HHS Public Access

Author manuscript

J Youth Adolesc. Author manuscript; available in PMC 2018 February 26.

Published in final edited form as:

J Youth Adolesc. 2015 April ; 44(4): 819–832. doi:10.1007/s10964-014-0112-0.

Longitudinal Relations Between Adolescent and Parental Behaviors, Parental Knowledge, and Internalizing Behaviors Among Urban Adolescents

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Abstract

High prevalence rates of depression and anxiety among adolescents underscore the importance of identifying parental and adolescent behaviors that may lessen the risk for these outcomes. Previous research has shown that parental acceptance, parental knowledge, and child disclosure are negatively associated with internalizing behaviors. It is also important to explore the impact of internalizing behaviors on these parental and child constructs. The current study examined longitudinal relationships between parental acceptance, parental knowledge, child disclosure, and internalizing symptoms across a one-year time period. Participants were 358 adolescents (54 % female) and their primary caregivers, who were primarily African American (92 %). Parents and adolescents provided data through face-to-face interviews. Results showed that parental knowledge and parental acceptance predicted child disclosure, and child disclosure predicted parental knowledge one year later. Higher levels of parental acceptance predicted lower levels of adolescent-reported depressive symptoms, while higher levels of parental report of adolescents' internalizing symptoms predicted lower levels of parental knowledge. No differences in the strength of these relationships were found across grade or gender. These findings highlight the role of the adolescent's perceived acceptance by parents in promoting children's disclosure, and the benefits of parental acceptance in decreasing depressive symptoms over time. Overall, these results show the impact that both adolescent and parental behaviors and internalizing behaviors have on each other across time.

Author contributions RG conceived the study, participated in the design of the study, helped run data analyses and interpret the data, and drafted the manuscript; TS participated in the design of the study, ran data analyses, participated in interpretation of the data, and helped draft the manuscript; WK participated in the design of the study, helped with interpretation of the data and helped to draft the manuscript. WK was also instrumental in re-conceptualizing the final design for the revised manuscript. All of the authors read and approved the final manuscript.

Keywords

Parental monitoring; Parental acceptance; Internalizing outcomes; Parent–child relationship; Child disclosure; Parental knowledge

Introduction

The high prevalence rates of anxiety and mood disorders among adolescents are concerning. In a nationally representative sample of 10,123 adolescents living in the United States, lifetime prevalence rates were 32 % for anxiety disorders and 14 % for mood disorders (Merikangas et al. 2010). During adolescence (ages 10–18), the cumulative prevalence rates of anxiety disorders increased from approximately 23–32 %, and rates of mood disorders rose from around 4–18 % (Merikangas et al. 2010). Researchers estimate that the prevalence of depressive symptoms among adolescents ranges from 20 to 50 % (Kessler et al. 2001), and that depressive symptoms are the most common psychological disturbance during adolescence (Steinberg 2008). The importance of examining internalizing outcomes among minority adolescents is also highlighted by studies that have found the risk for depressive (Franko et al. 2005; Kistner et al. 2003) and anxiety (Kessler et al. 2013; Latzman et al. 2011) symptoms was higher in African American as compared to European American adolescents. Negative consequences of anxiety and depressive symptoms for adolescents include the increased likelihood of substance use, low self-esteem, and social and academic difficulties (Hughes and Gullone 2007; Vazsonyi and Belliston 2006). This data underscores the need to identify protective processes that may reduce adolescents' risk for internalizing behaviors.

Parenting Practices and Behaviors

Parents play a key role in helping their children negotiate the demands of adolescence, and specific parenting factors such as parental knowledge of adolescents' activities (i.e., where they are, what they are doing, and who they are with) are associated with lower frequencies of internalizing behaviors (e.g., Frojd et al. 2007; Hamza and Willoughby 2011; Kim and Ge 2000; Sagrestano et al. 2003; Steinberg et al. 1991). Kerr and Stattin (2000) noted that parents gain knowledge about adolescents' activities through aspects of parental monitoring including parental control and parental solicitation, as well as child disclosure. Child disclosure represents a child or adolescent's voluntary provision of information to parents about their activities, and may be one of the most effective ways for parents to gain knowledge about adolescents' activities (Kerr and Stattin 2000). Dynamics of the parent–child relationship change as adolescents become more autonomous and spend increasing time with peers in activities outside their parents' direct supervision and monitoring (Prinstein et al. 2001). Therefore, parents may need to rely more heavily on a child's disclosure to learn about adolescents' activities. As compared to parental control and solicitation, child disclosure has been more strongly associated with parental knowledge in cross-sectional (e.g., Kerr and Stattin 2000; Vieno et al. 2009) and longitudinal (e.g., Hamza and Willoughby 2011; Willoughby and Hamza 2011) studies of adolescents. Child disclosure is considered the "driver" of parental knowledge based on its strong, positive relationship with this construct (Racz and McMahon 2011). Thus, it is important to examine

the effect of both parental knowledge and child disclosure on other parenting behaviors, as well as internalizing outcomes.

In addition to child disclosure and parental knowledge, Vieno et al. (2009) discussed the need to consider the influence of parental responsiveness and warmth on the parent–child relationship, echoing the seminal work of Diana Baumrind (1966). Parental warmth and responsiveness contribute to adolescents' feelings of connectedness and closeness with parents and their beliefs that parents are interested in their lives and will be available when needed (Scott et al. 2011). Parental acceptance assesses aspects of warmth and responsiveness, including the extent to which parents are available to meet the child's needs and provide emotional support and affection (Schwartz et al. 1985). Constructs similar to parental acceptance, including parental warmth and responsiveness have demonstrated positive associations with child disclosure (e.g., Blodgett-Salafia et al. 2009; Fagot et al. 1995; Smetana et al. 2006), and parental knowledge (Bumpus et al. 2006; Fletcher et al. 2004; Soenens et al. 2006; Vieno et al. 2009). For example, parental acceptance was related to higher levels of a child's disclosure about school, peers, and personal issues in a sample of ethnically diverse ninth through twelfth graders (Smetana et al. 2006). Additionally, Blodgett-Salafia et al. (2009) focused on early adolescents (95 % European American) and found that high levels of parental acceptance in the sixth grade predicted higher levels of child disclosure in seventh grade, and higher levels of parental knowledge in the eighth grade. Parenting behaviors, such as acceptance may be an important factor related to both child disclosure and parental knowledge in adolescence, as well as internalizing outcomes.

