Journal of Early Adolescence
2018, Vol. 38(5) 629–660

DOI: 10.1177/0272431616687670
journals.sagepub.com/home/jea
SAGE

Parent Educational Involvement in Middle School: Longitudinal Influences on Student Outcomes

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Abstract

The present study examined influences of sixth-grade student-reported parent educational involvement on early adolescent peer group affiliations at seventh and eighth grade. In addition, student gender and ethnicity were explored as possible moderators. Drawn from a large effectiveness trial, participants in this study were 5,802 early adolescents across 20 middle schools in the northwest region of the United States. Findings suggested that specifically parent's educational involvement in sixth grade predicted increases in positive peer affiliation, when controlling for a general score of parent monitoring practices. The relation between parent educational involvement and peer affiliation varied by student ethnicity but not by gender. Findings suggest the social benefits of parent's engagement with the school context on early adolescent development.

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Keywords
family, parenting, parent-adolescent relationships, peer groups, peer relationships

Adolescents in middle school navigate a period of time in their lives characterized by biological, social, and environmental changes (Eccles, 1999; Eccles et al., 1993; Erikson, 1963; Steinberg & Morris, 2001). Environmentally, the landscape of middle schools is markedly different from that of elementary schools (Eccles & Harold, 1996), and schooling during adolescence has a unique impact on multiple facets of a youth's life (e.g., student and peer influences; Eccles & Roeser, 2011). These changes position the middle school time period as a critical developmental window for adolescents. Indeed, problem behavior (Dishion & Patterson, 2006), substance use (Wang, Dishion, Stormshak, & Willett, 2011), and deviant peer affiliations (Dishion & Owen, 2002) can increase during middle school. Due to the negative implications for these problem behaviors (e.g., adult psychopathology; Reef, Diamantopoulou, van Meurs, Verhulst, & van der Ende, 2011), it is critical that we identify factors that can decrease adolescents' engagement in these activities and set a positive trajectory.

One important point of intervention is through early adolescent's peer relationships. During middle childhood, more than 30% of youth social interactions involve peers (K. H. Rubin, Bukowski, & Parker, 2006). There are two primary kinds of peer affiliations: positive and deviant. Positive peer affiliations occur when youth associate with peers who are involved with positive activities, are well behaved (Dishion, Kim, Stormshak, & O'Neill, 2014), and endorse conventional norms (Gifford-Smith & Brownell, 2003). In contrast, deviant peer affiliations refer to instances in which youth associate with peers who engage in antisocial behavior (Capaldi, Dishion, Stoolmiller, & Yoerger, 2001), misbehave, or break rules (Dishion et al., 2014). Positive peer affiliations are linked with several positive outcomes (Gifford-Smith & Brownell, 2003). When youth have stable and positive peer affiliations, they may be better equipped to handle transitions competently (Berndt, Hawkins, & Jiao, 1999). In addition, members of positive peer groups encourage adaptive and prosocial behavior among each other (Brendgen, Bowen, Rondeau, & Vitaro, 1999).

Children and youth social contexts are important contributors of problem behavior (Dishion, Forgatch, VanRyzin, & Winter, 2012; Dodge, 1983). In deviant peer groups, it is common for youth to engage in deviancy training wherein deviant behaviors are reinforced such that discussion of rule-breaking behavior is linked with a positive consequence (e.g., affirmation; Dishion,

Spracklen, Andrews, & Patterson, 1996). Youth association with deviant peers is associated with many problematic outcomes (e.g., drug use, violence; Dishion, Capaldi, Spracklen, & Li, 1995; Dishion, Eddy, Haas, Li, & Spracklen, 1997; Dishion & Patterson, 2006). Reviews of the literature on the social context of youth behavior have indicated the importance of identifying developmental changes in social network affiliations (Gifford-Smith & Brownell, 2003). One important social context is the family (Bronfenbrenner, 1977), and corresponding family practices. Bronfenbrenner's (1977) ecological model identifies that adolescents reside in several microsystems (e.g., home, school), but it is within the mesosystem that microsystems interact to support youth development. For example, parents may communicate with teachers about how to support adolescents within and across settings. Furthermore, parent monitoring and family management practices, at home (i.e., in the microsystem) and in collaboration with school staff (in the mesosystem), contribute to youth outcomes (Duncan, Duncan, Biglan, & Ary, 1998; Stormshak et al., 2011).

Studies examining parenting practices have yielded important implications for children and adolescents. There are myriad ways parents support their children's appropriate peer group affiliations. One particularly important predictor of peer affiliations and problem behavior in middle school is parent monitoring (i.e., parent knowledge of, attention to, and tracking child behavior; Dishion & McMahon, 1998; Fosco, Stormshak, Dishion, & Winter, 2012), which is often measured as the parent's knowledge of the youth's activities and whereabouts (e.g., Kerr & Stattin, 2000; Stattin & Kerr, 2000). However, parent educational involvement is important and often examined in middle school relative to student outcomes (Hill & Tyson, 2009), but to date has not been examined with regard to peer group affiliations. Parent educational involvement is a multidimensional construct (Epstein, 1995; Fantuzzo, Tighe, & Childs, 2000; Manz, Fantuzzo, & Power, 2004) that refers to specific ways parents support their children and map onto Bronfenbrenner's (1977) ecological model. Factor analysis has identified three parent educational involvement factors: school-based involvement, home-based involvement, and home-school communication (Fantuzzo et al., 2000; Manz et al., 2004). These dimensions of parent educational involvement are relevant across international samples (Garbacz, McDowall, Schaughency, Sheridan, & Welch, 2015; Garbacz & Sheridan, 2011) underscoring their salience and relevance. School involvement reflects activities that occur at school (e.g., volunteering, attending activities). Home involvement refers to activities parents do outside of school to support education (e.g., help with homework). Home-school communication occurs when parents and school staff interact (e.g., talking with a school principal). The focus of this study is on the global

parent educational involvement construct as well as these three dimensions while covarying parent monitoring knowledge.

