

# Parenting, Peer Orientation, Drug Use, and Antisocial Behavior in Late Adolescence: A Cross-National Study

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The objective of this study was to investigate the links between maternal and paternal bonding, parental practices, orientation toward peers, and the prevalence of drug use and antisocial behavior during late adolescence. A model was tested using structural equation modeling in order to verify the robustness of the investigated links across 3 countries: Canada, France, and Italy. A self-report questionnaire was given to a sample of 908 adolescents, with an equivalent number of girls and boys, in Grade 11. The questionnaire assessed the following variables: parental bonding, parental supervision, parental tolerance, orientation toward peers, involvement in physically aggressive antisocial behavior, non-physically aggressive antisocial behavior, and drug use. The model was robust across the 3 countries, thus confirming a path that identified quality of emotional bonds between adolescents and their parents as a distal variable acting upon deviant behaviors through the following mediators: parental supervision, parental tolerance, frequency of conflicts, and orientation toward peers.

**KEY WORDS:** adolescence; parental bonding; parental practices; orientation toward peers; deviant behavior; drug use.

This research lies within current studies that examine the respective roles of parents and peers on the occurrence of socially deviant behavior in the course of adolescence. Number of research work indicate that the relationships established with parents and peers are both associated to the onset and maintenance of deviant behavior and substance abuse. Several theoretical and empirical models attempted to account for the links between these variables.

## PARENTS–ADOLESCENTS RELATIONSHIPS AND DEVIANT BEHAVIOR

Studies that investigate the role of parenting constantly draw 2 basic dimensions: affection and control

(Baumrind, 1975; Maccoby and Martin, 1983; Schaefer, 1965; Sears *et al.*, 1957).

The first dimension concerns the quality of the relationships that bind parents and adolescents. It also relates to the expression of warmth and emotional support. As for this first dimension, several studies indicate that emotional bonding, support, and proximity with parents in the course of childhood and adolescence have beneficial effects on psychosocial development. In addition, they provide an important protection against involvement in antisocial behavior (Barrera *et al.*, 2001; Loeber, 1990; Noller and Callan, 1990). These links are consistent across cultures and across different social groups (Barber, 1992; Barrera *et al.*, 2001; Brook *et al.*, 1997). However, an increasing amount of evidence indicates that emotional detachment or poor parental support is associated to a certain amount of difficulties in adolescent development (Barrera and Li, 1996; Rutter *et al.*, 1998). Furthermore, many studies point out that parental relationships characterized by coercion, hostility, or the presence of conflicts, can be a sign of family dysfunction (Patterson, 1982). Adolescents living in such a family context display

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personal difficulties and increased risks of developing deviant behaviors, such as aggression, vandalism, theft, and alcohol and drug use (Duncan *et al.*, 1998; Loeber and Stouthamer-Loeber, 1998; Patterson *et al.*, 1992).

As for the second dimension, parental control calls for the proactive role exerted by parents on their children. This parental practice is established to promote the respect of rules and social conventions, in order to assure the social integration and success of their children. This dimension also pertains to the establishment of rules and limits that will not be broken. Various studies have assessed parental control through the concept of supervision, which refers to the quantity and accuracy of the information that parents have about their adolescents' daily life (Cernkovich and Giordano, 1987; Dishion and McMahon, 1998; Patterson and Stouthamer-Loeber, 1984). Studies led, respectively, by Barber and Olsen (1997), Barrera *et al.* (2001), and Herman *et al.* (1997) indicate that parental supervision constitute a powerful protective factor against deviant behavior, such as delinquency, alcohol use, and drug use.

Some parents experience difficulties in adjusting to the occurring changes of adolescence. They may establish inadequate patterns of supervision characterized by the absence of control and laxness, which correspond to parental practices that are deleterious to the psychosocial development of adolescents. The absence of parental supervision, the presence of permissiveness, and the inability to establish limits have been identified as strong predictors of poor academic performance (Dornbush and Wood, 1989), delinquency (Herman *et al.*, 1997; Lamborn *et al.*, 1991), or drug use (Loeber and Dishion, 1983).

Van Yzendoorn (1997) considers that a reciprocal link exists between 2 parental dimensions: relationship quality and supervision quality. According to him, perturbations that characterize certain forms of attachment lead to mutual misunderstanding and hostility between children and parents, which in turn instigate inadequate forms of supervision that lead to deviancy in adolescence.

### PEER RELATIONSHIPS AND DEVIANT BEHAVIOR

It is recognized that the increasing importance of peers constitutes a major change in the life of adolescents (Collins, 1997; Laursen and Williams, 1997). This conveys a dramatic diminution of time spent with the family to time spent outside with peers (Csikszentmihalyi and Larson, 1984; Larson and Richards, 1991). One can observe in parallel an increasing sensitivity to the influence of peers and a tendency to turn toward friends instead of parents for support and advice (Berndt, 1979).