Adolescent Internalizing Behaviors

Several studies have shown that both child disclosure and parental knowledge are negatively associated with adolescent internalizing behaviors (Frijns et al. 2010; Frojd et al. 2007; Kerr and Stattin 2000). For example, higher levels of parental knowledge were associated with lower frequencies of internalizing behaviors in Italian adolescents (Bacchini et al. 2011), Latino adolescents living in the United States (Gil-Rivas et al. 2003), and Finnish adolescents (Frojd et al. 2007). Similarly, direct negative relationships between child disclosure and internalizing behaviors have also been shown (Frijns et al. 2010; Kerr and Stattin 2000; Laird and Marrero 2010). Hamza and Willoughby (2011) highlighted several ways in which disclosure may decrease internalizing symptoms among adolescents. Children's disclosure may directly enhance communication and connectedness between the parent and adolescent, thus reducing adolescents' risk of developing internalizing symptoms (Kerr and Stattin 2000). Because internalizing symptoms may be hard to discern, child disclosure also provides knowledge to parents who may then offer assistance (Keijsers et al. 2009). A few studies have found that child disclosure was inversely related to depressive symptoms in African American and European American adolescents (Laird and Marrero 2010) and Swedish adolescents (Kerr and Stattin 2000). In contrast, Hamza and Willoughby (2011) found no significant longitudinal relationships between child disclosure and depressive symptoms among a sample of Canadian ninth through twelfth graders. The authors explained that a plausible reason for the lack of significant findings was that the child disclosure items related to secrecy were omitted from their measure. In fact, Keijsers et al. (2009) demonstrated that secrecy was a critical element within the broader construct of

child disclosure, which predicted increased depressive symptoms among 309 adolescents living in the Netherlands.

Literature on child disclosure and parental knowledge suggests that these child and parental behaviors are associated with fewer internalizing behaviors in youth. Additionally, several review articles found that parental warmth and acceptance were negatively related to depressive and anxiety symptoms (e.g., Bogels and Brechman-Toussaint 2006; Rapee 1997; Wood et al. 2003). Higher levels of parental acceptance were linked to lower levels of depressed mood in Mexican adolescents (Gil-Rivas et al. 2003), European American adolescents (Chung et al. 2009), and Korean youth (Kim et al. 2013). Chung et al. (2009) suggested that higher levels of parental acceptance promoted feelings of emotional support in adolescents, which ultimately protected youth from internalizing outcomes. A few review articles have also found that the lack of parental acceptance and warmth was significantly associated with increased levels of anxiety (Bogels and Brechman-Toussaint 2006) and depressive symptoms (Rapee 1997).

While child disclosure, parental knowledge, and parental acceptance are associated with fewer internalizing behaviors (e.g., Chung et al. 2009; Hamza and Willoughby 2011; Kerr and Stattin 2000; Laird and Marrero 2010), little research has examined whether internalizing behaviors predict different levels of these parental and adolescent behaviors. Hamza and Willoughby (2011) examined bidirectional relationships between child disclosure, parental knowledge, and depressive symptoms in Canadian adolescents and found that higher levels of depressive symptoms predicted lower levels of both child disclosure and parental knowledge one year later. Kerr and Stattin (2003) suggested that parents might change their parenting behavior as a result of problematic adolescent behaviors in order to avoid conflict or unpleasant and distressing conversations with their adolescent. A review by Bogels and Brechman-Toussaint (2006) discussed that, while researchers have found associations between anxiety symptoms and parenting behaviors, we know little about the directionality of these relationships. Further, limited research has focused on African American families and the effect of internalizing behaviors on parental knowledge, child disclosure and acceptance over time. The literature on internalizing outcomes and family factors remains predominately cross-sectional, and it is important to examine the directionality of these constructs. Family systems theory (Bowen 1974) provides a framework for understanding how these constructs work together. This theory not only describes the interactive nature of each family member's influence on others, it also explains reciprocal interactions (Bowen 1974; Gavazzi 2011). From this perspective, researchers highlight the bi-directional and transactional nature of influence that adolescent and parental behaviors have on each other. Given the limited knowledge about the direction of influence among the study variables, a longitudinal investigation of paths between internalizing behaviors and parental and adolescent behaviors was tested in the current study.

Age and Gender Effects

As individuals progress through adolescence, specific child and parental behaviors may vary for younger versus older adolescents. For example, a number of studies indicated that adolescents tend to disclose less information to their parents, as they get older (Finkenauer et

al. 2002; Laird et al. 2013; Smetana et al. 2003). Additionally, parental knowledge decreases through the course of adolescence (Patterson and Stouthamer-Loeber 1984). The research literature suggests that as adolescents age they tend to more stringently monitor and selectively choose what they disclose to their parents. This trend may be driven by increased demands for privacy and beliefs regarding personal versus parental jurisdiction over specific topic areas (McElhaney et al. 2009). Thus, literature suggests that relationships between child disclosure and parental knowledge may be stronger for younger versus older adolescents.

Although patterns of parental and child behaviors and interactions change as adolescents mature, potential gender differences in the strength of these relationships remain inconclusive. Some studies have found that boys disclose less information about their activities than girls to their parents (e.g., Laird et al. 2013), while others have found that the impact of parental acceptance on child disclosure differed by gender (e.g., Vieno et al. 2009). For example, in a study of Italian adolescents, parental acceptance was more strongly associated with parental knowledge for girls as compared to boys (Vieno et al. 2009). However, other studies found no gender differences within models examining similar constructs (e.g., Gorman-Smith and Loeber 2005; Soenens et al. 2006). Thus, gender differences on these relationships were examined in this study, but were exploratory.

