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Addictive Behaviors



Discrepancy between how children perceive their own alcohol risk and how they perceive alcohol risk for other children longitudinally predicts alcohol use

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ABSTRACT

This paper examined discrepancies between children's self-perceptions of the riskiness of alcohol use versus their perceptions of the riskiness of alcohol use for other children, and whether these discrepancies predicted children's future alcohol use. Participants included 234 children ($M=11$ years, 45.3% female) who completed baseline and one-year follow-up assessments on self-perceived riskiness of alcohol use, perceived riskiness of alcohol use for other same-age children, and own past year alcohol use. When considering child age and gender, baseline alcohol use, and the individual reports of the riskiness of alcohol use, the interaction between alcohol use riskiness reports prospectively predicted greater odds of alcohol use. The highest percentage of childhood alcohol use at one-year follow-up came from those children with both low self-perceived riskiness of alcohol use and high perceived riskiness of alcohol use for other children. Children's perceptions of multiple people's risk from alcohol use result in identifying important subgroups of children at risk for early-onset alcohol use.

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1. Introduction

People often view the same behaviors of others (e.g., family, coworkers, and peers) and of themselves differently. It is common for individuals to evaluate such aspects of themselves as their level of moodiness, smoking habits, and work competency not in an absolute sense, but rather, relative to these same attributes of other people (see Dunning, Heath, & Suls, 2004). Individuals' self-evaluations and their evaluations of others along the same behavioral dimensions may not always "match up". As a result, the different ways in which people view themselves relative to how they view others are cornerstones of important areas of research and theory within a number of psychological disciplines including the social, clinical, and developmental sciences (e.g., cognitive theory of depression, actor-observer theory, fundamental attribution error, and dynamic systems theory of antisocial development; Beck, Rush, Shaw, & Emery, 1979; Granic & Patterson, 2006; Malle, 2006). These phenomena collectively can be referred to as "discrepant perceptions". Although discrepant perceptions are widely studied across the psychological sciences, relatively little attention is paid to the utility of studying these discrepant perceptions in children. This may be due, in part, to the idea that researchers generally view self-report as unreliable (Dunning et al., 2004). Further, often children in particular are viewed as unreliable

self-reporters in assessments of complex psychological constructs (e.g., hopelessness, anxiety and worry; Kazdin, Rodgers, & Colbus, 1986; Perez, Ascaso, Massons, & Chaparro, 1998; Schniering, Hudson, & Rapee, 2000). This view is often held despite a wealth of evidence that children can provide reliable and valid self-reports of complex constructs and behaviors (e.g., Achenbach & Rescorla, 2001; Hunsley & Mash, 2007; Mash & Hunsley, 2005).

In this paper, we examined discrepancies between children's self-perceptions of the riskiness of alcohol use versus their perceptions of the riskiness of alcohol use for other children, and whether these discrepancies predicted important changes in children's alcohol use behavior over time. These discrepant perceptions are particularly important to study with regard to children's perceived riskiness of alcohol use and actual alcohol use behaviors. Indeed, recent reports indicate that: (a) more than 58% of children in the United States have had at least minimal experiences with alcohol before the age of 12 years, (b) children most typically engage in alcohol use behavior prior to the onset of other substance use, and (c) early-onset alcohol use predicts increased risk for onset of other behavior and emotional problems (c.f., Donovan, 2007). Further, recent evidence points to children's perceptions of the riskiness of alcohol consumption as useful predictors of early-onset alcohol use (for a review see Reyna & Farley, 2006). Most notably, these perceptions are typically assessed with children's reports of their own riskiness or perceptions of their own riskiness relative to other children (Chapin, 2001; Gerrard & Warner, 1994; Hampson, Severson, Burns, Slovic, & Fisher, 2001; Johnson, McCaul, & Klein, 2002). Yet, findings have been mixed with some studies indicating that higher self-perceived risk is related to

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lower risk taking (e.g., lower alcohol use), whereas other studies report that higher self-perceived risk is related to higher risk taking (e.g., greater alcohol use) (Reyna & Farley, 2006).