Multiple studies indicate that affiliation to deviant peers represent the strongest predictor of deviant behavior. Affiliation to adolescents who are engaged in deviant behavior represents the most important risk factor of deviant behavior, whether it be theft, vandalism, violent behavior, alcohol use, or drug use (Aseltine, 1995; Elliott *et al.*, 1985; Patterson and Dishion, 1985; Patterson *et al.*, 2000; Thornberry and Krohn, 1997). Fuligni and Eccles (1993) introduced the concept of peer orientation to account for adolescents who relied more on peers than on their parents for advice and support. These adolescents also revealed to be particularly sensitive to peer influence. They were very concerned about peer acceptance and popularity. They were also particularly dependent on their age mate. In a recent study, Fuligni *et al.* (2001) were able to demonstrate long-term consequences of peer orientation on problem behavior and poor academic performance. They observed what they referred to as extreme peer orientation, which had the most negative implication on adjustment. This concept of extreme peer orientation defines adolescents as those who are willing to break their parents' rules and sacrifice important things in their lives, in order to maintain contact with their peers and to preserve their popularity within the group.

### PARENTAL PRACTICES, PEER ORIENTATION, AND DEVIANCY

It is noticeable from the diverse factors involved in adolescents' engagement in deviant behavior, that the quality of relationships with parents and the level of involvement with peers are closely interwoven. Kandel (1996) suggests that parents can act as a buffer against the influence of their adolescents' deviant peers. Vitaro *et al.* (2000) notice that the quality of parental bonding moderates the influence of delinquent peers on the deviant behaviors. In addition, numerous authors consider that it is the presence of conflicts that move adolescents away from the family and closer to their peers, and this phenomenon constitutes the source of deviant behaviors and drug use (Kandel, 1996). Many studies demonstrate that adolescents living in families marked by discord and overt conflicts are more susceptible to associate with deviant peers and consequently to display deviant behaviors (Dishion *et al.*, 1991). Other studies clearly indicate that in boys, ineffective parental monitoring practices are highly associated to an involvement in deviant peer network (Ary *et al.*, 1999; Dishion *et al.*, 1995). Wills *et al.* (1996) observed that adolescents were particularly vulnerable to substance use, if they felt that they had little support from their parents, but perceived their peer network as very supportive. Involvement in deviant conducts and drug use are embedded within the proximal peer environment and

that link emerges and is amplified within a context of low parental bonding or low parental monitoring.

## ROLE OF CULTURE AND GENDER

It must be noted that only a small number of studies examined parent–adolescent relationships across cultures. Most published studies on parental relationships and practices were conducted with American adolescents. To our knowledge, 2 studies have tested models associating parental practices, relationships with peers, and the presence of problems in the course of adolescence within ethnic groups. Barrera *et al.* (2001) examined the links between family relationship, association with peers, and the prevalence of problem behavior within diverse ethnic groups living in the United States. Chen *et al.* (1998) compared European and Chinese-American adolescents, and examined cross-cultural similarities and differences in adolescent's misconduct and its family and peer correlates. Using structural equation models, these 2 studies found some ethnic-group differences but many similarities. The models included links between family practices, adolescents' association with peers, and deviant behaviors. Both studies consider that the same structural model could almost fit the data for the different ethnic groups.

Gender constitutes another differential factor when the indicators and the source of troubles are examined during adolescence. Official statistics and investigations asking adolescents to reveal if they have committed socially reprehensible acts, indicate an overrepresentation of boys. Differences also appear when the types of offences are examined. Girls commit more thefts, notably domestic thefts, whereas boys engage more often in severe offences: violence, private property offences, and selling drugs (Rutter *et al.*, 1998). Several authors consider that, globally, risk factors of conduct problems are identical in girls and boys (Ary *et al.*, 1999; Barrera *et al.* 2001; Storvoll and Wichstrom, 2002). Others observe that gender moderates the strength of parental bonding as a protective factor against deviant behaviors, the protective effect being stronger in girls than in boys (Jessor *et al.*, 1995). These observations incite many authors to approach these questions separately and to investigate the differential impact of risk factors for boys and girls (Moffitt *et al.*, 2001; Sorenson *et al.*, 1997).