The Current Study

Parental knowledge, child disclosure and parental acceptance emerge in the literature as behaviors that may decrease the risk for adolescent internalizing behaviors (Frojd et al. 2007; Hamza and Willoughby 2011; Laird and Marrero 2010). A few studies have also demonstrated the importance of internalizing behaviors in predicting these parental and adolescent constructs (Hamza and Willoughby 2011; Laird and Marrero 2010). In the current study, we examined relationships between parental acceptance, child disclosure, parental knowledge, and internalizing behaviors among urban adolescents. Potential age and gender differences in these relationships were also explored. Based on prior research findings (e.g., Hamza and Willoughby 2011; Kerr and Stattin 2000; Vieno et al. 2009), we anticipated that child disclosure and parental acceptance would predict increased parental knowledge one year later, and that this relationship would be stronger for younger versus older adolescents. We also hypothesized that parental knowledge and parental acceptance would lead to increased child disclosure over time, and that no age differences would be found in these associations. Regarding internalizing behaviors, we anticipated that higher levels of parental acceptance, parental knowledge and child disclosure would predict lower levels of internalizing outcomes one year later. Lastly, we explored the extent to which internalizing behaviors predicted change in parental acceptance, child disclosure, and parental knowledge over a one-year period. Based on the limited research on these relationships, these analyses were exploratory.

The current study expands the literature in several ways. First, most studies examining the relationships between these variables have focused on externalizing outcomes (e.g., Soenens et al. 2006; Vieno et al. 2009); the current study focused on internalizing behavior problems. Second, of the studies that address internalizing outcomes, few examine anxiety and

depressive symptoms separately (see Frojd et al. 2007 and Steinberg et al. 1991 for exceptions). A review by Beuke et al. (2003) recognized that anxiety and depression are similar constructs, but each may have unique causes, effects, or functions. In support of this review, Vazsonyi and Belliston (2006) found differential associations between parenting practices and depression and anxiety. Additional research is needed, especially as specific parental and adolescent behaviors may be particularly relevant in decreasing adolescents' risk for internalizing symptoms. Third, the current study examined relationships between parental acceptance, child disclosure, parental knowledge, and internalizing behaviors over time. Most studies that have incorporated more integrative models to assess these relationships have been cross-sectional in nature (see Frojd et al. 2007 for an exception), and thus the causal direction of relationships between parental and adolescent behaviors, parental knowledge, and internalizing symptoms cannot be determined. Fourth, the present study included two cohorts representing youth in early and middle adolescence, allowing for the exploration of both gender and grade differences in relationships between study constructs.

Finally, few studies have explored relationships between adolescent and parental behaviors, parental knowledge, and internalizing behaviors among families representing racial/ethnic minorities, as the majority of studies have focused on European, Canadian or European-American samples (e.g., Bacchini et al. 2011; Frojd et al. 2007; Hamza and Willoughby 2011). It is important to consider the roles of race/ethnicity and contextual factors in relationship to these variables. For example, neighborhoods characterized by high levels of crime and violence may influence parental action and behaviors in the protection of their child. African American families are disproportionately represented in low-income neighborhoods, and it has been suggested that parents living in these contexts may monitor their children more stringently stemming from the need to protect them from potential dangers (Pinderhughes et al. 2001). In support of this premise, higher levels of parental monitoring have been linked with fewer problematic outcomes for African American adolescents in families living in low-income neighborhoods (Brody et al. 2002; Zimmerman et al. 2000) and inner-city contexts (Elmore and Gaylord-Harden 2013; Pittman and Chase-Lansdale 2001). Therefore, the uniqueness of our sample also contributes to the current literature.

Methods

Participants

The sample included 358 adolescents (46 % male) and their maternal caregivers. The sample was recruited from an area of a midsize, southern city that is classified by police statistics as a moderate-to-high violence and poverty area (Neighborhood Scout 2012). The sample included adolescents from two cohorts in fifth grade ($n = 191$) and eighth grade ($n = 167$). The fifth graders ranged in age from 9 to 12 ($M = 10.72$, $SD = 0.64$) and the eighth graders ranged in age from 12 to 16 ($M = 13.67$, $SD = 0.76$). The majority of participants (91.9 %) endorsed an African American racial/ethnic background, 3.6 % identified themselves as Caucasian/European American, 2.4 % as American Indian, 0.3 % as Asian American, and 2.4 % as other.

A total of 358 families completed the baseline assessment in this study. At this initial assessment, maternal caregivers who participated ranged in age from 24 to 56 (M = 36.6, SD = 6.3). Approximately 34 % of the maternal caregivers made $300/week or less, and 30 % made $600/week or less. Maternal caregivers encompassed biological mothers (86 %), grandmothers (7 %), adopted mothers (2 %), stepmothers (1 %) or other (3 %). Family structure varied; around 40 % of the maternal caregivers had never been married, 32 % were married or were cohabiting at the time of assessment, 14 % were separated, 11 % were divorced and 2 % were widowed. Lastly, the level of education for the maternal caregivers varied, but 77 % had a high school diploma or higher. The current study focused on the first two waves of data from a larger longitudinal study. At the one-year follow-up assessment, 319 of the initial 358 families participated.

Procedure

The recruitment of participants was conducted at targeted community events, and fliers were also posted around targeted neighborhoods (characterized by moderate-to-high violence rates). About 63 % of the eligible families who contacted researchers opted to participate. Families were eligible for participation if they had a fifth or eighth grader and a female caregiver, both of whom would be present for the interview. Once eligibility was established over the phone, interviews were scheduled.

Interviewers were carefully trained on research protocols, as well as interview skills and techniques. The professional standards outlined to the interviewers were carefully implemented. Unless requested otherwise by the families, interviews took place in the participants' homes. A set of two interviewers read aloud the questionnaires in separate rooms for caregivers and for adolescents. Active parental permission and consent was obtained from caregivers, and assent was obtained from adolescents before any data collection. Copies of the consent forms were given to the caregivers. Each family was compensated with a $50 gift card at each assessment. A university Institutional Review Board approved all study procedures.

Measures

Parental Monitoring—Parental monitoring was measured using the Parenting Practices Scale (Stattin and Kerr 2000), a child-report and parental-report measure comprised of four subscales. Two of these subscales—child disclosure and parental knowledge—were used in the current study. Child disclosure was examined using child-report data, as this is a child-driven behavior (Kerr and Stattin 2000; Stattin and Kerr 2000). Parental knowledge represented a composite measure of child and parental-report, as this construct is informed by both child-and parental-driven behaviors (Kerr and Stattin 2000).

Child Disclosure—The child disclosure subscale consisted of five items (e.g., "Do you usually tell your parents how school was when you get home?"), and adolescents responded to each item using a response scale from 1 = *no, never* to 5 = *yes, always.* Higher scores indicated higher rates of child disclosure. The alpha coefficient for this scale was .75 at Wave 1 and .78 at Wave 2.