Empirical support for the impact of parent educational involvement on child outcomes is derived from correlational studies, meta-analyses, and randomized controlled trials investigating the efficacy of intervention models that test parent educational involvement. Parent educational involvement has been found to positively influence academic achievement (overall $d = .30$; Jeynes, 2012). In addition, parent educational involvement is negatively associated with school drop-out (Barnard, 2004) and behavior problems (Domina, 2005). When dimensions of parent educational involvement have been examined separately, several important findings have emerged. For example, home involvement is associated with improved attention and task persistence, and reduced conduct problems (Fantuzzo, McWayne, Perry, & Childs, 2004) as well as improved social skills and play interaction at school (McWayne, Hampton, Fantuzzo, Cohen, & Sekino, 2004). Home-school contact and partnering activities between parents and teachers positively related to student achievement (Jeynes, 2012) and social skills ($r = .20$-$.23$; McWayne et al., 2004). The efficacy of intervention models that engage parents have frequently been linked with improving student adaptive behavior and social skills (Sheridan et al., 2012), and decreasing problem behavior (Dishion, Kavanagh, Schneiger, Nelson, & Kaufman, 2002). This body of research identifies parent educational involvement and its dimensions as important constructs to promote student academic achievement and social skills and reduce behavior problems.

The influence of parent educational involvement on student academics, social skills, and behavior problems is important; however, less is known about how parent educational involvement during the middle school years impacts students' social peer connections in a longitudinal fashion. Theoretical models position family interactions and family management as critical for understanding peer affiliations, and the development of aggression and delinquency (Patterson, 1982; Patterson & Dishion, 1985). Several studies have found empirical support for these theoretical links (Dishion, 1990; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Hoeve et al., 2009; Patterson, Dishion, & Bank, 1984; Rodgers-Farmer, 2000; Véronneau & Dishion, 2010; Wang et al., 2011). For example, Dishion et al. (1991) found that parent discipline and monitoring were significantly and positively related to involvement with antisocial peers at ages 10 and 12. In addition, Véronneau and Dishion (2010) demonstrated that parent monitoring knowledge at Grade 6 was significantly and negatively related to student problem behavior (Grades 6 and 8) and friends' problem behavior (Grade 6). Theoretical underpinnings and empirical findings acknowledge that ecological systems are interconnected

and important to understand the context for peer affiliations and the development of delinquency. Conceptually, parent educational involvement is a family management activity, but to date its impact on peer affiliations has not been investigated, despite calls for research investigating ecological factors that influence peer affiliation, including school and family contexts (Dishion et al., 1991) and the mesosystem (Véronneau & Dishion, 2010). Families who engaged in a family-centered intervention demonstrated a less severe trajectory in deviant peer involvement (Van Ryzin, Dishion, & Stormshak, 2012). By extending research on predictors of peer affiliations to parent educational involvement, a broader ecology of youth development is considered that includes two microsystems (i.e., home and school) as well as mesosystemic interactions of key social agents in a child's life (Reid, 1993). This research would have important implications for cross-setting interventions.

Bronfenbrenner's (1977) theoretical model as well as empirical findings (Sheridan et al., 2012) demonstrate the importance of examining factors like home-school communication, school involvement, and home involvement. Sheridan, Buhs, and Warnes (2003) set a foundation for how parent educational involvement can promote prosocial behaviors and social interactions. For example, when communicating with teachers, parents may be able to coordinate their support of children's peer affiliations. In addition, through school and activities involvement, parents may have the opportunity to observe peer affiliations and interactions. Home involvement provides an opportunity for parents to interact with their child, which can include modeling prosocial behaviors, prompting adaptive interpretations for experiences with peers, coaching appropriate responses, and reinforcing student efforts to appropriately engage with positive peers. Research is needed that examines the link between parent educational involvement and peer affiliations.

When considering how parent and family factors may be associated with student outcomes, it is important to take into account student ethnicity and gender. The influence of parent educational involvement on student outcomes has in some instances been found to vary by ethnicity (Fan, Williams, & Wolters, 2012; Hill et al., 2004; Keith et al., 1998). Fan and colleagues (2012) examined high school student motivation and found similar findings across parents and students from different ethnic groups in addition to noting differences. For example, parent participation in school activities affected motivation only for Caucasian and African American students. Hill and colleagues (2004) found that the relation between parent educational involvement and middle school achievement was stronger for African American families than for European American families. Keith and colleagues (1998) examined the influence of parent educational involvement on high school student grades and found that findings were particularly strong for Native American

students. These findings suggest a need for research on parent educational involvement in secondary school settings that examines social activities and peer group affiliation.

Similar to examinations of ethnicity, it is important to consider gender when examining the influence of parenting practices or parent educational involvement. Examinations of differences in parent educational involvement for boys and girls have found that parents report more home-school communication for boys relative to girls (Manz et al., 2004). Keith et al.'s (1998) investigation of parent educational involvement on academics found that parent educational involvement had the same influence on the grades of boys and girls. However, Muller (1995) found that examinations of parent educational involvement and academics yielded findings that were similar and different for boys and girls. In addition, research suggests differences in peer group affiliations for boys and girls, which has implications for studies examining parent educational involvement (Nebbitt, Lombe, & Lindsey, 2007) and peer group affiliations. These studies suggest research is needed that considers gender, particularly for parent educational involvement research on social behaviors and peer group affiliations. There is a dearth of research in this area, but the existing research points to important implications for parent educational involvement.

Study Purpose

The purpose of this study was to extend previous longitudinal parent educational involvement investigations in elementary school (Dearing, Kreider, Simpkins, & Weiss, 2006) and middle school (Hill et al., 2004; Hill & Tyson, 2009; Wang et al., 2011), and address gaps in the literature by examining longitudinal associations between parent educational involvement and early adolescent peer group affiliations in middle school while covarying another important parenting variable in middle school: parent monitoring knowledge. This study contributes to the existing body of literature in two primary ways: (a) it examines subtypes of parent educational involvement and (b) it examines peer affiliation as an outcome of parent educational involvement. Specifically, parent educational involvement at sixth grade was targeted as the primary predictor in order to examine the influence of a malleable factor in an adolescent's life at the beginning of the critical middle school years (e.g., Eccles, 1999) on specific time points during middle school.

