

FAMILY CHARACTERISTICS AS PREDICTORS OF SCHOOL ACHIEVEMENT: PARENTAL INVOLVEMENT AS A MEDIATOR

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ABSTRACT. This study examined the relation among family characteristics, school achievement, parenting style and parental involvement in schooling. A dimensional approach was used, that is, the scores obtained on the dimensions of parenting style and parental involvement in schooling were considered as continuous variables. Of special interest in this study was whether family characteristics would predict more of the variance in school achievement than parenting practices. Of equal interest was whether family characteristics would moderate the association between parenting practices and school achievement. The authors also examined the role of parenting practices in mediating the relation between family characteristics and school achievement. The research was conducted with 525 adolescents of the Quebec-Appalachian region and used a French-speaking version of two instruments, the first one being developed by Steinberg and his colleagues (1992) and the second one by Epstein, Salinas and Connors (1993). Results indicated that family characteristics made a smaller contribution to school achievement than parenting practices. There was no moderating effect of family characteristics on parenting practices in relation to school grades. The regression analyses indicated that family structure and parental education were related to school grades and that this relation was mediated through parental warmth, supervision and affective support. Results are discussed in terms of systematically designed school and family partnership activities that should particularly target at-risk families.

RÉSUMÉ. Cette recherche étudie la relation entre les caractéristiques familiales, la réussite scolaire, le style parental et la participation parentale au suivi scolaire. On s'est servi d'une approche dimensionnelle, c'est-à-dire que les scores obtenus aux dimensions du style parental et de la participation parentale face à la scolarité sont considérés comme des variables continues. Les auteurs se sont demandé si les caractéristiques familiales sont de meilleurs prédicteurs des résultats scolaires que les pratiques parentales. Les auteurs ont examiné si les caractéristiques familiales s'avèrent de meilleurs prédicteurs des résultats scolaires que les pratiques parentales. Ils ont aussi vérifié si les caractéristiques familiales modèrent la relation entre les pratiques parentales et les résultats scolaires. Les auteurs ont également examiné le rôle médiateur des pratiques parentales dans

la relation entre les caractéristiques familiales et les résultats scolaires. L'étude a été menée auprès de 525 adolescents de la région de Québec-Appalaches à l'aide d'une adaptation francophone du questionnaire conçu par Steinberg et ses collègues (1992) et de celui d'Epstein, Salinas et Connors (1993). Les résultats ont démontré que les caractéristiques familiales contribuent à un degré moindre que les pratiques parentales à la prédiction de la réussite scolaire. Aucun effet modérateur des caractéristiques familiales n'a été relevé en lien avec les pratiques parentales et les résultats scolaires. Les analyses de régression ont indiqué que la structure familiale et l'éducation des parents sont associées aux résultats scolaires. Les pratiques parentales correspondant à la sensibilité, la supervision, et le soutien affectif parental interviennent dans la relation en tant que variables médiatrices. Les résultats sont discutés en termes d'activités de collaboration entre l'école et les familles qui devraient cibler d'une façon particulière les familles dites à risque.

Several studies have indicated that families exert an influence on adolescents' school achievement (see Deslandes, 1996 for a complete review; Deslandes & Royer, 1994). A first line of research has repeatedly shown that family demographic characteristics are related to academic achievement. Recurrent themes are that children and adolescents from lower income, less educated, single-parent and large families perform less well in school than those from higher income, better-educated, two-parent and small families (Astone & McLanahan, 1991; Dornbusch, Ritter, Mont-Reynaud & Chez, 1990; Sputa & Paulson, 1995; Violette, 1991). Generally, the educational level of parents predicts more of the variability in school achievement than do other family demographic characteristics (Stevenson & Baker, 1987; Dornbusch, Ritter, Mont-Reynaud, & Chen, 1990).