Parental Knowledge—The parental knowledge subscale consisted of nine items for both parental- (e.g., “Do you know what *(child)* does during his/her free time?”), and child-reported (e.g., “Does your parent know which friends you hang out with during your free time?”) subscales. Maternal caregivers and adolescents rated each item using a response scale from 1 = *no, never* to 5 = *yes, always.* Higher scores indicated higher rates of parental knowledge. In the current study a composite measure of parental and child report was used. The alpha was .82 at Wave 1 and .83 at Wave 2.

Parental Acceptance—Adolescents’ perceptions of parental acceptance were assessed using the felt acceptance subscale of the Child Report Parent Behavior Inventory (CRPBI; Schaefer 1965). Adolescents indicated their perceived level of felt acceptance from their maternal caregiver. The scale consisted of 20 items (e.g., “Understands your problems or your worries” and “Enjoys spending time with you”). Participants indicated how representative each item was of their parent using the following three-point response scale: 1 = *a lot like*, 2 = *somewhat like* and 3 = *not like*. A majority of the items were reversed scored so that higher scores indicated higher levels of felt acceptance. For the present study, the alpha coefficient was .86 at Wave 1 and .89 at Wave 2.

Child-Reported Anxiety Symptoms—Anxiety symptoms were assessed using the Revised Children’s Manifest Anxiety Scale (RCMAS; Reynolds and Richmond 1978). This scale is used to measure anxiety symptoms in children and adolescents. Three subscales, physiological anxiety, worry/oversensitivity, and social concerns/concentration were included in the current study, and were combined to form a composite total anxiety score. Participants answered a total of 28 items (e.g., “I worry about what is going to happen to me,” “I have trouble making up my mind,” and “I am afraid of a lot of things”), using a dichotomous “yes” or “no” response format. Higher scores on the RCMAS reflected higher levels of anxious symptoms. The Cronbach’s alpha was .87 at Wave 1 and .89 for Wave 2 for the current study.

Child-Reported Depressive Symptoms—Depressive symptoms were measured using the Children’s Depression Inventory (CDI; Kovacs 1992). This measure assesses cognitive, affective and behavioral symptoms of depression in children and adolescents within the previous two weeks. The scale consists of 27 items and adolescents selected the response that best described themselves in the last two weeks using a three-point response scale: 0 = *I am sad once in awhile*, 1 = *I am sad many times*, or 2 = *I am sad all the time.* While this measure is not intended to be diagnostic, Kovacs does provide researchers with cutoff scores to determine clinical levels of depression. The CDI is an extension of the Beck Depression Inventory (Beck et al. 1996), which is designed for use by adults. While adults and children tend to experience similar depressive symptoms, the CDI includes more age-specific events for children and adolescents. Higher scores on the CDI represented higher rates of depressive symptoms. In the current study, the Cronbach’s alpha for this scale was .84 at Wave 1 and .85 at Wave 2.

Parental-Reported Anxious/Depressive Symptoms—Adolescents’ levels of depressive and anxious symptoms were reported by parents using the Anxiety-Depression

sub-scale from the Child Behavior Checklist (CBCL; Achenbach 1991). The CBCL assesses behavioral and emotional problems among children and adolescents over the past three months. The anxiety-depression subscale consists of 14 items (e.g., "Complains of loneliness" and "Too fearful or guilty"), in which parents are asked to rate their child's behaviors/emotions using the following three-point response scale: 0 = *not true, as far as you know*, 1 = *somewhat or sometimes true* and 2 = *very true or often true*. Higher scores indicate more depressive/anxious symptoms. For the current study, the Cronbach's alpha was .86 at both waves.

Data Analyses

Longitudinal path models were run separately for each internalizing outcome using Mplus 7.11 (Muthén and Muthén 2012). These models assessed the extent to which parental knowledge, parental acceptance, child disclosure and internalizing behaviors at Wave 1 predicted each of these variables one-year later at Wave 2. Wave 1 family structure (father presence) was included as a covariate in this model. Gender and grade differences were tested using multiple group analyses. Specifically, an unconstrained model where the path coefficients were allowed to vary by gender was compared to a constrained model where path coefficients were set to be equal across gender. Two similar models for each outcome were run to test for potential differences in relationships between study variables by grade (fifth grade and eighth grade). The fit of the models was assessed using the χ^2 value, the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). Values of 0.90 or above for the CFI (Bentler 1992) and 0.08 or below for the RMSEA (Browne and Cudeck 1993) indicated that the model adequately fit the data. The fit of the unconstrained and constrained models were compared by examining differences in the CFI, RMSEA, χ^2 difference test, and the Bayesian Information Criterion (BIC). For the χ^2 values, MLR estimates (maximum likelihood estimates that are mean adjusted for non-normally distributed continuous data) were used. The Satorra and Bentler (2001) scaled Chi squared difference test (mean adjusted for non-normally distributed continuous data) was also used to compare the fit of the unconstrained and constrained models.

Results

Attrition Analyses and Descriptive Statistics

The effect of attrition was assessed by comparing participants who provided data at both Wave 1 and Wave 2 ($N = 319$) to those who only provided data at Wave 1 ($N = 39$). No significant differences were found between the two groups based on demographics, parental acceptance, parental knowledge, child disclosure, or internalizing outcomes.

Descriptive statistics, means, standard deviations, and correlations were examined among study variables (see Table 1). All of the internalizing behaviors were associated with each other at Wave 1 (*r*s ranging from .26 to .73) and Wave 2 (*r*s ranging from .29 to .75). With the exception of its association to parental acceptance at Wave 1 and anxiety/ depressive symptoms at Wave 2, parental acceptance at Waves 1 and 2 was negatively associated with all of the child and parental-reported internalizing outcomes at Wave 1 and 2 (*r*s ranging from −.12 to −.51). Child disclosure at Wave 1 and 2 was negatively associated with all of

the child-reported internalizing outcomes at Wave 1 and 2 (*r*s ranging from −.12 to −.39), but was not associated with parental-report of adolescents' internalizing behaviors. Finally, with the exception of relationships between parental knowledge at Wave 1 and parental-reported anxiety/depressive symptoms at Wave 2 and between parental knowledge at Wave 2 and child-reported anxiety symptoms at Wave 1, parental knowledge at Waves 1 and 2 was negatively associated with both child- and parental-reported internalizing outcomes at Wave 2 (*r*s ranging from −.12 to −.37).

