcohol use. Thus, the portion of mother expectations that is based on valid background variables will predict children's future alcohol use by virtue of the expectations' accuracy and not by virtue of the expectations' self-fulfilling influence.

The background variables used in the current study tap a wide range of constructs, including a child's behaviors; attitudes; intentions; norms; family demographics; and peer, social, and family environments. We selected these background variables in particular because of their influence on the development of substance use initiation as proposed by the social development model (Catalano & Hawkins, 1996). We used the social development model to guide our selection of background variables because it provides a comprehensive framework that characterizes a wide array of processes and factors that can influence the development and progression of delinquent behavior in youth. In particular, it specifies both

² We focus on investigations that have evaluated the differential power of positive versus negative expectations to create self-fulfilling prophecies. Although much other work has examined the influence of either positive or negative expectations or both, we are not aware of any studies other than those we review that have specifically compared the differential power of positive versus negative expectations to alter target outcomes (for reviews, see Jussim et al., 2000; Snyder & Stukas, 1999).

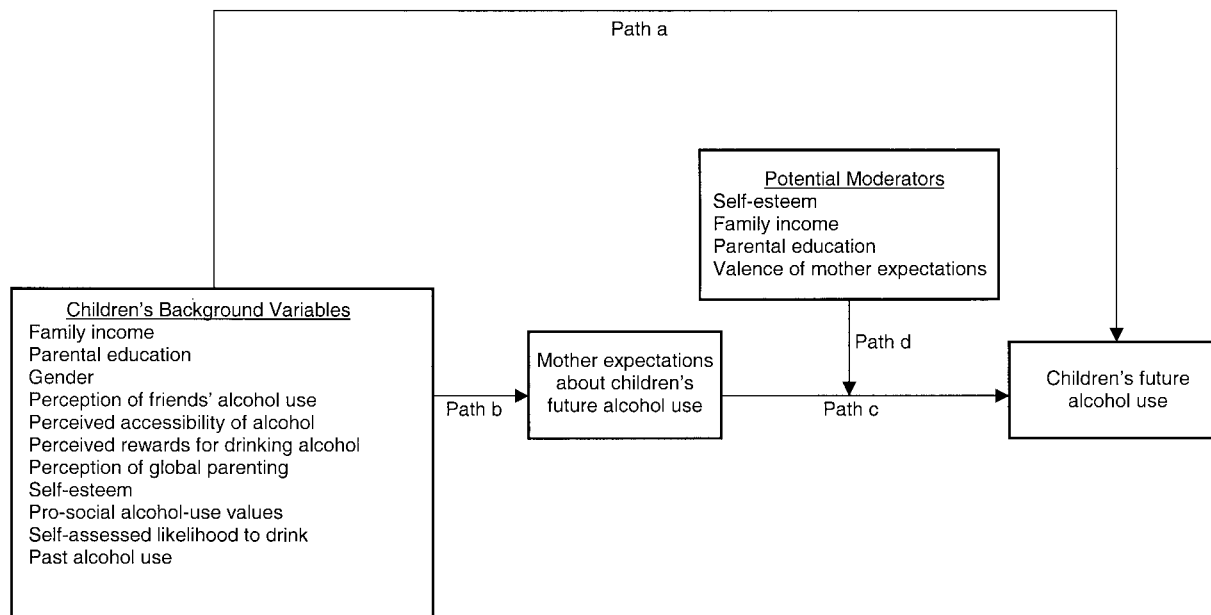


Figure 1. The reflection–construction model (Jussim, 1991) shows potential relations among children’s background variables, mother expectations about their children’s future alcohol use, and children’s future alcohol use. According to the model, children’s background variables influence children’s future alcohol use (Path a) and mother expectations (Path b). Mother expectations can also influence their children’s future alcohol use through self-fulfilling prophecies (Path c). This self-fulfilling influence may be stronger for some children and under some conditions (Path d). From “Social Perception and Social Reality: A Reflection–Construction Model,” by L. Jussim, 1991, *Psychological Review*, 98, p. 57. Copyright 1991 by the American Psychological Association. Adapted by permission of the author.

pro-social and antisocial pathways that can simultaneously affect children’s and adolescents’ drug use and delinquency. The social development model is based on a large body of empirical evidence that demonstrates the relationship of parenting styles and peer associations with early alcohol use and other adolescent problem behaviors (e.g., Brook, Brook, Gordon, Whiteman, & Cohen, 1990; Catalano & Hawkins, 1996; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Loeber & Dishion, 1983). However, the inclusion of these background variables should not be interpreted as an effort on our part to test the social development model. Rather, it reflects our efforts to maximize the quality of our control variables by assembling a comprehensive set of predictors of adolescent substance use that have both theoretical and empirical support.

Self-fulfilling prophecies. In addition to the effects of the background variables on the outcome variable, the reflection–construction model also posits that mother expectations can influence children’s future alcohol use through self-fulfilling prophecies (Path c; see Figure 1). By definition, only the inaccurate portion of an expectation can be self-fulfilling (Merton, 1948). The model defines mother expectations as being inaccurate to the extent that they are not based on the valid background variables of children’s future alcohol use. For this reason, a mother’s expectation is conceptualized as a continuous variable that varies from mother to mother, with some mothers being more inaccurate than others. The conceptualization of inaccuracy as a continuous variable is consistent with existing models of accuracy in social perception (e.g., Funder, 1995; Judd & Park, 1993; Kenny, 1994).

Moderators

Moderator variables strengthen or weaken relations between variables (Baron & Kenny, 1986). The current research focuses on children’s self-esteem, social class, and the valence of mother expectations as potential moderators of the relation between mother expectations and children’s future alcohol use. The reflection–construction model represents the potential for these variables to moderate the relationship between expectations and future alcohol use as Path d in Figure 1.

Method

Participants

This investigation used data from the Capable Families and Youth Study (Spoth, Redmond, Trudeau, & Shin, 2002), a longitudinal study that has focused on the prevention of adolescent substance use and other problem behaviors. Participants were families of seventh graders enrolled in 36 rural schools in 22 contiguous counties in a Midwestern state. Schools included in the study were selected on the basis of school lunch program eligibility (approximately 20% or more of households within 185% of the federal poverty level in the school district), school district size (enrollment of 1,200 or fewer), and having all middle school grades taught only in one location. Analyses for the current study used data from 505 mothers (496 biological, 1 adoptive, 4 grandmothers, 3 stepmothers, 1 unreported) and their seventh-grade children who were in the study. Only 1 child in each family provided data. There were 233 girls and 272 boys, including 1 Latino/Hispanic American, 1 African American, 2 Asian Americans, 3 Native Americans, 485 European Americans, 4 children who categorized

their ethnicity as "Other," and 9 children who did not report ethnicity information. A randomized block design was used to assign schools either to a control condition or to one of two intervention conditions. The intervention condition for each family was determined by the school attended by the target child. The interventions included the Life Skills Training program (Botvin, 2000) and the Strengthening Families Program (Molgaard, Kumpfer, & Fleming, 1997). Although we controlled for the interventions in all analyses, they were not the focus of this investigation and are not discussed further.

Procedures

Research project staff contacted families to schedule an in-home recruitment visit. Families who agreed to the visit and indicated a willingness to participate in the project were scheduled for a second in-home visit. During the initial portion of the second in-home visit, a project staff person verbally interviewed family members to obtain demographic information. Following the interview, the staff person administered written questionnaires to the family members in the study. Family members completed their questionnaires individually and in different parts of the home so that they could not see each other. The staff person informed family members that their questionnaire responses would be kept confidential and not communicated to other family members. Family members completed the questionnaires at baseline and again at a follow-up 18 months postbaseline. Questionnaire completion required approximately 60–80 min. Each family member was compensated at the rate of approximately \$10 per hour for time devoted to the assessments.

Measures

All variables were assessed using written questionnaires, with the exception of parental education, which was assessed during the verbal interview portion of the in-home visit. Questionnaires administered at baseline and at the 18-month follow-up assessed a large number of variables related to family, peers, and substance use. In the current study, baseline assessments included mothers' expectations of their children's future alcohol use, family income, and family education as well as a number of child variables, including gender, perception of friends' alcohol use, perceived accessibility of alcohol, perceived rewards for drinking alcohol, perception of global parenting, pro-social alcohol-use values, self-assessed likelihood to drink alcohol in the coming year, past alcohol use, and self-esteem. Eighteen months after obtaining mothers' baseline expectations, a follow-up assessment included an updated measurement of children's alcohol use up to that point in time, hereafter referred to as *children's future alcohol use*. The subsequent sections describe each of the measures.