Parenting style has also been found to be related to school achievement. Parenting style refers to a general child-rearing pattern that characterizes parents' behaviors toward their child (Steinberg, Lamborn, Dornbusch, & Darling, 1992). It is seen as a more powerful predictor of school achievement than family background characteristics (Dornbusch, Ritter, Leiderman, Roberts & Fraleigh, 1987). Studies conducted by Dornbusch, Steinberg and their colleagues are particularly relevant because they link authoritative parenting style with adolescents' school grades (Dornbusch et al., 1987; Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997; Steinberg, Elmen & Mounts, 1989; Steinberg, et al., 1992; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). The authors have defined authoritative parenting style as showing a high degree of warmth, supervision, and psychological autonomy granting. Specifically, adolescents who describe their parents as treating them warmly, firmly and democratically are more likely than their peers to

obtain high grades in school. In agreement with other research (e.g., Herman, Dornbusch, Herron, & Herting, 1997; Steinberg et al., 1989), Deslandes (1996) reported a positive relationship between the three dimensions of parenting style (i.e., warmth, supervision and psychological autonomy granting) and school grades. Her study was conducted with 525 French-speaking adolescents living in the province of Quebec (Deslandes, 1996; see also Deslandes, Royer, Turcotte & Bertrand, 1997).

In addition, extensive literature indicates that parental involvement in schooling relates to children's school achievement (e.g., Epstein, 1992; Paulson, 1994). Parental involvement in schooling refers to the parents' role in their child's education at home and at school. It can take several forms: presence at school, communicating with the teachers, or helping at home with homework (Christenson, Rounds & Franklin, 1992; Epstein, 1992). Research data are quite conclusive with respect to the benefits of parental involvement on academic achievement at the elementary level (Epstein, 1992). At the high school level, some studies have suggested both negative and positive correlations between activities of parental involvement and school performance. For example, Lee (1994) and Deslandes (1996) noted a negative relationship between parent-teacher contacts and school achievement. They suggested that communications between parents and teachers were more likely to occur when adolescents are experiencing problems in school. Other research has found that family discussions about students' school experiences, courses and future educational plans have a sizable effect on school achievement (Lee, 1994; Otto & Atkinson, 1997). Findings from Deslandes' study (1996) revealed that parental affective support was the best predictor of adolescents' school grades. Consistent with Paulson's results (1994), Deslandes (1996) concluded that parental involvement dimensions predicted achievement above and beyond parenting style dimensions. However, no information was obtained as to whether parenting style, parental involvement in school dimensions, or family background characteristics best predicted school achievement.

Past American literature has shown that positive links between parenting and adolescents' school achievement are generalizable across various socioeconomic and family structure groups (Bogenschneider, 1997; Dornbusch et al., 1987; Steinberg et al., 1992). Such results suggested that family characteristics do not have a moderating role. In other words, it appears that the relationship between parenting and academic achievement is not stronger for adolescents living in intact, small-size families and with highly educated parents than for those living in single-parent and large-size families, and less-well educated parents.

More recently, researchers have begun to explore how family demographic characteristics might exert their effects on school achievement. However, the research results are mixed. For example, some studies have demonstrated that parental involvement in schooling is important for understanding lower student grades in non-intact families and with less-educated parents (Dornbusch & Ritter, 1992; Lee, 1994). Likewise, Stevenson and Baker (1987) demonstrated that the relation between parent education and school achievement was mediated by parents' levels of involvement. However, Eccles, Early, Frasier, Belansky, & McCarthy, (1997) did not observe any mediating links in relation to school achievement between family demographic characteristics and parenting style dimensions. On his part, Downey (1994) introduced the economic parental resources as important mediators for understanding why children from non-intact families do less well in school than children from intact families.

This study focused on the relation between family demographic characteristics and school achievement. We addressed three major questions. The first question was whether family characteristics contribute more importantly to the prediction of school achievement than parenting style and parental involvement dimensions. The second question was whether any of the family characteristics exerted a moderating effect in the positive relationship between parenting style, parental involvement, and school achievement. In other words, did family size, or family structure or parents' education levels affect the strength of the relation between parenting style, parental involvement, and school achievement? The third question was whether parenting style and parental involvement dimensions mediate the effect of family characteristics on adolescents' school achievement. Simply put, is the relationship between family characteristics and school achievement reduced or even eliminated after controlling for the influence of parenting style and parental involvement? Analyses investigating these questions involve data that were collected as part of a previous project that examined the relationship between parenting style and parental involvement in their relationship with school achievement at the secondary level (or more details, see Deslandes, 1996; Deslandes et al., 1997).