Relationships Between Parental and Child Behaviors, Parental Knowledge, and Internalizing Behaviors

Internalizing Symptom: Child-Reported Anxiety—For the model with child-reported anxiety, the constrained model for gender fit the data well, χ^2 (19, N = 358) = 20.54, p = .36, CFI = 1.00, RMSEA = 0.02, and was supported based on the non-significant χ^2 difference test and improvement in the BIC values (17,448.76 versus 17,538.56). The constrained model for grade also fit the data well, χ^2 (19, N = 358) = 24.65, p = .17, CFI = 0.99, RMSEA = 0.04, and was favored based on the non-significant χ^2 difference test and improvement in the BIC values (17,381.36 versus 17,466.57). As the constrained model was supported in both cases, indicating no gender or grade differences in relationships among variables, a final model was run using the full sample (Table 2). This model fit the data well, χ^2 (4, N = 354) = 6.50, p = .17, CFI = 1.00, and RMSEA = 0.04. Significant, positive associations were found for the same variables across Waves, indicating stability. Child disclosure, β = .17, Z = 2.7, p <.01, at Wave 1 predicted increased parental knowledge at Wave 2. Parental knowledge, β = .24, Z = 4.1 p <.001, and parental acceptance, β = .12, Z = 2.1, p <.05, at Wave 1 led to subsequent increases in child disclosure at Wave 2 (see Fig. 1).

Internalizing Symptom: Child-Reported Depression—For the model with child-reported depression, the constrained model for gender fit the data well, χ^2 (19, N = 358) = 23.56, p = .21, CFI = 0.99, RMSEA = 0.04, and was favored over the unconstrained model based on the non-significant $\chi 2$ difference test and improvement in the BIC values (17,398.35 versus 17,483.88). The constrained model for grade also fit the data well, χ^2 (19, N = 358) = 26.90, p = .11, CFI = 0.99, RMSEA = 0.05, and was supported based on the non-significant χ^2 difference test and improvement in the BIC values (17,365.31 versus 17,447.45). As the constrained model was favored across gender and grade, a final model was run using the full sample (see Fig. 2). This model fit the data well, χ^2 (4, N = 354) = 5.36, p = .25, CFI = 1.00, and RMSEA = 0.03. As before, significant, positive associations were found for the same variables across Waves, indicating stability. Parental acceptance at Wave 1 predicted decreased child-reported depression at Wave 2, β = −.16, Z = −2.4, p < .05. Child disclosure, β = .16, Z = 2.6, p <.05, at Wave 1 led to subsequent increases in parental knowledge at Wave 2. Similarly, parental knowledge, β = .24, Z = 4.0, p < .001, at Wave 1 predicted increased child disclosure at Wave 2.

Internalizing Symptom: Parental-Reported Anxiety/Depression—For the model with parental-report of adolescents' anxiety/depression, the constrained model for gender fit the data well, χ^2 (19, N = 358) = 22.10, p = .28, CFI = 1.00, RMSEA = 0.03, and was favored over the unconstrained model based on the non-significant χ^2 difference test and

improvement in the BIC values (17,049.79 versus 17,137.49). The constrained model for grade also fit the data well, χ^2 (19, N = 358) = 22.78, p = .25, CFI = 0.99, RMSEA = 0.03, and was supported over the unconstrained model based on the non-significant χ^2 difference test and improvement in the BIC values (17,009.89 versus 17,095.68). Because the constrained model was favored for the multi-group analyses for gender and grade, a final model was run with the full sample (see Fig. 3). The fit of the final model was good, χ^2 (4, N = 354) = 7.90, p = .10, CFI = 0.99 and RMSEA = 0.05. As before, significant, positive associations were found for the same variables across Waves, indicating stability. As with the prior two models, parental knowledge, β = .24, Z = 3.8, p < .001, at Wave 1 predicted increased child disclosure at Wave 2. Similarly, as before, child disclosure, β = .18, Z = 2.9, p < .01, at Wave 1 also predicted increased parental knowledge at Wave 2. In addition, parental-reported anxiety/depression, β = −.12, Z = −2.5, p < .05, led to subsequent decreases in parental knowledge at Wave 2.

Discussion

The purpose of the current study was to examine relationships between parental acceptance, child disclosure, parental knowledge, and internalizing behaviors among urban, predominately African American adolescents. Across the three models, results showed that child disclosure at Wave 1 predicted increased parental knowledge at Wave 2. Parental knowledge at Wave 1 also predicted increased child disclosure at Wave 2. In two of the three models, parental acceptance at Wave 1 predicted higher levels of child disclosure one year later. Parental acceptance at Wave 1 also predicted lower levels of child-reported depressive symptoms at Wave 2. Finally, parental report of internalizing symptoms at Wave 1 predicted decreased levels of parental knowledge at Wave 2. This is one of few studies that has examined longitudinal relationships between parental acceptance, child disclosure, parental knowledge, and internalizing behaviors among a sample of urban, primarily African American adolescents (Bacchini et al. 2011; Frojd et al. 2007; Hamza and Willoughby 2011). The current study also extended the literature by examining anxiety and depression outcomes separately, as many prior studies focused on one outcome or the other. Lastly, this study included two cohorts of early- and mid-adolescents, respectively, which allowed the consideration of potential grade differences in relationships among study variables. No grade or gender differences were evident.

Child disclosure was the strongest predictor of parental knowledge across all three models, and this finding is supported by a number of prior studies (e.g., Hamza and Willoughby 2011; Kerr and Stattin 2000; Racz and McMahon 2011). This result underscores the role of child disclosure as the “driver” of parental knowledge (Racz and McMahon 2011). In other words, the voluntary and spontaneous disclosure of information from adolescents is arguably a vital source of knowledge pertaining to adolescents’ activities. These findings highlight adolescents’ active role in controlling the content and detail of information they choose to share with parents. Contrary to the hypothesis for the current study, relationships between child disclosure and parental knowledge were not stronger for younger versus older adolescents. This was surprising as some researchers have shown that, as they get older, adolescents may more selectively disclose information to parents (McElhaney et al. 2009).