Family social class: Family income and parental education. Family social class was assessed with two variables: total family income and parent education. Parents indicated their family's income by reporting their household's total, pre-tax income, including wages, salaries, business income, dividends, interest, loans, gifts of money, and all forms of government assistance obtained by any member of the household. The average total household income was approximately \$43,500 (*Mdn* = \$40,000). To assess educational achievement, parents verbally reported the highest educational level or degree they had achieved. Parent education responses were assigned values of 0 through 20 (e.g., 0 = no education, 12 = high school diploma or GED, 16 = bachelor's degree, 18 = master's degree, 20 = PhD, MD, etc.). Descriptive analyses revealed that on average parents had completed about a year of postsecondary education (*M* = 13.42, *Mdn* = 13), with 96% having completed high school or its equivalent. In the case of dual-parent households, parent responses for income and education were separately averaged to yield a single score for each of these variables for each family. Family income and education exhibited a positive relationship with each other ($r = .32, p < .01$).

Perception of friends' alcohol use. The use of alcohol among a child's circle of friends was assessed with two items: "How many of your friends

do you think drink alcoholic beverages?" and "How many of your friends do you think get drunk at least once a week?" Children indicated their responses to the two items ($\alpha = .68$) using a 5-point scale with anchors 1 (*None*) and 5 (*All*). Responses to the two items were averaged, with higher values indicating more alcohol use among friends.

Perceived accessibility of alcohol. To assess children's ability to access alcohol, children answered the question "If you had the money and wanted to get beer, wine, or liquor, do you think you could get some?" using a 4-point scale with anchors 1 (*Definitely yes*) and 4 (*Definitely no*). Responses were reverse scored so that higher values correspond to greater ability to obtain alcohol.

Perceived rewards for drinking alcohol. The perceived rewards for drinking alcohol were assessed with an eight-item scale ($\alpha = .71$), presented in the Appendix. The items assessed children's attitudes regarding both positive and negative consequences of alcohol use. Responses were assessed with a 5-point scale with anchors 1 (*Strongly disagree*) and 5 (*Strongly agree*). Responses were reverse scored as necessary and then averaged to create a score reflecting each child's attitude toward drinking alcohol. Higher values reflect more perceived rewards for drinking alcohol.

Perception of global parenting. Children's perception of parents' general parenting style was assessed with 20 items ($\alpha = .92$) that are presented in the Appendix. These items assessed a number of family-centered factors, including parental affective quality, parental practices regarding standard setting, monitoring of child behavior, and discipline. Because this is a composite measure that draws from several different scales, the response options were not identical for all items. The affective quality items were assessed with 7-point scales with anchors 1 (*Always*) and 7 (*Never*), whereas the remaining items were assessed with 5-point scales with anchors 1 (*Almost always*) and 5 (*Almost never*). To combine the items into a single scale, we rescaled the 5-point scale responses into a 7-point scale format (i.e., 1 → 1.0; 2 → 2.5; 3 → 4.0; 4 → 5.5; 5 → 7.0). Next, items were reverse scored as necessary and then averaged to produce a score reflecting each child's perception of their parents' global parenting. Higher values reflect more positive perceptions of global parenting.

Self-esteem. Children's self-esteem was assessed with a 17-item scale ($\alpha = .89$) that included perceptions of global self-esteem and mastery. Global self-esteem was assessed with the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Mastery was assessed with items developed by Pearlin, Menaghan, Lieberman, and Mullan (1981). Children responded to each item using a 5-point scale with response anchors 1 (*Strongly agree*) and 5 (*Strongly disagree*). Responses were reverse scored as appropriate and then averaged to yield a measure of self-esteem for which greater values reflect higher self-esteem.

Pro-social alcohol-use values. Children's personal beliefs about the acceptability of young adolescent alcohol use were assessed with two items ($\alpha = .69$). In response to the question stem, "How wrong do you think it is for *someone your age* to do the following things?" children provided answers for the items "Drink beer, wine, wine coolers, or liquor" and "Drink enough beer, wine, wine coolers or liquor to get drunk." Children used a 4-point scale with anchors 1 (*Not at all wrong*) and 4 (*Very wrong*) to indicate their responses. Responses to these two items were averaged, with higher values indicating stronger beliefs about pro-social values related to alcohol use.

Self-assessed likelihood of drinking alcohol in the next year. Children's beliefs about their likelihood of drinking alcohol in the near future were assessed with an item that asked "Do you think that you will use any of these within the next year: Beer, wine, wine coolers, or liquor (excluding use during religious ceremonies)?" Children responded to this item on a 5-point scale with anchors 1 (*Definitely not*) and 5 (*Definitely will*). Higher values reflect a greater self-assessed likelihood of drinking alcohol in the coming year. This variable may be viewed as measuring children's best prediction about their own future drinking behavior because it is based on their personal experience, which may combine all factors that they perceive as influencing their decision to use alcohol in the near future, including their own internal motivations.

Mother expectations. Mother expectations for their children's future alcohol use were assessed with the following item: "On a scale of 1 to 10, please rate how likely you think it is that your child in the study will drink alcohol regularly as a teenager?" Scale anchors were 1 (*Certain that this will not happen*) and 10 (*Certain that this will happen*).

Past and future alcohol use. Children answered four questions that indexed their alcohol use. Children responded to three of the questions using a no–yes response format: (a) "Have you *ever* drunk more than just a few sips of beer, wine, wine coolers, whiskey, gin or other liquor?"; (b) "Have you *ever* drunk beer, wine, or liquor *without your parents' permission*?"; and (c) "Have you *ever* been drunk from drinking beer, wine, wine coolers, or liquor?" Responses to these questions were coded such that higher values indicate greater alcohol use (i.e., No = 0, Yes = 1). The fourth question asked, "During the past month, how many times have you had three or more drinks (beer, wine, or other liquor) in a row?" Responses to this question were dichotomized by means of a median split, with values below and above the median assigned values of 0 and 1, respectively.³ An alcohol-use score was created by summing the coded responses to the four items, yielding scores that could range from a minimum of 0 to a maximum of 4. Children responded to the four alcohol-use questions on two separate occasions, first at the baseline assessment to obtain a measure of past alcohol use ($\alpha = .77$) and then again at the 18-month follow-up to obtain a measure of future alcohol use (i.e. the "future" at the time of the baseline assessment; $\alpha = .84$). Future alcohol use constituted the dependent variable in all of the primary analyses.

At this point, it is appropriate to consider two characteristics of the past and future alcohol-use measures that might be of concern. First, as indicated above, the phrasing of three of the four items making up these measures asked children whether or not they had ever engaged in a particular alcohol-use behavior. This phrasing does not correspond perfectly to the phrasing of the mother expectation item, which asked mothers the degree to which they expected their child to engage in regular alcohol use. This raises the concern that there might be a "disconnect" between the mother expectation variable and the outcome variable. To address this concern, we examined the extent to which the past and future alcohol-use measures corresponded to children's regular alcohol use by drawing on additional data available from the survey. Specifically, for each of the past and future alcohol-use items that began with the question stem "Have you *ever* . . .", children who answered "yes" completed additional items that assessed the frequency and amount of their recent and current alcohol use. For these children, we averaged their responses to these additional items to create a regular alcohol-use score. To create a regular alcohol-use score for those children who did not respond to these additional items (because they had answered "no" to the "Have you *ever* . . ." alcohol-use items), we first assigned to them the lowest values on the response scales of the unanswered items (which always had response labels corresponding to no alcohol use, such as *Not at all* and *Never*) and then averaged these assigned responses. We then correlated children's newly created regular alcohol-use scores with their past and future alcohol-use scores. The relationship between these variables was strong and positive at both baseline ($r = .86$) and the 18-month follow-up ($r = .84$). These high correlations indicate that the past and future alcohol-use measures are, in fact, closely connected to children's regular alcohol use and, hence, to the mother expectation variable as well. Although in our opinion either the regular alcohol-use scores or the past and future alcohol-use scores would have been appropriate for use in the current study, we opted to use the past and future alcohol-use scores because they included actual response data from all children.

