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Original article

Parental Awareness of Adolescent Risk Involvement: Implications of Overestimates and Underestimates

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Abstract:

Purpose: To explore: 1) parent-adolescent discrepancies on adolscent risk involvement; 2) factors related to parental overestimates and/or underestimates of specific adolescent risk behaviors; and 3) the association of parental overestimates and/or underestimates at baseline with subsequent adolescent risk involvement.

Methods: 754 African American parent-adolescent dyads were recruited from 35 low-income urban communities in Baltimore, Maryland. Parent-adolescent discordance (overestimates and underestimates) regarding adolescent involvement in risk behaviors in three areas (sex, substance use, and violence) were assessed. Multiple logistic regression models were performed to examine the association of parental overestimates or underestimates with subsequent adolescent risk involvement, and to explore potential factors related to parental overestimates and underestimates of each behavior.

Results: Percentage of parental overestimation and underestimation ranged from 3% to 24% and 53% to 86%, respectively, for targeted behaviors. Parents reporting higher levels of parental monitoring and open communication were less likely to overestimate, and more likely to underestimate adolescent risk involvement. Parents of adolescents who perceived themselves as better than average in school performance and who participated in religious services were more likely to underestimate adolescents' substance use and sex. Parents of older adolescents overestimated adolescents' sexual experience. Parental overestimation at baseline generally predicted subsequent increased risk of adolescents engaging in these behaviors. Conversely, parental underestimation was associated with subsequent decreased adolescent risk involvement.

Conclusions: Parental underestimation and overestimation of adolescent risk involvement have implications for subsequent adolescent risk involvement. The protective association of parental underestimation and the adverse association of parental overestimation on subsequent adolescent risk involvement indicate that parenting interventions should advance beyond simply improving parent-adolescent concordance on risk behavior.

Keywords: Adolescent; Parent-adolescent discordance; Parent-adolescent communication; Parental monitoring; Risk behaviors

A substantial and growing literature from the last half-century and across cultural niches attests to the importance of parenting in adolescent risk behaviors. Among the most studied aspects of parenting have been monitoring and communication and the multiple processes shown to contribute to parents' monitoring and communication [1–4]. Higher

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level of parental monitoring and communication (based on both child and parent perceptions) has been associated with decreased adolescent involvement in sexual, drug, and delinquent-related risk behaviors [3,5].

Despite the robust nature of this association, the concept of parental monitoring is ephemeral. Earlier descriptions of parental monitoring focused on the agreement between parent and adolescent descriptions of the adolescents' activities [6] and their interactions in decision-making [7]. More recent investigations have generally relied on the reports of one party, more frequently the adolescents [3,5,8,9], although some studies have focused on reports by the parents [10–12], or occasionally both the parents and adolescents [13–17].

In a recent review of the concept of parental monitoring, Crouter and Head [1] argued that most measures of parental monitoring are, in fact, measures of parent knowledge that "develops in the context of a trusting parent-child relationship and has more to do with the child's willingness to confide in the parent than in the parent's ability to track and monitor the child" (p. 461).

While analyzing discrepancies in parent-child reports of adolescent involvement in risk behaviors as a function of adolescents' forthrightness is both compelling and informative, this approach does not explore other explanations for the discrepancies, does not examine situations in which parents overestimate adolescent involvement in risk behaviors, and does not explore the longitudinal associations of misreporting with adolescent risk behaviors. Accordingly, we undertook the study to: 1) explore the extent of parent and adolescent discrepancies regarding adolescent risk involvement among African American adolescents; 2) explore potential factors related to parental overestimates and/or underestimates of each risk behavior among adolescents; and 3) examine the association of parental overestimates and/or underestimates of adolescent risk behavior at baseline with subsequent adolescent risk involvement.

Methods

Participants and data collection

Data in the current study were obtained from a longitudinal intervention program aiming to reduce adolescent risk behaviors conducted among African American adolescents and their parents in Baltimore from 1999–2003. Adolescents were eligible for the study if they were 1) 13 through 16 years old at baseline; 2) of African American descent; and 3) living in one of 35 low-income communities in urban areas in Baltimore. For each enrolled adolescent, one "parent" (defined as biologic parents, legal guardians or someone who took care of the child at least 50% of the time) was also enrolled.