Our hypotheses that child disclosure would predict fewer internalizing behaviors were not supported. However, Keijsers et al. (2009) found that secrecy was a better predictor of depressive symptoms than child disclosure. The degree of secrecy was not separately assessed in this study, and future research should investigate the relationships between secrecy, child disclosure and internalizing outcomes in adolescence. Also, literature examining parental monitoring behaviors in urban, low-income neighborhoods, with African American samples showed that parents engaged in more stringent monitoring behaviors (e.g., Jones et al. 2008; Pinderhughes et al. 2001; Rankin and Quane 2002), which may impact levels of a child's disclosure. Future research including direct comparisons of families living in low versus middle or high SES neighborhoods would be beneficial, as SES may be a predictor of both parenting behaviors and child disclosure.

Consistent with our hypothesis, adolescents who perceived high levels of acceptance by parents increased their level of disclosure across a one-year period in two of the three models. This finding is supported by previous studies (e.g., Blodgett-Salafia et al. 2009; Fagot et al. 1995; Smetana et al. 2006). Additionally, higher levels of parental acceptance predicted lower levels of child-reported depressive symptoms one year later, which augments previous research findings (e.g., Chung et al. 2009; Gil-Rivas et al. 2003; Kim et al. 2013), as this is one of the first studies to document these findings with a primarily African American sample. Parental acceptance encompasses parenting behaviors including emotional warmth and affection, availability, and responsiveness (Schwartz et al. 1985). Adolescence is a developmental stage characterized by transitions in contexts (e.g., middle and high school transitions) and substantial growth and changes across physical, social-cognitive, and emotional domains. Adolescents are engaged in self-discovery and identity formation, and in this capacity may try new roles and responsibilities with varying degrees of success. Peer and dating relationships may be short-lived, creating fluctuations in emotional, instrumental, and companionship support offered by other adolescents (Steinberg 2008). In this context of shifting relationships and responsibilities, high levels of parental acceptance may facilitate closeness, connection, and consistency in the parent–child relationship that leads to increased child disclosure. High levels of parental acceptance may also protect adolescents from depressive symptoms and behaviors by enhancing communication and feelings of warmth and support. The study's findings also indicated that the relationship between parental acceptance, child disclosure, and depressive symptoms did not differ across gender or grade. This suggests that parental acceptance remains an important predictor of child disclosure and depressive symptoms across early and mid-adolescence and for boys and girls.

We did not find that parental acceptance predicted higher levels of parental knowledge, which was not consistent with prior studies that demonstrated a significant positive link between these constructs (e.g., Bumpus et al. 2006; Fletcher et al. 2004; Soenens et al. 2006; Vieno et al. 2009). As the current study findings showed that parental acceptance did not predict increased parental knowledge, it may be necessary to understand the role of parental acceptance in increasing parental knowledge in the context of other variables that are more directly related to this outcome. Thus, parental acceptance may result in increased levels of parental knowledge indirectly through its impact on a child's disclosure.

Higher levels of parental knowledge also predicted increased child disclosure across a one-year time period. Although some researchers originally suggested that disclosure informs parental knowledge (Kerr and Stattin 2000; Stattin and Kerr 2000), others have found bi-directional relationships between these constructs (e.g., Hamza and Willoughby 2011; Willoughby and Hamza 2011). Thus, if a parent has more knowledge about their adolescent's activities, the adolescent may be more willing to disclose information. This finding strengthens the argument that the bidirectional nature of these constructs is important to consider, as they both enhance communication within the parental-adolescent relationship. In addition, our results indicated that higher levels of parental-report of adolescents' internalizing behaviors predicted lower levels of parental knowledge one year later. While the majority of studies found that parental knowledge predicted lower levels of internalizing behaviors (e.g., Bacchini et al. 2011; Frojd et al. 2007; Gil-Rivas et al. 2003), these results are consistent with those of Hamza and Willoughby (2011) who found that depressive symptoms in Canadian youth predicted lower levels of parental knowledge one year later. One possible explanation for these findings is that, if they perceive that adolescents are experiencing more depressive or anxiety symptoms, parents may increase attempts to gain information, which may be perceived as more intrusive by adolescents. In contrast, parents may feel as if they are not in touch with what is going on in their adolescents' life. They may not know how to respond to changes in their adolescents' behaviors or mood. Kerr and Stattin (2003) theorized that parents might simply want to avoid receiving uncomfortable information, avoid conflicts, or simply think that these behaviors are a normative part of adolescence. All of these reasons may explain why parents might respond to problematic behaviors with fewer monitoring behaviors. These results have important implications, suggesting that while certain parenting behaviors may influence or protect adolescents from internalizing symptoms, such as parental acceptance, other parenting dimensions (parental knowledge) may be subsequently affected by parents' perceptions of internalizing symptoms.

Limitations

While the present study had key areas of strength, it is also important to acknowledge study limitations. First, parental acceptance, child disclosure, and parental knowledge represent only three child and parenting behaviors and dimensions. More components of parenting need to be explored to see what additional constructs predict higher levels of parental acceptance and knowledge, and child disclosure.

Also, more facets of parenting in predicting internalizing outcomes need to be explored. Our sample consisted primarily of African American adolescents living in low-income neighborhoods. Thus, the results in the present study may not generalize to African American youth living in other socio-ecological contexts and to youth representing other racial/ethnic backgrounds. Research highlights cultural differences in parenting behaviors and also differences based on contextual factors such as neighborhood dynamics (e.g., Jones et al. 2008; Pinderhughes et al. 2001; Rankin and Quane 2002).

Another limitation of the current study is the lack of data from fathers and other parental figures. Differences may exist in parenting behaviors for mothers and fathers and also in

relationships between these behaviors and child disclosure, parental knowledge, and internalizing outcomes. The sample did have a high percentage of single mothers (67 %), but more research would be beneficial on parenting dyads and different family structures. Lastly, the measure of child disclosure used in the present study did not assess disclosure across various domains of information (e.g., moral, prudential, and personal), and this specificity may be needed to detect age differences in relationships between child disclosure and parental knowledge.

Future Research Directions and Implications

Overall, the current study's findings highlight the need for researchers to identify and encourage parenting behaviors and practices that promote disclosure and communication within the family system. The findings also suggest that it is important to consider how adolescents may play a more active role in the family system. Further research may seek to identify other parenting behaviors that may increase child disclosure, parental acceptance and knowledge, and directly impact internalizing behaviors. These findings also have implications for prevention and intervention programs focused on the role of parenting behaviors in preventing internalizing symptoms in adolescence.