METHODOLOGY

Participants

As mentioned above, the students who participated in this study were attending two high schools from the Quebec-Appalachian region. One school was located in a rural area while the other one was situated in

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a suburb. The sample consisted of 525 secondary III level students, 282 girls (53.7%) and 243 boys (46.3%), aged between 14.0 and 16.0. This sample refers to the entire population of nonabsent students enrolled in the two schools. Table 1 presents a detailed profile of the participants.

TABLE 1. Demographic characteristics of the sample (N=525) (%)

SEX	
• Female	53.7
• Male	46.3
FAMILY SIZE	
• 1 Child	7.4
• 2 Children	48.4
• 3 Children	28.7
• 4 Children & more	15.5
FAMILY STRUCTURE	
• Intact	80.8
• Nonintact	19.2
PARENTAL EDUCATION	
• Elementary level, high school started	14.0
• Elementary level, high school started / High school diploma or equivalent	19.6
• High school diploma or equivalent	27.5
• High school diploma or equivalent / College or University	20.9
• College or University	18.0

Measures

The family characteristics variables include family size, family structure, and socioeconomic status.

FAMILY SIZE. Four categories of families were defined for the purpose of the analyses: (a) one-child, (b) two-children, (c) three-children, and (d) four-children or more. Seven percent (7%) of the families had one child, whereas 48% had two children, 29% had three children, and 16% had four or more. Because of the unequal sizes of the categories, values of 1 and 2 were recorded as 0 and values of 3 and more were recorded as 1.

FAMILY STRUCTURE. Each adolescent was assigned to one of the two types of family arrangements: (1) intact families or both natural parents, or (2) nonintact families or one natural parent only, one natural parent and a stepparent or neither parent. These two categories were recorded as 0 and 1.

PARENTS' EDUCATION LEVELS. Measures of both mother's and father's levels of education had three categories: (a) elementary level and a few years at the high school level; (b) high school completed, and (c) college or

university-graduated. These measures were averaged to create a single parental education measure that had five categories: (1) both parents with elementary level and a few years at the high school level; (2) one of the parents with elementary level and a few years at the high school level; the other parent with high school completed; (3) both parents with high school completed; (4) one of the parents with high school completed and the other one who is college or university-graduated; and (5) both parents who are college or university-graduated.

PARENTING STYLE DIMENSIONS. In the present study, we used a dimensional approach; that is, the factors or dimensions of parenting style were treated as continuous variables. Our decision is justified by our interest in certain aspects of the parent-child relationship with regard to adolescents' school achievement.

Measures of parenting style factors were based on the scores obtained on three Likert scales developed by Steinberg et al. (1992), translated into French and validated, in 1994 (Deslandes, Bertrand, Royer & Turcotte, 1995). An earlier study with the same sample conducted a principal components procedure followed by oblique rotation (oblimin). Two criteria were used, latent root equal or greater than, and the scree test. Just as in the findings of Steinberg et. al., (1992), a trifactorial structure emerged. The first subscale, entitled warmth, assesses the extent to which the adolescent perceives his or her parents as loving, responsive and involved (sample item: "I can count on my parents to help me out, if I have some kind of problem", 12 items, ($\alpha = 0.86$). The second subscale, called supervision, measures parental monitoring of the adolescent (sample item: "Your parents really know what you do with your free time", 6 items, ($\alpha = 0.74$). The third subscale, labeled psychological autonomy granting, measures the extent to which parents employ democratic discipline and encourage the adolescent to express individuality with the family (sample item, reverse score: "My parents answer my arguments by saying something like "You'll know better when you grow up", 6 items, ($\alpha = 0.73$).

PARENTAL INVOLVEMENT IN SCHOOLING. The measure of parental involvement in schooling was designed by Epstein, Connors and Salinas (1993) from the Center on Families, Communities, Schools and Children's Learning of The Johns Hopkins University, in Maryland. In the adapted French version validated in the Quebec context, the scale includes twenty parental involvement activities, at home and at school. A multidimensional approach of parental involvement was created. Using a principal components factor analyses with oblimin rotation, five