The second characteristic of the past and future alcohol-use measures that might raise concern is their sensitivity to both changes and stability in children's alcohol use across the time frame of the study. For example, just prior to the baseline assessment, a child might have engaged in drinking more than a few sips of alcohol, drinking without parental permission, and becoming drunk. As a result, such a child would have received a past alcohol-use score of 3 (assuming that the child had not in the past month had three or more drinks in a row). It is possible that such a child might

then not drink at all between the baseline and the 18-month follow-up assessments. For this hypothetical situation, actual alcohol use would have decreased over time, but the child would still have a future alcohol-use score of 3 because the items ask about having ever engaged in specific alcohol-use behaviors.

Further consideration of this issue, however, reveals that this characteristic does not undermine the results or conclusions of the current investigation. First, as reported above, the past and future alcohol-use scores correlate strongly with the frequency and amount of children's recent and current alcohol use (i.e., regular alcohol use) at both baseline and the 18-month follow-up. This indicates that the past and future alcohol-use measures do capture both changes and stability in drinking across time. Second, at the baseline assessment, 89% of the children reported having never engaged in any alcohol-use behavior. Therefore, for the large majority of the sample, actual alcohol use could only increase or remain stable between the two assessments. In other words, (a) any change in actual alcohol use that occurred between the baseline and follow-up assessments would have to be an increase in alcohol use and would appropriately yield an increase in the future alcohol-use score and (b) stability in actual alcohol use between the baseline and follow-up assessments would produce a future alcohol-use score of zero, appropriately indicating no change from baseline. Therefore, for 89% of the sample, the past and future alcohol-use measures were indeed sensitive to both the change and stability of actual alcohol use occurring between the baseline and follow-up assessments. Third, we re-ran our primary analyses (described subsequently in the Results section) two times—once including only the 89% of the children who at baseline reported having never previously engaged in any alcohol-use behavior and then a second time in which we included all children's data but replaced their past and future alcohol-use scores with the regular alcohol-use scores described above. We then compared the results of these two supplementary analyses with the results from the primary analyses of this investigation reported in the Results that made use of the past and future alcohol-use measure and included data from all participants. Across the board, the three analyses produced similar coefficients and significance levels, and in no case did the analyses differ with regard to a decision relating to the statistical significance of the mother expectation variable, its interaction with other variables, or the associated conclusions suggested by the findings we report below. For these reasons, we conclude that the use of the past and future alcohol-use measures in all subsequently reported analyses neither adversely affected the quality of those analyses nor undermined the consequent conclusions.

Results

Preliminary Analytic Issues

Identifying the inaccurate portion of mothers' expectations. Because only an erroneous expectation can cause a self-fulfilling prophecy, it was necessary to identify that portion of each mother's expectation that was inaccurate. This was accomplished empirically by regressing mother expectation raw scores on the valid predictors of children's future alcohol use (i.e., family income, parental education, child gender, perception of friends' alcohol use, perceived accessibility of alcohol, perceived rewards for

³ At both the baseline and the 18-month follow-up assessment, most children reported no episodes of drinking three or more drinks in a row during the past month. Accordingly, responses for these children were coded as 0, and responses for children who reported one or more episodes of drinking during the past month were coded as 1. We dichotomized responses to this item so that they would be on the same metric as responses to the other items of the alcohol-use index score and thereby avoided the possibility that responses to this item would have a disproportionate influence on the index score.

drinking alcohol, perception of global parenting, pro-social alcohol-use values, self-assessed likelihood of drinking alcohol in the next year, past alcohol use, and child self-esteem, as well as two cluster variables relating to characteristics of each family's community [subsequently referred to as *block*] and each child's school district [subsequently referred to as *school*], both of which are discussed below). The mother expectation residuals yielded by this analysis conceptually represent the amount of inaccuracy associated with each mother's expectation, because they equal the degree to which an expectation was greater or less than that which would have been expected on the basis of the values of the predictor variables. An algebraically positive residual reflects a harmful expectation of negative valence because it overestimates the child's future alcohol use. An algebraically negative residual reflects a helpful expectation of positive valence because it underestimates the child's future alcohol use. Residual scores close to zero correspond to mother expectations that are relatively accurate, whereas those far from zero reflect especially inaccurate expectations.⁴

Outliers and Influential Observations

Diagnostic regression analyses (see Belsley, Kuh & Welsch, 1980; Stevens, 1984) revealed no influential data points (all Cook's distances < .04), indicating that no particular observation exerted undue influence on the value of the coefficients. In addition, *t* tests of the standardized residuals revealed no outliers on the dependent variable ($p > .05$). Testing the diagonal elements of the hat matrix suggested 14 observations as possible outliers in the space of the predictors ($p < .05$). Therefore, we conducted two sets of analyses, one with and the other without these observations being included in the data. The two analyses yielded nearly identical results with respect to both coefficients and significance levels. In no case did the inclusion or exclusion of the 14 observations alter the pattern of results or any decision regarding the statistical significance of the findings. Accordingly, the data associated with these 14 observations are included in all analyses subsequently reported.

Overview of Analyses

Hierarchically structured data. In the current data, children were clustered within schools, and schools were matched to form blocks of three schools each. Traditional data analytic procedures are inappropriate for hierarchically structured data because they assume independence of individual observations and, as a result, tend to underestimate standard errors and bias significance tests toward rejection of the null hypothesis (Cochran, 1977; Kreft & de Leeuw, 1998). To account for the hierarchical structure of the data, we performed analyses using SAS PROC MIXED (Littell, Milliken, Stroup, & Wolfinger, 1996), which produces results that are very similar to those produced by the hierarchical linear modeling program (Bryk, Raudenbush, & Congdon, 1996; Singer, 1998). The mixed-model analytic approach corrects for effects related to clustering by adjusting the standard errors associated with the parameter estimates. In the analysis, we used restricted maximum-likelihood estimation and identified blocks and schools nested within blocks as random effects that influenced intercept values but not the coefficients of the individual level variables. With respect to the individual level effects in the model, we proceeded

in a fashion analogous to a stepwise regression analysis. First, we accounted for valid predictors of children's future alcohol use. Second, we tested for self-fulfilling prophecy effects. Third, we tested for moderation effects. We provide greater detail on each step of the analysis in the sections below in which we report the results from the corresponding step. Throughout the analysis we set $p < .05$ as the criterion for statistical significance.

Notation and effect size estimates. The current analysis models individual level effects as fixed. As such, we identify the individual level coefficients as gammas, which is consistent with the notation of Bryk et al. (1996) for multilevel analysis. Because most of the variables in the current analysis are measured on scales for which the values lack intrinsic meaning, we also report standardized measures of effect size (i.e., standardized gammas; see Snijders & Bosker, 1999) to facilitate comparison of our findings with those reported in the extant literature. Because individual level effects are fixed, the values of gamma and standardized gamma in the current investigation may be interpreted as unstandardized and standardized coefficients, respectively, as would be obtained from a typical regression analysis.

Descriptive Statistics

Table 1 presents descriptive statistics, including the means, standard deviations, and correlations among the individual level variables. To remove the influence of clustering of individuals within blocks and schools from these relationships, we calculated the correlations from the pooled within-class variances and covariances. Table 1 also provides the intraclass correlations that represent the extent to which the individual level variables varied across the higher level variables of block and school.

Main Analyses

Step 1. Base model. The first step in the analysis predicted children's future alcohol use from the base model, which included the higher order clustering variables of block and school nested within block plus the following individual level variables: family

⁴ For two reasons, it is not appropriate to use raw scores of mother expectations for the current investigation of self-fulfilling prophecies. First, a main goal of this research was to examine the potentially harmful versus helpful consequences that mother expectations may have on children's future alcohol consumption. This issue cannot be tested with raw scores of mother expectations because even very high raw scores may underestimate the alcohol use of some children relative to what would have been predicted from the background variables, whereas very low raw scores may overestimate the alcohol use of other children relative to what would have been predicted from the background variables (Madon et al., 1997). Thus, expectation raw scores cannot test the power of negative versus positive self-fulfilling prophecies. Second, raw scores of mother expectations and mother expectation residuals differ with respect to their tolerances when included in analyses that contain the other predictors. Likewise, the tolerances of the other predictor variables decrease when raw scores are used. Though this does not affect the coefficient or significance test for the main effect of the expectation variable (which is included in analyses just after the main effects for the other predictor variables), it will affect the results for the other predictor variables and, more importantly, it will alter the coefficients and significance tests of product terms that include the expectation variable that are entered at subsequent steps that test for moderation effects in the analytical model.