Detailed description about sampling and data collection can be found elsewhere [18,19]. Briefly, 35 low-income African American communities (e.g., community centers, recreation centers, schools, and churches) in urban areas in Baltimore were identified as recruitment sites. Researchers, assisted by local "facilitators" (e.g., school teachers, church ministers), approached potentially eligible adolescents and parents in these communities to describe the purpose of the study, study procedures, potential benefits and risks, and to invite participation in the study. Interested adolescents and their parents were enrolled after providing signed consent/assent forms. After completing a baseline survey, adolescents were randomized to receive a face-to-face intervention alone (FOK only), a face-to-face intervention and a parental monitoring intervention (FOK plus ImPACT), or both of the above plus boosters (FOK plus ImPACT plus boosters) [18,19].

Data were collected at baseline and at 6, 12, 18, and 24 months post-intervention from the adolescents, and at baseline only from their parents. Audio computer-assisted self interview was employed for data collection [20]. In the current study, information on adolescent risk involvement at baseline was obtained from both the adolescents and parents; information on adolescent risk involvement at each follow-up was obtained from the adolescents only, and information on parenting style was obtained from parents. The study protocol was approved by the Institutional Review Board at the University of Maryland.

Measures

Adolescent risk behavior. Six risk behaviors covering violence (two items), drug use (three items) and sexual activity (one item) were assessed. Specifically, adolescents were asked if they had carried a knife, razor, gun, bat, or stick to use as a weapon, engaged in a physical fight with a friend, smoked tobacco, consumed alcoholic beverage (e.g., beer, wine, or liquor), used marijuana, and engaged in sexual intercourse (i.e., vaginal sex). Adolescents were asked whether they had engaged in one or more of the six behaviors (yes/no) during the past six months at both baseline and each follow-up survey. Adolescents' experience of each behavior over their lifetime (yes/no) was also collected at baseline.

Perceptions of adolescent risk involvement were collected from their parents at baseline as well. Parents were asked about their knowledge of their child's involvement in each behavior during the past six months. "Yes/no" responses were allowed for each target behavior.

Parent-adolescent discordance on adolescent risk involvement at baseline. Two dichotomous variables (overestimates and underestimates) assessing parent-adolescent discordance on adolescent risk involvement were created for each of the six target behaviors. Involvement in a behavior reported by the adolescents was established as the "reference" or "gold" standard. For example, for

adolescents who reported at baseline smoking tobacco during the previous six months, if their parents did not report such a behavior of their child, an "underestimate" was assigned a value of "1." If both the parents and the adolescents reported the behavior, a value of "0" was assigned. For adolescents who reported no cigarette smoking during the prior six months, the parents were considered to be "overestimating" child tobacco use if they believed that their child smoked during the previous six months, and an "overestimate" was assigned a value of "1."

Potential factors related to parent-adolescent discordance regarding adolescent risk involvement. Parent-adolescent discordance regarding adolescent risk involvement may be influenced by both adolescent and parental factors. Factors explored in the current study included adolescents' demographic characteristics (i.e., age, gender), school performance (i.e., rank in the class, number of days missed school), adolescent participation in religious services, parent participation in community activities, parent participation in religious services, and parent-reported parenting style. Except for age, number of days absent from school, and parent-reported parenting style, which were treated as continuous variables, others were treated as dichotomous variables.

Parental perceptions of parental monitoring and parent-adolescent communication were assessed. Parental monitoring, measured by a modification of Silverberg and Small's six-item scale, assessed whether parents knew the whereabouts, activities, and company of their children when they were not under their direct supervision [21]. Parent-adolescent communication, measured by McCubbin and Thompson's 20-item scale, assessed the effectiveness of communication between the adolescents and their parents [22]. The scale included two subscales: open communication (10 items) and problem communication (10 items). The internal consistency for the three scales was adequate for the data (alpha was .83, .83, and .75, respectively). A composite score was created for each of the three measurements by summing responses to each item, with higher scores indicating higher levels of reports of parental monitoring, higher levels of reported effective communication, and higher levels of reports of more problems in parent-adolescent communication, respectively.