factors emerged (see Deslandes, 1996; Deslandes et al., 1997, for a complete discussion). Thus, five subscales were created from this measure to assess specific factors or dimensions of parental involvement. The first subscale measured parental affective support, 6 items, ($\alpha=0.76$). Sample items included, "One of my parents gives me encouragement about school." The second subscale, communication with the teachers, 4 items, ($\alpha=0.69$) included how often parents talk to the teacher on the phone, pick up the adolescent's report card at school and have a parent-teacher conference with one of the teachers. Another subscale, daily interactions based on school matters, 4 items, ($\alpha=0.76$) rated the frequency of parent day-to-day supervision of schoolwork. Sample items included: "One of my parents asks me about my grades." The fourth subscale assessed parents-school communication, 3 items, ($\alpha=0.63$) and included items such as, "One of my parents talks about school with the parents of my friends." Lastly, the fifth subscale rated parents-adolescents communications, 3 items, ($\alpha=0.65$). One of the items was, "One of my parents talks with me about my future." Note that in the present study, only data that were related to parental affective support and had been previously identified as positive predictors of school grades were included in the analyses (see Deslandes, 1996; Deslandes et al., 1997).

Procedures

The questionnaires were administered to the students during one class period of English or French in the presence of the regular teacher. All students willingly agreed to participate in the study, and required twenty minutes to complete the questionnaires. Measurements of the family variables were based on the youth self-reports. Data were collected from students in early spring 1995 and the year-end point averages used as the dependent variable were obtained from official school records in the first week of July, 1995. Students were assured that the information they provided would remain confidential.

RESULTS

First, assumptions related to linearity, multicollinearity, normality, and homogeneity of variance were verified. Factor scores that had been generated in previous analyses were used (for more details, see Deslandes, 1996; Deslandes et al., 1997). Correlations among variables are illustrated in table 2. This analysis shows strong positive correlations between parents' education level and school grades but low and negative

correlations between the latter and family structure. Some negative associations are found between family size and parental warmth. The same pattern of correlations emerged between family structure and parental affective support. Moderate and positive correlations are observed between parents' education levels, supervision and affective support. Also moderately but negatively related are correlations between family size and affective support.

TABLE 2. Correlation matrix of variables

Variables	Grades	Size	Structure	Education Level
Grades	1.000	-.037	-.081*	.233***
Size		1.000	-.028	-.039
Structure			1.000	.048
Education Level				1.000
Warmth				
Supervision				
Psychological Autonomy				
Affective Support				

* $p < .05$; ** $p < .01$; *** $p < .001$

To answer the first question as to whether family demographic characteristics contribute more importantly to the prediction of school achievement than parenting style and parental involvement dimensions, we performed multiple regression analyses using the stepwise procedures of SPSS Windows, release 7.5. As table 3 shows, 6.5% of the variance in school achievement was accounted for by family structure and parental education $\{F(2, 515) = 17.89, p < .001\}$. This amount of explained variance is slightly higher than the one explained by parenting style dimensions (i.e., 5.7%) (Deslandes et al., 1997) but clearly lower than the one that was accounted for by parenting style and parental involvement dimensions taken together in a previous study (i.e., 17%) (Deslandes et al., 1997). As expected in the current analyses, parental education appeared to be a better predictor of adolescents' school grades ($\beta = .24, p < .001$). Family structure added little to the prediction of achievement ($\beta = -.09, p < .05$). However, even after controlling for parental educa-

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tion, family-structure differences were still noted in school grades. Thus, adolescents who reported coming from highly educated parents or from intact families (two-biological parents) were more likely to obtain higher school grades.

We conducted hierarchical regression analyses in order to test whether parental education and family structure moderated the relation between each of the parenting style and parental involvement dimensions

Warmth	Supervision	Psychological Autonomy	Affective Support
.162***	.164***	.136**	.311***
-.129**	-.064	-.018	-.112**
-.093*	-.077*	.034	-.157***
.014	.118**	.070	.127**
1.000	.184***	.118**	.527***
	1.000	.272***	.280
		1.000	.121**
			1.000

and school achievement (see Baron & Kenny, 1986). In a previous report, we provided evidence of a positive relationship between the three parenting style dimensions (i.e., warmth, supervision and psychological autonomy granting), one parental involvement dimension (i.e., affective support) and school achievement (Deslandes, 1996; Deslandes et al., 1997). The present study targets those four positively significant

TABLE 3. Summary of stepwise regression for family characteristics variables predicting adolescents' school achievement (N=518)

STEP	VARIABLES	▲R ²	F	β
1	Parental education	.057	30.90***	.24***
2	Family structure	.065	17.89***	-.09*