Table 1
Correlations, Intraclass Correlations, and Descriptive Data for Demographic and Alcohol-Relevant Variables (N = 505)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
Block ^a													
School within block ^a	.02 .03	.02 .01	.00 .01	.03 .07*	.02 .00	.04 .03	.01 .00	.02 .00	.01 .00	.03 .01	.03 .01	.00 .01	.02 .03
				Random effects variables									
				Fixed-effects variables									
1. Family income	—	.32**	.06	-.10*	-.03	-.09*	.12**	.11*	.12**	-.08	-.01	-.10*	-.06
2. Parental education		—	.03	-.06	.06	-.15**	.20**	.11*	.08	-.11*	-.05	-.07	-.15**
3. Gender ^b			—	.01	.12**	-.11*	.05	.08	.01	.05	-.05	-.13**	-.05
4. Perception of friends' alcohol use				—	.24**	.26**	-.19**	-.18**	-.66**	.36**	.38**	.02	.28**
5. Perceived accessibility of alcohol					—	.21**	-.11*	-.03	-.16**	.24**	.22**	.06	.24**
6. Perceived rewards for drinking						—	-.26**	-.24**	-.28**	.34**	.21**	.14**	.23**
7. Perception of global parenting							—	.49**	.25**	-.26**	-.21**	-.18**	-.20**
8. Self-esteem								—	.14**	-.21**	-.14**	-.09*	-.17**
9. Pro-social alcohol-use values									—	-.38**	-.39**	-.09	-.26**
10. Self-assessed likelihood of drinking										—	.41**	.17**	.49**
11. Past alcohol use											—	.11*	.49**
12. Mother expectation raw score ^c												—	.19**
13. Future alcohol use													—
M	43,486	13.42	46% ^d	1.29	1.65	1.75	5.49	3.88	3.87	1.44	0.20	2.43	0.66
SD	23,746	1.67		0.56	0.97	0.64	0.75	0.63	0.35	0.88	0.67	1.80	1.16

Note. Correlations and significance levels computed from pooled-within variance-covariance matrix to account for effects of clustering of individuals within blocks and schools. ^a Values represent intraclass correlations. Intraclass correlations reflect mean differences in the variables that are associated with the clustering of individuals within blocks and schools. ^b For gender, boys were coded as 1 and girls were coded as 2. ^c Correlation results for mother expectation raw scores are provided in lieu of those for mother expectation residuals because the latter were generated by regressing mother expectation raw scores on all other predictor variables, thereby yielding correlations equal to 0. However, mother expectation residuals did correlate with the dependent variable, future alcohol use ($r = .10, p < .05$). ^d Value reflects percentage of children who were girls. * $p < .05$. ** $p < .01$.

income; parental education; and the child variables of gender, perception of friends' alcohol use, perceived accessibility of alcohol, perceived rewards for drinking alcohol, perception of global parenting, self-esteem, pro-social alcohol-use values, self-assessed likelihood of drinking alcohol in the next year, and past alcohol use. As reported in Table 2, neither of the clustering variables accounted for a statistically significant portion of the variance in children's future alcohol use. Although 9 of the 11 individual level variables exhibited statistically significant zero-order relationships with the outcome variable (see column 13 of Table 1), because of multicollinearity only 4 of these variables explained significant amounts of unique variance in children's future alcohol use. Specifically, the family social class variable of parental education exhibited a negative relationship with future alcohol use (standardized $\gamma = -.10$, $p = .010$), whereas results revealed positive relationships for the predictors of the perceived accessibility of alcohol (standardized $\gamma = .10$, $p = .011$), the self-assessed likelihood of using alcohol in the coming year (standardized $\gamma = .32$, $p < .01$), and past alcohol use (standardized $\gamma = .33$, $p < .01$). All subsequent steps in the analysis added variables to those included in the base model.

Step 2. Self-fulfilling prophecy. The second step of the analysis tested for the occurrence of a self-fulfilling prophecy by adding mother expectation residuals (which represents the inaccurate portion of mother expectations of children's future alcohol use) to the base model. This step determines whether mother expectation residuals predicted changes in children's future alcohol use beyond

that predicted by the variables in the base model. Consistent with a self-fulfilling prophecy, mother expectation residuals predicted unique variance in children's future alcohol use (standardized $\gamma = .10$, $p = .008$). Table 2 presents the results. Because the mother expectation residual term represents the inaccurate portion of mother expectations, these results indicate that mother expectations that overestimated children's future alcohol use predicted greater increases in future alcohol use than were predicted by the variables included in the base model. Likewise, mother expectations that underestimated children's future alcohol use predicted smaller increases in future alcohol use than were predicted by the variables included in the base model.

The ability of mother expectation residuals to account for unique variance in children's future alcohol use reflects the predictive power of the inaccurate portion of mother expectations. However, mother expectations are not entirely inaccurate. As noted above, inaccuracy is a continuous variable (Jussim, 1991). This means that the self-fulfilling effect associated with the inaccurate portion of mother expectations could be small in comparison with the accurate portion of mother expectations. Therefore, we also determined the degree to which mother expectations accurately predicted, without influencing, children's future alcohol use. We disentangled the accurate and inaccurate portions of the relationship between mother expectations and children's future alcohol use by applying the principles of path analysis to the model shown in Figure 1 (see Jussim, 1991). Specifically, the accurate portion of the relationship between mother expectations and chil-

Table 2
Summary of Hierarchical Analysis for Prediction of Children's Future Alcohol Use ($N = 505$)

Variable	Unstandardized γ	SE γ	Standardized γ	p
Step 1: Base model				
Random effects				
Block			.00 ^a	.455
Schools within block			.03 ^a	.162
Fixed effects				
Family income	.00	.00	.00	.930
Parental education	-.07	.03	-.10	.010
Gender	.02	.08	.01	.847
Perception of friends' alcohol use	.01	.09	.01	.887
Perceived accessibility of alcohol	.12	.05	.10	.011
Perceived rewards for drinking alcohol	.03	.07	.02	.693
Perception of global parenting	.02	.07	.01	.815
Self-esteem	-.09	.08	-.05	.259
Pro-social alcohol-use values	.08	.14	.02	.578
Self-assessed likelihood to drink	.42	.06	.32	<.01
Past alcohol use	.57	.07	.33	<.01
Step 2: Self-fulfilling prophecies				
Mother expectation residuals	.06	.02	.10	.008
Step 3: Moderation of self-fulfilling prophecies				
Mother Expectation Residuals \times Self-Esteem	.09	.04	.54	.011
Mother Expectation Residuals \times Income	-.00	.00	-.03	.685
Mother Expectation Residuals \times Education	-.02	.02	-.49	.133
Mother Expectation Residuals squared	-.02	.01	-.13	.023

Note. Mother expectation residuals were created by regressing mother expectation raw scores on all preceding predictor variables in the model.

^a Value represents intraclass correlation.

dren's future alcohol use equals the difference between their zero-order correlation and their unique relationship, or

$$\text{Accuracy} = r(\text{expectation, future alcohol use}) - \text{Path } c.$$

For the current analysis, the zero-order correlation is .203 and the coefficient for the unique relationship is .097,⁵ indicating that the size of the relationship between the accurate portion of mother expectations and future alcohol use is $.203 - .097 = .106$. Therefore, approximately 52% $(.106/.203)$ of the total relationship between mother expectations and children's future alcohol use can be attributed to the simple accuracy of mother expectations (i.e., prediction without influence), and 48% $(.097/.203)$ can be attributed to self-fulfilling effects of mother expectations on children's future alcohol use.

Next, we examined the extent to which mothers accurately predicted their children's future alcohol use because they relied on (a) individual level predictors associated with their particular child versus (b) higher level predictors associated with the community and school district. To do this, we removed from mother expectations the variance that could be accounted for by blocks and schools and then correlated that residual with future alcohol use. The resulting correlation was .195, which we then entered into the above equation. This procedure indicated that 48%, $(.195 - .097)/.203$, of the total relationship between mother expectations and children's future alcohol use can be attributed to accuracy from mothers having based their expectations on individual level information pertaining to their particular child, whereas only 4%, $(.203 - .195)/.203$, can be attributed to accuracy from mothers having based their expectations on the higher level variables of block and school. Thus, these data indicate that the accuracy in mother expectations is almost entirely due to each mother's reliance on information specific to her child. Information relating to the broader community and school district made very little contribution to the accuracy of mother expectations. That this difference emerged is not surprising in light of the correlations reported in Table 1. Whereas a number of individual level predictors correlated strongly with both mother expectations and children's future alcohol use, the clustering variables of block and school correlated with neither mother expectations nor children's future alcohol use.