Data analysis

All analyses were performed in SAS for Windows, Version 9.1.3 (SAS Institute Inc., Cary, North Carolina). The extent of parent-adolescent discordance with regard to each adolescent risk behavior was measured by the proportion of overestimates and underestimates. The percentage of overestimation was calculated by dividing the number of adolescents who did not report a target behavior during the past six months but whose parents reported that the adolescent was involved in the behavior by the number of adolescents who did not report the behavior during that period of time. The percentage of underestimation was calculated by dividing the number of adolescents who reported a target behavior during the past six months but whose parents reported that the adolescent was not involved in the behavior by the number of adolescents who reported the behavior during that period of time.

To explore potential factors related to parental overestimation and/or underestimation of each behavior, a series of logistic regression models were performed with overestimation or underestimation as the dependent variable and the adolescents' demographics, school performance, parents' social activity participation, and parents' reports of parenting style as independent variables.

Finally, to examine whether parental overestimates or underestimates of adolescent risk involvement at baseline would predict subsequent adolescent risk involvement, a series of logistic regression models were employed. Adolescent involvements in each risk behavior during the past six months at 6, 12, 18, and 24 months were modeled as the dependent variables; adolescent-parent discordance on each behavior at baseline was modeled as an independent variable. Explanatory factors that were significantly associated with parental overestimation or underestimation in the above analyses were controlled in the models. Intervention assignment and baseline reports of adolescents' experience with regard to each behavior over their lifetime were also included in the models as covariates.

Results

A total of 817 eligible adolescents and 767 parents were interviewed at baseline, resulting in 754 parent-adolescent dyads. Analyses in the current study were based on data from the 754 parent-adolescent dyads. At baseline, the adolescent sample was, on average, aged 14.2 (SD = 1.1) years. Approximately 42% of the adolescents were male, 65% reported that they were better-than-average compared to other students in the class, and half reported never or rarely attending religious services. More detailed information about the sample is available elsewhere [19]. The response rate at baseline was 98.1% (740/754). The follow-up rates were 76.5%, 74.6%, 68.0%, and 61.1% at 6, 12, 18, and 24 months, respectively.

Percentages of parental overestimation and underestimation

The percentages of parental overestimates and underestimates of each risk behavior among adolescents are presented in Table 1. Among the 592 adolescents who reported at baseline not carrying a weapon during the last six months, 49 had a parent who believed that their child engaged in such behavior at that period of time, resulting in a percentage of overestimation of 8%. Similarly, the proportion of

Table 1
Distribution of parental overestimates or underestimates of adolescent risk involvement

	Adolescent reported no risk		Adolescent reported having risk	
	No.	% of parent overestimate	No.	% of parent underestimate
Carried a weapon, last six months	592	8.3	136	86.0
Fought, last six months	597	24.5	131	55.0
Smoked cigarette, last six months	636	5.0	92	56.5
Drank alcohol, last six months	541	8.7	187	72.2
Used marijuana, last six months	586	3.4	142	73.2
Had sex, last six months	501	6.4	223	53.4

overestimation was 9% for drinking alcohol, 6% for having sex, 5% for smoking, and 3% for using marijuana. The percentage of overestimation was highest for having engaged in a physical fight (24%). Among the 136 adolescents who reported at baseline having carried a weapon during the last six months, 117 had a parent who believed that their child had not engaged in carrying a weapon, resulting in a percentage of underestimation of 86%. Seventy-two percent of parents underestimated adolescents' drinking and using marijuana, and approximately one-half underestimated adolescents' engaging in physical fights, smoking tobacco, and having sex.