The current study also offers several directions for future research. Parental acceptance was an important predictor of child disclosure and child-reported depressive symptoms. However, future disclosure may depend on how parents respond to information that has been disclosed. For example, high levels of parental support were linked with later disclosure and fewer delinquent behaviors (e.g., Kerr et al. 1999; Keijsers et al. 2009). Future research on adaptive ways in which parents may respond to a child's disclosure (e.g., parental messages) would be helpful in identifying underlying mechanisms that may strengthen relationships between parental acceptance and child disclosure. Also, parental acceptance was a strong predictor of fewer depressive symptoms one year later. Future research should explore this relationship further to understand what other parenting behaviors are occurring, which may enhance communication and feelings of acceptance, ultimately protecting an adolescent from depressive symptoms.

Finally, the results showed that parental reports of adolescent internalizing symptoms predicted decreases in parental knowledge one year later. It would be beneficial to identify underlying factors that may help to explain this relationship. Also, there were no differences in strength of longitudinal relationships between child disclosure, and parental acceptance and knowledge for younger and older adolescents. Perkins and Turiel (2007) found that older adolescents (ages 15–17) were more likely than younger adolescents (ages 12–14) to feel that not being truthful to parents was acceptable when it pertained to personal issues. Although the child disclosure measure used in the current study included two items that assessed secrecy, additional research is needed to determine how normative changes in the types and amount of information that adolescents accurately or inaccurately disclose is associated with adjustment across time. Lastly, an important direction for future research would be to examine the moderating role of parental acceptance on the relationship between child disclosure and depressive symptoms.

Conclusion

Previous research has provided support for the claim that child and parenting behaviors and parental knowledge may predict fewer internalizing symptoms in adolescents (e.g., Bacchini et al. 2011; Frojd et al. 2007; Gil-Rivas et al. 2003). Relatively few studies have examined anxiety and depressive symptoms separately, and our findings add to the argument that these internalizing behaviors need to be independently assessed. For example, high levels of parental acceptance predicted lower levels of depressive symptoms in adolescents. However, these relationships were not found with anxiety symptoms. Additionally, our findings add to research that examined the influence that internalizing behaviors have on adolescent and parenting behaviors (Hamza and Willoughby 2011).

In addition to being one of the first studies to examine these variables in a primarily African American sample, this study also examined the reciprocal effect of these variables on each other over a one-year period. For example, the relationship between parental acceptance and depression was demonstrated previously in ethnically diverse samples (e.g., Chung et al. 2009; Gil-Rivas et al. 2003; Kim et al. 2013), but not with a predominantly African American sample. These results highlight the predictive nature of parental acceptance in decreasing depressive symptoms one year later in adolescence, by promoting feelings of warmth, support and understanding. Also, these results were invariant across age and gender, highlighting the continued importance of parental acceptance for boys and girls across adolescence.

Additionally, the study's findings replicated those of other researchers who found that child disclosure and parental knowledge predict one another (Hamza and Willoughby 2011; Racz and McMahon 2011). Parental perceptions of internalizing symptoms also predicted lower levels of parental knowledge one year later, suggesting that parents may respond to internalizing behaviors in ways that do not promote communication and/or knowledge about their adolescents' feelings or behaviors. These results also suggest that adolescents and parents play active and reactive roles in the parent–child relationship (Kerr and Stattin 2003). The implications of these results suggest the important roles of communication and parental acceptance in protecting adolescents from the risk of internalizing outcomes, but they also show that internalizing behaviors may also shape the way parents behave and/or obtain parental knowledge.

Acknowledgments

This work was supported by National Institutes of Health, National Institute on Drug Abuse Grants, K01 DA015442 01A1 and R21 DA 020086-02 (awarded to Wendy Kliewer).

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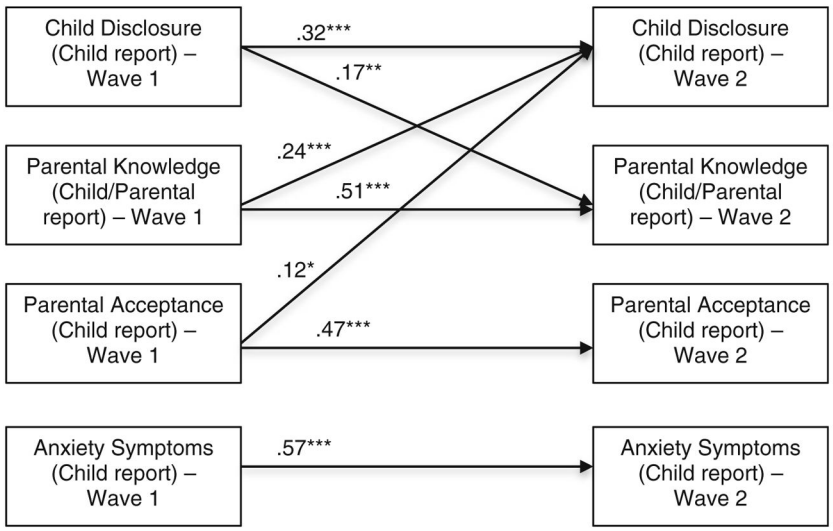

Fig. 1.

Longitudinal model examining the relationships between parental acceptance, parental knowledge, child disclosure, and child-reported anxiety symptoms. Only significant pathways are shown in the model. Effects of the covariate (i.e., father presence) were included in the model, but not displayed in the figure to reduce complexity. $\chi^2(4) = 6.50$, $p = .17$, Comparative Fit Index = 1.00, Root mean square of approximation = 0.04. *$p < .05$, **$p < .01$, ***$p < .001$

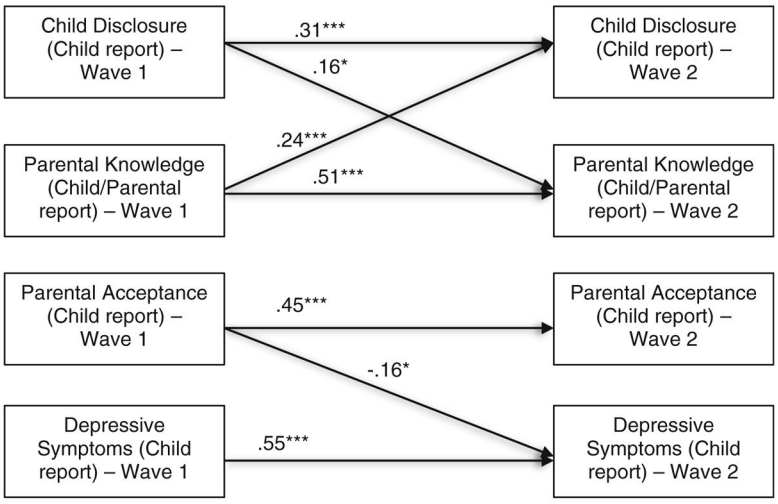

Fig. 2.