Step 3. Moderation of self-fulfilling prophecy: Self-esteem, social class, and valence. The third step of the analysis tested whether the self-fulfilling effect of mother expectations was moderated by child self-esteem, the family's social class (as reflected by family income and parental education), or the valence of mother expectations. To test for moderation by child self-esteem and family social class we added three product terms to the above model. These product terms were created by multiplying mother expectation residuals by (a) child self-esteem, (b) family income, and (c) parental education. To test for moderation by the valence of mother expectations we created a quadratic term by squaring mother expectation residuals. Inclusion of the quadratic term in the model enabled us to test whether the strength of the relationship between mother expectation residuals and children's future alcohol use varied as a function of the expectation's valence (Judd & McClelland, 1989).

The results reported in Table 2 indicate that children's self-esteem (standardized $\gamma = .54, p = .011$) and expectation valence (standardized $\gamma = -.13, p = .023$) both moderated the relationship between mother expectation residuals and children's future alcohol use. The moderating effects of the family's social class (i.e., family

income and parental education) did not attain statistical significance ($ps > .13$). These findings remained stable regardless of whether the four product terms were added individually or simultaneously to the model. Further, an additional analysis that added the higher order product term formed by multiplying the quadratic mother expectation residual term by child self-esteem (i.e., Mother Expectation Residuals squared \times Child Self-Esteem) revealed that this term was not a significant predictor of future alcohol use ($p > .31$). Thus, the effects of the lower order product terms are not themselves qualified by a higher order interaction.

We calculated the effect size of mother expectation residuals ranging from -1.50 to $+2.00$ standard deviations from the mean at 0.50 standard deviation increments (i.e., $-1.50, -1.00, -0.50, 0.00, +0.50, +1.00, +1.50, +2.00$).⁶ To examine the interaction between mother expectations and child self-esteem, we calculated these effect sizes separately for children with self-esteem scores 1 standard deviation above and below the mean. As presented in Figure 2, for a high self-esteem child, the effect sizes (as reflected by standardized γ) are $+.42, +.37, +.33, +.28, +.23, +.18, +.13$, and $+.08$ at each of the previously identified points. For a low self-esteem child the effect sizes are $+.26, +.21, +.16, +.11, +.06, +.01, -.03$, and $-.08$.⁷

Considering differences associated with child self-esteem, the observed effect sizes indicate that the significant interaction between child self-esteem and mother expectation residuals reflects a stronger relationship between mother expectation residuals and children's future alcohol use among high self-esteem children than among low self-esteem children. With respect to the significant quadratic effect of mother expectation residuals, the observed effect sizes are consistent with the interpretation that positive expectations that underestimated children's future alcohol use had a stronger self-fulfilling effect on children's future alcohol use than did negative expectations that overestimated children's future alcohol use. It is important to note that this difference emerged despite the fact that there was less variation among the positive expectations ($SD = 0.59$) than among the negative expectations ($SD = 1.72$). Thus, the finding that positive expectations tended to be stronger than negative expectations did not result from a re-

⁵ The zero-order correlation between mother expectation raw scores and children's future alcohol use is slightly higher than the correlation between these variables presented in Table 1. This is because the zero-order correlation includes the effect of the clustering variables (i.e., block and school), whereas the correlation reported in Table 1 excludes the effect of the clustering variables.

⁶ The range includes all 0.5 standard-deviation increments of expectation residual scores that included 10 or more mother-child dyads.

⁷ The standardized effect sizes at the various values of mother expectation residual scores were calculated according to the method described by Judd and McClelland (1989). Specifically, standardized effect size of mother expectation residuals on children's future alcohol use = $(\gamma_1 + \gamma_2 \times \text{Self-Esteem} + 2 \times \gamma_3 \times \text{Mother Expectation Residual}) \times (SD_{\text{mother expectation residual}}/SD_{\text{children's future alcohol use}})$. In this equation, γ_1 is the coefficient of the main effect term for mother expectation residuals, γ_2 is the coefficient of the product term of self-esteem and mother expectation residual, γ_3 is the coefficient of the quadratic term for mother expectation residuals, and the numeral 2 results from taking the first derivative of the quadratic mother expectation residual term. Multiplication by the ratio of standard deviations yields a value that is interpretable as standardized regression coefficient, β .

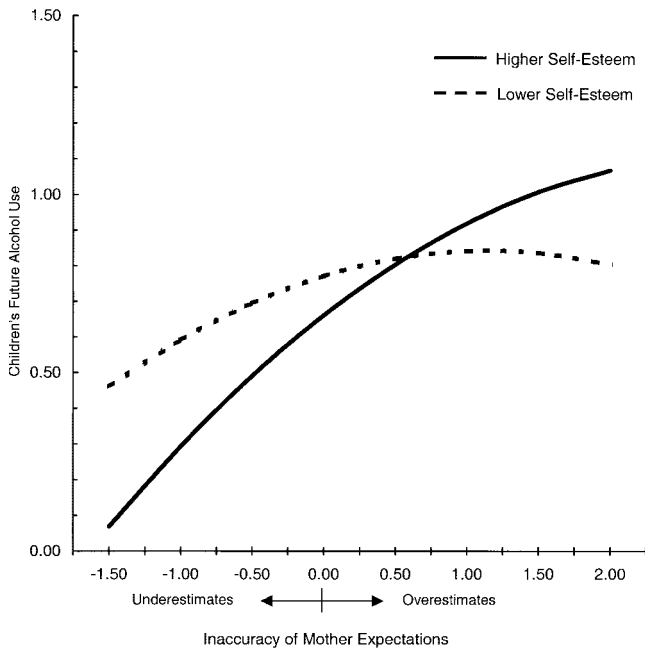


Figure 2. Moderation of self-fulfilling prophecies by the valence of mother expectations (Mother Expectation Residuals \times Mother Expectation Residuals) and by child self-esteem (Mother Expectation Residuals \times Self-Esteem). Mother expectation residuals related more strongly to children's future alcohol use when they were positive (i.e., underestimates, below zero) than when they were negative (i.e., overestimates, above zero). Mother expectation residuals also related more strongly to the future alcohol use of higher self-esteem children than lower self-esteem children. The graph depicts future alcohol use predicted for children at 1 standard deviation above the mean on self-esteem (high self-esteem) and children at 1 standard deviation below the mean on self-esteem (low self-esteem). Children's future alcohol use represents the predicted value for children who were at the mean on all variables except mother expectation residuals and self-esteem.

striction of range among the negative expectations. In summary, the results of the moderation analyses suggest that high self-esteem children were more susceptible to self-fulfilling prophecies than were low self-esteem children and that self-fulfilling prophecies tended to be more helpful than harmful.

Discussion

This research addressed three primary issues. First, it examined whether mother expectations predicted their children's future alcohol use because of self-fulfilling prophecies. Second, it assessed the extent to which mother expectations were accurate. Third, it examined whether self-fulfilling prophecies were stronger for some children and under some conditions. Consistent with a self-fulfilling prophecy, the inaccurate portion of mother expectations exhibited a unique relationship to their young adolescent children's future alcohol use. Additional analyses suggested that mother expectations were about as self-fulfilling as they were accurate—the size of the self-fulfilling prophecy relationship between mother expectations and children's future alcohol use was nearly equal in size to the accuracy-based relationship between these variables. Moderation analyses indicated that the self-

fulfilling effect of mother expectations was stronger among high self-esteem children and when mother expectations were positive. There was no evidence of moderation by social class. The relationship between mother expectations and children's future alcohol use did not vary as a function of either family income or parental education. Before interpreting these findings, we discuss general issues involved in the interpretation of results from naturalistic studies and the relevance of those issues to the present investigation.

Interpreting Results From Naturalistic Studies

Naturalistic studies do not provide as strong a basis for causal inferences as do experiments. With correlational designs one cannot determine whether the predictor caused the dependent variable, the dependent variable caused the predictor, or whether both were caused by an unmeasured third variable. However, a longitudinal design—such as that used in the current study—does enable one to rule out the possibility that the dependent variable exerted a causal influence on the predictor, because measurement of the predictor is temporally antecedent to changes in the dependent variable. For this reason, we can be certain that children's future alcohol use assessed at the 18-month follow-up did not cause mother expectations assessed at the beginning of the study.

