

Risking it for Love: Romantic Relationships and Early Pubertal Development Confer Risk for Later Disruptive Behavior Disorders in African-American Girls Receiving Psychiatric Care

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Abstract Disruptive behavior problems (DBP) represent a growing concern for young women (e.g., Snyder and Sickmund, 2006), but gender-specific investigations have been traditionally underrepresented in this area. The purpose of this study is to examine the associations among gender-relevant risk factors for DBP among 217 African American girls in psychiatric care. African American girls, 12–16 years old ($M=14.6$; $SD=1.2$), and their primary female caregivers ($N=254$) were recruited from outpatient mental health clinics and reported on girls' DBP, heterosexual dating experiences (romantic and sexual), peer relationships, pubertal development, and self-silencing at baseline, 6-, and 12 months. Structural Equation Modeling examined evidence for full versus mediated (via self-silencing) models and the structural relationships (direct and indirect) among key study variables. Results suggest that the full model was a significantly better fit than the mediated model as indicated by a Chi-squared difference test ($p<0.01$). In the full model, direct effects of greater romantic dating experiences and lower quality peer relationships at baseline predicted DBP at 12 months. Sexual dating experiences were more strongly linked with DBP at 12 months for early maturing compared to average or later maturing girls. Indirect effects analyses suggested that girls'

suppression of relational needs, assessed through a measure of self-silencing, explained the association between peer relationships and DBP. Findings highlight the importance of the relational context for girls' DBP, with treatment implications supporting relationship-based models of care, early intervention, and skill building around negotiating needs with peers and partners.

Keywords Mental health · Disruptive behavior disorders · Disruptive behavior problems · Externalizing psychopathology/violence · Adolescents/Youth · Romantic partners/dating relationships · Peers · Pubertal development/early menarche

Disruptive behavior problems (DBP), including oppositional behavior, violence, and delinquency, are growing at faster rates for girls than for boys according to official arrest and self-report data (Snyder and Sickmund 2006; Eaton et al. 2012). Adolescent girls with DBP are at high risk for other negative health outcomes, including severe and comorbid psychiatric conditions (e.g., suicide, depression), diabetes, HIV/AIDS, miscarriage, and mortality (Hawkins, Chiancone and Whitworth 2008). These disparities are particularly pronounced for African American girls from low-income families (Lang et al. 2010) resulting in great cost to public health (Sheehan and Flynn 2007). Unfortunately, most research on DBP focuses on males and little is known about gender differences in the etiology and pathology of disruptive behaviors, largely because girls are historically under-represented in research in this area. Yet, health disparities and federal mandates make gender-specific research a top priority. A recent federal report underscored two critical points: 1) girls have distinct risk factors suggesting female-specific pathways to DBP; and 2) understanding girls' pathways to DBP is urgent given the paucity of gender-responsive programs to meet girls' unique needs (Hawkins, Chiancone and Whitworth

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2008; Zahn et al. 2008). Higher risk for DBP and low access to treatment is pronounced for girls living in under resourced urban communities.

Ecological Framework

In the current study, an ecological framework is used in which the unique and combined effects of multiple relational contexts are examined. This is particularly important given that both qualitative and quantitative research finds that girls' relationships are key risk factors for DBP, and has linked risky relationships with both DBP-related outcomes (e.g., using violence) and processes (e.g., loyalty to partners as a process leading to decisions to take behavioral risk, such as fights with peers). The current study seeks to examine how and why girls' relationships matter through a) examining peer and dating relationships in tandem, b) distinguishing between different types of dating experiences (e.g., romantic versus sexual), c) examining the extent to which early versus later developing girls' DBP are similarly affected by peer, romantic, and sexual relationships, and d) exploring the possible role of psychological processes associated with self-silencing in explaining why peer and partner relationships may promote risk for DBP. The scope of the current study is limited to peer and partner relationships in order to conduct an in-depth investigation of multiple dimensions of key interpersonal relationships (non-romantic peer, romantic partner, and sexual partner; Javdani, Abdul-Adil, Suarez, Nichols and Farmer 2014).

Research indicates that contextual influences are critical for predicting whether and to what extent adolescents engage in risk-taking behaviors, underscoring the need to examine relational contexts. For instance, peers are important for adolescent development and risk-taking and increase in influence (e.g., on adolescent decision making) over the course of adolescence (e.g., Segalowitz et al. 2012; Steinberg 2007). Similarly, romantic partnerships can promote lower-level risk-taking behaviors at early stages (e.g., truancy) that can lead to higher-level risk-taking (e.g., running away; assault in the context of relationships; Javdani, Sadeh and Verona 2011). Though research has examined both peer and partner influences on girls' and boys' DBP, few studies have examined their effects in the context of a holistic model incorporating both relational contexts. Importantly, parenting relationships are an oft-investigated relational risk factor. Though review studies suggest that parenting is, on average, more strongly predictive of younger boys' DBP (Javdani et al. 2011), it remains an important risk factor and has been associated with girls' DBP in recent studies (e.g., Kroneman, Hipwell, Loeber, Koot and Pardini 2011). Examining parenting effects is beyond the scope of the current study, which is limited to relational influences outside the home.

Relational Risk Factors in Girls' Pathways to Disruptive Behavior Problems

Several factors may distinguish girls' pathways to developing DBP from boys, including peer relationships (Hubbard and Pratt 2002), early pubertal development (Haynie 2003), and romantic partnerships (Miller 2008). These issues are particularly salient for African American girls because they are more likely than White girls to experience early puberty (before age 10; Haynie 2003) and they report higher rates of risk-taking in romantic relationships compared to White males and females (Eaton et al. 2012; Miller 2008). The current study examines the longitudinal interrelationships among these risk factors.

Peer Relationships Peer relationships (e.g., attachment, relationships with deviant peers) and DBP are linked across many studies (Dishion, Patterson and Griesler 1994; Fergusson and Horwood 1996; Giordano, Cernkovich and Pugh 1986; Haynie 2001; Horwood and Fergusson 1997; Sampson and Laub 1993), yet few differentiate the effects of peer relationships on boys' versus girls' DBP. Studies that investigate gender-specific effects find that negative peer relationships influence both girls' and boys' DBP, including cross-sectional (Ardelt and Day 2002; Heinze, Toro and Urberg 2004; Mears, Ploeger and Warr 1998) and longitudinal studies (Erickson, Crosnoe and Dornbusch 2000; Jennings, Maldonado-Molina and Komro 2010; Liu and Kaplan 1999; Werner and Silbereisen 2003). However, some studies suggest stronger effects for boys or no effects for girls (e.g., Piquero, Gover, MacDonald and Piquero 2005). Though findings are somewhat mixed, a meta-analysis examining 97 effect size estimates in girls finds a robust influence of negative peer relationships on girls DBP (Hubbard and Pratt 2002), though reasons regarding how and why peers accord influence are less clear. Interestingly, research that distinguishes opposite-sex peer affiliations suggests stronger effects on girls' DBP and protective effects for boys (Haynie, Steffensmeier and Bell 2007). Though boys and girls report mixed-sex peer groups during adolescence, very little is known about the unique effects of girls' peer and romantic relationships examined together, or the mechanisms by which peer relationships promote DBP among girls. In the current study, peer, romantic and sexual relationships are examined in the context of a single model to determine whether each relationship context influences the development of girls' DBP uniquely and over time.

Early Pubertal Development Several cross-sectional (e.g., Beaver and Wright 2005; Flannery et al. 1993; Ge et al., 2006; Haynie 2003; Kaltiala-Heino et al. 2003; Negri et al. 2008; Susman et al. 2007) and longitudinal (Negri and Trickett 2010; Burt et al. 2006) studies document increased

risk for DBP among girls who show early pubertal development. These associations exist for normative and high-risk clinical samples, but the linkages are strongest for girls residing in under-resourced urban contexts (Carter, Jaccard, Silverman and Pina 2009; Dick, Rose, Viken and Kaprio 2000; Obeidallah et al. 2004). For example, Obeidallah et al. (2004) found that, after controlling for demographic characteristics, prior violence, and psychopathology, age of puberty predicted DBP three times greater among girls who resided in lower compared to higher SES neighborhoods. Attention to race is particularly important given differences in average age of puberty for African American girls, who begin puberty at ages 9–10, compared to White girls, who begin puberty around age 11 years (Himes 2004). A main implication is that earlier developing girls may be at higher risk of developing DBP (Brody, Conger, and Simons 2006).

Across studies, pubertal development has been assessed in a variety of ways, with distinct methods characterized by different strengths. For instance, pubertal onset can be examined by collecting information about age of menarche (e.g., Burt et al. 2006), using multi-item scales that assess the stage of girls' physical development across a variety of domains (e.g., body hair, skin changes, growth spurt, body shape; Petersen et al. 1988; Brooks-Gunn, Warren, Rosso and Gargiulo 1987), and using a comparative approach that assess pubertal development relative to peers (e.g., Bond et al. 2006; Davison, Susman and Birch 2003; Petersen et al. 1988). Though each method of assessment is related to the other, the latter approach (i.e., relative classification of puberty) is recommended for adolescent girls (e.g., Petersen et al. 1988), particularly if they identify as African American and/or report low socioeconomic status because these girls tend to develop earlier (Haynie 2003; Brooks-Gunn et al. 1987). Furthermore, while the first two approaches are particularly useful if research is interested in biological (e.g., hormonal) changes associated with puberty, the relative classification is recommended when researchers are interested in the social significance of pubertal development, and how these changes are associated with specific behaviors. This suggests that a relative assessment of puberty is particularly useful because it compares participants to their peers who are likely of similar SES and perhaps have exposure to similar environmental stressors that can impact pubertal onset (Brooks-Gunn et al. 1987). Thus, the current study examines relative pubertal onset, consistent with previous research on similar samples (Coakley et al. 2002; 2006; Swarr and Richards 1996; Wichström 2006).