## OBJECTIVES OF THE PRESENT STUDY

This study proposes to examine the links between parental bonding, parental practices, peer orientation, and deviant behavior across 3 countries: Canada (French

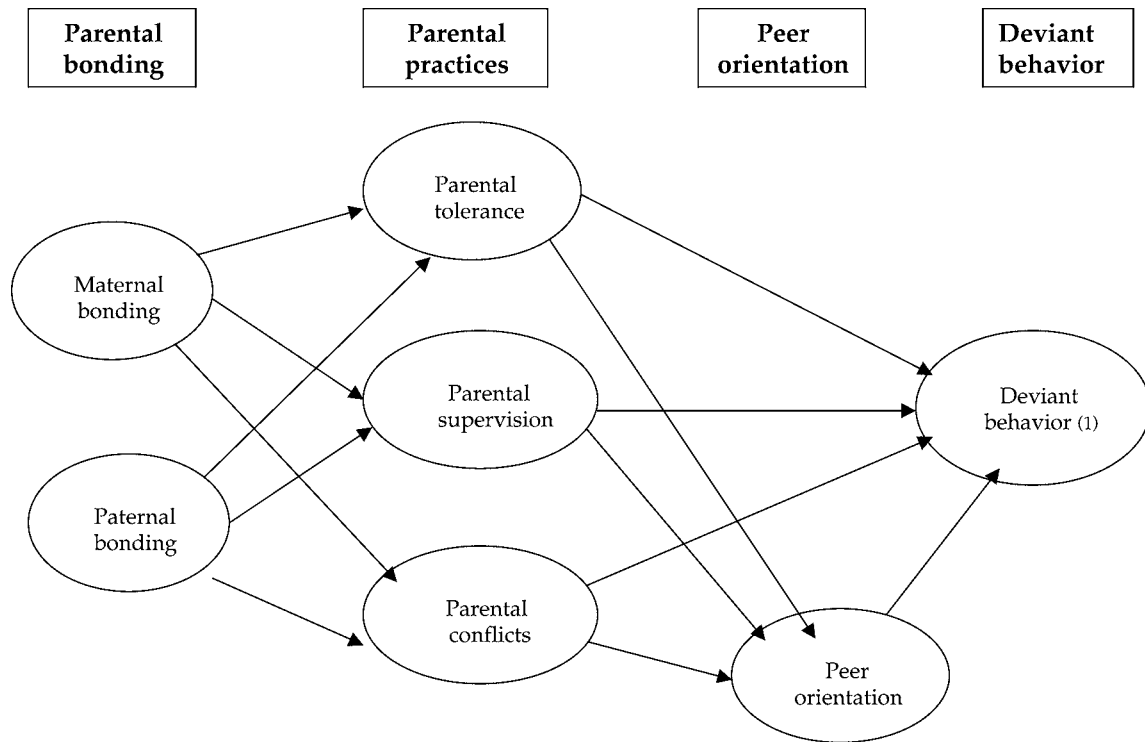
Canada), France, and Italy. It appeared judicious to examine the links between the variables, with adolescents living on both sides of the Atlantic Ocean, in societies with common historical origins, yet who evolved in different social conditions. The choice of Italy can be justified by the importance it gives to family values, such as support and solidarity between family members (Fazio and Batistuta, 1998; Lanz, 1997; McGoldrick, 1982; Sgritta, 1988; Spiegel, 1982). Claes *et al.* (2003) compared the relationships between parents and adolescents in these 3 countries and noticed that important variations exist. Compared to European countries, Canadian parents display more tolerance toward friends and a more inductive approach when rules are broken. Emotional bonds are more intense in Italian families, yet more conflicts are also present. French parents are more restrictive and more punitive when family rules are not respected. The present study aims at evaluating the validity and the invariance of a model that relates maternal and paternal bonding, parental practices, and peer orientation to adolescent deviant behavior across 3 countries.

Many authors highlight the fact that relationships with each parent have distinctive roles on the development of adaptative skills (Collins and Russel, 1991; Noller and Callan, 1990), and thus the present study sought to examine the differential weight of emotional bonding with the mother and the father in the model. In the retained theoretical model (Fig. 1), high maternal and paternal emotional bonding act as distal variables through high parental supervision, but also more tolerance and low conflicts. The presence of parental conflicts favors orientation toward peers, which constitute the most proximal influence on adolescents' behavior.

## METHOD

### Participants

The sample was composed of 908 adolescents from 3 large cities with more than 2 million inhabitants: 322 were from Montreal, Canada; 277 from Paris, France; and 309 from Rome, Italy. They were all in Grade 11 (average age = 17 years and 2 months). Participants were recruited from 11 different schools, from which authorization to conduct the study was granted by the principals (4 in Paris, 4 in Rome, and 3 in Montreal). In each country, efforts were made to select schools with students from diverse social strata. Participants were met during a regular class session. The objectives of the study were presented to the entire class, and anonymity was also assured. Participation was offered on a volunteer basis, so that students who did not wish to fill the questionnaire were permitted to engage in other academic activities. Yet, only 14