NOTE: ▲R² cumulative; * $p < .05$; *** $p < .001$

parenting dimensions. Thus, each significant family characteristic was regressed on each significant parenting dimension. In the first step of each equation, one of the parenting dimensions was entered. In the next step, one of the two family characteristics, family structure or parental education, was entered. Finally, the Parenting Dimension X Family Characteristic interaction term was entered. According to Baron & Kenny (1986), if we focus on the final increment in R^2 we can determine whether the interaction term contributed significantly to the prediction of the dependent variable above the individual contributions. Results indicated no significant contribution to the prediction of school grades by any of the interaction terms. As expected, the findings supported the positive association of parenting dimensions and school grades regardless of whether adolescents came from broken or intact homes, and from highly-educated or less-educated parents.

To verify the mediating role of parenting dimensions in the relation between parental education and family structure and school achievement, sequential regression analyses were performed. The three-step procedure for testing a mediational model suggested by Judd and Baron (1981) was followed. These include: (a) significant relations between the predictors and the outcome; (b) significant relations between the predictors and the mediators; and (c) significant relations between the mediators and the outcome when all of the variables are entered into the same equation. The above relations must reduce the direct effects of the predictors on the outcome. There is perfect mediation if the relation between the predictors and the outcome is nonsignificant when the mediator is controlled (for more details, see Baron & Kenny, 1986).

The three sets of sequential regression analyses were conducted to test each of the three conditions for mediation. We first regressed the two family characteristics, family structure and parental education, on school grades to test for direct effects. As reported earlier (see table 3), parental education ($\beta = .24, p < .001$) and family structure ($\beta = -.09, p < .05$) had a direct relation with school achievement, thus satisfying the first condition for mediating.

The second set of analyses regressed each of the mediating variables, parental warmth, supervision, psychological autonomy granting and affective support, and the two family characteristics. Three out of four regression analyses were significant. Family structure ($\beta = -.095, p < .05$) was a predictor of parental warmth. Adolescents living in nonintact

families rated their parents as less warm and loving than adolescents from two-biological-parent households. With regard to parental supervision, parental education ($\beta = .12, p < .01$) displayed a positive relationship, and family structure ($\beta = -.09, p < .05$), a negative one. Living with better-educated parents was associated with more parental supervision whereas being in nonintact families was related to less parental supervision. Finally, the two family characteristics, family structure ($\beta = -.18, p < .001$), and parental education ($\beta = .12, p < .01$) were significantly related to the affective support level. Thus, adolescents from intact families and better educated parents reported more parental affective support than adolescents from non-intact families, and less-educated parents. Note that none of the family characteristics had a significant association with parental psychological autonomy granting.

Family size did not have any direct relation with school achievement. No significant link was observed between any of the studied family characteristics and psychological autonomy granting, and parental education was not associated with parental warmth. Taking these findings into account, the subsequent analyses aimed at testing the mediating role of parental warmth in relation with family structure and school achievement. The analyses also tested parental supervision and affective support in relation with family structure, parental education and school achievement.

As illustrated in Table 4, parental warmth introduced simultaneously with the two family characteristics, family structure and parental education, yielded a model that accounted for 8.6% of the variance in school achievement [$F(4, 505) = 11.84, p < .001$]. Together, parental supervision and the two family characteristics accounted for 8% of the variance [$F(4, 505) = 10.97, p < .001$], whereas over 13.7% of the variance in school achievement was explained by parental affective support and family characteristics achievement [$F(4, 512) = 20.43, p < .001$].

The results indicated that the indirect effect of family structure on school achievement through parental warmth, supervision and more importantly, affective support, was significant. In the presence of these mediators, the direct relation of family structure to school achievement dropped to nonsignificance with lower standardized beta weights, satisfying Baron and Kenny's (1986) criteria for mediation. However, with respect to parental education, both direct and indirect effects were noted in the relation between parental supervision, affective support and school achievement. In other words, even in the presence of

TABLE 4. Standardized regression coefficients for mediating process predicting school achievement

VARIABLES	β	ΔR^2	F
MEDIATOR: PARENTAL WARMTH			
• Parental education	.234***	.053	29.20***
• Family structure	-.078	.059	3.33
• Parental warmth	.153***	.086	13.95***
MEDIATOR: PARENTAL SUPERVISION			
• Parental education	.220***	.046	25.14***
• Family structure	-.082	.053	3.63
• Parental supervision	.132**	.080	14.22***
MEDIATOR: PARENTAL AFFECTIVE SUPPORT			
• Parental education	.207***	.041	24.43***
• Family structure	-.048	.043	1.33
• Parental affective support	.275***	.137	53.59***

** $p < .01$; *** $p < .001$

mediators, the direct relation of parental education to school achievement remained significant. However, when comparing beta weights in Table 3 and Table 4, one can observe slightly lower values, especially in relation with parental affective support.