Researchers have posited that inconsistencies in the predictive utility of children's perceived risk may be attributed to item phrasing on risk perception measures (Mills, Reyna, & Estrada, 2008). More broadly, researchers have argued that how participants respond to questions about risk perception may have implications for interpreting the magnitudes of effects observed in cross-sectional studies of risk perception and alcohol use. That is, respondents may use current substance use behavior to form responses to questions of the perceived riskiness of such behavior were it to occur in the future (Weinstein, 2007). A related concern is that researchers vary in how they assess risk perception. Specifically, some studies measure *only* perceived risk for self, or perceived risk for self relative to others, and studies rarely assess both perceptions (Chapin, 2001; Gerrard & Warner, 1994; Johnson et al., 2002; Joseph et al., 1987). Taken together, methodological issues including measurement error may explain the inconsistent findings identified in prior work.

However, inconsistent findings in how children's perceptions of the riskiness of alcohol use relates to alcohol use behaviors may suggest that the discrepancies between children's self-perceptions of the riskiness of their own alcohol use and their perceptions of the riskiness of alcohol use for other children may reveal predictive utility in their own right. Indeed, as mentioned previously perceived riskiness of alcohol use is often examined as a predictor of future alcohol use. Therefore, measuring the discrepancies between how children perceive themselves versus how they perceive other children with regard to riskiness of alcohol use may result in identifying subgroups of children within a population at particular risk for greater odds of early-onset alcohol use, beyond the independent predictive capabilities of the individual risk perception reports themselves.

Evidence of the potential for children's discrepant perceptions of the riskiness of alcohol use to be predictors of increased alcohol use comes from the clinical child and developmental literatures that have studied the predictive effects of discrepancies between self-perceptions and the reports of other informants. For example, when compared to control groups of healthy children, children identified with a number of psychological concerns (aggression, learning difficulties, and ADHD) often perceive greater competencies and less behavioral concerns in themselves on key domains (academics, social competence, behavioral problems, and task performance), relative to the reports of other informants (e.g., teachers and peers) or observational or performance-based measures (Gresham, MacMillan, Bocian, Ward, & Forness, 1998; Heath, & Glen, 2005; Hymel, Bowker, & Woody, 1993; Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007). That is, whether a child is identified with an academic or behavioral difficulty is associated with that child reporting discrepant perceptions of their own competencies and/or behavioral concerns, relative to other informants' reports of the child, in the direction of the child self-reporting higher levels of competency or lower levels of behavioral concerns.

In the case of children's perceptions of the riskiness of alcohol use, when a child reports their own level of riskiness of alcohol use at a level lower to what they independently report is the level of riskiness of alcohol use for other same-age children, this form of discrepant perception may become a powerful tool by which to identify children at particularly high risk for future alcohol consumption. That is, the interaction between how children perceive riskiness of alcohol use for themselves and how they perceive the riskiness of such use for other children their age may meaningfully predict future alcohol use, beyond the individual perceptions. Indeed, in much the same manner as the relatively positive self-views identified in prior work for aggressive and ADHD children, children who view their own riskiness of alcohol use as lower relative to other children may in turn overestimate their own resiliency to experiencing problems or consequences from their alcohol

use as compared to other youth. As a result, the combination of low perceived riskiness of alcohol use for self versus high perceived riskiness of alcohol use for other same-age children may meaningfully predict future alcohol use. This prediction would be consistent with literature on adults' risk judgments. Specifically, adults often make judgments of their risk of encountering dangerous scenarios or enacting dangerous behaviors based on the difference between their self-perceived risk and the risk they perceive others to encounter, and adults tend to perceive themselves as less at risk of encountering these scenarios relative to their peers' risk of encountering these scenarios (Klein, 2002; Weinstein, 1982). Children expressing the particular discrepant perception of low perceived riskiness of alcohol use for self and high perceived riskiness of alcohol use for other same-age children may reflect a subgroup of youth who believe that the effects of alcohol do not impact them nearly as much as how they may impact their same-age peers (e.g., a "superman" effect; see Joe, 1995). As such, children who view their own riskiness of alcohol use as less than other same-age children may be more at risk for future alcohol use because they may "play down" or dismiss any potential negative effects that alcohol usage may have on them to a greater extent than children who view alcohol use as risky for themselves.