**Fig. 1.** Hypothetical model of the links between parental bonding, parental practices, peer orientation, and deviant behavior. (1) For sake of simplicity and clarity, we presented only one latent construct of Deviant Behavior in the figure. Structural equation models that were tested, simultaneously included the 3 following constructs: aggressive antisocial behavior, non-aggressive antisocial behavior, and substance use.

participants (less than 2%) refused to participate. The final sample represents more than 90% of the initial sample; nearly 10% of questionnaires were rejected due to many missing answers, or because of the apparent lack of seriousness with which participants answered. Based on their written comments or systematic pattern of response, some of these students were identified as unreliable during either assessment or at data entry. The entire sample had about the same number of girls ( $n = 417$ ) and boys ( $n = 491$ ). The socio-economic status of each of the parents was established according to the Blishen *et al.*'s (1987) scale. Blishen *et al.* (1987) created a socio-professional index of all occupations and professions in Canada. The index was developed from a list of 480 occupations in Canada, and considers the parents' educational level, their income, and the prestige associated to their occupation. The scale permits a classification in 3 categories: (1) unspecialized workers, blue-collar workers, or occupations that require few qualifications; (2) intermediate occupations, such as merchants, technicians, white-collar workers; and (3) executives, managers, and professionals.

Table I displays the socio-economical and ethnical characteristics of the sample. Ethnicity was established

by asking the participants for their parents' country of birth. Socio-economical and ethnical differences existed between the countries. A larger proportion of Canadian fathers had a high social status, yet the professional status of Italian and French fathers was similar. As for the mothers, 40% of Italian mothers were homemakers, compared to 19% in France, and 15% in Canada. Lastly, almost all Italian parents were born in Italy, whereas nearly 30% of French parents were immigrants, particularly from North African countries.

## Measures

### *Parental Bonding*

The measure is based on the "caring" scale of the "Parental Bonding Instrument" developed by Parker *et al.* (1979). The scale included separate items (17) for maternal and paternal bonding. Participants responded on a 4-point scale (very often to never) on items such as "my mother understands my needs, I can count on my father if I need him." Principal component analysis yielded a 2-factor solution reflecting maternal and paternal bonding,

Table I. Sample Characteristics

	Canada	France	Italy	Total
Number				
Boys	184	121	186	491
Girls	138	156	123	417
Total	322	277	309	908
Professional status (% fathers)				
High	33.5	13.2	10.8	19.6
Medium	37.4	50.2	57.0	48.0
Low	29.2	36.7	32.2	32.4
Professional status (% mothers)				
High	15.8	12.8	4.2	10.9
Medium	31.3	39.8	29.5	30.3
Low	38.2	38.6	26.2	34.2
Homemaker	14.8	18.7	40.1	24.6
Ethnicity (% mothers)				
Native to the country	79.6	58.3	96.3	78.7
North African	1.5	18.6	.3	6.3
Asian	7.2	2.0	.3	3.3
West European	3.0	3.3	1.2	2.5
Ethnicity (% fathers)				
Native to the country	75.2	54.5	97.2	76.4
North African	2.7	24.2	.9	8.6
Asian	7.0	1.3	.0	2.8
West European	3.0	3.1	.0	2.0

respectively. The scale's alphas resulted in .91 for maternal bonding and .93 for paternal bonding. High scores reflect positive relationships with parents.<sup>3</sup>

### Parental Conflicts

This measure is based on a list of 9 sources of conflict among parents and adolescents, drawn from the Issue Checklist by Printz *et al.* (1979). The respondent indicates on a 4-point scale (from "never" to "very often") how frequently some issues (i.e., chores, school work, smoking) lead to conflicts with mother and father, respectively. Principal component analysis yielded a 1-factor solution that includes both father- and mother-related items ( $\alpha = .86$ ).

### Supervision

The measure reflects to what extent parents know what is going on in their adolescent's daily life outside of the home (i.e., "my parents know where I am after school"; "my parents know who I am with when I go out at night") (Brown *et al.*, 1993). The scale includes 6 items with 4-point response formats (from "not at all" to "absolutely"). Internal consistency was satisfactory ( $\alpha = .79$ ).

<sup>3</sup>Alpha coefficients were measured on the entire sample.

### Tolerance

This scale has been developed by the authors. Using 10 items, this scale measures parents' tolerance to peer relationships of their son/daughter (i.e., "to meet friends after school"; "to receive friends at home when parents are out") on a 4-point Likert scale (1 = "never allowed"; 4 = "always allowed"). Internal consistency was adequate ( $\alpha = .84$ ).

### Orientation Toward Peers

The 4-item scale developed by Fuligni and Eccles (1993) measures the respondent's proneness to sacrifice important duties or activities to stay with his/her friends (i.e., "I spend time with friends rather than accomplish other things I have to do"). Response format was 4-point scales (from "never" to "very often"), and internal consistency was acceptable (.62).

