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Gender-Based Model Comparisons of Maternal Values, Monitoring, Communication and Early Adolescent Risk Behavior

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Abstract

Purpose: To examine the relationships among maternal values, monitoring knowledge, parent-adolescent communication, and adolescent risk involvement based on adolescent gender.

Methods: Parent reports of their personal values, monitoring knowledge, and communication with their children were compared to adolescent reports of risk involvement using information gathered from 647 Bahamian mother-adolescent (9–13 years) dyads.

Results: Parent values of conservation (e.g., conformity) were positively associated with greater parent-adolescent communication and communication was significantly associated with greater monitoring knowledge for both genders. Among mother-son dyads only, group-based parent values of self-transcendence (e.g., universalism) were significantly associated with greater perceived parental monitoring knowledge; individualized self-enhancement values (e.g., hedonism) were negatively associated with open and supportive parent-adolescent communication.

Conclusions: Parent values influence other parenting processes such as monitoring and communication. Parental monitoring, in turn, inversely influences adolescent risk involvement. These influences appear to differ based on the adolescent's gender as many of the relationships were stronger among mother-son dyads. These findings highlight a need to better understand the nature of the relationship between maternal values, parent-adolescent interactions, and adolescent's risk decisions.

Keywords

Maternal values; maternal monitoring knowledge; communication; risk behavior

Introduction

Parents influence their children's decisions to engage, or abstain from, behaviors that are harmful to their health (i.e., risk behaviors). Parents provide models of behavior—inappropriate or appropriate—which, if attended to and reinforced, can be mirrored in child and adolescent behavior [1-3]. A similar process has been shown in the transmission of parental values [4,5]. Specifically, three conditions must be met to transfer parental values to a child: 1) the value

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must be expressed by the parent, 2) the child must attend to the expressed value, and 3) the child must be motivated to adhere to the specific value.

Previous studies based on social referencing theories have established connections between the individuals within a child's immediate and distal environments to the child's behaviors [4, 5]. For instance, researchers have demonstrated that the amount of time an individual interacts with others during religious service or related activities is associated with the individual's sexual behaviors and attitudes [6,7]. That is, greater time interacting with others increases the opportunity for the individual to consider and accept [or reject] others' behaviors, attitudes, and values as one's own. Studies have provided stronger evidence for the environmental influence of parents on their children's behaviors and attitudes [8,9]. In 1989, Weinstein and Thornton [10] found that children exhibited similar behaviors and reported parallel attitudes to their mothers when they had a close relationship with them.

Understanding which parental values are passed to their children and how this process occurs has become an important issue for understanding parental influence on adolescent's risk decision making. Schwartz and his colleagues [11,12] have studied values that are commonly recognized by most individuals around the world (i.e., universal values- see Table 1) and have defined these values as motivators which "serve as guiding principles in people's lives, as criteria they use to select and justify actions" [11](p595). Bardi and Schwartz [13] have linked these values with overt behaviors [6]. Their findings suggest that specific values are more likely to be linked to behaviors that express those values (e.g., observe social norms and consistency in behaviors) than others. For instance, values focused on "stimulation" are associated with thrill-seeking or unconventional behaviors and "hedonist"-based values are related to such behaviors as seeking a relaxed lifestyle or overly consuming food or drink when not hungry or thirsty. Further studies by Schwartz and Bardi [12] have demonstrated relationships between the hedonistic and stimulation values and such behaviors as consumer purchases, delinquency, and sexual involvement.

Few studies have examined the process by which parental values are transferred to their children. Select research demonstrates differences in the type of values transmitted from parent to child based on child gender. Rosenthal found that early adolescent girls in comparison with boys valued traditional parent values [14]. Nolin and Petersen also noted that parents (particularly mothers) were more likely to discuss issues reflecting a wider range of values with their daughters than with their sons [15]. In addition to these differences in the communication of certain values, these authors also noted differences in adolescent susceptibility to other sources of value-based lessons with sons (more often than daughters) being more likely to identify and accept alternative values from peers. While useful in mapping out differences in parent and child values, these findings are limited to values unique to a particular culture and select samples.

Gender differences are not exclusive to the expression or acceptance of certain values. Studies have identified gender differences in a variety of parenting behaviors, attitudes, and beliefs. Researchers have most recently shown differences in parental monitoring and parent-adolescent communication based on parent and adolescent gender [16-19]. Parental monitoring knowledge, defined as parents' accurate knowledge of their children's activities, peers, and location [20], has been found to be greater for female than male children and adolescents [21]. In general, compared to boys, girls perceive their parents to have more monitoring knowledge of their activities and plans [17]. Within the same household, studies have also shown that mothers obtain more monitoring knowledge than fathers [16,22-23]. Kerr and Stattin have argued that differences in parental monitoring knowledge are due to the extent to which adolescents are willing to volunteer this information (i.e., child self-disclosure) to their parents [24].

Collectively, parental monitoring knowledge and the successful transmission of parental values from parent to adolescent depend on the parent-adolescent communication. A series of studies have demonstrated that open, trusting, and supportive communication among parents and adolescents is also directly associated with substantially delayed onset of sexual intercourse and greatly reduced substance use [16, 25–27]. Separately, researchers have studied the relationship between parent-adolescent communication, value formation, and parental monitoring knowledge. No study to date has evaluated how these variables work together to prevent adolescent risk involvement. Furthermore, given the substantial evidence for differences in these processes based on adolescent gender, it is important to examine the collective interaction of these variables based on these differences.