The following specific research questions were examined: (a) Does sixth-grade student-reported parent educational involvement predict student positive and deviant peer group affiliations at seventh and eighth grade? It was hypothesized that parent educational involvement would be positively associated with

positive peer affiliations and negatively associated with deviant peer affiliations, based on the pattern of findings in prior students (Dishion et al., 1991; Fantuzzo et al., 2004; Jeynes, 2012; McWayne et al., 2004). However, specific hypotheses regarding how dimensions of parent educational involvement would predict peer affiliations were not made due to the dearth of prior research. (1b) Does sixth-grade student-reported parent educational involvement predict student positive and deviant peer group affiliations at seventh and eighth grade above and beyond parent monitoring knowledge? Based on the importance of parent monitoring knowledge for peer affiliations in middle school, monitoring knowledge was included as a covariate to examine the specificity of parent educational involvement in the context of another important aspect of parenting. It was hypothesized that parent educational involvement would be associated with peer affiliations, but that some associations would be reduced after including monitoring knowledge as a covariate. (2) Does student gender moderate the relation between parent educational involvement and student peer group affiliations? Due to the equivocal findings examining student gender as a moderator in examinations of parent educational involvement and student outcomes and minimal research examining these variables with peer group affiliations (Keith et al., 1998; Muller, 1995; Nebbitt et al., 2007; Wang et al., 2011), a hypothesis was not made for this research question. (3) Does student ethnicity moderate the relation between parent educational involvement and student peer group affiliations? It was hypothesized that student ethnicity would moderate the relation between parent educational involvement and student peer affiliations, based on significant findings in prior related studies (e.g., Fan et al., 2012; Hill et al., 2004).

Method

Participants and Setting

Participants in this study were part of a larger effectiveness trial of a multitiered family-centered service delivery model in middle schools. Only participants in comparison schools were included in this study. Participants were 5,802 students attending 20 middle schools in the northwest region of the United States. Approximately 48% of students were female; 50% were male (gender was missing for 2% of students). At sixth grade, student mean age was 11.67 (SD = 0.55). Approximately 47% of students reported their race/ethnicity as Caucasian, 22% as Hispanic or Latino, 5% as African American or Black, 7% as Asian or Pacific Islander, 8% as American Indian or Native American, and 8% as Other (ethnicity was missing for 4% of students).

Procedure

Data collection occurred across waves and cohorts aligned with the larger effectiveness trial. Student data were collected in sixth, seventh, and eighth grades. Data collection began in 2009-2010 and concluded in 2012-2013. Students completed assessments in the fall/winter.

Measures and Variables

Student-reported parent educational involvement. Students reported their perceptions of their parents' involvement using an adapted version of the Parent Involvement Scale (Conduct Problems Prevention Research Group, 1991). Specifically, the frequency with which students perceived their parents to engage in specific involvement activities were rated on a 5-point scale from "not at all" to "weekly or more" with the following question stem: During this school year, how often have your parents done the following? Three items assessed school and activity involvement (e.g., Attended a special event at your school), and three items assessed home-school communication (e.g., Called your teacher). Internal consistency at sixth grade was acceptable for school and activity involvement ($\alpha = .63$) and home-school communication ($\alpha = .59$). Homework involvement was assessed with adapted items from the Caretaking and Routines Scale (Metzler, Biglan, Ary, & Li, 1998). The frequency with which students perceived their parents' engaging in homework involvement activities (e.g., How often does at least one of your parents help you with your schoolwork?) was rated on a 4-point scale from "never or almost never" to "always or almost always." Internal consistency at sixth grade was acceptable ($\alpha = .63$). A sum was computed for the three dimensions of parent educational involvement. A composite parent educational involvement scale was calculated by summing the standardized items of each these three subscales, and also had acceptable internal consistency ($\alpha = .63$). Generally, a scale with an alpha of .70 or above is considered to have very good internal reliability, whereas scales with alphas above .60 are considered to be fair but acceptable (Hair, Black, Babin, & Anderson, 2010), and scales with alpha coefficients below .5 are considered poor and unacceptable (George & Mallery, 2004).

Alpha estimates in the present study are considered fair as the three-item scales likely underpowered our calculation of alpha (Cortina, 1993; Schmitt, 1996). Reliability estimates in this range are consistent with those observed in other studies of parent education involvement (Dauber & Epstein, 1993; Walker, Wilkins, Dallaire, Sandler, & Hoover-Dempsey, 2005). For example, Dauber and Epstein (1993) reported that the total parent education

involvement scale yielded an alpha of .81, the communication scale an alpha of .65, and the home learning scale an alpha of .73. Alpha coefficients below .7 could also be due to item irrelevance, item heterogeneity, respondents' error, item ambiguity, and sample variance (McCrae, Kurtz, Yamagata, & Terracciano, 2011). In terms of item relevance and heterogeneity, across-time correlations for the subscales demonstrated significant and moderate to large relationships (see Table 2) and confirmatory factor analyses supported the use of a three-factor structure. Examination of the scale construction indicated that deleting any items would substantially decrease alphas, indicating that lower reliability estimates were not a result of a single poor item. Exploratory and confirmatory factor analyses supported the use of the three-subscale structure. Items loaded onto the three components as expected, with high varimax-rotated factor loadings (>.8), no cross-loadings (<.2), and moderate communalities (>.5). We further evaluated internal consistency via inter-item correlation for the subscales. Inter-item correlations were moderate (.27 to .46), suggesting acceptable internal consistency for scales with few items (Cortina, 1993; Nunnally, 1978).

Peer group affiliation. Students reported about their peer group affiliation using an adapted version of the Peer Affiliation and Social Acceptance (PASA; Dishion et al., 2014). Students rated how many of their peers engage in specific activities on a 5-point scale from "none or very few" to "most or all" with the following stem: The following questions are about people with whom you spend time. Three items assessed positive peer group affiliation (e.g., How many of your friends are involved in positive school or community activities?), and three items assessed deviant peer group affiliation (e.g., How many of your friends misbehave or break rules?). The PASA has been found to be reliable and valid for measuring peer affiliation (Dishion et al., 2014). To compute positive and deviant peer group affiliation, a sum of the three affiliation items was computed separately for positive and deviant peer group affiliation. Internal consistency for positive and deviant peer group affiliations were acceptable at sixth (α = .74, .68), seventh (α = .76, .75), and eighth grades (α = .77, .73), respectively.