### Deviance

A scale developed by Fréchette and Leblanc (1979) was used to assess this construct. It contains 11 items related to different deviant behaviors. The respondents rated on 4-point scales how frequently they engage in deviant behaviors (1 = "never"; 4 = "very often"). Recent studies on antisocial behaviors suggest that there are at least 2 main categories of antisocial behaviors: those that involve physical aggression and those that do not (Farrington and Loeber, 2000; Le Blanc and Loeber, 1998; Loeber and Stouthamer-Loeber, 1998; Muthén and Muthén, 2000; Patterson and Yoerger, 1997; Tremblay, 2000). Based on these studies, we developed a 3-factor structure for deviancy, which was empirically supported by a maximum likelihood factor analysis. The first factor referred to the concept of physically aggressive antisocial behavior (3 items) and includes behaviors concerning aggression and violent conducts related with arms possession and use of weapons (knives, guns, etc.). The second factor refers to non-physically aggressive antisocial behavior and is based upon 5 items referring to theft, theft by breaking in, and private property violation, vandalism, hang around, and run away. Finally, drug-related deviance (3 items) includes items referring to marijuana and other soft drugs, such as hallucinogens (LSD, mescaline) or stimulants (speed, ecstasy), and alcohol use. Alpha coefficient (computed on the total sample) was .70 for non-physically aggressive antisocial behavior, .72 for physically aggressive antisocial behavior, and .76 for soft-drug-related deviance. The 3

**Table II.** Cross-Cultural Invariance for Males

Model	$\chi^2(df)$	RMSEA	NNFI	CFI	Test of the hypothesis
M0 Baseline	361.26 (195)	.04	.93	.96	—
M1 $\lambda_x, \lambda_y = \text{In}$	393.56 (207)	.04	.93	.95	M1–M0 $\chi^2_{\text{diff}}(12) = 32.30, p < .01$
M1b $\lambda_x, \lambda_y = \text{In}^a$	375.21 (205)	.04	.93	.95	M1b–M0 $\chi^2_{\text{diff}}(10) = 13.35, p > .15$
M2 M1b + $\Gamma = \text{IN}$	386.54 (217)	.04	.93	.95	M2–M1b $\chi^2_{\text{diff}}(12) = 11.33, p > .15$
M3 M2 + $B = \text{IN}$	423.16 (247)	.04	.94	.95	M3–M2 $\chi^2_{\text{diff}}(30) = 36.62, p > .10$

<sup>a</sup>Two indicators have been set free to vary, one for maternal bonding in Canada; and one for parental conflict in the French sample. The parameters to be released were chosen as function of the modification index (computed by the LISREL software). The parameters with the highest modification index were free to be estimated in order to improve the whole model fit.

deviance factors correlated moderately to moderately high: non-physically aggressive antisocial behavior and physically aggressive antisocial behavior correlated at .57; soft-drug-related deviance and non-physically aggressive antisocial behavior at .59; soft-drug-related deviance and physically aggressive antisocial behavior at .31. The coefficients reported were computed on the total sample, and they were all significant ( $p < .001$ ).

## RESULTS

Results are presented in 2 steps. First, cross-cultural invariance of the structural model is investigated within the male and the female groups. To gain more statistical power, if substantial invariance is achieved across cultures, the data will be collapsed to form 2 subgroups (i.e., males and females). We will then focus on the second step of the analytical strategy, which concerns differences in the structural model across genders.

### Structural Model

As shown in Fig. 1, all variables included in the model are latent factors, with the exception of the 3 deviance criteria that correspond to their observed measurement. Two indicators were computed for each latent variable. For parental conflict, the 2 indicators were based, respectively, on mother- and father-related items. For the rest of the latent factors, observed indicators were obtained by random aggregates of scale items. Separate latent factors were considered for paternal and maternal bonding, instead of a single parental bonding latent construct. This way, the individual contribution of each construct could be identified (Note 1).

### Cross-Cultural Invariance for Males

Cross-cultural invariance was investigated using a hierarchical strategy. First, a baseline model was defined,

in which all parameters in the model presented in Fig. 1 were freely estimated in each subgroup. Next, the invariance of relationship between the latent constructs and the observed measures was tested, fixing the factor loadings to be equal across cultures. At last, the invariance of structural parameters was tested. Invariance tests were based on chi-square differences between nested models.