Longitudinal designs do not, however, enable one to rule out the possibility that a third variable that was omitted from the analysis caused both the predictor variable and the dependent variable. With respect to our data, mother expectations were considered accurate to the degree that they were based on the valid predictors of children's future alcohol use that were included in the analytic models. The omission of a valid predictor from these models would mean that mother expectations were more accurate than reported and that their self-fulfilling effects were smaller than reported (see Jussim, 1991). Thus, it is possible that the unique variance in children's future alcohol use that was explained by mother expectation residuals and attributed to self-fulfilling prophecies in fact could have been accounted for by an unmeasured valid predictor variable that also influenced mother expectations. In other words, the significant unique relationship between mother expectation residuals and children's future alcohol use might not have occurred because of self-fulfilling prophecies but rather because mothers were more accurate than we gave them credit for being. Although the possibility of an omitted variable is present in any naturalistic study (Judd & McClelland, 1989; Pedhazur, 1982), we did statistically control for a large number of theoretically and empirically supported predictors that reflected a broad range of constructs relevant to adolescent risk for alcohol use. The inclusion of these predictors reduced the likelihood that an unmeasured third variable produced the observed unique relationship between mother expectation residuals and children's future alcohol use.

Self-Fulfilling Prophecies and Accuracy

The self-fulfilling prophecy literature is replete with studies demonstrating that teacher expectations have only small self-fulfilling influences on student achievement (for a review, see Jussim et al., 1996). The reason these influences are small is because teacher expectations tend to be highly accurate (Jussim, 1989; Jussim & Eccles, 1992). The pattern of small self-fulfilling prophecies and high accuracy within teacher-student relations

does not support claims made during the 1980s and early 1990s regarding the power of expectancy effects to strongly affect social reality (for a review, see Jussim, 1991). However, even if teacher expectations are highly accurate and create only small self-fulfilling prophecies, it does not necessarily follow that such patterns are universal or pervasive. Teachers have access to more diagnostic information about students than do many perceivers. For example, unlike teachers who can base their expectations of students' future achievement on those students' previous grades and standardized test scores, the majority of parents may have to base their expectations about their children's future alcohol use on information that is, by comparison, less objective and reliable (e.g., child's reported attitudes, child's reported past use). As a result, parents may be less accurate than teachers, thereby increasing their potential to create self-fulfilling prophecies. Therefore, before strong conclusions regarding the power of naturally occurring self-fulfilling prophecies can be reached, it is necessary to examine relations between perceiver expectations and target outcomes across a wide variety of dyadic relations, contexts, and outcomes.

With this purpose in mind, we investigated self-fulfilling prophecies and accuracy within families, examining the extent to which mother expectations predicted their children's future alcohol use. Our findings were both similar to and different from those reported in the teacher expectation literature. Similar to the teacher expectation literature, we found that (a) mother expectations predicted children's future alcohol use after accounting for relevant controls, (b) the magnitude of this relation was small, and (c) the reason this relation was small in magnitude was because a substantial portion of mother expectations was accurate. However, in contrast to the teacher expectation literature, we also found that (a) more of the total, zero-order relationship between mother expectations and children's future alcohol use reflected self-fulfilling influence (48% vs. a typical range of 0%–40%; Jussim, 1991), (b) less of the total, zero-order relationship between mother expectations and children's future alcohol use reflected predictive accuracy (52% vs. 60%–100%; Jussim, 1991), and (c) the overall relationship between mother expectations and children's future alcohol use was considerably smaller than is typically found between teacher expectations and students' future achievement ($r = .20$ vs. $.40$ – $.90$; Jussim, 1991).

Taken together, these comparisons suggest that—proportionate to the size of the total relationship between perceiver expectations and target outcomes—mothers may have a greater self-fulfilling influence on their children's future alcohol use than teachers have on their students' future achievement. However, because the overall size of the relationship between mother expectations and children's future alcohol use was smaller than that typically found between teacher expectations and student achievement, objectively mother expectations may exert a smaller self-fulfilling influence on children's alcohol use than do teacher expectations on children's academic achievement. In fact, the self-fulfilling effect of mother expectations on children's future alcohol use was at the low end when compared with the typical self-fulfilling prophecy effect reported in the teacher expectation literature (.1 vs. .1–.3; Jussim, 1991). These findings lend additional support to the idea that across a variety of dyadic relations, settings, and outcomes, interpersonal relationships are characterized by small self-fulfilling influences.⁸

Naturally Occurring Moderators of Self-Fulfilling Prophecies

The mounting evidence that self-fulfilling prophecies generally exert only modest effects on target outcomes in naturalistic settings does not, however, preclude the possibility that such effects may be larger among certain individuals and under some conditions. Indeed, the teacher expectation literature has clearly shown that some students are particularly susceptible to self-fulfilling prophecies because of their personal abilities or social group membership. For example, Jussim and colleagues found that self-fulfilling prophecies were stronger among students with poor records of academic performance, African American students, students who were tracked into ability groups within classes, and students from lower social class backgrounds (Jussim et al., 1996; Madon et al., 1997; Smith et al., 1998). Our own data also revealed patterns of moderation, suggesting that self-fulfilling prophecies were stronger among high self-esteem children and when mother expectations were positive.

Moderation by Child Self-Esteem

The findings of the current study showed that mother expectations predicted the future alcohol use of high self-esteem children more strongly than that of low self-esteem children. There are two explanations that may account for this pattern, one that reflects self-fulfilling influence and another that reflects predictive accuracy. Focusing first on self-fulfilling influence, there is good evidence that low self-esteem individuals tend to lack clear and confident self-concepts and are typically more susceptible to social influence (Baumeister, 1993; Campbell & Lavelle, 1993; Pelham, 1991; Swann & Ely, 1984). At first glance, this evidence suggests that mother expectations should have more strongly predicted the future alcohol use of low self-esteem children. As noted in the introduction, that hypothesis rests on the assumption that low self-esteem individuals are at increased susceptibility to the expectations of all perceivers. However, depending on the nature of the interpersonal relationship, low self-esteem individuals may be more influenced by some perceivers and less influenced by others. For example, young adolescents with low self-esteem may be more influenced by peer expectations and less influenced by parent expectations. Because low self-esteem children tend to have less positive relationships with their parents (e.g., Coopersmith, 1967; Gecas & Schwalbe, 1986; Lamborn, Mounts, Steinberg, & Dornbusch, 1991) and fewer resources with which to bolster their self-worth (Spencer, Josephs, & Steele, 1993) they may be especially fearful of social rejection from friends and classmates. These

⁸ In comparing the effect sizes observed in the current study with those of previous work, the reader may note that we did not include a study by Jacobs (1991) in which the reported effect sizes of parent expectations on children's future math grades were rather large, approximately .3. However, the isolation of the self-fulfilling prophecy effect was not the purpose of that study. Therefore, it was not necessary for the author to attempt to account for every potential source of valid information (e.g., child's prior motivation and interest in math) that parents might have used for predicting their children's future math achievement. As a result, the reported effects of parent expectations on children's future achievement might have been larger because they contained the effects of both self-fulfilling prophecies and accuracy (Jussim & Eccles, 1995).

factors may operate to reduce low self-esteem children's susceptibility to parental influence (Baldwin & Sinclair, 1996) and increase their susceptibility to peer influence.

Consistent with this idea, additional analyses revealed that after controlling for the amount of peer pressure to drink that was experienced by a child, child self-esteem was positively related to the ability to resist peer pressure to drink ($p < .01$). Furthermore, in comparison with their high self-esteem counterparts, when deciding whether or not to engage in misbehavior, low self-esteem children placed more importance on their friends' reactions ($p < .01$) and less importance on their parents' reactions ($p < .01$). Thus, one factor that might interact with self-esteem to influence children's susceptibility to self-fulfilling prophecies is the person holding the expectation. Low self-esteem children may be more susceptible to fulfilling peer expectations, whereas high self-esteem children may be more susceptible to fulfilling parent expectations. Such an interpretation is consistent with the social development model (Catalano & Hawkins, 1996), which proposes multiple and simultaneous sources of social influence on adolescent problem behaviors. The positive parenting qualities that are associated with higher child self-esteem can also increase parent-child emotional bonds, which, in turn, may increase the child's susceptibility to parental influence (Grusec & Kuczynski, 1997). By contrast, low self-esteem children may experience stronger bonding to other people, such as peers, teachers, coaches, or other mentors, and may be more influenced by these people's expectations than by those of their parents.