Factors related to parental overestimation and underestimation

Twelve factors (five related to the adolescents and others related to their parents) were explored for their association with parent-adolescent discordance on adolescent risk involvement. Table 2 shows the association of the factors with parental overestimation of each risk behavior. Significant odds ratio and its 95% confidence interval were presented. Parent-reported parental monitoring had protective effects on overestimates of fighting (odds ratio [OR] = .94, 95% confidence interval [CI]: .88–1.00), smoking (OR = .88, 95% CI: .88–.96), drinking alcohol (OR = .88, 95% CI: .80–.98), and using marijuana (OR = .81, 95% CI: .72–.91). Parents reporting increased open communication were less likely to overestimate adolescents' drinking alcohol (OR = .95, 95% CI: .90–.998) and carrying a weapon (OR = .93, 95% CI: .89–.98). Parents reporting increased problem communication, however, were found to be more likely to overestimate adolescents' carrying a weapon (OR = 1.05, 95% CI: 1.00–1.11) and smoking cigarettes (OR = 1.12, 95% CI: 1.05–1.19). Parents were more likely to

Table 2
Factors related to parental overestimation of adolescent risk involvement

	Carry a weapon	Fight	Smoke cigarette	Drink alcohol	Use marijuana	Have sex
Adolescent age						1.57 (1.02–2.42)
Adolescent gender: boy vs. girl						
Adolescent rank in school performance: above middle vs. others		.63 (.41–.96)				
Adolescent religious services attendance: others vs. rarely/never						
# Days missed school						1.16 (1.05–1.29)
Parent participated in social activities						
Parent participated in church groups						
Parent participated in PTA						
Parent knew adolescent was on the honor roll or received awards in sports or other activity						3.89 (1.11–13.69)
Parent perception of parental monitoring		.94 (.88–1.00)	.88 (.80–.96)	.88 (.80–.98)	.81 (.72–.91)	
Parent perception of open communication	.95 (.90–.998)			.93 (.89–.98)		
Parent perception of problem communication	1.05 (1.00–1.11)		1.12 (1.05–1.19)			

Note: Only significant ORs (95% CIs for ORs) are presented.

Table 3
Factors related to parental underestimation of adolescent risk involvement

	Carry a weapon	Fight	Smoke cigarette	Drink alcohol	Use marijuana	Have sex
Adolescent age						
Adolescent gender: boy vs. girl			.23 (.06–80)		.22 (.08–.64)	
Adolescent rank in school performance: above middle vs. others				2.64 (1.19–5.90)	3.26 (1.14–9.34)	
Adolescent religious services attendance: others vs. rarely/never			5.23 (1.20–22.81)			2.78 (1.35–5.75)
# Days missed school						
Parent participated in social activities						
Parent participated in church groups						
Parent participated in PTA			4.98 (1.29–19.23)			
Parent knew adolescent was on the honor roll or received awards in sports or other activity						
Parent perception of parental monitoring	1.17 (1.00–1.37)					1.13 (1.02–1.25)
Parent perception of open communication						
Parent perception of problem communication				.93 (.88–.98)		

Note: Only significant ORs (95% CI for ORs) are presented.

overestimate adolescents' engaging in sexual intercourse if the adolescents were older (OR = 1.57, 95% CI: 1.02–2.42), had missed more days of school (OR = 1.16, 95% CI: 1.05–1.29), or if parents knew that adolescents were on the honor roll or received awards in sports or other activities (OR = 3.89, 95% CI: 1.11–13.69).

Table 3 presents the association of the 12 factors with parental underestimates of adolescent risk involvement. Parents of adolescents who believed that they were better-than-average in school performance compared to other students were more likely to underestimate adolescent involvement in drinking alcohol (OR = 2.64, 95% CI: 1.19–5.90) and using marijuana (OR = 3.26, 95% CI: 1.14–9.34). If adolescents attended religious services more often, parents were more likely to underestimate their smoking (OR = 5.23, 95% CI: 1.20–22.81) and having sex (OR = 2.78, 95% CI: 1.35–5.75). Parents who participated in the PTA or volunteered in school were more likely to underestimate adolescent smoking (OR = 4.98, 95% CI: 1.29–19.23). Parents perceiving higher parental monitoring were more likely to underestimate adolescent carrying a weapon (OR = 1.17, 95% CI: 1.00–1.37) and engaging in sex (OR = 1.13, 95% CI: 1.02–1.25). However, if parents perceived higher problem communication with adolescents, they were less likely to underestimate adolescent drinking alcohol (OR = .93, 95% CI: .88–.98). Parents of boys were less likely to underestimate their children's smoking (OR = .23, 95% CI: .06–.80) and using marijuana (OR = .22, 95% CI: .08–.64).