Heterosexual Dating Relationships A robust literature links romantic relationships and internalizing mental health problems (particularly depression) among girls, with fewer studies examining DBP (e.g., see Starr, Donenberg and Emerson 2012). However, emerging evidence suggests that romantic

relationships are a risk factor for girls' DBP. In cross-sectional (Haynie et al. 2005) and longitudinal (Moffitt et al. 2001) studies, adolescent girls in romantic relationships are at a heightened risk for DBP relative to adolescent boys. Likewise, romantic relationships in early adolescence (6th grade) predict DBP in later adolescence (11th grade) for girls more than boys (Arndorfer and Stormshak 2008; Haynie et al. 2007). Romantic relationship dynamics (e.g., regarding negotiating decisions around sex) may be particularly important for African American girls given greater social and economic disadvantage, and are associated with girls' use of violence, a type of DBP (Miller 2008). These processes have been highlighted by ethnographic research (e.g., Miller 2008), but quantitative research to date has not distinguished between what aspects of romantic relationships are particularly risky and has instead relied on whether or not girls' report any dating experiences (e.g., see Javdani et al. 2011).

An important but overlooked distinction is between relationships that involve developmentally normative romantic experiences, such as holding hands and kissing, and relationships that include precocious sexual activity, including casual and unprotected sex with multiple partners at a young age (e.g., Armour and Haynie 2007; Starr et al. 2012; Williams, Connolly, & Cribbie, Williams, Connolly and Cribbie 2008). Previous research underscores the need to distinguish between romantic and sexual experiences, particularly for adolescent girls in psychiatric care (Starr et al. 2012). A maximum likelihood exploratory factor analysis with direct oblimin rotation was conducted on the Adolescent Sexual Activity Scale (also used in this study), and results identified two distinct factors (accounting for 61 % of the variance), corresponding to romantic versus sexual activities. Interestingly, distinct dating experiences predicted different outcomes; romantic experiences predicted internalizing symptoms while sexual experiences predicted externalizing symptoms (Starr et al. 2012). Important for the current study, sexual experiences have been more robustly linked with externalizing related behaviors, over and above romantic experiences (Starr et al. 2012). However, research in this area is limited by several factors. Most studies do not distinguish sexual and dating experiences in the context of the same model to identify their unique effects on DBP, and the role of early pubertal development, rarely examined, has been modeled as a control variable as opposed to a substantive explanatory variable. Thus, the current study distinguishes between romantic and sexual experiences on both empirical (Starr et al. 2012) and conceptual grounds (e.g., Williams et al. 2008; Starr et al. 2012).

The Combination of Romantic Relationships and Early Pubertal Development Girls' involvement with romantic partners and their early pubertal development may be a particularly maladaptive combination. Early pubertal development is

related to having older sexual partners and higher rates of teenage pregnancy (Magnusson, Stattin and Allen 1986; Manlove 1997; Moffitt et al. 2001), because sexually mature girls are more likely to seek out, and be sought out for, romantic partnerships (Javdani et al. 2011). Hence, pubertal development may moderate the link between romantic relationships and DBP, but few studies directly investigate this question. Though research indicates that there is variability in the nature and frequency of dating experiences (e.g., Starr et al. 2012), it is unclear whether early puberty is risky in relation to dating experiences broadly, or to specific types of dating experiences.

Relationship Processes and Self-Silencing Taken together, the literature suggests that girls' risky behavior emerges in a gendered relational context. Girls with DBP in the context of romantic and peer relationships may be enacting gender-congruent roles by fulfilling social expectations to prioritize relationships, romantic displays of sexuality, and caretaking even in the context of relationships that involve violence (e.g., Gilligan 1982). Certain psychological constructs may capture part of the dynamic between girls' peer and romantic relationships and DBP. One such construct, *self-silencing*, refers to the inhibition of self-expression and avoidance of conflict. Typically studied in relation to depression (e.g., Jack 1991), self-silencing may also be associated with pathways to girls' DBP. This notion is supported by ethnographic data, which suggests that girls initially attempt to maintain relationships through self-silencing, but subsequently resort to violence when their needs go unmet and they experience rejection (Brown 2003; Miller 2008). Importantly, these dynamics have been observed for both romantic (Miller 2008) and peer (Brown 2003) relationships, uncovering a process by which girls' deny or inhibit the expression of needs in order to avoid conflict with peers or partners. Over time, however, this inhibition of expression becomes part of an invalidating context that can promote externalizing-type behaviors, including "girl fights" (Brown 2003) and use of violence against male partners (Miller 2008). Thus, self-silencing may serve as a potential bridge between girls' relationships and DBP. Though this construct is most often examined in relation to internalizing outcomes and depression in particular, we include it in our models for at least two reasons. First, it is particularly relevant for a population of girls receiving psychiatric care, given the high level of internalizing/externalizing comorbidity in this population (e.g., Kessler et al. 2008; Zahn et al. 2008). Indeed, self-silencing may be especially important for girls in psychiatric care, who may have greater emotional reactivity that translates to externalizing-type behaviors. Second, self-silencing is a psychological experience that is conceptually in keeping with our ecological framework, because it is a gender-congruent act that results in the inhibition of self-expression for relationship maintenance goals (e.g., through

avoiding conflict). Thus, we include self-silencing in our a priori model of girls' DBP because of its potential to explain the ways in which peer and/or partner relationships influence the development of DBP.

The Current Study

We examine pathways to African American girls' DBP via pubertal development, peer relationships, romantic partnerships, and self-silencing using longitudinal data from 217 African American 12–16 year old girls and their female caretakers. This study addresses three specific gaps in the literature by examining 1) relationships among pubertal development, peer relationships, and romantic partnerships, 2) specificity in risk across different types of romantic dating experiences (e.g., sexual versus romantic) and 3) self-silencing as a possible mechanism by which peer and partner relationships accord risk for DBP.

Despite frequent characterizations that early pubertal development and unhealthy relationships among peers and romantic partners are associated with girls' DBP, research examining how the combination of these experiences function to promote or mitigate risk is lacking. A specific focus on youth receiving psychiatric care is critical as these teens have higher rates of DBP and greater social, emotional, and behavioral impairment than their non-troubled peers (e.g., Vernberg, Jacobs, Nyre, Puddy and Roberts 2004), and have under-resourced ecological contexts, placing added pressure on girls' existing relationships to provide support and affiliation (e.g., with peers and romantic partners). Indeed, these impairments influence and are influenced by healthy relationship development, particularly for girls (Taylor et al. 2000). Thus, the combination of greater psychological distress (including through early maturation), ineffective relational skills, and low support relationships present in these girls warrants consideration (Ellis et al. 1999). Further, this strategy allows us to examine the extent to which girls' DBP are associated with general versus specific relationship deficits (i.e., in romantic but not peer relationships), assess these associations with attention to girls' pubertal maturation, and provides an opportunity oversample girls with greater DBP.

Consistent with previous research and our ecological framework, we hypothesize that 1) more supportive non-romantic peer relationships will protect against DBP. In addition, 2) romantic dating experiences will be associated with greater DBP, regardless of girls' pubertal maturation level. However, 3) sexual dating experiences, in which girls may take greater emotional and physical risks (e.g., unprotected sex), will be a particularly strong risk factor for *early* versus *average/late* developing girls' DBP. This last hypothesis is novel in its assumption that sexual dating experiences require

a level of maturity that may be less likely among girls who have matured biologically but not yet socially. To test these hypotheses, we examine associations among peer, romantic, and sexual relationships and DBP, and investigate the extent to which pubertal maturation moderates these links.

Finally, a more exploratory hypothesis is investigated in relation to 4) the role of self-silencing as a mediator of relational risk. Based on research linking self-silencing with negative mental health outcomes, particularly for girls in psychiatric care (Jack 1991), we explore self-silencing as a psychological experience that may mediate the association between peer, romantic, and sexual relationships and girls' DBP. There is little reason to suspect that self-silencing would mediate a particular type of relationship (e.g., peer, romantic, sexual). Hence, we examine it as a mediator of each of the three relationship types – peer, romantic, and sexual.

Method

Participants and Procedure

The University Institutional Review Board approved this research. This study is part of a longitudinal project to understand HIV-risk behavior among African American girls seeking psychiatric services. Female caregivers (hereafter referred to as “mothers”) and daughters were recruited from eight mental health clinics in a large Urban City. Clinic personnel obtained permission from families to send contact information to research staff. Eighty-two percent of invited participants ($N=266$) enrolled in the study. As determined by clinic staff, youth with mental retardation, severe cognitive impairment, or were wards of the State were excluded. After providing consent and assent, mothers and daughters completed questionnaires, a computer-assisted self-interview, a structured diagnostic interview, and activities unrelated to these analyses. 6 months (T2) and 1 year (T3) after baseline, families completed assessments ($n=217$, 81.2 % and $n=200$, 78.0 % retention, respectively). Mothers and daughters were each compensated with \$45 at T1, \$50 at T2, and \$55 at T3 plus travel expenses.

The current study includes daughters who reported at least one heterosexual romantic relationship (ten girls indicated only same-sex partners). Baseline demographic data were available for 256 12–16 year-old ($M=14.45$; $SD=1.15$) daughters and their 23–83 year-old ($M=43.18$; $SD=11.25$) caregivers, including biological mothers (73 %), grandmothers (16 %), and other female caregivers (11 %). The majority of mothers reported low to moderate household incomes, with one-third (30.1 %) endorsing an overall family income of \$8–19,000, and another 28.9 % reporting an income of \$20–29,000. Mothers' education levels varied: 22.4 % reported partial high school, 23.1 % were high school

graduates, 38.8 % attended partial college and received special training, and 12.9 % were college graduates and/or had graduate or professional training (Table 1).

Measures

Demographics. At baseline, mothers provided demographic information about their own and their daughter's age, education, family income, and maternal caregiver status (e.g., biological mother, aunt).