It is also possible, however, that mother expectations predicted the future alcohol use of high self-esteem children more strongly because mother expectations were more accurate for these children. This might have happened if mothers of high self-esteem children were more likely than mothers of low self-esteem children to base their expectations on valid information that was not controlled for in the analyses. This possibility is analogous to the omitted variable problem discussed previously, in which it was noted that the possible omission of a relevant predictor is a limitation that characterizes all naturalistic research (Judd & McClelland, 1989; Pedhazur, 1982). Although it is impossible to control for all possible predictors, the analyses reported herein did control for a broad range of relevant variables, which reduces the likelihood that an omitted variable produced the moderating effect of self-esteem.

We also explored the accuracy explanation empirically: We estimated the extent to which mothers of high self-esteem children held more accurate expectations than mothers of low self-esteem children by examining whether they based their expectations more strongly on the valid predictor variables for which we did control. This analysis correlated children's self-esteem with the absolute value of the residualized mother expectation variable, the latter reflecting the degree of inaccuracy in mother expectations. Though mothers of high self-esteem children did tend to be more accurate than mothers of low self-esteem children, the magnitude of the correlation between these variables was small ($r = -.10$, $p = .030$), corresponding to a shared variance of only 0.9%. This means that mothers of high self-esteem children relied only slightly more strongly on the predictors for which we did control. This suggests that if a valid predictor of future alcohol use had been omitted from the model, mothers of higher self-esteem children would have relied on this variable only slightly more strongly than mothers of low self-esteem children. Thus, even if mothers of

high self-esteem children were more accurate than mothers of low self-esteem children by virtue of having relied more heavily on valid predictors that were omitted from the base model, the extent to which they were more accurate was most likely not large enough to explain the magnitude self-esteem effect that we found. For this reason, coupled with the findings reported above (showing that low self-esteem children are more susceptible to peer pressure and value friends' reactions over parents' reactions more than do high self-esteem children), we feel that the most likely interpretation of the current findings is that high self-esteem children tend to be more susceptible to the self-fulfilling effect of their mothers' expectations.

Negative Versus Positive Self-Fulfilling Prophecies

Analyses also indicated that mother expectations predicted their children's future alcohol use more strongly when those expectations were positive, that is, when mothers underestimated their children's future alcohol use. The tendency for positive self-fulfilling prophecies to be more powerful than negative self-fulfilling prophecies is consistent with self-enhancement theory (Jones, 1973; Shrauger, 1975). Motivated to view themselves favorably, children might have responded more to positive expectations than to negative expectations. It is also important to point out, however, that most children in our study tended to have high self-esteem. In fact, 89% of all children scored above the "neutral" point on the self-esteem scale. The objectively high self-esteem of nearly all children in our sample raises the possibility that the greater power of positive versus negative self-fulfilling prophecies arose not because of self-enhancement motives but instead because of self-verification strivings (Swann, 1987). Specifically, positive self-fulfilling prophecies might have been more powerful than negative ones because they better matched children's own self-views, an interpretation that is also consistent with the valence effect reported above.⁹ In an attempt to disentangle the potential influence of these two processes, we tested whether the positive valence effect we found was moderated by child self-esteem (by inclusion of the product term of Mother Expectation Residuals squared \times Child Self-Esteem). Though results did not support the idea that positive expectations were stronger among children with comparatively higher self-esteem, we might indeed have found positive expectations to be weaker among children with objectively low self-esteem (i.e., scoring well below the neutral point) had our sample contained a sufficient number of such children.

Although the range of children's self-esteem scores precludes definitive resolution regarding the underlying process responsible for the greater power of positive self-fulfilling prophecies, that pattern is nonetheless important because it touches on a prevailing theme in the self-fulfilling prophecy literature. It has been suggested that self-fulfilling prophecies may harm targets more than help them (e.g., Babad et al., 1982; Brophy, 1983). Indeed, much of the interest in self-fulfilling prophecies has centered on their

⁹ Children's self-verification strivings could also have contributed to the accuracy-based portion of the relationship between mother expectations and children's future alcohol use. Specifically, prior to the first assessments of this study, children might have engaged in self-verifying behaviors, thereby increasing the accuracy of mothers' initial expectations at baseline by bringing them in line with children's presumably more accurate self-conceptions.

potential to create and perpetuate social problems (e.g., Merton, 1948; Rist, 1970). However, the empirical evidence bearing on this issue has yielded equivocal findings (for a review, see Jussim et al., 2000). The current study suggests that the effects of self-fulfilling prophecies on targets may tend to be more helpful than harmful and that concerns over negative self-fulfilling prophecies might have been overstated, at least as they relate to the interpersonal context of the family.

Social Class

The teacher expectation literature has indicated that lower social class students are more susceptible to self-fulfilling prophecies than are higher social class students (Jussim et al., 1996). The current data failed to replicate this effect within families. One reason for the discrepancy may be the differences between the classroom and the family with respect to the interpersonal relationships encountered in these contexts. Teachers frequently come from middle-class backgrounds and are of higher social class than their lower social class students. In contrast, parents and their children share the same social class. This suggests at least two possibilities. First, individuals may be more susceptible to the self-fulfilling influence of higher social class perceivers. Because mothers and their children are of identical social class, this effect could operate within the classroom but not the family. Second, it may be that lower social class students' susceptibility to classroom self-fulfilling prophecies has more to do with teachers' expectations than with the inherent susceptibility of these students. Teachers may endorse inaccurate expectations on the basis of out-group stereotypes related to social class, which students then confirm through self-fulfilling prophecies (Jussim et al., 1996). Parents, on the other hand, may not use inaccurate stereotypes about their own social class when forming expectations about their own children. Although this idea was not supported by the sole empirical examination of this issue (Jussim et al., 1996), it is nonetheless consistent with theory and research related to stereotyping and intergroup relations. Indeed, it has long been known that out-group stereotypes can bias perceivers' impressions of targets, a process that could initiate self-fulfilling prophecies through the formation of inaccurate expectations (Allport, 1954; Jussim, 1989; Snyder, Tanke, & Berscheid, 1977; Word, Zanna, & Cooper, 1974). Examining the manner in which social stereotypes influence self-fulfilling prophecies remains an important issue for future research to address.

The Importance of Small Self-Fulfilling Prophecy Effects: Moderation and Accumulation

The magnitude of the self-fulfilling prophecy effect in our research was small, on average. However, even small self-fulfilling prophecy effects can be important for two reasons. First, small effects have the potential to be more powerful among some targets and under certain conditions. For example, although the self-fulfilling effect that mother expectations had on children's underage drinking in our research was only .10, on average, much larger effects were found among high self-esteem children and when mother expectations were positive. In fact, the self-fulfilling effect of mother expectations on high self-esteem children's future alcohol use was rather powerful for very positive expectations (standardized $\gamma = +.42$), exceeding the average self-fulfilling

prophecy effects found in the literature. Second, small self-fulfilling prophecy effects could accumulate over time. For example, if the self-fulfilling prophecy effect of mother expectations on children's alcohol use accumulates as children progress through adolescence, then what began as small differences in the drinking behavior of children who were the targets of positive versus negative parental expectations could gradually widen throughout adolescence into much larger differences. Because adolescent drinking behavior predicts a variety of important outcomes related to antisocial behavior (Grant & Dawson, 1997; Hawkins et al., 1992; Mrazek & Haggerty, 1994), the potential implications of accumulated self-fulfilling prophecy effects could be quite profound in the long run.

Most research addressing the accumulation of self-fulfilling prophecies has been theoretical in nature. The few field studies that have examined this issue have tended to disconfirm the accumulation hypothesis, showing instead that perceiver expectations exert smaller and smaller self-fulfilling influences on target outcomes over time (Rist, 1970; Rosenthal & Jacobson, 1968; Smith et al., 1999; West & Anderson, 1976; also, cf. Frieze, Olson, & Russell, 1991). However, all but one of these studies (i.e., Frieze et al., 1991) investigated accumulation with respect to the self-fulfilling effect of teacher expectations on students' subsequent achievement. Because teachers typically interact with students for only 1 school year, accumulation effects might have been mitigated. Accumulation may be much more likely within the context of the family, where parent-child relations extend from birth throughout late adolescence and beyond.