Ethnicity and Gender

Child ethnic minority status was based on youth self-report of ethnicity. To test basic cross-ethnic moderation, ethnicity was dichotomized two ways. First, we explored for initial ethnic minority differences by coding Caucasian youth as "0," and all other youth (e.g., African American, Hispanic/Latino, etc.) as "1" for ethnic minority status. We also explored for additional ethnic

differences between the two largest ethnic groups, by coding Caucasian youth as "0" and Hispanic/Latino youth as "1." Child gender was based on youth self-report and coded as "1" for male and "0" for female.

Covariates

Each model controlled for sixth-grade levels of the outcomes (i.e., positive or deviant peer affiliation); therefore, models are predicted change above and beyond initial levels of these outcomes. Models also controlled for two items that served as proxy indicators of socioeconomic status. Youth were asked, "How many rooms do you have where you live (e.g., house, apartment, trailer) not including bathrooms or hallways?" Items were rated on a scale from 1 room to 7 or more rooms. Youth were also asked a question about perceived financial security, "How much money does your family have?" Items were rated on a 4-point scale ranging from 1 (*not enough to get by*) to 4 (*we never have to worry about money*).

Parent monitoring knowledge. Parent monitoring knowledge reflects parent knowledge and tracking of child behavior (Dishion & McMahon, 1998; Stattin & Kerr, 2000). Student report of monitoring knowledge was measured at sixth grade with six items from the Monitoring Scale (Metzler et al., 1998) and five items from a modified version of Caretaking and Family Routines (Metzler et al., 1998). Items were rated on a 4-point scale from "never or almost never" to "always or almost always" and summed to calculate a Monitoring Knowledge scale. The two measures were used to capture the knowledge and tracking components of monitoring (Dishion & McMahon, 1998; Stattin & Kerr, 2000). For example, the Monitoring Scale included items such as, "How often does at least one of your parents know where you go if you are out with friends?" Items from Caretaking and Routines measured tracking components of monitoring such as, "How often does at least one of your parents make sure that you are in bed on time?" Internal consistency of monitoring knowledge at sixth grade was acceptable ($\alpha = .88$).

Data Analysis Plan

Preliminary analyses examined initial properties of the data, including mean-level differences and correlations between all predictor and outcome variables of interest. As students were nested across 20 schools, initial examinations also estimated the effect of clustering on the data. The need for multilevel modeling (MLM) was based on two indices: the intraclass correlation coefficient (ICC) and the design effect (DE). The ICC provides a

standardized estimate of the magnitude of the clustering effect, with values ranging from 0 (*indicating complete independence*) to 1 (*indicating complete dependence*). However, even when ICC values are small (i.e., .01 or .05), standard errors may be dramatically inflated within nested data sets (Cohen, Cohen, West, & Aiken, 2003). The ICC is calculated based on estimates of the between-cluster and within-cluster variance: $ICC = \tau_{00} / (\tau_{00} + \sigma^2)$. The design effect also provides an estimate of the nesting related biases. More specifically, the design effects represent the degree to which the standard errors would be underestimated if nesting were not accounted for (e.g., DE = 2 would imply that standard errors would need to be doubled; Muthen & Satorra, 1995). The design effect is calculated using estimates of the ICC and the average cluster size (in this case, average sample size per school): $DE = 1 + (n_j - 1)\,ICC$.

Analyses included students who had data on at least one measure of interest for at least one grade point ($N = 5{,}802$), as such, participation rates were lower for each individual grade ($n = 4{,}174$ at sixth grade; $n = 4{,}190$ at seventh grade; and $n = 3{,}774$ at eighth grade). Missingness was not significantly related to gender, ethnicity, sixth-grade home-school communication, or sixth-grade homework involvement. However, missingness was related to higher levels of deviant peer affiliation and lower levels of proxy SES, total parent educational involvement at sixth grade, school and activity involvement at sixth grade, and positive peer affiliation. Missing data were treated using multiple imputation (Little & Rubin, 2002; Rubin, 1987; Schafer, 1999) using WinMICE and SAS. The three-step multiple imputation procedure first involves creating imputed data sets, then running the analyses on each imputed data set and pooling the results. WinMICE (Jacobusse, 2005) was used to produce 20 sets of imputed data, each with 200 multilevel iterations. WinMICE uses chained equations to estimate missing values and is designed specifically for multilevel missing data. SAS was used to analyze each of the imputed data sets (using the multilevel procedures described below) and pool the results using PROC MIANALYZE. Results from the multilevel models are based on these multiple imputation procedures. Intercepts and parent educational involvement variables (i.e., total parent educational involvement and three subtypes) were modeled as random effects in all multilevel models.

Primary analyses included two sets of multilevel models to test the effect of parental involvement on child outcomes at seventh grade and at eighth grade. In order to address Research Question 1, the first set of multilevel models examined the effect of total student-reported parent educational involvement on positive and deviant peer affiliation at seventh and eighth grades. The Level 1 equation for the first set of MLM models is as follows: $Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Baseline}_{ij}) + \beta_{2j}(\text{Rooms}_{ij}) + \beta_{3j}(\text{Security}_{ij}) + \beta_{4j}(\text{Gender}_{ij}) +$

β_{5j}(Ethnicity) + β_{6j}(Involvement$_{ij}$) + $r_{ij.}$ Effect sizes (ES) were calculated for individual predictors of interest using a method which involves multiplying the coefficient by 2 times the standard deviation, and dividing by the outcome variable's standard deviation (Schagen & Elliot, 2004). The resulting ES values represent the expected change on the outcome measure as a result of a one standard deviation change in the predictor variable. In order to address Research Questions 2 and 3, moderation was tested using the approach suggested by Aiken & West, (1991) with centered variables, interaction terms, and simple slopes. Because the analytic focus was on Level 1 predictors, variables were centered within class (i.e., within each school), and two interaction terms were created and added to the primary model: a gender by total parental involvement interaction term and an ethnic minority status by total parent educational involvement interaction term.