Table II summarizes the results of the different hierarchical tests by reporting the fit indices for the different models, and the chi-square difference statistics. The first test involves comparison between the baseline model (M0) and the model that fixes factor loadings to be invariant across cultures (M1). This hypothesis test has to be rejected. However, it should be emphasized that for factorial invariance to be achieved, it is sufficient that at least half of the loadings for each latent variable are invariant (e.g., McCallum and Tucker, 1991; Reise *et al.*, 1993). So, model M1 was revised yielding model M1b in which 1 loading for maternal bonding in the Canadian subgroup and 1 for parental conflict in the French group were allowed to differ from the parameter estimates of the Italian and Canadian subgroups. This model could not be rejected, so that partial factorial invariance can be considered ascertained. Since partial invariance was ascertained, it was meaningful to investigate the invariance of the structural parameters (M2 and M3). The first model (M2) tests the hypothesis of invariance of the effects of maternal and paternal bonding on parental practices across cultures. This model could not be rejected. Finally, invariance of the linkages among parental practices, orientation to peers, and the deviance criteria were tested (M3). This model also could not be rejected.

The last model demonstrates a strong structural invariance across the male subgroups in the 3 cultural contexts. This implies that similar processes leading to deviance are at work in different cultures. Goodness-of-fit indexes show that the proposed model fits the data reasonably well. Although the chi-square statistic was significant, relative fit indices (CFI and NNFI) show figures

**Table III.** Cross-Cultural Invariance for Females

Model	$\chi^2(df)$	RMSEA	NNFI	CFI	Test of the hypothesis
M0 Baseline	287.03 (195)	.03	.96	.98	—
M1 $\lambda_x, \lambda_y = \text{In}$	318.26 (207)	.03	.95	.97	M1–M0 $\chi^2_{\text{diff}}(12) = 31.23, p < .001$
M1b $\lambda_x, \lambda_y = \text{In}^a$	303.50 (205)	.03	.96	.97	M1b–M0 $\chi^2_{\text{diff}}(10) = 16.47, p > .10$
M2 M1b + $\Gamma = \text{IN}$	316.72 (217)	.03	.96	.97	M2–M1b $\chi^2_{\text{diff}}(12) = 13.22, p > .30$
M3 M2 + $B = \text{IN}$	367.84 (247)	.03	.96	.96	M3–M2 $\chi^2_{\text{diff}}(30) = 51.12, p < .01$
M3b M2 + $B = \text{IN}^b$	354.19 (246)	.03	.96	.96	M3b–M2 $\chi^2_{\text{diff}}(29) = 37.47, p > .10$

<sup>a</sup>Two indicators have been set free to vary: one for paternal bonding in Italy; and one for orientation to peers in Canada.

<sup>b</sup>The effects of Supervision on Orientation to peers were set free to vary in the Canadian sample.

close to the threshold of .95. The Root Mean Square Error of Approximation (RMSEA) is below the strict threshold of .05 recently recommended by Hu and Bentler (1999), indicating the tenability of the proposed model.

**Cross-Cultural Invariance for Females**

The same strategy was applied to females across cultures. Table II shows the results of the invariance hypotheses testing. Measurement invariance (M1) hypothesis had to be rejected, but a revised model in which 2 factor loadings (see note “a” of Table III) were free to be estimated seemed to better fit the data. Invariance of the effects from maternal and paternal bonding on parental practices (M2) also adequately fit the data across cultures. Finally, invariance of structural paths between parental practices, orientation to peers, and the deviance criteria (M3) was investigated. This hypothesis had to be rejected, since the negative effect of supervision on orientation to peers turned out to be significantly weaker in Canada than in Europe ( $\chi^2(1) = 13.65, p < .001$ ). The model allowing these parameters to differ across Europe and Canada (M3b) showed a quite acceptable fit, with NNFI and CFI indices above the threshold of .95 and RMSEA below .05.

We will rely on the goodness-of-fit indexes to conclude that the model is mostly invariant across cultures, with slight variations on a few parameters in males and females. This makes us comfortable to collapse the data

for males and females across cultures and to test the invariance of the parameters in these 2 groups.

**Cross-Gender Comparisons**

In a similar manner, differences across genders were investigated as it was done across cultures. Table III presents the results for the different invariance tests. Measurement invariance was not achieved for maternal bonding construct (M1). By letting 1 factor loading to be estimated across the groups (i.e., 1 loading for paternal bonding), the modified model (M1b) fitted the data more adequately. Therefore, the next model (M2) tested the invariance of the paths relating paternal and maternal bonding to the parental practices. This hypothesis test could not be rejected. Finally, the invariance of the structural paths among the endogenous variable (M3) was tested, and rejected. One indicator for parental bonding has been set free to vary across gender (Table IV).

Univariate tests were performed in order to identify structural paths that differed across genders. Four paths were significantly different across genders: the effects of orientation to peers on the 3 deviance criteria, and the effects of tolerance on soft-drug-related deviance construct.

Table V presents the structural coefficients for both males and females. As shown in this table, paternal and maternal bonding are both associated to parental practices. These 2 constructs are inversely related to parental conflict, but positively related to supervision and tolerance.