Pubertal maturation was assessed at baseline using the Pubertal Development Scale (PDS), a widely-used measure with good psychometric properties (Petersen, Crockett, Richards and Boxer 1988). Five items on the PDS assess physical puberty including body hair, skin changes, breast growth, growth spurt, and body shape on a 4 point Likert-type scale (1=*not started*, 2=*yes, barely*, 3=*yes, definitely*, 4=*already past or finished*). At the time of baseline assessment, caretakers endorsed the following proportions for body hair (2 % *not started*, 9 % *yes, barely*, 55 % *yes, definitely*, 34 % *already past or finished*), skin changes (13 % *not started*, 18 % *yes, barely*, 59 % *yes, definitely*, 10 % *already past or finished*), breast growth (1 % *not started*, 10 % *yes, barely*, 71 % *yes, definitely*, 18 % *already past or finished*), growth spurt (11 % *not started*, 17 % *yes, barely*, 56 % *yes, definitely*, 17 % *already past or finished*), and body shape (3 % *not started*, 14 % *yes, barely*, 71 % *yes, definitely*, 13 % *already past or finished*). We report these items for descriptive purposes. Because we were interested in pubertal stage (early versus average or late), the current study utilized a single-item assessment of *Pubertal Development* developed by Petersen and colleagues (1988) asking mothers, “Does your adolescent's physical development seem to be earlier or later than most of the other girls her age?”, using a 5 point Likert-type scale (1=*Much earlier*, 2=*Somewhat earlier*, 3=*About the*

Table 1 Descriptive Statistics Key Measures for Total Sample at Baseline ($N=256$)

Study Measures	Mean (SD)
Disruptive behavior problems	
CBCL (Caretaker Report)	62.27 (11.97)
YSR (Youth Report)	56.61 (10.61)
Pubertal Development	2.93 (0.51)
Early Developing	Frequency=95
Average/late Developing	Frequency=161
Romantic Partner Dating Experience	7.49 (5.04)
Romantic Experiences	5,011 (2.82)
Sexual Experiences	1.82 (2.34)
Peer Relationships	98.09 (15.69)
Self-Silencing	14.98 (5.04)

CBCL=Child Behavior Checklist. YSR=Youth Self Reprt.

same, 4=Somewhat later, 5=Much later). This single-item assessment of relative pubertal development is described in the original article on the development of the PDS (Petersen et al. 1988, pp. 127–130). Petersen and colleagues present this single-item “categorical” assessment as a viable alternative to assessing physical puberty and find that the two constructs are related but distinct ($r=0.30$, $p<0.05$ in the present study). In particular, this and other studies (e.g., Brooks-Gunn et al. 1987) suggest that the relative categorical classification appears to “provide an excellent way of portraying the pubertal status of girls” (Petersen et al. 1988, pg 129). This recommendation is made for several reasons, including a) physical changes associated with girls, specifically puberty tends to be underreported (with the exception of body weight), making relative pubertal timing an excellent assessment since this underreporting applies for all girls (also see Brooks-Gunn et al. 1987); b) categorical indicators of relative puberty are best when researchers are interested in the societal significance of pubertal change (e.g., when social norms are violated when adolescents mature very early or very late; Petersen and Taylor 1980; Tobin-Richards et al. 1983; Petersen and Crockett 1985) and do not directly examine the hormonal changes associated with puberty (Brooks-Gunn et al. 1987); and c) research questions that are developmental in nature and whose purpose is to examine behavioral effects of puberty (versus psycho physiological changes) are best examined using relative assessments of puberty (Brooks-Gunn et al. 1987), particularly if studies include female-only samples that include girls who are not completely post-pubertal (Brooks-Gunn et al. 1987). Thus, in keeping with these recommendations, the current study uses the single item measure to assess the relative onset of girls’ pubertal development in all substantive analyses. This is consistent with previous research on similar samples (Starr et al. 2012), and with other recent studies recommending stage-based assessments of pubertal development (e.g., Bond et al. 2006; Davison, Susman and Birch 2003). In addition, previous research has used this same single-item assessment (Coakley et al. 2002; 2006; Swarr and Richards 1996; Wichstrøm 2006), and supports its validity (Wichstrøm 2001). Furthermore, relative puberty has been noted as an important risk factor in national reports on girls with disruptive behavior problems (Hawkins, Chiancone and Whitworth 2008), and is a meaningful experience for African American girls, who are likely to develop earlier compared to their White counterparts (e.g., see Haynie 2003). This suggests that a relative assessment of puberty is particularly important, because it compares participants to their peers who are likely of similar SES and perhaps have exposure to similar environmental stressors/influences that can impact pubertal onset (Brooks-Gunn et al. 1987). In this study, 95 (37.1 %) girls were early developers and 161 were late or average developers (62.9 %; see Tables 1 and 2).

Peer relationships were assessed at baseline using the Inventory of Parent and Peer Attachment (IPPA). We were interested specifically in girls’ perceptions of peer relationships, including strength of attachment in peer relationships, degree of mutual trust, quality of communication, and extent of anger and alienation between youth and peers (Armsden and Greenberg 1987). The total score for the IPPA is an index of psychological security, with higher scores predicting positive self-concept and general family functioning (Lewis et al. 1987). The scale has been used extensively with teens and preteens. A total *Peer Relationship* score ($\alpha=0.90$) was calculated based on 25 items assessing girls’ attachment to and support from peers (e.g., “my friends encourage me to talk about my difficulties”; “I feel alone or apart when I am with my friends”).

Romantic and sexual dating experiences were assessed at baseline using items based on and adapted from the Adolescent Sexuality Activity Index (ASAI; Hansen, Paskett and Carter 1999). Girls reported engagement in 16 romantic/sexual experiences. Previous research suggests that the ASAI separates into two distinct factors; namely romantic and sexual experiences (Starr et al. 2012). This was justified using exploratory factor analysis using direct oblimin rotation, and suggested two separate factors accounting for 61 % of the total variance in ASAI. Specifically, eight items indexed romantic activities and are labeled *Romantic Dating Experiences* (e.g., “have you ever cuddled with someone you liked as more than a friend?” $\alpha=0.90$) and six items indexed sexual activities and are labeled *Sexual Dating Experiences* (“has a boy ever put his hands under your clothing?” $\alpha=0.93$). Two items were not included in any subscales. The current study examines the romantic and sexual experiences subscales as separate but related indicators of heterosexual dating experiences based on previous research with girls receiving psychiatric care (Starr et al. 2012). Romantic and sexual experiences are significantly correlated ($r=0.62$, $p<0.05$) as also reported in the original factor analysis (Starr et al. 2012), and range from 0 to 8 and 0 to 6 experiences in this sample, respectively.

Self-Silencing was measured at 6 month follow up using the silencing the self-scale adolescent version (STSS-A) and assessed girls’ suppression of their beliefs, feelings, or needs in intimate relationships. Higher scores reflect greater tendency to self-silence. Adapted from the Silencing-the-Self-Scale for adults (Jack 1991), the adolescent version (Spinazzola and Stocking 1998) includes 23 items that can be used to calculate a total score and specific subscales. The total scale was internally consistent ($\alpha=0.86$), and subscales were moderately consistent: *self-silencing* ($\alpha=0.61$; “I usually go along with what my partner thinks or needs, even if I want something else”); *care as self-sacrifice* ($\alpha=0.68$; “In a relationship, my job is to make my partner happy”); *divided self* ($\alpha=0.69$; “I often look happy on the outside, but on the inside I feel angry and rebellious”); *jealousy* ($r=0.72$; “I avoid talking to other people

Table 2 Correlations between Key Study Variables at Baseline and in relation to DBP at 1 year (N=217)

Baseline						
	Pubertal Development	Peer Relations	Romantic Dating	Sexual Dating	Self-Silencing	YSR
DBP						
CBCL	0.12	-0.20**	0.13*	0.25**	0.18*	0.47**
YSR	0.22**	-0.27**	0.39**	0.47**	0.31**	1.0
Predictors						
Pubertal Development	1.0	0.00	-0.14*	-0.12	-0.14*	–
Peer Relations	–	1.0	0.08	-0.08	-0.48**	–
Romantic Dating	–	–	1.0	0.62**	0.01	–
Sexual Dating	–	–	–	1.0	0.07	–
1 Year Follow Up						
DBP	Pubertal Development	Peer Relations	Romantic Dating	Sexual Dating	Self-Silencing	YSR
CBCL	0.04	-0.22**	0.07	0.13	0.04	0.38**
YSR	-0.10	-0.26**	0.37**	0.35**	0.19*	1.0

DBP=Disruptive Behavior Problems. CBCL=Child Behavior Checklist. YSR – Youth Self Report. * $p < 0.05$, ** $p < 0.01$.

so I won't make my partner jealous"). In SEM, a latent *Self-Silencing* variable was created using the original subscales at the 6 month follow-up assessment, and it demonstrated adequate fit ($\chi^2 = 14.72$ (5), $p < 0.05$; CFI=0.97, RMSEA=0.11, SRMR=0.038), with each subscale loading significantly onto the latent variable (β s between 0.56 and 0.86, $ps < 0.01$).

Disruptive Behavior Problems. DBP were assessed using broad band scores of the externalizing scale of the parent-reported Child Behavior Checklist (Achenbach 1991a) and the girl-reported Youth Self-Report (YSR; Achenbach 1991b) collected at the 12 month follow-up. The CBCL and YSR are widely-used parent- and adolescent-report measures of child behavior problems that generates raw and T-scores, with T-scores > 63 considered in the clinical range. The YSR is normed for children age 11–18 years. The CBCL and YSR have strong psychometric properties (Achenbach 1991b; here, $\alpha = 0.87$ to 0.96), including test-retest reliability, criterion validity, and convergent validity (Achenbach 1991a,b). The CBCL and YSR offer valid and reliable assessments of DBP, particularly when both parent and child reports are combined, and address critiques regarding an overreliance on DSM-based conceptualizations of psychopathology (e.g., Adam 2013). Based on endorsements from either parents (i.e., CBCL) or youth (i.e., YSR), 56.6 % of girls' scored in the clinical range for externalizing psychopathology. A latent *DBP* variable was created using the CBCL and YSR externalizing raw scores (as recommended by Achenbach 1991b) collected at 12 month follow-up. Path coefficients justified this variable, with significant loadings of the YSR ($\beta = 0.87$) and CBCL ($\beta = 0.44$) externalizing symptoms on the latent DBP variable ($ps < 0.01$).

Analyses

An a-priori power calculation, assuming small effect sizes, suggests 90 % power given a minimum sample size of 138

participants. Descriptive and distributional characteristics of variables were evaluated. Bivariate correlations between the predictor and outcome variables were examined before proceeding with structural equation modeling (SEM) analyses (see Table 2) using the statistical software MPLUS (Muthén and Muthén 1998–2007). Relationships among key independent and intermediary variables were examined using SEM to test the associations specified in the model and to identify predictors of girls' DBP (see Fig. 1a and b). SEM analyses used full information maximum likelihood estimation to retain participants who completed measures on some scales even if a measure on one scale was missing. The total sample size in MPLUS was 217 when all 3 time points were included in the model.