The purpose of this study was to examine the utility of children's self-other discrepancies in perceived riskiness of alcohol use in predicting children's alcohol use, considering each report individually as well as incremental gains when considering the reports together. To our knowledge, this will be the first study to address children's discrepant perceptions of the riskiness of alcohol use and prospective relation of these discrepancies to children's alcohol use behavior. Towards this end, the current study extended the literature on links between children's discrepant perceptions and poor outcomes by addressing two primary aims. First, we expected to find that when examined separately, the individual baseline children's perceptions of riskiness of alcohol use for themselves and for other same-age children would each longitudinally predict children's alcohol use at a one-year follow-up assessment. Second, we hypothesized that children's self-perceptions of riskiness of alcohol use and their perceptions of the riskiness of alcohol use of same-age peers would contribute to predicting future alcohol use but the combination of the two would be most informative. Specifically, we expected that children who at baseline reported low levels of perceptions of the riskiness of alcohol use for themselves and high levels of perceptions of the riskiness of alcohol use for other same-age children would be at particularly high risk for alcohol use at one-year follow-up. We expected that these discrepancies in perceptions of the riskiness of alcohol use would predict alcohol use beyond what could be explained by children's separate reports of the riskiness of alcohol use for self and their reports for other same-age children. Further, we expected that this prediction would explain variance above and beyond what would be expected from associative characteristics of informant discrepancies in clinical child assessments, such as child age and gender (De Los Reyes & Kazdin, 2004, 2005).

2. Method

2.1. Participants

This study examined a sample of children ($N = 277$) ages 9 to 13 years at initial enrollment participating in a larger prospective study of behavioral, environmental, and genetic mechanisms of the development of HIV-related risk behaviors in children. Follow-up assessments were conducted at yearly intervals for 2 consecutive years. Permission to conduct research was obtained from the institutional review board of the large, northeast public university where the study was conducted. Participants included a sample of children and their parents recruited in a large metropolitan area in the northeastern United States via media outreach and mailings with area schools, libraries, and Boys and Girls Clubs. Recruitment lasted approximately

two years and was open to all children in the 5th and 6th grades who were English-proficient; no other exclusion criteria were used. Interested families who met inclusion criteria were invited to come to the university's campus, which was accessible via public transportation. Upon arrival at the baseline assessment session, a more detailed description of the study procedures was provided and the primary caregiver and child signed informed consent and assent documents, respectively. The caregiver and child were then accompanied to separate rooms to complete the assessments. Standardized specific instructions were given separately to the caregiver and child. These procedures were repeated at all interview points. Participants included in the present analyses were children who completed both the baseline and the one-year follow-up assessments (hereafter referred to as "wave 1" and "wave 2", respectively). Participants were excluded from the present analyses if they did not complete wave 2 ($n=33$) or were missing data on the alcohol use dependent variable at wave 1 ($n=6$) or wave 2 ($n=4$). Participants lost to attrition included those who could not be located, or did not respond to phone or letter inquiries. Excluded participants did not differ significantly on gender, age, ethnicity, or alcohol use ($p>.10$). The resultant sample of 234 children included participants who at study enrollment were on average 11.0 years of age ($SD=.8$), 45.3% female, 51.5% non-Hispanic White, 33.9% African-American, 2.6% Latino, and 12.0% of other ethnicity (including mixed ethnicity). The average annual family income at study enrollment was \$92,186 ($SD=\$72,593$; Median = \$85,000).

2.2. Measures

2.2.1. Demographics

The parent/guardian completed a basic demographics form for parent, child, and family information, which included the child age and gender covariates used in this study.

2.2.2. Alcohol use

The Youth Risk Behavior Surveillance System (Centers for Disease Control and Prevention, 2001) was used to examine past year alcohol use. This measure has been used previously to attain nationally representative estimates of child and adolescent alcohol use (Grunbaum et al., 2002). Response options were "zero", "once", "a few times", "1–3 times per month", "1–3 times per week", and "almost everyday or more". Consistent with the original survey, frequency of alcohol use was not measured in standard drinks and assessed with the limiting factor of: "this does not include drinking a few sips of wine for religious purposes". We observed low frequency rates for responses above "a few times" (e.g., at wave 2: 64.1% zero, 19.2% once, 12.4% a few times, 3.4% 1–3 times per month, .9% 1–3 times per week, 0% almost everyday or more). Therefore, at both waves 1 and 2 we dichotomized whether a child had engaged in alcohol use in the past year (1) or had not (0).

2.2.3. Perceptions of the riskiness of alcohol use

Children were asked how risky they believe it would be for them to use alcohol (0 = not risky at all, 9 = very risky; Hampson et al., 2001). Children were also asked, on a separate form, how risky they believed engaging in alcohol use would be for other same-age children. The order of administration was counterbalanced for these forms and all other forms. Riskiness of alcohol use was defined as: (a) the chance of getting hurt and (b) getting in trouble with authority figures. Importantly, parallel item content and response structure were employed across the self- and other-perception scales.