In order to further address Research Question 1, a second and parallel set of MLM models separated parent educational involvement into three subtypes: home-school communication, school and activity involvement, and homework involvement. These models examined the effect of three parent educational involvement subtypes on positive and deviant peer affiliation at seventh and eighth grade. The Level 1 equation for the second set of MLM models is as follows: $Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Baseline}_{ij}) + \beta_{2j}(\text{Rooms}_{ij}) + \beta_{3j}(\text{Security}_{ij}) + \beta_{4j}(\text{Gender}_{ij}) + \beta_{5j}(\text{Ethnicity}) + \beta_{6j}(\text{Communication}_{ij}) + \beta_{7j}(\text{Activity}_{ij}) + \beta_{8j}(\text{Homework}_{ij}) + r_{ij.}$ To further address Research Questions 2 and 3, three gender by parental involvement interactions and three ethnicity by parent educational involvement interactions were added to the models using the Aiken and West (1991) approach previously described.

Results

Preliminary Analyses

Table 1 presents descriptive statistics for parent educational involvement (total and each subtype), parent monitoring knowledge, and peer affiliation (positive and deviant) across each grade. Correlations across each grade are presented in Table 2.

Preliminary analyses also examined variance between and within schools on parent educational involvement ratings. Findings showed significant variance in the sixth-grade total parent educational involvement means across schools at ($\tau_{00} = .73$, $p < .01$), as well significant within-school variance ($\sigma^2 = 18.63$, $p < .001$). Based on these indices, the ICC was calculated as 0.04 and the design effect as 11.94. Although this ICC was only slightly greater than zero, there was still a potential for inflated standard errors (J. Cohen et al.,

2003). The design effects also implied that standard errors would be dramatically underestimated if nesting was not accounted for (Muthen & Satorra, 1995). As such, subsequent analyses were conducted using an MLM rather than standard regression approach.

Primary Findings

1. Does sixth-grade student-reported parent educational involvement predict positive and deviant peer group affiliations at seventh and eighth grade? Table 3 presents the results of four multilevel models with total parent educational involvement predicting changes in positive and deviant peer affiliation from sixth to seventh grade and from sixth to eighth grade, controlling for sixth-grade levels of peer affiliation. Total involvement predicted increase in seventh-grade positive peer affiliation (ES = .25) and eighth-grade positive peer affiliation (ES = .26). Table 4 presents the results of four multilevel models with total parent educational involvement predicting changes in positive and deviant peer affiliation from sixth to seventh grade and from sixth to eighth grade, controlling for sixth-grade levels of peer affiliation and parent monitoring knowledge. Total involvement predicted increased positive peer affiliation at seventh grade (ES = .17) and eighth grade (ES = .20).

Table 5 present the results of four models examining three subtypes of parent educational involvement as predicting changes in positive and deviant peer affiliation from sixth to seventh grade and from sixth to eighth grade, controlling for sixth-grade levels of peer affiliation. Home-school communication did not significantly predict affiliation changes at seventh grade or eighth grade. School and activity involvement predicted increases in positive peer affiliation at seventh grade (ES = .21) and eighth grade (ES = .18). Homework involvement predicted increases in positive peer affiliation at seventh grade (ES = .27) and eighth grade (ES = .27), and decreases in deviant peer affiliation at seventh grade (ES = .28) and eighth grade (ES = .21).

Table 6 presents similar findings as Table 5, but Table 6 includes parent monitoring knowledge as a control variable. Home-school communication did not significantly predict affiliation changes at seventh grade or eighth grade. School and activity involvement predicted increased positive peer affiliation at seventh grade (ES = .21) and eighth grade (ES = .18). Homework involvement predicted increased positive peer affiliation at eighth grade (ES = .24).

2. Does gender moderate the relation between parent educational involvement and peer group affiliations? We tested for interactions between gender and parent educational involvement; however, none of the interactions were significant, thus they were removed from final analyses.

Table 1. Descriptives for Parent Educational Involvement, Monitoring Knowledge, and Peer Affiliations.

	Minimum	Maximum	$\bar{X}$	*SD*	*n*
Sixth grade					
Total educational involvement[a]	−8.89	20.56	−0.08	4.19	3,649
Homework involvement[b]	2.00	8.00	5.88	1.73	3,967
Home-school communication[b]	3.00	15.00	5.01	2.07	3,921
School and activity involvement[b]	3.00	15.00	6.26	2.63	3,874
Monitoring knowledge[b]	11.00	44.00	34.07	7.28	3,790
Positive peer affiliation	3.00	15.00	9.53	2.99	3,845
Deviant peer affiliation	3.00	15.00	4.35	1.90	3,753
Seventh grade					
Positive peer affiliation	3.00	15.00	9.39	2.98	3,864
Deviant peer affiliation	3.00	15.00	4.63	2.22	3,900
Eighth grade					
Positive peer affiliation	3.00	15.00	9.42	2.93	3,535
Deviant peer affiliation	3.00	15.00	4.84	2.29	3,576

[a]Due to the difference in response scales, items were standardized before summing this scale.
[b]For ease of interpretation, raw scores were used to calculate the sum scales here, although standardized items were used for subsequent analyses.

3. Does ethnicity moderate the relation between parent educational involvement and peer group affiliations? No significant interactions emerged when comparing ethnic minority and Caucasian students. A post hoc analysis compared the two largest ethnic groups in our sample (i.e., Caucasian and Hispanic/Latino); we found a small significant interaction between Hispanic/Latino status and school and activity involvement when predicting seventh-grade positive peer affiliation ($B = -.10$, $p < .05$; see Figure 1). These findings suggest that the relation between school and activity involvement and positive peer affiliation at seventh grade is moderated by ethnicity, with a small and nonsignificant effect for Hispanic/Latino youth ($B = .01$, *ns)* compared with larger and significant effect for Caucasian youth ($B = .11$, $p < .05$).

Discussion

The purpose of the present study was to examine sixth-grade student-reported parent educational involvement on early adolescent peer group affiliations at seventh and eighth grade while controlling for initial sixth-grade levels of peer affiliations and covarying parent monitoring knowledge. In addition, student

Table 2. Correlations for Parent Educational Involvement, Monitoring Knowledge, and Peer Affiliation Variables at Sixth, Seventh, and Eighth Grade.