Age and family income were included as covariates in all analyses but family income did not alter results. Thus, only adolescent age is included as a covariate in the final models. Finally, baseline DBP were included as covariates in preliminary models to account for girls' initial DBP. However, inclusion of baseline DBP did not alter results substantively (namely; significant predictors and moderators remained significant and no other significant relationships emerged). All of the following analyses omit baseline psychopathology as a covariate for parsimony and are in keeping with recommendations to include fewer than 20 indicators in our models (1 for every 10 participants) given our final sample size of 217 (e.g., Kline 2011).

Data analyses followed three steps. (1) We assessed the full (Fig. 1a) and mediated (Fig. 1b) measurement models to determine if self-silencing fully mediated the relationship between peers, partners, puberty, and DBP. (2) A chi squared (χ^2) difference test evaluated whether the full or mediated model fit the data better. Finally, (3a) we examined structural relationships among the variables, including the direct and indirect paths. We examined indirect paths by bootstrapping

5,000 samples to create a bias-corrected 95 % confidence interval around indirect effects (see Preacher and Hayes 2008). This approach increases power while controlling for Type I error (MacKinnon, Lockwood and Williams 2004). Next, we assessed whether the 95 % confidence intervals included zero, suggesting insufficient evidence for an indirect effect. Furthermore, (3b), we examined the role of pubertal development as a moderator of hypothesized relationships by conducting multi-group modeling and examining the full model including residualized interaction terms between key variables and pubertal development. The combination of these analyses clarified whether pubertal development is important to examine in relation to the model as a whole, as well as to determine which relationships were moderated.^{1,2}

In all analyses, baseline data served as indicators of peer relationships, pubertal development, romantic dating experiences, and sexual dating experiences. 6 month follow-up data were used for silencing-the-self because of its hypothesized role as a mediator, and 1 year follow-up data were used to assess DBP. Previous research with similarly aged youth recruited from clinical and forensic settings (which focused on DBP) demonstrate that 3 months is an adequate follow-up period to capture changes in DBP outcomes and relationships with risk factors related to peer and partner relationships (e.g., Jouriles, Mueller, Rosenfield, McDonald and Dodson 2012). Thus, 6 months is a justified follow-up interval period with psychiatric samples of youth, particularly when examining

DBP, which tend to vary more than in adult or non-psychiatric samples (e.g., Paradise and Mari Cauce 2003).

Results

Examining Measurement Models

Step 1. Figure 1a depicts the *full model* with a) direct paths to DBP from peer relationships, pubertal development, romantic dating experiences, sexual dating experiences, and the 2-way interactions between variables and pubertal development; b) direct paths to Self Silencing from peer relationships, pubertal development, romantic dating experiences, sexual dating experiences; and c) a direct path from Self-Silencing to DBP. We compared this model to a nested *mediated model* depicted in Fig. 1b that includes a) direct paths to Self Silencing from peer relationships, pubertal development, romantic dating experiences, sexual dating experiences, and the interactions between variables and pubertal development, and b) a direct path from Self Silencing to DBP. Fit indices for the full model were adequate, $\chi^2=78.86$ (54), $p<0.05$; CFI=0.94, RMSEA=0.046, SRMR=0.046; Fit indices for *mediated model* were also adequate $\chi^2=118.11$ (61), $p<0.05$; CFI=0.86, RMSEA=0.066, SRMR=0.064.

Step 2. A χ^2 difference test (Kline, 2011) indicated that the full model was a significantly better fit to the data than the mediated model (χ^2 difference=39.24, $df=7$, $p<0.01$), suggesting little evidence for the mediated model. Thus, the remainder of the results focus on findings for the full model.

Examining the Structural Model

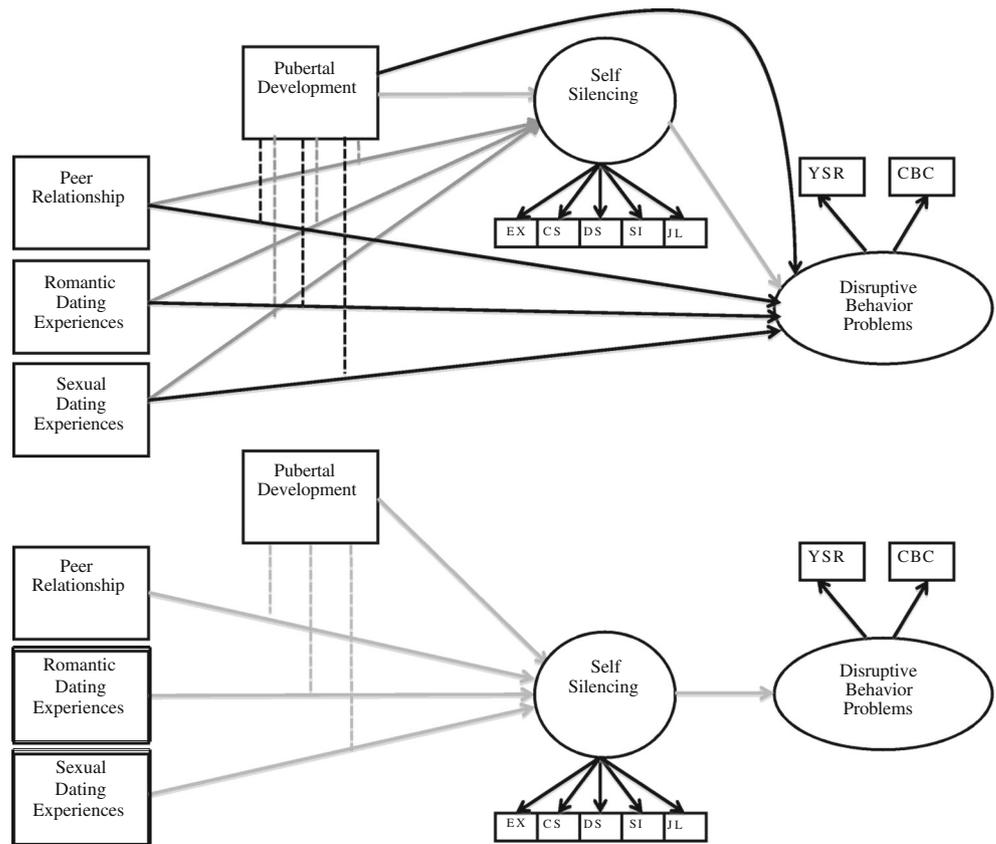
Step 3a. Before testing specific relationships, we conducted multi-group modeling to examine whether pubertal development moderated the full model. Multi group modeling assessed whether a pubertal maturation-variant model (with paths allowed to vary between early and average/late developers) would fit the data better than a pubertal maturation-invariant model (with paths constrained to be equal across early and average/late developers). Results indicated that the pubertal maturation-variant model was characterized by good overall fit (χ^2 (78)=114.94, $p<0.05$; CFI=0.92; TLI=0.90; RMSEA=0.06) and was a significantly better fit compared to the pubertal maturation-invariant model (χ^2 (8)=15.95, $p<0.05$), indicating that variation in pubertal development predicted girls' DBP.

Step 3b. Figure 2 depicts the significant path loadings in the full model. This model explains 34.0 % ($p<0.01$) of the variance in girls' DBP. Lower quality peer relationships ($\beta=-0.25$, $SE=0.20$, $p<0.01$) and more romantic dating experiences ($\beta=0.42$, $SE=0.10$, $p<0.01$) at baseline were associated with DBP 1 year later, while pubertal development

¹ We conducted supplementary analyses using the 5-item measure of the PDS (which does not include the single-item measure of puberty meant to be utilized on its own) with the full model in MPLUS. These results suggest a poor fitting model ($\chi^2=221.2$ (54), $p<0.05$; CFI=0.66, RMSEA=0.12, SRMR=0.09), though all substantive relationships remain the same, with the exception of the pubertal development by sexual dating experiences interaction, which does not reach significance ($\beta=0.04$, $p=0.67$).

² We conducted supplementary analyses to further examine the role of relative pubertal development, given theoretical and analytical reasons to suggest that the 5-item and single-item measures of the PDS are distinct. That is, the assessment of relative pubertal onset used in this study is a theoretically distinct construct than the 5-item composite measure of the PDS, with the former assessing the pubertal development of girls *relative* to their peer groups while the latter is an index of the extent to which girls' have already gone through physical changes associated with puberty at the time of assessment (Petersen et al. 1988). Given these results, we conducted supplementary analyses (as suggested by Brooks-Gunn et al. 1987), in which we use the 5-item index of pubertal maturation as a covariate. We do so in order to examine the extent to which relative pubertal development is associated with disruptive behavior disorders above the influence of physical maturation alone. We find support for the original model reported in the manuscript, with all substantive relationships remaining the same (including the pubertal development by sexual experiences interaction) and an adequate model fit ($\chi^2=14.27$ (54), $p<0.05$; CFI=0.93, RMSEA=0.06, SRMR=0.02). These results support the assertion that *relative* pubertal development is a distinct risk factor for girls' disruptive behavior disorders, above the influence of physical maturation alone.

Fig. 1 Longitudinal Interrelationships Among Key Study Variables. Note. Dotted lines represent modeled interactions. Black arrows represent direct paths to Disruptive Behavior Problems. Gray arrows represent mediated paths via Self-Silencing. YSR= Youth Self Report. CBC=Child Behavior Checklist. EX=Externalizing Self; CS=Care as Self Sacrifice; DS=Divided Self; SL= Self Silencing; JL=Jealousy



($\beta=-0.26$, $SE=0.42$) and sexual dating experiences ($\beta=-0.02$, $SE=0.11$) were not ($ps>0.50$). However, pubertal development moderated the relationship between baseline sexual dating experiences and DBP 1 year later ($\beta=0.28$, $SE=0.13$, $p<0.05$), but did not moderate the relationship between DBP and peer relationships ($\beta=0.31$, $SE=0.42$, *ns*) or romantic dating experiences ($\beta=-0.22$, $SE=0.20$, *ns*). Specifically, early developing girls who reported more sexual dating experiences with romantic partners were also more likely to have DBP at 1 year follow-up compared to average or later developing girls. In addition, Self Silencing at 6 month follow-up was positively related to DBP at 12 months ($\beta=0.22$, $SE=0.09$, $p<0.05$). The only predictor of self-silencing was poor quality peer relationships ($\beta=-0.36$, $SE=0.09$, $p<0.01$).