2.3. Data-analytic plan

We carried out analyses in the following steps. First, using key wave 1 variables as well as wave 2 alcohol use we assessed the

distributional properties of all non-categorical variables to determine whether they met the statistical assumptions for the analyses. Second, we examined means, standard deviations, and correlations among the key study variables. For the primary analyses outlined below, we began with univariate logistic regressions to examine the relationship between each wave 1 report of alcohol risk perception (self, other same-age children), including child age and gender covariates, and the dichotomous dependent variable of whether alcohol had been used at wave 2. Next, to examine the discrepancy between self- and other-report of risk perception, we calculated interaction terms. We conducted hierarchical logistic regressions to examine the relative contributions of covariates (i.e., age and gender), independent variables (i.e., self- and other-report of risk perception), and the interaction between self- and other-report. We centered variables prior to creation of their interaction terms, and further explored interactions in the presence of significant interaction effects.

3. Results

3.1. Descriptive statistics and intercorrelations among predictors

All variables met the statistical assumptions for the analyses (i.e., acceptable ranges of skewness and kurtosis statistics [± 1.0]). In Table 1 we present descriptive statistics as well as Phi coefficient, point biserial, and Pearson correlations among all key study variables. Consistent with our hypotheses, children's wave 1 self-perceived riskiness of alcohol use and their perceptions of the riskiness of alcohol use for other same-age children were significantly related to both wave 1 and wave 2 alcohol use (yes versus no use). In Table 2 we present variability in alcohol use in waves 1 and 2. For the majority of children: (a) alcohol use stayed the same across waves 1 and 2, (b) use started over time rather than stopped, or (c) alcohol use was initiated between waves 1 and 2. Each of these patterns of alcohol use reports was more prevalent than instances in which children reported alcohol use at wave 1 but not at wave 2.

3.2. Prospective relationship between wave 1 predictors and wave 2 alcohol use

3.2.1. Univariate analyses

For the total sample, higher wave 1 self-perceived riskiness of alcohol use (step $\chi^2 [1] = 16.28, p = .001, OR = .83, 95\% CI = .75-.91$), and higher wave 1 perceived riskiness of alcohol use for other same-age children, (step $\chi^2 [1] = 7.29, p = .007, OR = .88, 95\% CI = .81-.97$) were associated with being less likely to have consumed alcohol at wave 2. Wave 1 age and gender were not significantly associated with alcohol use at wave 2.

3.2.2. Hierarchical logistic regression with interaction

To test our main hypothesis, we conducted a hierarchical logistic regression with four different blocks of independent variables: (a) wave

Table 1
Descriptives and intercorrelations among key study variables ($n = 234$).

| | <i>M (SD) or %</i> | 1 | 2 | 3 | 4 | 5 | 6 |
|-------------|--------------------|------|------|-------------------|-------------------|------------------|---|
| 1. Age | 11.03 (.80) | – | | | | | |
| 2. Gender | 45.3% | .04 | – | | | | |
| 3. RP Self | 6.62 (2.90) | –.03 | –.06 | – | | | |
| 4. RP Other | 6.70 (2.90) | –.03 | –.06 | .77 ^a | – | | |
| 5. W1 Alc | 27.4% | .03 | .08 | –.44 ^a | –.30 ^a | – | |
| 6. W2 Alc | 35.9% | .09 | .11 | –.27 ^a | –.18 ^a | .40 ^a | – |

Note. W1 Alc = wave 1 alcohol use; RP Self = self-perceived riskiness of alcohol use at wave 1; RP Other = perceived riskiness of alcohol use for other same-age children at wave 1; for gender, female is the reference group. Alcohol use is coded yes = 1, no = 0. ^a $p < .01$.

Table 2
Change in alcohol use (yes versus no) waves 1 and 2.

| | | Wave 2 | |
|--------|-----|--------|-------|
| | | No | Yes |
| Wave 1 | No | 55.1% | 17.5% |
| | Yes | 9.0% | 18.4% |

1 child age and gender, (b) wave 1 alcohol use, (c) wave 1 children's self-perceived riskiness of alcohol use and perceptions of the riskiness of alcohol use for other same-age children, and (d) the interaction denoting discrepancies between children's perceptions of the riskiness of alcohol use for self and other same-age children. Overall, the model correctly classified 73.5% of the sample. Consistent with our hypotheses, alcohol use at wave 2 was predicted by the interaction between wave 1 perceptions of the riskiness of alcohol use for self and other same-age children, even after accounting for the significant effect of wave 1 alcohol use (see Table 3).