**Table IV.** Cross-Gender Generalization

Model	$\chi^2(df)$	RMSEA	NNFI	CFI	Test of the hypothesis
M0 Baseline	369.34 (130)	.06	.95	.97	—
M1 $\lambda_x, \lambda_y = \text{In}$	386.05 (136)	.06	.95	.97	M1–M0 $\chi^2_{\text{diff}}(6) = 16.86, p < .001$
M1b $\lambda_x, \lambda_y = \text{In}^a$	380.05 (135)	.06	.95	.97	M1b–M0 $\chi^2_{\text{diff}}(5) = 10.86, p = .05$
M2 M1b + $\Gamma$	383.86 (141)	.06	.95	.97	M2–M1b $\chi^2_{\text{diff}}(6) = 3.77, p > .50$
M3 M2 + $B = \text{IN}$	427.86 (156)	.06	.95	.96	M3–M2 $\chi^2_{\text{diff}}(15) = 44.04, p < .01$

<sup>a</sup>One indicator for paternal bonding has been set free to vary across gender.

**Table V.** Parameter Estimates Based on the Multisample Model for Gender (Non-Standardized Coefficients Between Brackets)

Path	Coefficient	
	Females	Males
Parental practices prediction		
Maternal bonding → Parental conflict	-.32** (-.35)	=
Maternal bonding → Tolerance	.22** (.29)	=
Maternal bonding → Supervision	.45** (.56)	=
Paternal bonding → Parental conflict	-.14** (-.13)	=
Paternal bonding → Tolerance	.10** (.11)	=
Paternal bonding → Supervision	.22** (.23)	=
Orientation to peers prediction		
Parental conflict → Orientation to peers	.52** (.46)	=
Tolerance → Orientation to peers	.10** (.07)	=
Supervision → Orientation to peers	-.27** (-.21)	=
Deviance criteria prediction		
Parental conflict → Non-Phys. Antis. Beh.	.17** (.18)	=
Tolerance → Non-Phys. Antis. Behav.	.21** (.19)	=
Supervision → Non-Phys. Antis. Behav.	-.34** (-.31)	=
Orient. to peers → Non-Phys. Antis. Behav.	.06 <sup>a,b</sup> (.08)	.28** <sup>a,b</sup> (.33)
Parental conflict → Physic. Agress. Behav.	.08 (.09)	=
Tolerance → Physic. Agress. Behav.	.06 (.05)	=
Supervision → Physic. Agress. Behav.	-.16** (-.16)	=
Orient. to peers → Physic. Agress. Behav.	.06 <sup>a,b</sup> (.08)	.29** <sup>a,b</sup> (.33)
Parental conflict → Soft-Drug-rel. Deviance	.21** (.34)	=
Tolerance → Soft-Drug-related Deviance	.44** <sup>a</sup> (.60)	.34** <sup>a</sup> (.46)
Supervision → Soft-Drug-related Deviance	-.29** (-.41)	=
Orient. To peers → Soft-Drug-rel. Deviance	.04 <sup>a,b</sup> (.08)	.18* <sup>a,b</sup> (.33)

<sup>a</sup>Coefficients differing significantly across gender groups.

<sup>b</sup>Coefficients differing significantly across the 3 deviancy criteria.

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

The link between parental practices and orientation to peers was also striking. As parental conflict and tolerance showed positive effects, supervision, on the other hand, negatively related. Turning to deviance, parental conflict effects were invariant across genders and significant on non-physically aggressive antisocial behaviors and drug-related deviance. Tolerance effects were different across genders on drug-related deviance, and were non-significant on physically aggressive antisocial behavior. Supervision was also negatively related to the 3 deviance measures, while showing invariance across genders. Interestingly, orientation to peers effects differed significantly across genders; significant and positive effects on the 3 deviance measures were present in males and absent in females.

## DISCUSSION

The main objective of this study was to investigate the links between parental bonding, parental practices, orientation toward peers, and the presence of deviant behavior during late adolescence. The best model depicted

that the quality of emotional bonds between adolescents and their parents act as a distal variable upon deviant behaviors through the following mediators: parental supervision, parental tolerance, frequency of conflicts, and orientation toward peers.

Overall, the equation structural model was found to be invariant across the 3 countries: Canada, France, and Italy. The present study demonstrates that although there are important parental practice differences in these 3 countries (Claes *et al.*, 2003), the links that associate parental bonding, parental practices, orientation toward peers, and deviant behaviors are robust on both sides of the Atlantic Ocean.