		1	2	3	4	5	6	7	8	9	10	11
1.	Total parent educational involvement at sixth grade	—										
2.	Homework involvement at sixth grade	.56**	—									
3.	School and activity involvement at sixth grade	.76**	.21**	—								
4.	Home-school communication at sixth grade	.70**	.07**	.26**	—							
5.	Monitoring knowledge at sixth grade	.42**	.64**	.25**	.03*	—						
6.	Positive peer affiliation at sixth grade	.22**	.30**	.20**	−.02	.41**	—					
7.	Deviant peer affiliation at sixth grade	−.03	−.18**	−.05**	.13**	−.26**	−.38**	—				
8.	Positive peer affiliation at seventh grade	.20**	.23**	.18**	.01	.37**	.42**	−.25**	—			
9.	Positive peer affiliation at eighth grade	.19**	.18**	.19**	.02	.26**	.36**	−.20**	.49**	—		
10.	Deviant peer affiliation at seventh grade	−.09**	−.18**	−.07**	.03	−.24**	−.27**	.33**	−.43**	−.27**	—	
11.	Deviant Peer affiliation at eighth grade	−.06**	−.11**	−.06**	.02	−.17**	−.19**	.31**	−.32**	−.39**	.44**	—

*$p < .05$. **$p < .01$.

Table 3. Results of Multilevel Models With Total Parent Educational Involvement Predicting Positive and Deviant Peer Affiliation at Seventh and Eighth Grade.

	Seventh grade				Eighth grade			
	Positive peer affiliation		Deviant peer affiliation		Positive peer affiliation		Deviant peer affiliation	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Intercept	6.33**	0.55	2.36**	0.39	7.38**	0.55	2.87**	0.39
Outcome at sixth grade	0.37**	0.03	0.44**	0.05	0.29**	0.03	0.37**	0.04
Number of rooms in home	−0.02	0.06	0.06	0.05	−0.03	0.06	0.02	0.05
Perceived financial security	−0.21	0.13	0.02	0.10	−0.22	0.13	0.10	0.11
Child gender (1 = male, 0 = female)	−0.05	0.20	0.17	0.16	0.11	0.20	0.05	0.16
Ethnic minority status (1 = ethnic minority, 0 = Caucasian)	0.19	0.21	0.20	0.17	−0.14	0.20	0.13	0.17
Total parent educational involvement	0.09**	0.03	−0.04	0.02	0.09**	0.03	−0.01	0.02

*$p < .05$. **$p < .01$.

Table 4. Results of Multilevel Models With Total Parent Educational Involvement Predicting Positive and Deviant Peer Affiliation at Seventh and Eighth Grade Controlling for Monitoring Knowledge.

	Seventh grade				Eighth grade			
	Positive peer affiliation		Deviant peer affiliation		Positive peer affiliation		Deviant peer affiliation	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Intercept	5.73**	0.70	2.68**	0.53	6.40**	0.68	3.03**	0.53
Outcome at sixth grade	0.31**	0.04	0.42**	0.05	0.26**	0.04	0.36**	0.05
Number of rooms in home	−0.01	0.06	0.05	0.05	−0.01	0.06	0.01	0.05
Perceived financial security	−0.18	0.13	0.00	0.10	−0.21	0.13	0.06	0.11
Child gender (1 = male, 0 = female)	0.01	0.20	0.13	0.16	0.17	0.20	−0.01	0.17
Ethnic minority status (1 = ethnic minority, 0 = Caucasian)	0.27	0.21	0.10	0.17	−0.19	0.21	0.12	0.17
Monitoring knowledge	0.06**	0.02	−0.06**	0.01	0.04*	0.02	−0.03*	0.01
Total parent educational involvement	0.06*	0.03	−0.01	0.02	0.07*	0.03	−0.01	0.02

*$p < .05$. **$p < .01$.

Table 5. Results of Multilevel Models With Parent Educational Involvement Dimensions Predicting Positive and Deviant Peer Affiliation at Seventh Grade and Eighth Grade.

	Seventh grade				Eighth grade			
	Positive peer affiliation		Deviant peer affiliation		Positive peer affiliation		Deviant peer affiliation	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Intercept	6.56**	0.55	2.58**	0.39	7.56**	0.55	3.03**	0.39
Outcome at sixth grade	0.34**	0.03	0.41**	0.05	0.26**	0.03	0.35**	0.04
Number of rooms in home	−0.01	0.06	0.06	0.05	−0.03	0.06	0.01	0.05
Perceived financial security	−0.21	0.13	0.02	0.10	−0.22	0.13	0.10	0.10
Child gender (1 = male, 0 = female)	−0.01	0.20	0.13	0.16	0.15	0.20	0.02	0.16
Ethnic minority status (1 = ethnic minority, 0 = Caucasian)	0.19	0.21	0.18	0.17	−0.12	0.20	0.10	0.17
Home-school communication	−0.04	0.05	0.06	0.04	−0.01	0.05	0.06	0.04
School and activity involvement	0.12*	0.05	−0.04	0.04	0.10*	0.05	0.01	0.04
Homework involvement	0.23**	0.06	−0.18**	0.05	0.23**	0.06	−0.14**	0.05

*$p < .05$. **$p < .01$.

Table 6. Results of Multilevel Models With Parent Educational Involvement Dimensions Predicting Positive and Deviant Peer Affiliation at Seventh- and Eighth Grade Controlling for Monitoring Knowledge.

	Seventh grade				Eighth grade			
	Positive peer affiliation		Deviant peer affiliation		Positive peer affiliation		Deviant peer affiliation	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Intercept	6.77**	0.56	2.74**	0.40	7.60**	0.56	3.12**	0.40
Outcome at sixth grade	0.31**	0.04	0.41**	0.05	0.25**	0.04	0.35**	0.05
Number of rooms in home	−0.02	0.06	0.05	0.05	−0.02	0.06	0.01	0.05
Perceived financial security	−0.17	0.13	−0.01	0.10	−0.21	0.13	0.06	0.11
Child gender (1 = male, 0 = female)	0.06	0.20	0.10	0.16	0.20	0.20	−0.02	0.17
Ethnic minority status (1 = ethnic minority, 0 = Caucasian)	0.26	0.21	0.10	0.17	−0.18	0.21	0.10	0.17
Monitoring knowledge	0.05*	0.02	−0.05**	0.02	0.02	0.02	−0.01	0.01
Home-school communication	−0.04	0.05	0.06	0.04	−0.01	0.05	0.05	0.04
School and activity involvement	0.12*	0.05	−0.03	0.04	0.10*	0.05	−0.01	0.04
Homework involvement	0.13	0.08	−0.06	0.06	0.20*	0.08	−0.11	0.06

*$p < .05$. **$p < .01$.