Indirect relationships tested whether self-silencing influenced risk for DBP via peer relationships, dating experiences, and pubertal development. Using bootstrapping methods, there was partial support for our hypotheses; Self Silencing mediated the association between Peer Relationships and DBP ($\beta=-0.08$, $SE=0.04$, $p<0.05$; 95 % Confidence Interval (CI) [-0.11, -0.03]), but not between Romantic 95 % CI [-1.2, 2.3] or Sexual 95 % CI [-0.5, 2.1] experiences (β s between -0.10 and 0.04, $ps>0.34$). Hence, lower quality peer relationships at baseline were associated with risk for DBP at 1 year follow-up via Self Silencing at 6 month follow-up. Additionally analyses were also conducted to examine the fit and parameter estimates

of the full model, removing self-silencing as an explanatory variable. Results suggest that model fit does not decrease considerably: ($\chi^2=14.78$ (7), $p<0.05$; CFI=0.92, TLI=0.80, RMSEA=0.08) without self-silencing in the model. However, all romantic relationship predictors of DBP remain the same. Specifically, lower quality peer relationships ($\beta=-0.36$, $SE=0.10$, $p<0.01$) and more romantic dating experiences ($\beta=0.45$, $SE=0.11$, $p<0.01$) at baseline were associated with DBP 1 year later, while pubertal development ($\beta=-0.16$, $SE=0.46$) and sexual dating experiences ($\beta=-0.02$, $SE=0.11$) were not ($ps>0.70$). However, pubertal development moderated the relationship between baseline sexual dating experiences and DBP 1 year later ($\beta=0.31$, $SE=0.14$, $p<0.05$), but did not moderate the relationship between DBP and peer relationships ($\beta=0.13$, $SE=0.47$) or romantic dating experiences ($\beta=-0.14$, $SE=0.21$; $ps>0.50$). These results suggest that self-silencing is a specific mediator between peer relationships and DBP (as suggested by the bootstrapping mediation analyses), but that its inclusion or exclusion in the model does not alter the relationships between other substantive variables, which remain robust.

Discussion

This study makes three important contributions by focusing on a population of girls in psychiatric care. These youth are

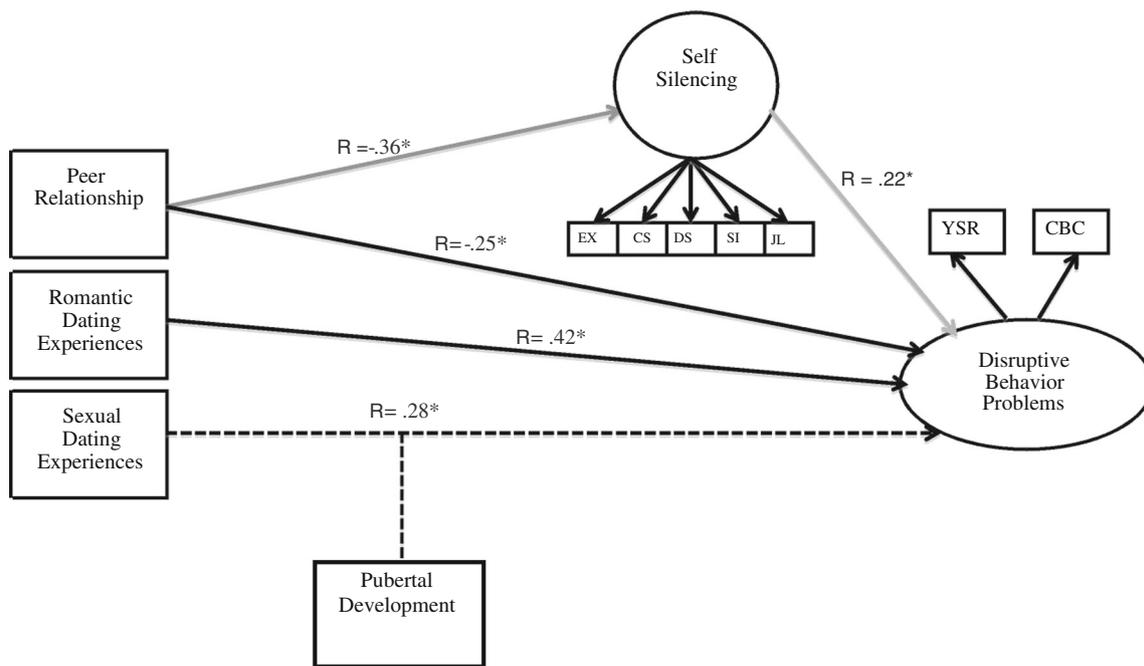


Fig. 2 Results for Structural Model Evidenced in SEM Analysis. Note. Only significant paths loadings are depicted $*=p<0.05$. Dotted lines represent modeled interactions. Black arrows represent direct paths to Disruptive Behavior Problems. Gray arrows represent mediated paths via

Self-Silencing. YSR=Youth Self Report. CBC=Child Behavior Checklist. EX=Externalizing Self; CS=Care as Self Sacrifice; DS=Divided Self; SL=Self Silencing; JL=Jealousy

more likely than their population-based peers to experience mental health symptoms (Glaser 2000), including for DBP (Cauffman, Feldman, Watherman and Steiner 1998). However, less is known about girls' DBP despite evidence that girls referred to treatment for disruptive problems often have severe social and mental health needs (e.g., Hawkins, Chiancone and Whitworth 2008; 2010). First, results underscore the importance of dating experiences as a risk factor for DBP, and pubertal development as a moderator of this association. The combined effect of sexual dating experiences and early puberty confers risk for DBP more than the risk conferred by each factor alone. Second, these data highlight the impact of self-silencing on DBP directly and indirectly as a psychological mechanism promoting risky behavior through its association with peer relationships. Third, this study examines multiple risk factors for girls' DBP, at the biological, social and intrapsychological level. Findings are interpreted in light of an ecological framework emphasizing the importance of risky contexts on girls' mental health outcomes, and advances clinical implications focusing on low-income African American girls at psychiatric risk.

Romantic Relationships Confer Risk for DBP

As suggested by previous research, dating relationships matter for girls' mental health outcomes (Ackard et al. 2003; Starr et al. 2012), and unlike their protective effect for boys, may actually promote DBP in girls (Steffensmeier and Allan 1996;

Starr et al. 2012). In this study, African American girls were mainly from low-income neighborhoods where violence and crime are prevalent. It is possible that girls' romantic partners in this context provide opportunities to engage in DBP (Obeidallah et al. 2004). This study suggests that romantic experiences (in the absence of sexual experiences) can directly exacerbate mental health risk. This pattern is consistent with ethnographic accounts where girls take risks to maintain relationships (Miller 2001; 2008), particularly when they perceive a shortage of eligible men (e.g., Stack 1974). Indeed, some research suggests that the shortage of African American males may promote women's tolerance of infidelity or domestic violence in order to maintain a relationship (Miller 2001; 2008). In this study, African American girls from under-resourced, urban contexts placed more emphasis on relationship maintenance even if it promoted negative health behavior.

Findings in this study revealed the important role of sexual dating experiences in the context of African American girls' early pubertal development. Poor nutrition and increased obesity are implicated in early puberty, and living in low-income neighborhoods is frequently cited as a reason for these negative health outcomes (World Health Organization 2012). Research and theory demonstrate that DBP in girls are linked to both biological changes that occur during puberty and gendered social factors (Haynie 2003). Early puberty is related to increased pressure to engage in more mature social roles before girls may be emotionally and cognitively prepared

(Eichorn 1975). Even parents report higher expectations for daughters who develop early, giving them more responsibility and autonomy than their later-developing counterparts (Silbereisen and Kracke 1997). However, early puberty does not reflect more mature cognitive and abstract reasoning or executive functioning (Haynie 2003). Inappropriate social expectations combined with age-appropriate cognitive functioning (e.g., 10 year old) increase girls' exposure to potentially risky contexts that facilitate DBP, such as relationships with older men (Haynie 2003), without important developmental skills or experience to navigate them.

Self-Silencing as a Risk Factor for DBP in Girls

The current study extended previous research by revealing direct and indirect (via lower quality peer relationships) influences of self-silencing on girls' DBP. The direct relationship between self-silencing and DBP may be understood in the context of girls' ecological risk. In particular, the African American girls in this study were from relatively low-income households, and girls in psychiatric care tend to have strained family relationships, leading to social and emotional isolation. Girls' DBP may be a strategy to engage their social support system as a form of communication to garner attention. This theory has been advanced in previous qualitative research examining "girl fights" (Brown 2003) and girls' engagement in violence (Javdani 2013). Like the current project, these studies included mostly women and girls of color from low socioeconomic status, suggesting that gender, class, and race/culture may impact these relationships. For instance, gender roles may become salient in the relation between self-silencing and DBP if girls experience less interpersonal/relationship power (e.g., see Chesney-Lind and Shelden 2004; Javdani et al. 2011). Other research describes the complex dynamics through which DBP are normalized and frequently used to negotiate relationship needs among women and girls (Miller 2008). These factors likely combine to create a context in which it becomes adaptive for girls to use extreme behaviors to engage the people in their lives.