Predictive effect of discordance on subsequent adolescent risk involvement

Table 4 presents the association of parental overestimation of targeted behaviors at baseline with adolescent involvement in each behavior at 6, 12, 18, and 24 months. Percentage of adolescents engaging in each behavior subsequently and adjusted odds ratio and its 95% confidence interval were indicated. After adjusting for intervention assignment, baseline risk, and explanatory factors that were significant in Table 2, most odd ratios were greater than one, indicating that parental overestimation of adolescent risk involvement would generally predict increased risk of adolescents engaging in these behaviors later. Compared to adolescents whose parents did not overestimate their risk involvement, adolescents whose parents overestimated were significantly more likely to engage in carrying a weapon at 6- and 24-month follow-ups (ORs = 3.04 and 3.86, 95% CIs: 1.22–7.61 and 1.37–10.4, respectively), and drinking alcohol at 6-month follow-up (OR = 2.34, 95% CI: 1.04–5.25).

Table 5 indicates the predictive effect of parental underestimation on subsequent adolescent risk involvement, after adjusting for intervention assignment and explanatory fac-

Table 4
Association of parental overestimation at baseline with subsequent adolescent risk involvement

	Carry weapon				Fight				Smoke				Drink				Use marijuana				Have sex			
	n	−+ %	−− %	aOR 95% CI	n	−+ %	−− %	aOR 95% CI	n	−+ %	−− %	aOR 95% CI	n	−+ %	−− %	aOR 95% CI	n	−+ %	−− %	aOR 95% CI	n	−+ %	−− %	aOR 95% CI
6 m	446	25.8	8.9*	3.04 1.22–7.61	446	19.8	15.3	1.22	477	30.4	11.2*	2.38	406	39.4	18.0**	2.34 1.04–5.25	449	33.3	12.8	1.92	384	44	25.6	1.73
12 m	436	13.5	7.0	2.00	433	17.1	13.4	1.25	460	20.0	10.3	1.50	391	32.3	19.7	1.59	436	25.0	16.0	.89	374	50	24.7*	1.60
18 m	408	12.1	12.0	.87	406	16.1	15.0	1.01	431	25.0	12.4	1.38	372	30.0	20.2	1.41	411	30.8	15.3	1.54	359	26.3	31.5	.44
24 m	363	31.8	11.7*	3.86 1.37–10.4	373	17.4	8.4*	2.02	395	22.2	12.5	.95	340	40.9	19.8*	1.68	366	37.5	17.6	2.35	321	50	32.0	1.34

"−+" refers to adolescents who did not report a target behavior but whose parents reported their child engaged in the behavior (i.e., overestimates); "%" under the column refers to percentage of adolescents engaging in the behavior subsequently among the overestimated group;

"−−" refers to adolescents who did not report a target behavior and whose parents did not report such behavior of their child; "%"

under the column refers to percentage of adolescents engaging in the behavior subsequently among the concordant group (i.e., neither the parent nor the adolescent reported the behavior);

asterisk indicates significance of difference in crude percentages between groups; *$p < .05$; **$p < .01$; Chi-square tests were used for significance testing;

aOR refers to odds ratio of adolescent involvement in the behavior subsequently for the overestimated group compared to the concordant group, adjusting for intervention assignment, experience of the behavior over lifetime at baseline, and exploratory variables in Table 2 when necessary (i.e., significant);

95% CI for aOR is presented only for significant effect.