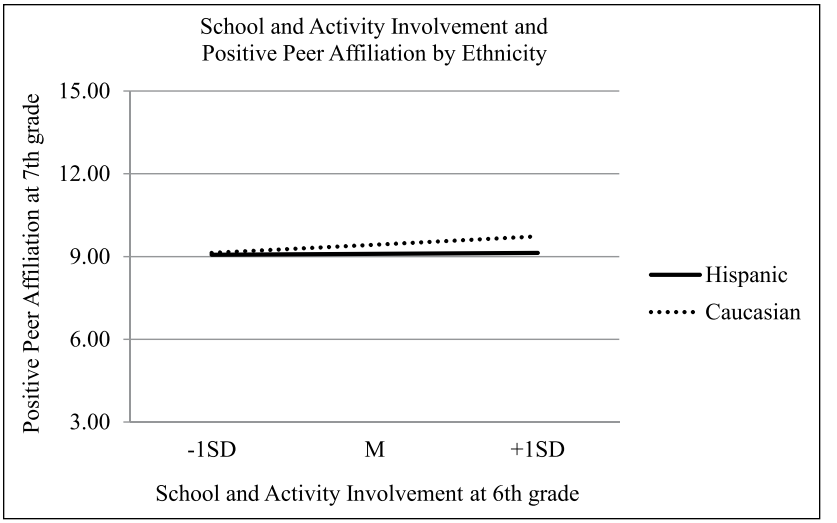

Figure 1. The influence of student ethnicity (i.e., Hispanic/Latino and Caucasian) on the relation between school and activity involvement on seventh-grade positive peer affiliations.
Note. The relation between school and activity involvement and positive peer affiliation is stronger for Caucasian students than it is for Hispanic/Latino students.

gender and student ethnicity were explored as possible moderators. Although previous research has examined (a) parent educational involvement in middle school and (b) peer group affiliation in middle school, research has not investigated the influence of parent educational involvement on peer group affiliation during middle school. Thus, this study extends previous longitudinal parent educational involvement studies during elementary school (Dearing et al., 2006) and middle school (Hill et al., 2004; Wang et al., 2011), and studies examining peer affiliations (Dishion, 1990; Patterson et al., 1984). In addition, this study responds to calls for research to investigate ecological factors that influence peer affiliation across school and family contexts (Dishion et al., 1991; Véronneau & Dishion, 2010) by exploring the influence of sixth-grade student-reported parent educational involvement on early adolescent peer group affiliations at seventh and eighth grade in the context of parent monitoring knowledge.

Main Findings

Findings from the present study relative to the prediction of parent educational involvement on student positive and deviant peer affiliations in the context of

parent monitoring knowledge are generally consistent with our hypotheses. Specifically, they point to a main finding that parenting is important yet complex. With monitoring knowledge, composite educational involvement remained a significant predictor of seventh- and eighth-grade positive peer affiliation suggesting an important and unique contribution of educational involvement for positive peer affiliations. Monitoring knowledge was significantly associated with positive and deviant peer affiliations at seventh and eighth grade, which affirms its importance for peer affiliations established in prior work (Dishion et al., 1991; Fosco et al., 2012). Educational involvement's prediction of positive peer affiliation is important because affiliating with positive peers has myriad advantages over affiliating with deviant peers. For example, positive peers encourage appropriate behaviors (Brendgen et al., 1999) whereas deviant peers reinforce delinquent behaviors (Dishion et al., 1996). This may suggest that parent educational involvement, in terms of overall involvement and school and activity involvement, is better considered as a promotive process in that it is more likely to promote adaptive skills rather than decrease maladaptive behaviors. Indeed, the finding that parent educational involvement programs may be more associated with promoting adaptive characteristics rather than decreasing maladaptive characteristics has been found by others (Sheridan et al., 2012).

Without monitoring knowledge included, an examination of parent educational involvement subscales point to several important associations, including homework involvement on positive and deviant peer affiliations, and school and activities involvement on positive peer affiliations. With monitoring knowledge included with educational involvement subscales, school and activities involvement remained a significant predictor of positive peer affiliations at seventh and eighth grade. This finding points to school and activities involvement as particularly relevant for positive peer affiliations and underscores educational involvement as a promotive process, which has been identified by others investigating home-school interventions for student behavior (cf. Sheridan et al., 2012). Homework involvement remained a significant predictor of positive peer affiliations at eighth grade. This suggests homework involvement may have an important contribution, even in the context of monitoring knowledge, for positive peer affiliations at eighth grade.

The examination of gender as a moderator on relations between parent educational involvement and peer group affiliations revealed an important finding. The relation between parent educational involvement and changes in peer affiliation were similar for boys and girls. The finding that gender did not moderate the relation between parent educational involvement and peer affiliation adds to the literature examining the influence of gender when examining parent educational involvement and parenting on outcomes. Due to equivocal findings in the literature, we did not make a hypothesis for this research question. Other studies that

have examined the influence of gender on parent educational involvement in secondary school levels have primarily examined its influence on academic achievement (e.g., Keith et al., 1998). This study's focus on peer group affiliation adds to the literature by suggesting student gender may not influence the relation between parent educational involvement and peer group affiliation in middle school. Heretofore, no studies have investigated this relation with this population and peer group affiliation. This finding indicates that efforts to engage families in middle school may not need to be differentiated based on gender.

In addition to gender, student ethnicity was examined as a moderator on the relation between parent educational involvement and positive and deviant peer affiliations. A significant finding emerged: The relation between school and activity involvement and positive peer affiliation at seventh grade is smaller for Hispanic/Latino students as compared with Caucasian students. This finding is consistent with our hypothesis and adds to the literature that suggests student ethnicity influences relations between parent educational involvement and certain outcomes (Fan et al., 2012; Keith et al., 1998).