The indirect relationship from low quality peer relationships to DBP via self-silencing can also be understood using this ecological frame. Girls with few or low quality peer relationships, particularly those in mental health services as in the present study, may be stripped of an important relational resource, and therefore, be more willing to self-silence to preserve any existing peer relationships. Girls may self-silence to overcompensate for their dependence on partners to fulfill their needs for attachment. However, self-silencing may ultimately promote DBP because girls "do whatever it takes" to maintain relationships (e.g., substance use, shoplift, etc.) – that is, engaging in risk behavior may enhance peer approval (e.g., Impetti, Sorsoli, Schooler, Henson and Tolman 2008; Miller and Fox 1987). Also, the salience of peers

increases over the course of adolescence (Steinberg 2007), and adolescents tend to "experiment" with relationship authenticity (the congruence between how they think/feel and act) with their peer groups (Impetti et al. 2008). This suggests that youth may be engaging in an iterative process with their peers whereby they gain an understanding of the benefits of self-silencing, which can be numerous for youth whose relationships are strained (Carr, Gilroy and Sherman 1996). The lack of an indirect association between romantic relationships and self-silencing suggests that the peer context may be particularly powerful in socializing girls about when and how it is acceptable to express their needs within or outside of romantic relationships (Allen et al. 2013a). For instance, psychologically secure peer relationships might help girls develop a stable self-concept (Lewis et al. 1987) and protect against self-silencing with romantic partners. Moreover, girls at this age are likely to have mixed-sex peer groups that provide a context of socialization around heterosexual relationship dynamics that reify the sexual objectification of girls and the status gains for boys in procuring multiple sexual partners (e.g., Collins, Welsh and Furman 2009; Allen, Lehrner, Davis, and Javdani 2013; Miller 2008) – a classic social bind that can have later implications for mental health problems (e.g., Frye 1983). Thus, even though self-silencing only mediates the link between negative peer influence and DBP, the dynamics of girls' peer relationships may permeate in ways that influence their dating lives.

Finally, it is important to consider whether and to what extent the association between peer influences and self-silencing would remain if we were examining internalizing behaviors. Based on prior studies, it is likely that self-silencing is a key psychological mechanism linking relational contexts of risk to internalizing problems. For instance, self-silencing is evidenced as a partial mediator in the relationship between rejection sensitivity with peers and depression (Harper, Dickson and Welsh 2006), and self-silencing with peers predicts anxiety and eating disorder symptomology (Lieberman et al. 2001). However, because no existing studies have examined the model proposed by the current study in relation to internalizing outcomes, future research is needed to investigate whether self-silencing also mediates the link with romantic and sexual experiences, and whether pubertal development moderates these associations.

Focus on Girls' DBP

This study extends existing theory and research on DBP in girls, an under-studied and growing area of public health concern. Previous studies have cautioned against prematurely applying theories of DBP developed on males to girls' lives (e.g., Chesney-Lind 2001). The current study offers new information about girls' DBP pointing to ecological risk factors – including peers, romantic partners, and pubertal development – that interrelate to promote DBP. Though female-specific examinations of mental health often focus on internalizing disorders, DBP are common in girls, particularly

those living in under-resourced environments where greater health disparities may increase the impact of peer and partner relationships and interact with early pubertal development and self-silencing to promote risk for DBP.

Clinical Implications

Results of this study have implications for assessment and treatment. First, it is essential to broadly assess girls' ecological risk in addition to their individual risk. For girls in psychiatric care, there is ample opportunity to evaluate risks posed by romantic relationships, sexual experiences, peer relationships, pubertal development, and communication skills (e.g., self-silencing) in negotiating relationship needs. Questions (e.g., about pubertal development) can supplement usual clinical assessments and include reports by significant others (e.g., parent or peer). This information can indicate girls' risk for DBP and suggest specific targets of intervention. Second, a comprehensive assessment of girls' access and need for resources related to multiple domains (e.g., housing, education, employment, healthcare) can be particularly important to guide treatment planning, particularly for low-income girls' receiving mental health services (e.g., see Sullivan and Bybee 1999). This is particularly important given that ecological contexts of girls in psychiatric care are likely under-resourced in multiple ways, placing added pressure on girls' existing interpersonal relationships (e.g., with peers and romantic partners) to provide warmth and support.

Third, these data underscore the importance of early intervention for girls' mental health. In this study, girls were 14 years old on average and elevated levels of DBP already characterized the majority (over 56 %). Thus, mid-adolescence may already be too late for prevention and early intervention, suggesting a need to begin treatment during pre- and early-teen years, during which time puberty has started and romantic and more complex peer relationships are forming (Haynie 2003).

Fourth, a key finding from this study is that relationships matter for girls' mental health. This is a key consideration for girls receiving psychiatric care, because these girls report greater romantic and sexual activities than their population-based counterparts (e.g., Miller 2008; Starr et al. 2012). The current results suggest specific recommendations for intervention and prevention. The structure of interventions should be geared towards girls' strengths and emphasize relationship-based models of care. Evidence for the effectiveness of these types of interventions, which include explicit assessment of and sensitivity to relationships with romantic partners, is growing (e.g., Harris and Falot 2001) and research suggests that relationship-based interventions are significantly more effective in improving women's mental health symptoms as compared with treatment as usual (Morrissey et al. 2005). Relationship-based models of care have also demonstrated

promise in reducing risky behavior for adolescent girls involved in the juvenile justice system (Javdani and Allen 2014). A central mechanism of change is their reliance on supportive relationships in which girls learn to assert their needs in the process of treatment delivery (Allen, Larsen, Trotter and Sullivan 2013a).

Relatedly, promoting healthy relationships can also be a target of change in mental health treatment. For instance, assertiveness strategies can help reduce tendencies to self-silence. Interpersonal effectiveness skills can also be used to challenge misperceptions about girls' interpersonal rights (e.g., the right to have needs) and provide concrete skills to negotiate, compromise, and assert one's needs (e.g., Linehan 1993). Negotiation around sexual needs is of particular importance for girls, especially African American females who are at disproportionate risk for acquiring sexually transmitted infections (Starr et al. 2012). This may involve sex education so girls' are informed about their sexual risks and rights, as well as adaptations of assertiveness and interpersonal effectiveness skills to sex-related concerns. This is particularly important in light of research that girls of color report low levels of self-efficacy in negotiating sexual needs (O'Sullivan and Meyer-Bahlburg 2003). In combination, these assessment and treatment strategies may ultimately promote girls' healthy attachment and long-term mental health.

Limitations and Future Research

Despite the study's many strengths, including the use of a prospective design and a focus on a clinical sample of low-income African American girls and their caretakers, limitations warrant careful consideration of the results. First, findings may not generalize beyond urban African American girls in mental health care. Second, all data were self- or caretaker- report, and thus, may suffer from social desirability biases (e.g., reports of sexual experiences), though use of the Audio Computer-Assisted Self Interview (ACASI) and multiple informants diminishes this likelihood. One subscale of the self-silencing measure had moderate internal consistency, potentially because it was used with a relatively high-risk sample of girls in psychiatric care. Further research is needed to evaluate the measurement characteristics of this questionnaire. However, we created a latent variable of self-silencing for the analyses, which demonstrated excellent fit in this sample, providing increased confidence in the measure for this study. Third, pubertal development was assessed with only one item, though it is a concrete behavioral indicator that previous research supports as a useful approach to examine early versus later puberty as a risk factor for girls' DBP (e.g., Bond et al. 2003). Future research would benefit from a more comprehensive assessment of puberty, namely current pubertal stage or pubertal tempo (how quickly she completed puberty). However,

we note that our results are largely consistent with previous research examining age of pubertal onset, which suggest that earlier pubertal onset is an important risk factor for girls' development of DBP (Beaver and Wright 2005; Comings et al. 2002; Negriff and Trickett 2010), including studies that suggest it is a stronger risk factor for girls compared to boys (Flannery, Rowe and Gulley 1993; Haynie 2003; Kaltiala-Heino, Kosunen and Rimpelä 2003) and particularly influential for African American girls living in contexts of urban poverty (Ge et al. 2006). Fourth, based on previous research (Starr et al. 2012) romantic partnerships were classified into two dimensions (romantic and sexual); however, romantic relationships are more complex and these complexities may matter for girls' mental health. Similarly, other potential predictors, especially parent-child relationships, and outcomes (e.g., internalizing symptoms) were not investigated in the current study but constitute important domains of girls' ecological context and mental health risk, respectively. In particular, though examination of parenting was beyond the scope of this study, it is an important relational context to examine in future research.

Conclusion

This study examined risk for DBP among low-income African American girls seeking psychiatric care. Results support an ecological framework of risk, suggesting that the relational contexts of peer and dating relationships promote risk for girls' DBP directly and indirectly. Findings suggest that early developing girls who reported sexual experiences within dating relationships were at increased risk for DBP and lower quality peer relationships promoted DBP, in part, as a result of greater self-silencing.