In brief, the results showed that family structure was uniquely indirectly associated with school achievement through its relation with perceived parental warmth, parental supervision and more importantly, with affective support. Education level was both indirectly and directly associated with school achievement through its relation with parental supervision and mainly with affective support.

DISCUSSION

This study had three major goals. The first one was to examine the contribution of family characteristics to the prediction of school achievement at the secondary level. A second goal was to explore the moderating role of family characteristics in the relation between parenting dimensions and school achievement. A final goal was to test a model in which parenting variables are mediators between family characteristics and school achievement.

In accord with earlier findings (e.g., Dornbusch et al., 1990), the educational level of parents predicts more of the variance in school achievement than family structure and family size (non-significant relationship). Our results are somewhat at variance with Dornbusch's in that family characteristics (i.e., parental education and family struc-

ture) are slightly stronger predictors of school achievement than parenting style dimensions (i.e., warmth, supervision and psychological autonomy granting). However, when compared to parenting style and parental involvement dimensions taken together, family characteristics are less powerful predictors of school grades. These results confirm other reports at the high school level (Dornbusch et al., 1987; Dornbusch & Ritter, 1988). Such findings provide evidence that interventions must focus on malleable family behaviors since there is not much we can do with the available knowledge about family structure or parental education.

With regard to the second goal, the nonsignificant moderating effect of family characteristics in the relationship between parenting dimensions and school achievement support results from prior research. Thus, higher levels of warmth, supervision, psychological autonomy granting and affective support have the same benefits on school achievement, irrespective of parents' education or the type of family structure (Bogenschneider, 1997; Dornbusch et al., 1987; Steinberg et al., 1992).

Of particular interest in the current study is the indirect association between family structure and school achievement through parental warmth, supervision and affective support. Specifically, family structure predicted parental warmth, supervision, and affective support, which predicted school achievement. Thus, parental warmth behaviors (loving and caring); supervision of the adolescent's whereabouts; affective support in schooling behaviors such as encouragement and praise about school; talk about courses that can be selected; attending school activities in which the adolescent is involved; help with homework when asked; and going to a special event with the youngster) are important for understanding why adolescents from intact families do better in school than adolescents from single-parent families. This pattern of results is consistent with other reports that parental involvement in schooling is associated with adolescents' higher grades and that intact families (i.e., two-parent families) have the highest level of participation (e.g., Dornbusch & Ritter, 1988, 1992; Lee, 1994). At the same time, these results appear to contradict findings from Eccles et al. (1997) which indicated that the impact of family demographic characteristics (i.e., marital and family socioeconomic status) on school grades was not mediated by family interactional processes. A plausible explanation to our findings is that the nature and extent of parents-adolescents interactions in nonintact families may be related to the limited amount of time that they make available to their adolescents. Another

one may be associated with the fact that Eccles et al. (1997) used different parenting variables measures.

Interestingly, there were both direct and indirect associations between parental education and school achievement through parental supervision and affective support. The indirect association is consistent with the Stevenson and Baker findings (1987). Those scholars have argued that parental involvement is key for understanding why adolescents from better educated parents do better in school than adolescents from less educated parents. Thus, in our study, adolescents from well-educated parents do better in school than their peers partly because their parents support them. That is, they give them encouragement and praise about school, discuss courses that can be selected, attend school activities in which the adolescent is involved, help with homework when asked, etc. Contrary to the Eccles et al. (1997) findings, adolescents from better educated parents in the current research succeed better in part because their parents know more about their whereabouts.

At the same time, parental education had a direct association with school grades, suggesting the presence of other intervening variables that have not been verified in the current study. Other explanations for the good school performance of adolescents from well-educated parents reported in existing literature include high parental educational aspirations for their adolescents, accurate knowledge of the adolescent's schooling, availability of economic parental resources at home, and parental belief in hard work and in the importance of facilitating the youth's autonomy (Downey, 1994; Eccles et al., 1997; Liontos, 1992).