We are not aware of any "gold standard" or established method by which to conduct post-hoc probing of significant moderator effects in logistic regression, as currently is the case with regard to probing significant moderator effects in linear regression (see Aiken & West, 1991; Holmbeck 2002). Thus, to further examine the significant interaction, we split the sample based on low (0–4) and high (5–9) scores for both of the risk perception variables. It should be noted that because these groupings necessarily are inferior to the continuous data used in the regression where the interaction was evident, follow-up tests comparing these groups were not conducted. With that said, these groupings do usefully aid in illustrating the nature of the interaction effects (see Fig. 1). Consistent with our hypotheses, whereas the lowest percentage group that used alcohol expectedly was comprised of those with high self-perceived riskiness of alcohol use and high perceived riskiness of alcohol use for other same-age children (29%), the highest percentage group that used alcohol was comprised of those with low self-perceived riskiness of alcohol use and high perceived risk for other same-age children (73%). The groups characterized by low perceived riskiness of alcohol use for both self and other same-age children (45%) and high self-perceived riskiness of alcohol use and low perceived riskiness of alcohol use for other same-age children (54%) fell between the extremes.

Table 3
Prospective analysis: Hierarchical logistic regression examining interaction denoting discrepancies between wave 1 self-perceived riskiness of alcohol use and perceived riskiness of alcohol use for other children in relation to wave 2 alcohol use.

| | X ² | B | SE | Wald | p | OR | 95% CI |
|-----------------|--------------------|-------|-----|-------|------|------|----------|
| Step 1 | 4.53 | | | | | | |
| Age | | .23 | .17 | 1.75 | .19 | 1.26 | .90–1.77 |
| Gender | | -.45 | .28 | 2.57 | .11 | .64 | .37–1.10 |
| Step 2 | 35.45 ^a | | | | | | |
| W1 Alc | | -1.84 | .32 | 32.61 | .001 | .16 | .08–.30 |
| Step 3 | 2.55 | | | | | | |
| RP Self | | -.11 | .09 | 1.64 | .12 | .893 | .75–1.06 |
| RP Other | | .03 | .09 | .15 | .70 | 1.03 | .88–1.22 |
| Step 4 | 5.09 ^b | | | | | | |
| RP Self x Other | | -.04 | .02 | 4.98 | .03 | .96 | .93–.99 |

Note. W1 Alc = wave 1 alcohol use; RP Self = self-perceived riskiness of alcohol use perception at wave 1; RP Other = perceived riskiness of alcohol use for other same-age children at wave 1; RP Self × Other = interaction between self-perceived riskiness of alcohol use and perceived riskiness of alcohol use for other same-age children at wave 1; for gender, female is the reference group. Alcohol use is coded yes = 1, no = 0.

^a p < .01.
^b p < .05.

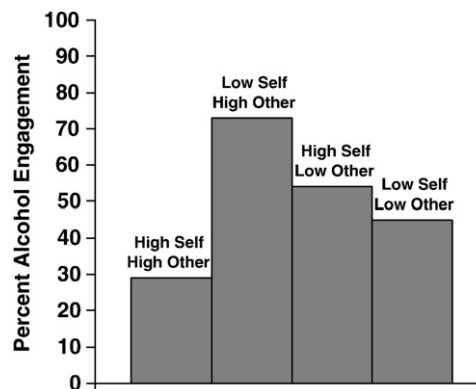


Fig. 1. Graphical representation of probing of significant interaction between children's self-perceptions of the riskiness of alcohol use and their perceptions of the riskiness of alcohol use for other children at wave 1 in longitudinally predicting children's alcohol use at wave 2. The figure reflects groups created based on dichotomized representations of both reports of perceived riskiness of alcohol use by low (0–4) and high (5–9) levels. Percent alcohol engagement totals 100% within each of the four groups of perceived riskiness of alcohol use.