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References

- Achenbach, T. M. (1991a). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington: University of Vermont, Department of Psychiatry.
- Achenbach, T. M. (1991b). *Manual for the Youth Self Report and 1991 Profile*. Burlington: University of Vermont, Department of Psychiatry.
- Ackard, D. M., Neumark-Sztainer, D., & Hannan, P. (2003). Dating Violence Among a Nationally Representative Sample of Adolescent Girls and Boys. *Journal of Gender Specific Medicine*, 6, 39–48.
- Adam, D. (2013). Mental Health: On the Spectrum. *Nature*, 496, 416–418.
- Allen, N. E., Larsen, S., Trotter, J., & Sullivan, C. M. (2013a). Exploring the Core Service Delivery Process of an Evidence-Based Community Advocacy Program for Women With Abusive Partners. *Journal of Community Psychology*, 4, 1–18.
- Allen, N. E., Lehmer, A., Davis, S., & Javdani, S. (2013). Gender as ecology, In C. Raghavan (Ed.) *Domestic violence: Methodologies in dialogue*. Northeastern University Press.
- Ardelt, M., & Day, L. (2002). Parents, Siblings, and Peers: Close Social Relationships and Adolescent Deviance. *The Journal of Early Adolescence*, 22, 310–349.
- Armour, S., & Haynie, D. L. (2007). Adolescent Sexual Debut and Later Delinquency. *Journal of Youth and Adolescence*, 36, 141–152.
- Armsden, G. C., & Greenberg, M. T. (1987). The Inventory of Parent and Peer Attachment: Individual Differences and Their Relationship to Psychological Well-Being in Adolescence. *Journal of Youth and Adolescence*, 16, 427–454.
- Amrdorfer, C. L., & Stormshak, E. A. (2008). Same-sex Versus Other-sex Best Friendship in Early Adolescence. *Journal of Youth and Adolescence*, 37, 1059–1070.
- Beaver, K. M., & Wright, J. P. (2005). Biosocial Development and Delinquent Behavior. *Youth Violence and Juvenile Justice*, 3, 168–192.
- Bond, L., Clements, J., Bertalli, N., Evans-Whipp, T., McMorris, B. J., Patton, G. C., et al. (2006). A Comparison of Self-Reported Puberty Using the Pubertal Development Scale and the Sexual Maturation Scale in a School-Based Epidemiologic Survey. *Journal of Adolescence*, 29, 709–720.
- Brody, G. H., Conger, R. D., & Simons, R. L. (2006). Pubertal Maturation and African American children's Internalizing and Externalizing. *Journal of Youth and Adolescence*, 35, 531–540.
- Brooks-Gunn, B. G., Warren, M. P., Rosso, J., & Gargiulo, J. (1987). Validity of Self-Report Measures of girls' Pubertal Status. *Child Development*, 58, 829–841.
- Brown, L. (2003). *Girlfighting: Betrayal and rejection among girls*. New York, NY: NYU
- Burt, S. A., McGue, M., Demarte, J. A., Krueger, R. F., & Iacono, W. G. (2006). Timing of Menarche and the Origins of Conduct Disorder. *Archives of General Psychiatry*, 63, 890–896.
- Carr, J., Gilroy, F., & Sherman, M. (1996). Silencing the Self and Depression Among Women: The Moderating Role of Race. *Psychology of Women Quarterly*, 20, 375–392.
- Carter, R., Jaccard, J., Silverman, W. K., & Pina, A. A. (2009). Pubertal Timing and its Link to Behavioral and Emotional Problems Among 'at-risk' African American Adolescent Girls. *Journal of Adolescence*, 32, 467–81.
- Cauffman, E., Feldman, S., Watherman, J., & Steiner, H. (1998). Posttraumatic Stress Disorder Among Female Juvenile Offenders. *Journal of the American Academy of Child & Adolescent Psychiatry*, 37, 1209–1216.
- Chesney-Lind, M. (2001). What About Girls? Delinquency Programming as if Gender Mattered. *Corrections Today*, 63, 38–45.
- Chesney-Lind, M., & Shelden, R. G. (2004). *Girls, Delinquency, and Juvenile Justice*. Belmont: Wadsworth/Thomson Learning.
- Coakley, R. M., Holmbeck, G. N., & Bryant, F. B. (2006). Constructing a Prospective Model of Psychosocial Adaptation in Young Adolescents With Spina Bifida: An Application of Optimal Data Analysis. *Journal of Pediatric Psychology*, 31, 1084–1099.
- Coakley, R. M., Holmbeck, G. N., Friedman, D., Greenley, R. N., & Thill, A. W. (2002). A Longitudinal Study of Pubertal Timing, Parent-Child Conflict, and Cohesion in Families of Young Adolescents With Spina Bifida. *Journal of Pediatric Psychology*, 27, 461–473.

- Collins, W. A., Welsh, D. P., & Furman, W. (2009). Adolescent Romantic Relationships. *Annual Review of Psychology*, *60*, 631–652.
- Comings, D. E., Muhleman, D., Johnson, J. P., & MacMurray, J. P. (2002). Parent–Daughter Transmission of the Androgen Receptor Gene as an Explanation of the Effect of Father Absence on age of Menarche. *Child Development*, *73*, 1046–1051.
- Davison, K. K., Susman, E., & Birch, L. L. (2003). Percent Body fat at age 5 Predicts Earlier Pubertal Development Among Girls at age 9. *Pediatrics*, *111*, 815–821.
- Dick, D. M., Rose, R. J., Viken, R. J., & Kaprio, J. (2000). Pubertal Timing and Substance use. *Developmental Psychology*, *36*, 180–189.
- Dishion, T. J., Patterson, G. R., & Griesler, P. C. (1994). Peer Adaptation in the Development of Antisocial Behavior: A Confluence Model. In L. R. Huesmann (Ed.), *Aggressive Behavior: Current Perspectives* (pp. 6–95). New York: Plenum.
- Eaton, D. K., Kann, L., Kinchen, S., Shanklin, S., Flint, K. H., Hawkins, J., et al. (2012). Youth Risk Behavior Surveillance—United States, 2011. *Morbidity and Mortality Weekly Report. Surveillance summaries*, *61*, 1–162. Washington, DC: 2002.
- Eichorn, D. E. (1975). Asynchronizations in Adolescent Development. In S. E. Dragastin & G. H. Elder Jr. (Eds.), *Adolescence in the Life-Cycle* (pp. 81–96). New York: Wiley.
- Ellis, B. J., McFadyen-Ketchum, S., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1999). Quality of Early Family Relationships and Individual Differences in the Timing of Pubertal Maturation in Girls. *Journal of Personality and Social Psychology*, *77*, 387.
- Erickson, K. G., Crosnoe, R., & Dornbusch, S. M. (2000). A Social Process Model of Adolescent Deviance. *Journal of Youth and Adolescence*, *29*, 395–425.
- Fergusson, D. M., & Horwood, L. J. (1996). The Role of Adolescent Peer Affiliations in the Continuity Between Childhood Behavioral Adjustment and Juvenile Offending. *Journal of Abnormal Psychology*, *24*, 205–221.
- Flannery, D. J., Rowe, D. C., & Gulley, B. L. (1993). Impact of Pubertal Status, Timing, and age on Adolescent Sexual Experience and Delinquency. *Journal of Adolescent Research*, *8*, 21–40.
- Frye, M. (1983). *Oppression. The Politics of Reality: Essays in Feminist Theory*. Trumansburg: The Crossing Press.
- Ge, X., Brody, G. H., Conger, R. D., & Simons, R. L. (2006). Pubertal maturation and African American children's internalizing and externalizing symptoms. *Journal of Youth and Adolescence*, *35*, 528–537.
- Gilligan, C. (1982). *In a Different Voice: Psychological Theory and women's Development*. Cambridge: Harvard University Press.
- Giordano, P. C., Cernkovich, S. A., & Pugh, M. (1986). Friendships and Delinquency. *The American Journal of Sociology*, *91*, 1170–1202.
- Glaser, D. (2000). Child Abuse and Neglect and the Brain—a Review. *Journal of Child Psychology and Psychiatry*, *41*, 97–116.
- Hansen, W. B., Paskett, E. D., & Carter, L. J. (1999). The Adolescent Sexual Activity Index (ASAI): A Standardized Strategy for Measuring Interpersonal Heterosexual Behaviors Among Relationships, Puberty, and Disruptive Behaviors in Girls. *Health Education Research*, *14*, 485–490.
- Harper, M. S., Dickson, J. W., & Welsh, D. P. (2006). Self-Silencing and Rejection Sensitivity in Adolescent Romantic Relationships. *Journal of Youth and Adolescence*, *35*, 435–443.
- Harris, M., & Fallot, R. D. (2001). Envisioning a Trauma-Informed Service System: A Vital Paradigm Shift. *New Directions for Mental Health Services*, *89*, 3–22.
- Hawkins, S. R., Chiancone, J., & Whitworth, A. (2008). *The Girls Study Group: Charting the way to Delinquency Prevention for Girls* (US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention). DC: Washington.
- Haynie, D. L. (2001). Delinquent Peers Revisited: Does Network Structure Matter? *The American Journal of Sociology*, *106*, 1013–1057.
- Haynie, D. L. (2003). Contexts of Risk: Explaining the Link Between girls' Pubertal Development and Their Delinquency Involvement. *Social Forces*, *82*, 355–397.
- Haynie, D. L., Giordano, P. C., Manning, W. D., & Longmore, M. A. (2005). Adolescent Romantic Relationships and Delinquency Involvement. *Criminology*, *43*, 177–210.
- Haynie, D. L., Steffensmeier, D., & Bell, K. E. (2007). Gender and Serious Violence: Untangling the Role of Friendship sex Composition and Peer Violence. *Youth Violence and Juvenile Justice*, *5*, 235–253.
- Heinze, H. J., Toro, P. A., & Urberg, K. A. (2004). Antisocial Behavior and Affiliation With Deviant Peers. *Journal of Clinical Child and Adolescent Psychology*, *33*, 336–346.
- Himes, J. H. (2004). Why Study Child Growth and Maturation? *Cambridge Studies in Biological and Evolutionary Anthropology*, *3*–26.
- Horwood, L. J., & Fergusson, D. M. (1997). *A two process model of the age of onset of juvenile offending*. Manuscript submitted for publication.
- Hubbard, D. J., & Pratt, T. C. (2002). A Meta-Analysis of the Predictors of Delinquency Among Girls. *Journal of Offender Rehabilitation*, *34*, 1–13.
- Impetti, E. A., Sorsoli, L., Schooler, D., Henson, J. M., & Tolman, D. L. (2008). Girls' Relationship Authenticity and Self-Esteem Across Adolescence. *Developmental Psychology*, *44*, 722.
- Jack, D. C. (1991). *Silencing the self: Women and depression*. William Morrow Paperbacks.
- Javdani, S. (2013). Gender Matters: Using an Ecological Lens to Understand Female Crime and Disruptive Behavior. In B. L. Russell (Ed.), *Perceptions of Female Offenders: How Stereotypes and Social Norms Affect Criminal Justice Responses*. New York: Springer.
- Javdani, S., Abdul-Adil, J., Suarez, L., Nichols, S. R., & Farmer, A. D. (2014). Gender Differences in the Effects of Community Violence on Mental Health Outcomes in a Sample of low-Income Youth Receiving Psychiatric Care. *American Journal of Community Psychology*, *1*–14.
- Javdani, S. & Allen, N.E. (2014). Development and longitudinal evaluation of a gender-responsive program for juvenile justice-involved girls. *Manuscript under review*
- Javdani, S., Sadeh, N., & Verona, E. (2011). Expanding Our Lens: Female Pathways to Antisocial Behavior in Adolescence and Adulthood. *Clinical Psychology Review*, *31*, 1324–1348.
- Jennings, W. G., Maldonado-Molina, M. M., & Komro, K. A. (2010). Sex Similarities/Differences in Trajectories of Delinquency Among Urban Chicago Youth: The Role of Delinquent Peers. *American Journal of Criminal Justice*, *35*, 56–75.
- Jouriles, E. N., Mueller, V., Rosenfield, D., McDonald, R., & Dodson, M. C. (2012). Teens' Experiences of Harsh Parenting and Exposure to Severe Intimate Partner Violence: Adding Insult to Injury in Predicting Teen Dating Violence. *Psychology of Women*, *2*, 125.
- Kaltiala-Heino, R., Kosunen, E., & Rimpelä, M. (2003). Pubertal Timing, Sexual Behaviour and Self-Reported Depression in Middle Adolescence. *Journal of Adolescence*, *26*, 531–545.
- Kessler, R. C., Hwang, I., LaBrie, R., Petukhova, M., Sampson, N. A., Winters, K. C., et al. (2008). DSM-IV Pathological Gambling in the National Comorbidity Survey Replication. *Psychological Medicine*, *38*, 1351–1360.
- Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York: Guilford press.
- Kroneman, L. M., Hipwell, A. E., Loeber, R., Koot, H. M., & Pardini, D. A. (2011). Contextual Risk Factors as Predictors of Disruptive Behavior Disorder Trajectories in Girls: The Moderating Effect of Callous Unemotional Features. *Journal of Child Psychology and Psychiatry*, *52*, 167–175.