CONCLUSION

Our findings support the evidence that parenting variables (i.e., parenting style and parental involvement dimensions) are stronger predictors of school achievement than family characteristics. Findings also suggest that family characteristics, (more precisely, family structure and parents' education) are related to school achievement and to the quality of parenting style and the degree of parental involvement at the secondary level. Regardless of the family structure and the parents' education, the factors that benefit school achievement are parental warmth, supervision, psychological autonomy granting and affective support.

The current study has extended existing research by examining the mediating role of parental supervision and affective support between

family structure and parental education, on the one hand, and school achievement on the other hand. It has also examined the mediating role of parental warmth between family structure and school achievement. An important addition to the relevant literature was that adolescents from non-intact families do not perform as well as adolescents from intact families because their parents provide less warmth, less supervision and less affective support related to school matters. In other words, the relationship between family structure and school achievement is eliminated after controlling for parental warmth, supervision and affective support. Adolescents from less-educated parents do not perform as well as adolescents from better-educated parents partly because their parents monitor their whereabouts and support them to a lesser extent. The relationship between parental education and school achievement is marginally reduced when parental supervision is controlled, and more importantly reduced when parental affective support is controlled. Obviously, parental affective support (operationalized in terms of praise, encouragement, discussions about school and presence at school as audience), appears to be a critical parental behavior when studying the role of non-intact families and less-educated parents in relation to adolescents' school achievement.

In their study, Dauber and Epstein (1993) found that home and school partnerships are stronger predictors of parental involvement at home and at school than family characteristics. In other words, the more schools involve families, the less the family characteristics will explain adolescents' achievement. In the light of such findings, our results may be interpreted to support suggestions that home and school partnership programs should include activities that foster parental caring, supervision and affective support (e.g., encouragement, praise, help with homework when asked, discussions on school options and parental attendance at their adolescent's activities in schools). Adolescents from at-risk families (i.e., non-intact families and less educated parents) might thus perform better if their families develop parenting skills that support learning and behavior and if they acquire knowledge regarding school and school curriculum. Well-designed programs should use a differentiated approach to enable all types of families to be involved in their adolescent's education. Workshops, parent education and support groups could be scheduled for evenings or week-ends, taking into account parents' special needs and limited time (Epstein, 1996). Schools could also vary schedules of student performances, sports, or other events so that more families can participate as audiences. Likewise,

schools can vary the forms of communications that help families in guiding adolescents in selecting courses. Schools should also make sure that the information can be understood by all families (Epstein, 1992).

These findings have implications for teacher education. Preservice and in-service education programs must prepare teachers and administrators to reach out to families and work effectively with families of different background characteristics. As with teachers and educators at the elementary level, practitioners at the high school level must also be equipped with knowledge on how to advise or assist families with parenting and adolescent-rearing skills that support learning and student progress.

This study has a number of limitations that restrict the generalizability of the results. First, we must not overlook the fact that parenting variables account for a rather small proportion of the variance in school grades, suggesting that other factors might play a large role in predicting achievement. Future research might well consider variables such as intellectual performance, previous school achievement, family values and beliefs and family economic resources. Second, we relied on measures based on the youths' self reports only; we did not have observational data to corroborate student perceptions. Third, the study was conducted in two high schools in a middle-class community. It could be interesting to use our scales to assess parenting style and parental involvement dimensions in a variety of school settings. Fourth, the data are correlational. Longitudinal studies using a multivariate causal model could provide a better understanding of the mechanism through which parental influences affect the academic progress of high school students.

In summary, we found that nonintact families and less-educated parents risk having low-achiever adolescents. Adolescents from non-intact families obtain lower grades because their parents are less likely to provide warmth, supervision and affective support, the latter being defined in terms of behaviors such as encouraging, praising, discussing course selection and attending school activities in which the adolescent is involved. Similarly, adolescents from less-educated parents do not succeed as well as adolescents from better-educated parents partly because parents do not exert adequate monitoring and do not support them in their schooling. Irrespective of parents' education and family structure, studies show that certain specific parenting behaviors are beneficial to school achievement.

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