Contributions of This Study

Findings from this study contribute in four primary ways to literature examining parent educational involvement and student peer affiliations. First, heretofore, examinations of parent educational involvement in middle school have not addressed student peer group affiliations. The importance of social contexts as contributors to problem behavior is well documented (Dishion et al., 2012; Dodge, 1983). This study extends parent educational involvement research in middle school (e.g., Hill & Tyson, 2009) by examining relations between student-reported sixth-grade parent educational involvement and seventh- and eighth-grade positive and deviant peer affiliations while covarying parent monitoring knowledge. Calls from scholars to investigate ecological home and school factors that may influence peer affiliations (Dishion et al., 1991) are supported by findings from this study and suggest parent educational involvement is associated with positive peer affiliations while including parent monitoring knowledge.

Second, in addition to examining total parent educational involvement, this study demonstrated the importance of particular dimensions of parent educational involvement. Specifically, school and activity involvement emerged as a significant predictors of later positive peer affiliations in the context of monitoring knowledge. Although it is useful to know whether overall levels of parent educational involvement are related to student outcomes, identifying specific dimensions of parent educational involvement is particularly useful when planning interventions and developing programs

(e.g., Dishion, Nelson, & Kavanagh, 2003; Sheridan et al., 2012). As suggested by Sheridan and colleagues (2003), parents can serve a valuable role in the development of social skills and positive peer relationships. In school and activity involvement, parents may have the opportunity to view peer affiliations and suggest appropriate affiliations.

Third, parent educational involvement in this study was based on student report of their parents' involvement. Thus, findings may suggest that it is important for students to feel supported by their parents when they make decisions about peer affiliations. Indeed, the family system provides proximal social support to children (Boyce, 1985), which serves "as the central, enduring source of supportive social interaction" (Boyce, 1985, p. 153).

Fourth, this study adds to the extant literature on parent educational involvement by providing information about ethnicity as a moderator of parent educational involvement on student peer affiliations. Specifically, at low levels of school and activity involvement, Hispanic/Latino and Caucasian students have similar levels of positive peer affiliation. As school and activity involvement increases, Caucasian students have higher levels of positive peer affiliation. These findings augment the growing body of literature examining the influence of ethnicity (Fan et al., 2012; Hill et al., 2004) on the relation between parent educational involvement and outcomes. Interestingly, this finding was unique to involvement in school activities, and does not pertain to home involvement or home-school communication. This difference could be due to cultural differences in the value, expectation, and norms tied to extracurricular and volunteer activities and events. Specifically, extant findings suggest Hispanic parents place greater importance on academics than extracurricular activities (Scribner, Young, & Pedroza, 1999; Trumbull, Greenfield, Rothstein-Fisch, & Quiroz, 2007; Zarate, 2007). Researchers have also suggested that lower participation in extracurricular activities among Hispanic/Latino students may be partly due to the time away from home and family participating in extracurricular activities requires, which goes against cultural values of familismo (Feldman & Matjasko, 2005; Lisella & Serwatka, 1996; Steidel & Contreras, 2003; Velez & Saenz, 2001). It could also be the case that Hispanic/Latino parents are more likely to face barriers to participating in school activities (e.g., language, transportation, economic, work schedules) in ways that may be reduced across other forms of parent involvement (e.g., De Gaetano, 2007; Hussain-Gambles, Atkin, & Leese, 2004; Ladky & Peterson, 2008).

Limitations and Future Research Directions

Despite the important findings and contributions of the present study, there are several limitations that must be considered when making interpretations.

These limitations have implications for future research in this area. In this study, students reported on all variables examined. Future research should seek to use multiple reporters across methods to measure variables of interest. Similarly, when measuring student peer affiliations, it would be useful to use thorough assessments of a youth's social network. Although some research has suggested general correspondence between self-report and other methods of identifying peer social networks, social cognitive maps may be one tactic that could offer a more thorough assessment (Cairns, Xie, & Leung, 1998) than only relying on self-reports. In addition, in this study, ethnicity was included as a dichotomous variable. Reducing ethnicity to a dichotomous variable misses many important features of family culture that are important to consider when examining parent involvement and student peer affiliations. Future research should investigate student identification with ethnic groups, family culture, and values to precisely assess the role of ethnicity. Next, parent educational involvement and parent monitoring knowledge are two aspects of parenting. Future research should seek to compare the influence of various domains of parenting (e.g., parental warmth, parental control) when examining the relative impact of parent educational involvement and monitoring knowledge as parenting is a complex and multifaceted process.

Identifying appropriate and robust measures of parent educational involvement should be targeted in future research. For example, based on findings from the present study, internal consistency of parent educational involvement measures could be improved. Future studies could seek feedback from parents, teachers, and students about relevant and salient aspects of parent educational involvement in middle school, which could inform the development and iterative refinement of robust parent educational involvement measures for middle school.

The timing of assessments in this study should also be considered a limitation. In this study, assessments were completed in the fall/winter. Students may be better able to approximate parent educational involvement in the spring, after a full school year. Future research should seek to examine parent educational involvement when it is assessed in the spring. Relatedly, the school-based administration of measures necessitated the use of abbreviated measures in order to reduce administration time, participant burden, and participant fatigue. Although our parent educational involvement measure is consistent with the empirically derived constructs of parent educational involvement, a longer measure may be more robust and internally consistent. Findings from the present study regarding dimensions of parent educational involvement should be interpreted as an initial and novel

attempt to examine dimensions of parent educational involvement and peer affiliations.

Finally, the importance of parent educational involvement as a predictor is well established (Barnard, 2004; Dearing et al., 2006; Jeynes, 2012). However, forms of parent participation that reflect authentic partnerships between parents and educators (e.g., Sheridan et al., 2012) have not been as consistently examined as has parent educational involvement. Future research is needed that explores the influence of family-school partnerships on student outcomes in middle school.

Conclusion

The purpose of this study was to examine influences of sixth-grade parent educational involvement on early adolescent peer group affiliations at seventh and eighth grade in the context of parent monitoring knowledge and affirmed the importance of monitoring knowledge for peer affiliations in middle school. Student gender and ethnicity were explored as moderators. Findings revealed that overall parent educational involvement as well as school and activity involvement were statistically significant predictors of peer group affiliations while covarying monitoring knowledge. Whereas student gender did not emerge as a significant moderator, student ethnicity did. This study emphasizes the important role parents play in the social lives of middle school students.

Author'(s) Note

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by Grant R324A090111 from the Department of Education, Institute of Education Sciences (IES), to John R. Seeley, PhD, Oregon Research Institute.

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