- Lang, D. L., Salazar, L. F., Crosby, R. A., DiClemente, R. J., Brown, L. K., & Donenberg, G. R. (2010). Neighborhood Environment, Sexual Risk Behaviors and Acquisition of Sexually Transmitted Infections Among Adolescents Diagnosed With Psychological Disorders. *American Journal of Community Psychology*, *46*, 303–311.
- Lewis, F. M., Woods, N. F., & Ellison, E. (1987). *Family Impact Study; Unpublished Report, University of Washington, R01-NUO1000*. Division of Nursing: Public Health Service.
- Lieberman, M., Gauvin, L., Bukowski, W. M., & White, D. R. (2001). Interpersonal Influence and Disordered Eating Behaviors in Adolescent Girls. *Eating Behaviors*, *2*, 215–236.
- Linehan, M. (1993). *Cognitive-Behavioral Treatment of Borderline Personality Disorder*. New York: The Guilford Press.
- Liu, X., & Kaplan, H. B. (1999). Explaining the Gender Difference in Adolescent Delinquent Behavior: A Longitudinal Test of Mediating Mechanisms. *Criminology*, *37*, 195–216.
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence Limits for the Indirect Effect: Distribution of the Product and Resampling Methods. *Multivariate Behavioral Research*, *39*, 99–128.
- Magnusson, D., Stattin, H., & Allen, V. (1986). Biological Maturation and Social Development: A Longitudinal Study of Some Adjustment Processes from mid-Adolescence to Adulthood. *Journal of Youth and Adolescence*, *14*, 267–83.
- Manlove, J. (1997). Early Motherhood in an Intergenerational Perspective: The Experiences of a British Cohort. *Journal of Marriage and the Family*, *59*, 263–279.
- Mears, D. P., Ploeger, M., & Warr, M. (1998). Explaining the Gender gap in Delinquency: Peer Influence and Moral Evaluations of Behavior. *Journal of Research in Crime and Delinquency*, *35*, 251–266.
- Miller, S. (2001). The Paradox of Women Arrested for Domestic Violence: Criminal Justice Professionals and Service Providers Respond. *Violence Against Women*, *7*, 1–24.
- Miller, J. (2008). *Getting Played: African American Girls, Urban Inequality, and Gendered Violence*. New York: NYU Press.
- Miller, M. C., & Fox, G. L. (1987). Theories of Adolescent Heterosexual Behavior. *Journal of Adolescent Research*, *2*, 269–282.
- Moffitt, T. E., Caspi, A., Rutter, M., & Silva, P. A. (2001). *Sex Differences in Antisocial Behavior*. England: Cambridge University Press.
- Morrissey, J. P., Jackson, E. W., Elli, A. R., Amaro, H., Brown, V. B., & Najavits, L. M. (2005). Twelve-Month Outcomes of Trauma-Informed Interventions for Women With Co-Occurring Disorders. *Psychiatric Services*, *56*, 1213–1222.
- Muthén, L. K., & Muthén, B. O. (1998-2007). *Mplus statistical software*. Los Angeles, CA: Muthén & Muthén
- Negriff, S., Fung, M. T., & Trickett, P. K. (2008). Self-Rated Pubertal Development, Depressive Symptoms and Delinquency. *Journal of Youth and Adolescence*, *37*, 736–746.
- Negriff, S., & Trickett, P. K. (2010). The Relationship Between Pubertal Timing and Delinquent Behavior in Maltreated Male and Female Adolescents. *The Journal of Early Adolescence*, *30*, 318–542.
- O'Sullivan, L. F., & Meyer-Bahlburg, H. F. (2003). African-American and Latina Inner-City girls' Reports of Romantic and Sexual Development. *Journal of Social and Personal Relationships*, *20*, 221–238.
- Obeidallah, D., Brennan, R. T., Brooks-Gunn, J., & Earls, F. (2004). Links Between Puberty Timing, Neighborhood Contexts, and girls' Violent Behavior. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*, 1460–1468.
- Paradise, M. J., & Mari Cauce, A. (2003). Substance use and Delinquency During Adolescence: A Prospective Look at an at-Risk Sample. *Substance Use & Misuse*, *38*, 701–723.
- Petersen, A. C., & Crockett, L. (1985). Pubertal Timing and Grade Effects on Adjustment. *Journal of Youth and Adolescence*, *14*, 191–206.
- Petersen, A. C., Crockett, L., Richards, M., & Boxer, A. (1988). A Self-Report Measure of Pubertal Status. *Journal of Youth and Adolescence*, *17*, 117–133.
- Petersen, A. C., & Taylor, B. (1980). The Biological Approach to Adolescence: Biological Change and Psychological Adaptation. *Handbook of adolescent psychology*, *117–155*.
- Piquero, N. L., Gover, A. R., MacDonald, J. M., & Piquero, A. R. (2005). The Influence of Delinquent Peers on Delinquency: Does Gender Matter? *Youth & Society*, *36*, 251–275.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models. *Behavior Research Methods*, *40*, 879–891.
- Sampson, R. J., & Laub, J. H. (1993). *Crime in the Making: Pathways and Turning Points Through Life*. Cambridge: Harvard University Press.
- Segalowitz, S. J., Santesso, D. L., Willoughby, T., Reker, D. L., Campbell, K., Chalmers, H., et al. (2012). Adolescent Peer Interaction and Trait Surgency Weaken Medial Prefrontal Cortex Responses to Failure. *Social Cognitive and Affective Neuroscience*, *7*, 115–124.
- Sheehan, R., & Flynn, C. (2007). Women Prisoners and Their Children. *What works with women offenders*, *214–239*.
- Silbereisen, R. K., & Kracke, B. (1997). Self-Reported Maturation Timing and Adaptation in Adolescence. *Health Risks and Developmental Transitions During Adolescence*, *85–109*.
- Snyder, H. N., & Sickmund, M. (2006). *Juvenile Offenders and Victims: 2006 National Report. Office of Juvenile Justice and Delinquency Prevention*. D.C.: Washington.
- Spinazzola, J., & Stocking, V. V. (1998). *Psychometric Properties of a Revised Silencing the Self Scale (STSS) for Use With Adolescents*. CA: San Diego.
- Stack, C. (1974). *All our kin: Strategies for Survival in a Black Community*. New York: Harper and Row.
- Starr, L. R., Donenberg, G. R., & Emerson, E. (2012). Bidirectional Linkages Between Psychological Symptoms and Sexual Activities Among African American Adolescent Girls in Psychiatric Care. *Journal of Clinical Child and Adolescent Psychology*, *41*, 811–821.
- Steffensmeier, D., & Allan, E. (1996). Gender and Crime: Toward a Gendered Theory of Female Offending. *Annual Review of Sociology*, *22*, 459–487.
- Steinberg, L. (2007). Risk Taking in Adolescence new Perspectives from Brain and Behavioral Science. *Current Directions in Psychological Science*, *16*, 55–59.
- Sullivan, C. M., & Bybee, D. (1999). Reducing Violence Using Community Based Advocacy for Women With Abusive Partners. *Journal of Consulting and Clinical Psychology*, *67*, 43–53.
- Susman, E. J., Dockray, S., Schiefelbein, V. L., Herwehe, S., Heaton, J. A., & Dom, L. D. (2007). Morningness/Eveningness, Morning-to-Afternoon Cortisol Ratio, and Antisocial Behavior Problems During Puberty. *Developmental Psychology*, *43*, 811–22.
- Swarr, A. E., & Richards, M. H. (1996). Longitudinal Effects of Adolescent girls' Pubertal Development, Perceptions of Pubertal Timing, and Parental Relations on Eating Problems. *Developmental Psychology*, *32*, 636.
- Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A., & Updegraff, J. A. (2000). Biobehavioral Responses to Stress in Females: Tend-and-Befriend, not Fight-or-Flight. *Psychological Review*, *107*, 411.
- Tobin-Richards, M. H., Boxer, A. M., & Petersen, A. C. (1983). The psychological significance of pubertal change. In *Girls at puberty* (pp. 127-154). Springer US.
- Vernberg, E. M., Jacobs, A. K., Nyre, J. E., Puddy, R. W., & Roberts, M. C. (2004). Innovative Treatment for Children With Serious Emotional Disturbance: Preliminary Outcomes for a School-Based Intensive Mental Health Program. *Journal of Clinical Child and Adolescent Psychology*, *33*, 359–365.

- Werner, N. E., & Silbereisen, R. K. (2003). Family Relationship Quality and Contact With Deviant Peers as Predictors of Adolescent Problem Behaviors. *Journal of Adolescent Research, 18*, 454–480.
- Wichstrøm, L. (2001). The Impact of Pubertal Timing on adolescents' Alcohol use. *Journal of Research on Adolescence, 11*, 131–150.
- Wichstrøm, L. (2006). Self-Concept Development During Adolescence. *Personality development in adolescence: A cross national and lifespan perspective, 97*.
- Williams, T., Connolly, J., & Cribbie, R. (2008). Light and Heavy Heterosexual Activities of Young Canadian Adolescents: Normative Patterns and Differential Predictors. *Journal of Research on Adolescence, 18*, 145–172.
- World Health Organization (2012). *Trends in maternal mortality: 1990 to 2010: WHO, UNICEF, UNFPA and The World Bank estimates*.
- Zahn, M., Brumbaugh, S., Steffensmeier, D., Feld, B. C., Morash, M., Chesney-Lind, M., ... & Kruttschnitt, C. (2008). *Girls Study Group: understanding and responding to girls' delinquency*. US Department of Justice, Office of Juvenile Justice and Delinquency Prevention. Washington, DC.