Mediators of Self-Fulfilling Prophecies

For a self-fulfilling prophecy to occur, perceivers must treat targets in a manner that is consistent with their initially inaccurate expectations. Research examining the behaviors through which perceivers act on their inaccurate expectations has been studied in educational, clinical, and occupational contexts (for reviews, see, e.g., Jussim, 1986; Harris & Rosenthal, 1985; Rosenthal, 1973). This research has shown that when perceivers hold positive expectations they treat targets more favorably, deliver more instruction, provide feedback that is clearer and more contingent on performance, and offer more opportunities for targets to practice their skills and convey their knowledge (Rosenthal, 1973). Although no research has examined the mediating mechanisms by which parents create self-fulfilling prophecies with respect to their children's outcomes, a recent taxonomy of the situations in which self-fulfilling prophecies are likely to occur identified specific behavioral mediators through which parents may communicate their expectations to their children (Harris, 1993). Several of the mediators listed in the taxonomy appear particularly relevant to children's future substance use. For example, parents who hold positive expectations may be more likely to foster a warm and emotionally supportive relationship with their child. As a consequence, there could be more parent-child contact and communication, and the child may attend more closely to and place greater value on parental expectations. Parents who hold positive expectations may also be more apt to verbalize to their children their views about substance use. That is, because they believe that their child will tend to agree with them, parents who hold positive expectations may feel less discomfort about discussing with their children the negative consequences of substance use or strategies

to avoid, resist, or refuse offers of substance use. Similarly, positive expectations may lead parents to believe that their child will enjoy normative activities, such as sports, band, theater, or summer camps. Accordingly, parents with positive expectations may encourage and facilitate their child's participation in these activities. In this manner, a child's time may be more structured and monitored by responsible adults, thereby reducing opportunities for substance use and increasing opportunities to develop interests, skills, and relationships that are not compatible with substance use. Investigation of the behaviors that mediate the effect of parental expectations on child outcomes offers a potentially fruitful direction for future research.

Limitations

It is important to note several limitations of the current study not heretofore mentioned. First, mother expectations were assessed with a single item, a fact that might initially raise reliability concerns. However, data from a different sample of 420 families (Spath, Redmond, & Shin, 2001) yielded a correlation of .198 between the mother expectation item and children's future alcohol use—a relationship nearly identical in size to the zero-order correlation of .203 obtained in the current study. The similarity in the magnitude of this relationship across samples suggests that the mother expectation item does evidence good stability. One reason for the variable's stability may be that the construct it was designed to tap (i.e., a mother's expectation for her child's future alcohol use) is a relatively straightforward, specific, and circumscribed construct, thereby enabling a single, content-saturated item to obtain good coverage of the construct. Consistent with this reasoning, Burisch (1997) has shown that under such conditions scale validity peaks between two to four items, suggesting that a single-item scale—although not optimal—can provide an adequate measure of a construct. In any event, it is worthwhile to note that any unreliability introduced by having measured mother expectations with a single item would have tended to increase random error variance. As a result, the statistical significance levels that we report for relationships between mother expectations and children's future alcohol use are most likely conservative.

Second, mothers generally believed it unlikely that their children would drink regularly, and their children were still reporting little alcohol use by the end of the study. This probably occurred because the children in the study were still in early adolescence, when few children regularly use alcohol. As a result, both the predictor variable of primary interest and the outcome variable might have been somewhat restricted in range, which would have decreased the standardized measures of effect sizes in this sample (Cohen & Cohen, 1983). Had the children been older, the range of mother expectations and children's reported drinking would have probably increased and might have revealed a larger self-fulfilling prophecy effect.

Third, we attempted to account for the accuracy of mother expectations by controlling for a large and comprehensive set of theoretically and empirically supported predictors. However, these variables collectively accounted for only about 33% of the variance in children's future drinking. Although this might lead one to question whether we failed to include valid predictors that would have otherwise accounted for large amounts of additional variance—a limitation that we have already discussed at length—studies typically account for no more than 30% of the variance

when predicting similar behavioral outcomes (Reid, 1991; Spoth, 1997). This suggests that a portion of adolescent substance use behavior may result from a complex causal system, the effects of which cannot be predicted. Because indeterminate causal systems appear to underlie a wide range of phenomena, including historical, environmental, and physical outcomes (Buchanan, 2000), it does not seem implausible that they might also be capable of affecting individual behavioral choices. To the degree that this is true for adolescent alcohol use, there might be an upper limit to how accurately it can be predicted.

Finally, we did not experimentally manipulate mother expectations. Although this was consistent with our goal to evaluate naturally occurring self-fulfilling prophecies, the correlational design of the study precludes making definitive conclusions regarding causality.

Conclusion

The findings of this research are consistent with the hypothesis that mothers have a small but significant self-fulfilling effect on their children's future alcohol use. Results also suggested that these effects were stronger among higher self-esteem children and that all children were more influenced by positive than negative self-fulfilling prophecies. Although these findings imply that perceiver expectations may not have as strong an influence on target outcomes as has traditionally been assumed, they also identified individuals among whom and conditions under which self-fulfilling prophecies may be more powerful. For example, results suggested that self-fulfilling prophecies were more powerful among higher self-esteem children, suggesting that the nature of interpersonal relationships may have important effects on social influence. Although in general lower self-esteem people are more susceptible to social influence than are higher self-esteem people, our data raise the possibility that children with lower self-esteem may be less susceptible than children with higher self-esteem to fulfilling the expectations of some perceivers (such as parents) and more susceptible to fulfilling the expectations of other perceivers (such as peers). Susceptibility differences between low and high self-esteem children may be greatest when children are faced with multiple and conflicting sources of social influence, such as that communicated by parents and peers. Despite the differential influence that self-esteem had on children's susceptibility to self-fulfilling prophecies in our research, children generally responded more to mother expectations that were positive with respect to children's future drinking behavior. This suggests that even when mothers' expectations are inaccurate, they may be more likely to reduce underage drinking than to increase it. The tendency for mothers' expectations to have primarily helpful effects may be particularly important for low self-esteem children in that it may partially counteract the potentially negative influences of peer expectations to which low self-esteem children may be particularly susceptible.

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Appendix

Scale Items

Perceived Rewards for Drinking Alcohol

Question stem: "How much do you agree or disagree with each statement?" Reverse-scored items are indicated by (R).

5-point response scale (1 = *Strongly disagree*; 5 = *Strongly agree*).

1. Kids who drink alcohol have fewer friends. (R)
2. Drinking alcohol is a bad way of dealing with your problems. (R)
3. Drinking alcohol makes you look cool.
4. Drinking alcohol lets you have more fun.
5. Kids who drink are more grown-up.
6. Drinking helps you get along with other people at parties.
7. Drinking too much alcohol can make you lose control. (R)
8. Kids who drink alcohol act crazy or stupid. (R)

Perception of Global Parenting

Question stem: "During the past month when you and your mom have spent time talking or doing things together, how often did she ... ?"
Reverse-scored items are indicated by (R).

7-point response scale (1 = *Always*; 7 = *Never*).

1. Get angry at you.
2. Let you know she really cares about you. (R)
3. Shout or yell at you because she was mad at you.
4. Act loving and affectionate toward you. (R)
5. Let you know that she appreciates you, your ideas or the things you do. (R)
6. Insult or swear at you.

Question stem: "How often do each of the following things happen?"
Reverse-scored items are indicated by (R).

5-point response scale (1 = *Almost always*; 5 = *Almost never*)

7. In the course of a day, how often does your mom know where you are? (R)
8. How often does your mom know who you are with when you are away from home? (R)
9. When your mom asks you to do something and you don't do it right away, how often does she give up?
10. When you do something wrong and your mom decides on the discipline, how often can you get out of it?
11. How often does your mom discipline you for something at one time, and then at other times not discipline you for the same thing?
12. When your mom is disciplining you, how much does the kind of discipline you get depend on her mood?
13. When you do something wrong, how often does your mom lose her temper and yell at you?
14. How often does your mom give you reasons for her decisions? (R)
15. How often does your mom ask you what you think before making a decision that affects you? (R)
16. When you don't understand why your mom makes a rule for you to follow, how often does she explain the reason? (R)
17. How often does your mom ask you to consider how others will feel if you misbehave? (R)
18. How often does your mom know when you do something really well at school or some place else away from home? (R)
19. How often does your mom know when you get into trouble at school or some place else away from home? (R)
20. How often does your mom know when you do not do things she has asked you to do? (R)

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