4. Discussion

4.1. Main findings

In a community sample of children in the 5th and 6th grades at study onset, we had two main findings. First, when considered independently of one another, the individual baseline children's reports of perceived riskiness of alcohol use for self and for other same-age children each longitudinally predicted children's alcohol use at the one-year follow-up assessment. Second, we found that discrepancies between children's self-perceived riskiness of alcohol use and perceived riskiness of alcohol use for other same-age children exhibited utility in predicting alcohol use at the one-year follow-up, beyond the individual reports of children's perceptions of the riskiness of alcohol use, child demographic characteristics, and children's baseline alcohol use (Table 3). Specifically, at the one-year follow-up alcohol use was most likely to occur if at the baseline assessment children's self-perceived riskiness of alcohol use was low and their perceived riskiness of alcohol use for other same-age children was high (Fig. 1). Therefore, the findings suggest that discrepancies between how children perceive their own riskiness of alcohol use and how they perceive the riskiness of alcohol use for other children possess utility in predicting children's alcohol use outcomes.

Our findings raise an interesting question: Why would the greatest risk of alcohol use come from children who perceive their own riskiness of alcohol use as low and the riskiness of alcohol use for other children as high? Perhaps children holding these particular discrepant views of themselves versus other children differ from other children in that they are more likely to believe that alcohol use does not negatively affect them to the extent that they believe alcohol use affects their same-age peers. As a result, children holding these discrepant perceptions may be more at risk for future alcohol use relative to other children because they essentially downplay the effects that such usage may have on them. Further, this finding is consistent with the children's discrepant perceptions observed in other areas of the clinical child and developmental literatures (Gresham et al., 1998; Heath, & Glen, 2005; Hymel et al., 1993; Owens et al., 2007). In addition to this interpretation of our results, it also is useful to examine how the findings differ for those with high and low perceived alcohol riskiness for others (again see Fig. 1). For those who perceived low riskiness of alcohol use for others, their own perception of risk resulted in little difference, with modest alcohol use occurring in both cases. However, for children who perceived high

riskiness of use for other children, year 2 alcohol use was over 70% for those who perceived alcohol as low risk for self and under 30% for those who perceived alcohol use also as risky for self. Thus, one would be remiss to focus solely on the “Low Self, High Other” group identified in Fig. 1 as the key group driving risk for future alcohol use as we also identified at least one other group of children (“High Self, High Other”) for whom their risk perceptions actually served a protective effect from future alcohol use. Nevertheless, our findings point to the utility of examining children's perceptions of riskiness of alcohol use for self versus other same-age children in combination with each other: Neither perception alone predicted future alcohol use (Table 3). Thus, we encourage future research to examine the mechanisms by which discrepancies between children's perceptions of the riskiness of alcohol use predict future alcohol use.

4.2. Limitations

There are limitations to the present study. First, we relied on self-reports of alcohol use behavior. As with other constructs, substance use can be assessed in ways that do not require self-report such as biological testing (e.g., urine test). Assessments of alcohol use using indices other than self-report may have been difficult with children in this sample, as the volume of substance use in this age group may have been small or infrequent enough to make certain indices like biological tests of substance use insensitive to detections of early-onset use (Allen, Litten, Anton, & Cross, 1994; Allen & Litten, 2001). Nevertheless, we encourage future research attention paid to replicating and extending our findings using other indices of alcohol use (e.g., alcohol-related problems) and risk perception.

Second, we observed a large correlation between children's perceived riskiness of alcohol use for self and the perceived riskiness of alcohol use for other same-age children (Table 1). Indeed, 59% of the variance in perceived riskiness of alcohol use for self was accounted for by perceived riskiness of alcohol use for other same-age children. Further, for the total sample the two perceived riskiness of alcohol use reports were not significantly different from each other. At the same time, the relation between the two riskiness reports left over 40% of the variance unexplained. Further, we identified subgroups of children in the sample who provided qualitatively distinct riskiness of alcohol use reports, suggesting that there was much variability in the sample underlying the sample-wide non-significant differences between reports (Fig. 1). The interaction effect that we identified suggests that there is meaningful predictive utility in the differences between children's perceptions of riskiness of alcohol use for themselves versus their perceptions of risk for other children, despite the fact that the individual perceptions share a large relation with each other.

Third, sample characteristics could limit the generality of the findings. We studied an ethnically diverse community sample of children. Our findings may only be applicable to samples that experience wide variability in risk perception and alcohol use. Examining other samples—such as clinical samples for which problems with substance use warrant clinical intervention—may not reveal these relations. Nevertheless, understanding the phenomenon of discrepancies in perceived riskiness of alcohol use may be important for both basic and applied research. It is important that future work extends our findings to clinic samples and non-clinic samples for which children's discrepant perceptions of themselves versus others may be present.