Contrary to the work of Barrera *et al.* (2001) and Chen *et al.* (1998) conducted with pre-adolescents of 12–14 years of age, the present study was undertaken with late adolescents in order to confirm the presence of links between parenting, peer orientation, and deviant behavior. As underscored by Collins and Repinski (1994), if we notice an important evolutionary aspect at the level of the interactions between parents and adolescents aged between 13 and 17 years, we also observe a strong continuity

at the level of essential functions such as bonding and emotional support. Many studies were able to demonstrate the presence of clear links between the quality of parental bonds and psychosocial development not only in the youngest, but also in the oldest adolescents and even in young adults (Allen and Land, 1998; Kobak and Sceery, 1984; Rice, 1990). The present study confirms the robustness of the role of parental functions as a protective factor against deviancy in late adolescents.

In the present study, the model that associates parental practices, orientation toward peers, and deviancy could not be fully generalized for both boys and girls. This was mainly due to the path that associated orientation toward peers and deviancy. This path was always significant for the boys' 3 types of deviant behaviors, whereas it was never significant for the girls. The question pertaining to if the risks that associate quality of parental bonding, peer relations, and deviancy are identical in girls and boys is controversial. Barrera *et al.* (2001) and Chen *et al.* (1998) suggest that these risks are identical, whereas Jessor *et al.* (1995) consider that parental bonds act more significantly in girls. The present study indicates that the association between parental bonding and involvement in deviant behaviors is identical in both sexes. What differentiates sexes is the link between orientation toward peers and diverse forms of deviancy, which is only present in adolescent boys.

The present study strived to analyze the differential weight of emotional bonds with the mother and the father on the other examined variables. In both genders, lower levels of maternal and paternal bonding are associated to conflicts, whereas higher levels of maternal and paternal bonding are accompanied by higher supervision and tolerance. It must be emphasized that for both genders, statistical relationships were found to be more striking for the mother than for the father (Note 2). This observation is akin to diverse considerations that insist on the central role of mothers in providing affection and in structuring adolescents' behaviors (Collins and Russel, 1991; Noller and Callan, 1990).

Another observation deserves to be mentioned concerning the importance of the link between parental tolerance and drug use, particularly in the case of girls. The parental tolerance scale was an original measurement tool that assessed the level of parental permissiveness concerning the behaviors related to friendship. Thus, it appears that adolescents who perceive such parental permissiveness will more often be involved in alcohol and drug use. The weight of this variable deserves to be examined more thoroughly in future work.

The present study considered 3 types of deviancy—non-physically aggressive antisocial behavior, aggressive

behavior, and substance abuse—in order to investigate the significant variations in the predictive value on the other variables on deviancy. It appears that parental practice variables did not have a predictive value on physically aggressive antisocial behaviors. Tremblay (2000) and Nagin and Tremblay (1999) consider that these types of violent behaviors have a particular status, within not only criminal offences, but also when misconduct trajectories are examined in the course of development. The present study's results confirm the importance of these considerations regarding the specific characteristics of deviancy in adolescence, and the importance to approach them separately.

The present study has the merit of being conducted on a cross-national sample of adolescents from 3 countries; however, some obvious limits also need to be pointed out. Participants came from 11 schools that accepted to participate in the study; it is therefore a sample of convenience that is not necessarily representative of the social reality and the demographic context present in the 3 countries. The data came only from adolescents' self-report, which could have increased the strength of the links between variables in the tested model. Regarding the analysis by structural equation modeling, it was based on a theoretical model that considered parental bonding as a distal variable and parental variable as mediators in relation to deviant behaviors. This model was tested in the context of a cross-sectional design, which reduced the establishment of directionality of effects. Relationships between parents and adolescents are bidirectional: parental actions have an impact on the adolescents' behaviors; moreover, adolescents' behaviors also modify their parents' attitudes toward them. It is legitimate to think, as Barrera and Li (1996) noted, that the presence of deviant behaviors creates conflicts, and that the persistence of these conflicts, in turn, creates a withdrawal of parental emotional bonding. Only a longitudinal study can validly offer predictive power to these links. It is in this direction that the authors of the present article are planning their future work.

#### Note 1

The 2 bonding constructs turned out to be discriminated in a preliminary factor analysis performed before running the LISREL model. From the scree-test of this factor analysis, a clear 2-factor solution pattern emerged. Moreover, the correlation of the 2 retained aggregates did not exceed .60, confirming our choice to keep the 2 constructs separated. Further, after having run the LISREL model, all paths concerning the 2 bonding constructs turned out to be significant, supporting our conclusion about discriminative power of the 2 bonding constructs.

## Note 2

Paths of maternal and paternal bonding were constrained to be equal for each of the 3 parental practice variables (“Supervision,” “Tolerance,” and “Parental conflict”). A total of 3 equality constraint tests were conducted and all equality hypotheses were rejected. Therefore, maternal bonding relationships with “Supervision,” “Tolerance,” and “Parental conflict” resulted to be statistically higher than those belonging to paternal bonding (as shown in Table IV).

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