Table 5
Association of parental underestimation at baseline with subsequent adolescent risk involvement

	Carry weapon				Fight				Smoke				Drink				Use marijuana				Have sex			
	n	+− %	++ %	aOR 95% CI	n	+− %	++ %	aOR 95% CI	n	+− %	++ %	aOR 95% CI	n	+− %	++ %	aOR 95% CI	n	+− %	++ %	aOR 95% CI	n	+− %	++ %	aOR 95% CI
6 m	98	28.2	53.8	.33	98	31.5	47.7	.36 .14–.89	67	34.2	65.4*	.28 .09–.89	138	42.4	71.9**	.26 .1–.65	95	43.8	77.3**	.27 .08–.90	155	60.7	78.8*	.53
12 m	94	24.4	41.7	.46	97	15.1	29.6	.44	70	35.1	54.6	.38	139	36.0	48.7	.46	94	37.3	51.8	.65	151	59.0	61.6	.83
18 m	77	23.4	38.5	.45	80	27.1	34.4	.73	55	50	68	.39	114	42.7	53.1	.48	75	49.1	50	1.49	122	66.2	61.4	1.30
24 m	75	27.0	16.7	1.92	66	23.8	20.8	1.25	44	34.8	71.4*	.11 .02–.58	99	43.5	50	.71	73	36.4	55.6	.70	77	62.3	78.0	.35 .13–.92

"+−" refers to adolescents who reported a target behavior but whose parents did not report their child engaged in the behavior (i.e., underestimates); "%" under the column refers to percentage of adolescents engaging in the behavior subsequently among the underestimated group;

"++" refers to adolescents who reported a target behavior and whose parents reported such behavior of their child; "%" under the column refers to percentage of adolescents engaging in the behavior subsequently among the concordant group (i.e., both the parent and the adolescent reported the behavior);

asterisk indicates significance of difference in crude percentages between groups; *$p < .05$; **$p < .01$; Chi-square tests were used for significance testing;

aOR refers to odds ratio of adolescent involvement in the behavior subsequently for the underestimated group compared to the concordant group, adjusting for intervention assignment and exploratory variables in Table 3 when necessary (i.e., significant);

95% CI for aOR is presented only for significant effect.

tors that were significant in Table 3. The majority of the odds ratios were less than one, indicating that parental underestimates of adolescent risk involvement at baseline were associated with subsequent decreased risk involvement among the adolescents. Specifically, compared to adolescents whose parents did not underestimate their risk involvement, adolescents whose parents underestimated their risk involvement were less likely to engage in physical fighting (OR = .36, 95% CI: .14–.89), smoking tobacco (OR = .28, 95% CI: .09–.89), drinking alcohol (OR = .26, 95% CI: .1–.65), and using marijuana (OR = .27, 95% CI: .08–.9) at 6-month follow-up, and less likely to smoke tobacco (OR = .11, 95% CI: .02–.58) and have sex (OR = .35, 95% CI: .13–.92) at 24-month follow-up.

Discussion

We and others have previously reported that parents generally underestimate adolescent risk involvement [13,23]; the current study confirmed and extended this finding by analyzing non-risk-experienced adolescents (i.e., adolescents who did not report a target behavior during the past six months at baseline) and risk-experienced adolescents (i.e., adolescents who reported a target behavior during the past six months at baseline) separately. The findings in the present study suggest that parents of risk-experienced adolescents underestimated all six target risk behaviors, whereas parents of non-risk-experienced adolescents overestimated adolescent risk behavior.

More importantly, the current study indicated that parental overestimation of adolescent risk involvement was associated with subsequent increased adolescent risk involvement, even after controlling for baseline experience of the target behavior. To the best of our knowledge, this study is the first to explore the association between overestimation and risk involvement. Several possibilities may help understand this finding. First, parental trust has been shown to be protective against sexual activity and substance use [24]. Non-risk-experienced adolescents with parents who believe that they engaged in a risk behavior might feel unsupported by their parents. Second, the finding may reflect that parents have insight into their children and even if the timing is imperfect, have some sense of what their children will and will not "do." Third, a self-fulfilling prophecy may contribute in some cases. When parents tell their children often enough that they are going to get pregnant or parents think their children are having sex, children may begin to think that that is what they should be doing. Finally, it is also possible that factors in neighborhoods might influence both parental overestimation of adolescent risk involvement and subsequent adolescent risk involvement. Parents of adolescents living in neighborhoods with higher rates of certain behaviors, e.g., drinking and drug use, might be more likely to think their children are involved, and in fact the children are more likely to later become involved [25].