Fourth, we assessed risk perception specific to alcohol use. It is unclear whether our findings relate to perceived riskiness of alcohol use in particular or perceptions of risk generally construed. Specifically, does the risk perception discrepancy–risk behavior relation generalize to other risk behaviors and perceptions of these behaviors? Perhaps these relations may not generalize because engagement in other risk behaviors at this age may occur at base rates that are too

low to detect without large samples. In any event, we encourage future research replicate and extend these findings to other forms of risk perception and risky behaviors.

4.3. Research and theoretical implications

Our findings have important research and theoretical implications for the study of developmental psychopathology, substance use, and children's discrepant perceptions. As mentioned previously, prior work has largely examined the relation between children's perceptions of the riskiness of alcohol use and alcohol use outcomes based on children's self-reports of their own risk. This work has been inconsistent as to whether or in what direction children's risk perceptions predict their alcohol use outcomes. These patterns of findings in prior work suggest that the predictive utility of children's reports of the riskiness of alcohol use cannot be revealed by solely relying on children's perceptions of the riskiness of their own alcohol use.

The present study extends knowledge in this important area by examining whether the discrepancies between children's self-perceived riskiness of alcohol use and perceived riskiness of alcohol use for other same-age children predict longitudinally children's alcohol use. Along these lines, the findings point to children's discrepant perceptions between how they view themselves and how they view other children as new tools for understanding the development of children's engagement in risky behaviors. When children view riskiness of alcohol use in different ways, depending on whether their focus is on themselves or other children their age, these discrepant perceptions may hold promise for informing ways to identify new risk factors of risky behavior engagement and new mechanisms for the reasons why risk perceptions predict risky behavior engagement. Indeed, as mentioned previously relying on one report of risk perception is the current status quo on research of how risk perception relates to early-onset substance use. Under standard assessment conditions, predictions of future use may simply not be able to reveal or identify important subgroups of children at risk for early-onset use. However, one can identify these subgroups when one relies on multiple risk perception reports. Our findings add to a growing body of literature suggesting that the inconsistencies between how people view themselves and how they view other people (or other people view them) tell us much about that person and how they behave. Further, this knowledge appears to not be revealed from simply understanding either one or both of the discrepant viewpoints in isolation of one another. We encourage researchers to examine the relation between children's discrepant perceptions and changes in their own behavior over time.

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Contributors

Andres De Los Reyes wrote the first draft of the manuscript, Elizabeth K. Reynolds contributed to manuscript preparation and conducted the statistical analyses, Frances Wang conducted literature searches and provided summaries of previous research studies, Laura MacPherson contributed to manuscript preparation and interpretation of statistical data, and C.W. Lejuez designed the study, wrote the protocol, and contributed to manuscript preparation and interpretation of statistical data. All authors contributed to and have approved the final manuscript.

Conflict of interest

All authors declare that they have no conflict of interest.