Longitudinal model examining the relationships between parental acceptance, parental knowledge, child disclosure, and child-reported depressive symptoms. Only significant pathways are shown in the model. Effects of the covariate (i.e., father presence) were included in the model, but not displayed in the figure to reduce complexity. χ^2 (4) = 5.36, p = .25, Comparative Fit Index = 1.00, Root mean square of approximation = 0.03. *p < .05, **p < .01, *** p < .001

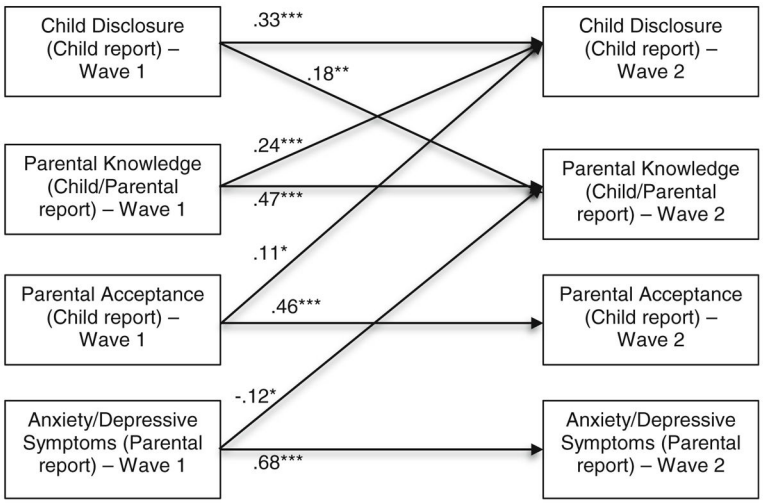

Fig. 3.

Longitudinal model examining the relationships between parental acceptance, parental knowledge, child disclosure, and parental-reported anxiety/depressive symptoms. Only significant pathways are shown in the model. Effects of the covariate (i.e., father presence) were included in the model, but not displayed in the figure to reduce complexity. χ^2 (4) = 7.90, p = .10, Comparative Fit Index = 0.99, Root Mean Square of Approximation = 0.05. *p < .05, **p < .01, ***p < .001

Table 1

Correlations among child disclosure, parental knowledge, parental acceptance, and internalizing behaviors

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Child disclosure (W1)	–											
2. Child disclosure (W2)	.52***	–										
3. Parental knowledge (W1)	.63***	.49***	–									
4. Parental knowledge (W2)	.50***	.64***	.63***	–								
5. Parental acceptance (W1)	.47***	.36***	.43***	.35***	–							
6. Parental acceptance (W2)	.33***	.40***	.28***	.45***	.52***	–						
7. Anxious symptoms–RCMAS (W1)	−.22***	−12*	−.15**	−.07	−.28***	−.12*	–					
8. Anxious symptoms–RCMAS (W2)	−.20***	−.21***	−.12*	−.20***	−.22***	−.26***	.59***	–				
9. Depressive symptoms–CDI (W1)	−.39***	−.28***	−.34***	−.25*	−.37**	−.26***	.73***	.56***	–			
10. Depressive symptoms–CDI (W2)	−.24***	−.36***	−.22***	−.37***	−.34***	−.51***	.49***	.75***	.59***	–		
11. Depressive/anxious symptoms–CBCL (W1)	−.06	−.10	−.22***	−.23***	−.14*	−.13***	.26***	.28***	.30***	.31***	–	
12. Depressive/anxious symptoms–CBCL (W2)	−.02	−.04	−.11	−.23***	−.10	−.17***	.23***	.29***	.25***	.32***	.68***	–
Mean	19.71	19.69	77.76	76.96	50.10	49.87	9.61	7.50	8.93	7.58	5.24	4.48
SD	4.53	4.41	8.44	8.82	6.88	7.18	6.03	6.08	6.60	6.13	4.62	4.46
Range	5–25	5–25	18–90	18–90	20–60	20–60	0–28	0–28	0–54	0–54	0–28	0–28

Behavior Checklist. Means were calculated at the scale level

W1 Wave 1, *W2* Wave 2; *CDI* children's depression inventory; *RCMAS* revised children's manifest anxiety scale, *CBCL* Child

* $p < .05$,

** $p < .01$.

*** $p < .001$

J Youth Adolesc. Author manuscript; available in PMC 2018 February 26.

Table 2

Chi square tests and measures of overall fit for the longitudinal path models

Model	χ^2	*df*	CFI	RMSEA	BIC
Child-reported anxiety					
Gender–unconstrained	0.00	0	1.00	0.00	17,538.56
Gender–constrained	20.54	19	1.00	0.02	17,448.76
Age–unconstrained	0.00	0	1.00	0.00	17,466.57
Age–constrained	24.65	19	0.99	0.04	17,381.36
Combined sample	6.50	4	1.00	0.04	16,622.49
Child-reported depression					
Gender–unconstrained	0.00	0	1.00	0.00	17,483.88
Gender–constrained	23.56	19	0.99	0.04	17,398.35
Age–unconstrained	0.00	0	1.00	0.00	17,447.45
Age–constrained	26.90	19	0.99	0.05	17,365.31
Combined sample	5.36	4	1.00	0.03	16,578.64
Parental-reported anxiety/depression					
Gender–unconstrained	0.00	0	1.00	0.00	17,137.49
Gender–constrained	22.10	19	1.00	0.03	17,049.79
Age–unconstrained	0.00	0	1.00	0.00	17,095.68
Age–constrained	22.78	19	0.99	0.03	17,009.89
Combined sample	7.90	4	0.99	0.05	16,222.84

CFI comparative fit index, *RMSEA* root mean square error of approximation, *BIC* bayesian information criterion