Parent-adolescent concordance on adolescent risk involvement has been used as an index of a good parenting intervention [13], because increased concordance between adolescent and parent reports of the adolescent risk behavior suggests increased parental monitoring [23]. However, the current study provides evidence that risk-experienced adolescents whose parents underestimated their risk involvement may be less likely to engage in the risk behavior subsequently compared to risk-experienced adolescents whose parents were aware of their risk behavior. This finding may represent transient adolescent experimentation of which the parent is not aware and in which the child does not again participate [26]. Adolescents whose parents are not aware of their engaging in risk behaviors may be more careful and less frequently engage in the behaviors to avoid parents learning of their involvement. Alternatively, parents who are aware of adolescent risk behavior may respond in an authoritarian manner, impairing the parent-adolescent relationship [18]. As a result, these adolescents might be more likely to continue their risk behaviors compared to those whose parents are not aware of their risk. This finding underscores the need for parenting interventions to extend beyond improving parent-adolescent concordance on reports of adolescent risk behavior. Interventions should offer skills and methods to improve the parental response to adolescent risk experience and to improve the parent-adolescent relationship after parents learn of adolescent risk involvement.

Parents who perceived higher parental monitoring generally were more likely to underestimate their child's risk involvement. These findings suggest that for the current sample, parental knowledge of adolescents' activities when they are not under their direct supervision may be primarily based on child self-disclosure, instead of parental tracking or surveillance [1]. Adolescents appeared to be less likely to disclose their weapon carrying and sexual experience to their parents.

The current study also found that adolescents' sociodemographic characteristics influenced parental overestimates and underestimates of adolescent risk involvement. Parents of adolescents who were better-than-average in school performance and participated in religious services were more likely to underestimate adolescents' substance use and sex. This finding may be explained by "earned free time." Parents of well-behaved adolescents (e.g., excel in school and participating in religious services) may offer more "earned free time" as a reward, which may serve as increased opportunity for adolescents to engage in risk behaviors. If this is the case, it argues for the importance of maintaining monitoring. Parents of older adolescents tended to overestimate adolescent sexual experience. Parenting interventions need to develop skills to reduce parental overestimates of adolescent sexual behavior and to educate parents how to initiate discussion about sex and relationships with their children.

Potential limitations of the study

There are several potential limitations in the current study. First, information regarding the gender of parents was not available. This information may be important, as mothers and fathers may differ in their awareness of their child's risk involvement and may have different influences on child risk involvement [27]. It has been reported that mothers tend to know more about their daughters and fathers tend to know more about sons [1]. Second, some factors that may influence parent-adolescent discordance on adolescent risk involvement were not collected in the current study, such as parent relationship, family type (intact, biological family or stepfamily), parents' own behavior, and prevalence of the behaviors in neighborhoods. Third, some significant effect may not be identified while exploring potential factors related to parental underestimation and exploring the predictive effect of parental underestimation on subsequent adolescent risk involvement, as a result of small size of subsamples. Fourth, the discrepancy measured between parent and adolescent reports was not contemporaneous to the risk behavior measured across time.

Conclusions

The current study extended findings from previous studies regarding parent-adolescent discordance by demonstrating that parents of risk-naïve adolescents may overestimate adolescent risk involvement, that parental overestimation is associated with increased risk of subsequent adolescent risk involvement, while parental underestimation is associated with decreased risk, and that perceptions of parental monitoring, parent-adolescent communication, and adolescent sociodemographic characteristics may influence parental overestimation and/or underestimation of adolescent risk behaviors.

Parent-adolescent discrepancies on reports of adolescent risk behaviors suggest the importance of collecting such data from both the parents and adolescent. The predictive effect of parent-adolescent discrepancies on subsequent adolescent risk involvement indicates that parenting interventions should not stop at improving parent-adolescent concordance on reports of adolescent risk behavior, but need to address appropriate responses on the part of the parents to adolescent risk experiences.

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