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References

- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms & profiles*. Burlington: University of Vermont, Research Center for Children, Youth, & Families.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Allen, J. P., & Litten, R. Z. (2001). The role of laboratory tests in alcoholism treatment. *Journal of Substance Abuse Treatment, 20*, 81–85.
- Allen, J. P., Litten, R. Z., Anton, R. F., & Cross, G. M. (1994). Carbohydrate-deficient transferrin as a measure of immoderate drinking: Remaining issues. *Alcoholism: Clinical and Experimental Research, 18*, 799–812.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford.
- Centers for Disease Control and Prevention. (2001). *National school-based Youth Risk Behavior Survey*. Public-use data documentation.
- Chapin, J. (2001). It won't happen to me: The role of optimistic bias in African American teens' risky sexual practices. *Howard Journal of Communications, 12*, 49–59.
- De Los Reyes, A., & Kazdin, A. E. (2004). Measuring informant discrepancies in clinical child research. *Psychological Assessment, 16*, 330–334.
- De Los Reyes, A., & Kazdin, A. E. (2005). Informant discrepancies in the assessment of childhood psychopathology: A critical review, theoretical framework, and recommendations for further study. *Psychological Bulletin, 131*, 483–509.
- Donovan, J. E. (2007). Really underage drinkers: The epidemiology of children's alcohol use in the United States. *Prevention Science, 8*, 192–205.
- Dunning, D., Heath, C., & Suls, J. M. (2004). Flawed self-assessment: Implications for health, education, and the workplace. *Psychological Science in the Public Interest, 5*, 69–106.
- Gerrard, M., & Warner, T. D. (1994). A comparison of women Marines' and college women's HIV relevant sexual behaviors. *Journal of Applied Social Psychology, 24*, 959–980.
- Granic, I., & Patterson, G. R. (2006). Toward a comprehensive model of antisocial development: A dynamic systems approach. *Psychological Review, 113*, 101–131.
- Gresham, F. M., MacMillan, D. L., Bocian, K. M., Ward, S. L., & Forness, S. R. (1998). Comorbidity of hyperactivity–impulsivity–inattention and conduct problems: Risk factors in social, affective, and academic domains. *Journal of Abnormal Child Psychology, 26*, 393–406.
- Grunbaum, J. A., Kann, L., Kinchen, S. A., Williams, B., Ross, J. G., Lowry, R., et al. (2002). Youth risk behavior surveillance. *The Journal of School Health, 72*, 313–328.
- Hampson, S. E., Severson, H. H., Burns, W. J., Slovic, P., & Fisher, K. J. (2001). Risk perception, personality factors and alcohol use among adolescents. *Personality and Individual Differences, 30*, 167–181.
- Heath, N., & Glen, T. (2005). Positive illusory bias and the self-protective hypothesis in children with learning disabilities. *Journal of Clinical Child and Adolescent Psychology, 34*, 272–281.
- Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology, 27*, 87–96.
- Hunsley, J., & Mash, E. J. (2007). Evidence-based assessment. *Annual Review of Clinical Psychology, 3*, 29–51.
- Hymel, S., Bowker, A., & Woody, E. (1993). Aggressive versus withdrawn unpopular children: Variations in peer and self-perceptions in multiple domains. *Child Development, 64*, 879–896.
- Joe, K. A. (1995). "Ice is strong enough for a man but made for a woman": A social cultural analysis of methamphetamine use among Asian Pacific Americans. *Crime, Law, & Social Change, 22*, 269–289.
- Johnson, R. J., McCaul, K. D., & Klein, W. M. P. (2002). Risk involvement and risk perception among adolescents and young adults. *Journal of Behavioral Medicine, 25*, 67–82.
- Joseph, J. G., Montgomery, S. B., Emmons, C., Kirscht, J. P., Kessler, R. C., Ostrow, D. G., et al. (1987). Perceived risk of AIDS: Assessing the behavioral and psychological consequences in a cohort of gay men. *Journal of Applied Social Psychology, 17*, 231–250.
- Kazdin, A. E., Rodgers, A., & Colbus, D. (1986). The Hopelessness Scale for Children: Psychometric characteristics and concurrent validity. *Journal of Consulting and Clinical Psychology, 54*, 241–245.
- Klein, W. M. P. (2002). Social comparison and risk judgment: Recent work and new directions. *Risk, Decision and Policy, 7*, 145–152.
- Malle, B. F. (2006). The actor–observer asymmetry in attribution: A (surprising) meta-analysis. *Psychological Bulletin, 132*, 895–919.
- Special issue. Mash, E. J., & Hunsley, J. (Eds.). (2005). *Journal of Clinical Child and Adolescent Psychology, 34*.
- Mills, B., Reyna, V. F., & Estrada, S. (2008). Explaining contradictory relations between risk perception and risk taking. *Psychological Science, 19*, 429–433.
- Owens, J. S., Goldfine, M. E., Evangelista, N. M., Hoza, B., & Kaiser, N. M. (2007). A critical review of self-perceptions and the positive illusory bias in children with ADHD. *Clinical Child and Family Psychology Review, 10*, 335–351.
- Perez, R. G., Ascaso, L. E., Massons, J. M. D., & Chaparro, N. D. O. (1998). Characteristics of the subject and interview influencing the test–retest reliability of the Diagnostic Interview for Children and Adolescents-Revised. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 39*, 963–972.
- Reyna, V. F., & Farley, F. (2006). Risk and rationality in adolescent decision making: Implications for theory, practice, and public policy. *Psychological Science in the Public Interest, 7*, 1–44.
- Schniering, C. A., Hudson, J. L., & Rapee, R. M. (2000). Issues in the diagnosis and assessment of anxiety disorders in children and adolescents. *Clinical Psychology Review, 20*, 453–478.
- Weinstein, N. D. (1982). Unrealistic optimism about susceptibility to health problems. *Journal of Behavioral Medicine, 5*, 441–460.
- Weinstein, N. D. (2007). Misleading tests of health behavior theories. *Annals of Behavioral Medicine, 33*, 1–10.