In this study, we propose and test a model depicting relationships between parent-reported universal values, maternal monitoring knowledge, and parent-adolescent communication with adolescent-reported risk involvement. We tested the proposed model on a larger sample of parent-adolescent dyads and then on two separate gender-specific samples. Figure 1 illustrates the proposed model. Within this model we hypothesize specific relationships among variables based on previous research in the respective areas. Specifically, we hypothesize that: 1) adolescent gender would influence parents' perceived importance of select values, 2) the association between values and parental monitoring knowledge and parent-adolescent communication would differ based on the type of value, and 3) greater parental monitoring knowledge and supportive parent-adolescent communication would be associated with limited or no adolescent-reported risk involvement. We proposed and tested specific relationships within this model to fulfill the overall objective of examining the relationship between maternal values, monitoring knowledge, parent communication with their children, and adolescents' overall risk involvement.

Methods

The majority of Bahamians are of African descent (85%). Annual incomes are highly variable with the average per capita being \$12,000. The data used for the present study were obtained from Bahamian sixth grade students and one of their parents as the baseline to a randomized, controlled evaluation of two class-based behavioral intervention programs. Nine (among the 25) elementary schools on the island of New Providence, The Bahamas participated in a randomized trial and evaluation of two intervention programs: one addressing HIV/AIDS, and the other addressing ecology of the wetlands. The participating schools were randomly assigned to one of the two aforementioned conditions. Both programs were recognized by the Department of Education as part of the sixth grade curriculum; thus all sixth grade children in the participating schools received either the ecology or the HIV prevention curriculum (according to the randomization of the school) as part of the regular school curriculum. However, in order to participate in the evaluation of the curricular intervention, the student had to provide assent and his/her parent had to provide consent. Parents were also invited to participate in a related parental intervention and evaluation. Parental consent and adolescent assent was obtained for 785 students (2/3 of all sixth grade students); 647 (82.4%) parents [mothers only] agreed to participate in the parent intervention and provided baseline data.

For the youth, questionnaires were read out loud by the research staff during class time, and were completed by each student who was permitted to skip questions and move at his/her own speed. For the parents, questionnaires were completed on their own in a classroom setting. Additional assistance was available for students and parents that required individual help. Completion of the questionnaires took between 30–45 minutes for both adolescents and their parents. Enrollment was conducted in autumn, 2004. This research was approved by the Institutional Review Boards at Wayne State University and Princess Margaret Hospital in

Nassau, Bahamas. Parent and child participants in this study received individual gift certificates valued at \$7 and \$5, respectively.

Measures

The paper-and-pencil assessment battery was comprised of several scales to assess the proposed model evaluating the relationship between parent-adolescent values, parent-adolescent communication, perceived parental monitoring knowledge, and self-reported adolescent risk involvement.

Adolescent risk behavior.—Adolescent demographic information and information regarding risk and protective behaviors were obtained from the Bahamian Youth Health Risk Behavioral Inventory (BYHRBI), a cultural adaptation of the Youth Health Risk Behavior Inventory [28]. For the present analyses, items assessing seven risk behaviors were combined to form a risk index: smoked a cigarette, pushed or carried any drugs, drunk alcohol, carried a knife/screwdriver as a weapon, carried a gun as a weapon, engaged in physical fighting, and/or played hooky in the last six months.

To assess the suitability of a composite score, we estimated the odds ratios (OR) and the 95% confident intervals (95% CI) among the seven risk behavior items (Table 1). The range of the 21 ORs was between 1.80–13.93. Because of the small sample size for some risk behaviors (number of subjects who reported having had a particular behavior), 12 ORs were not statistically significant even though they have elevated ORs (between 1.80–5.89). Since all 21 ORs are in the same direction (positively associated), the inter-correlation among the seven risk behaviors is very high. Use of a composite risk variable was based on our finding that the inter-correlation among all risk behaviors was significant. Additionally, we intended for higher composite scores to accurately reflect children's involvement in a variety of risk behaviors, and, in turn, represent a greater risk impact. The possible “risk behavior” composite score ranged from 0 to 7, with the higher score indicating more extensive risk involvement.

Maternal values.—Parent-reported universal values [13] (Table 1) were assessed through the Portrait Values Questionnaire (PVQ) [29]. The PVQ originally consisted of 40 questions. For the current study, the PVQ was modified for use among Bahamian parents and consisted of 39 items assessing the 10 core values described in the introduction: self-direction (4 items assessing independent thought), stimulation (3 items assessing excitement and novelty), hedonism (3 items assessing pleasure), security (5 items assessing safety and harmony), conformity (4 items assessing restrain against impulses), tradition (4 items assessing respect and commitment), achievement (3 items assessing personal success), power (3 items assessing personal control), universalism (6 items assessing understanding and appreciate), benevolence (4 items assessing pursuit of persons' welfare). All items were scored along a six-point Likert scale from (1) “not at all like me” to (6) “very much like me”.

The ten universal values are further categorized into four larger composite values including: *openness-to-change* (self-direction, stimulation, and hedonism), *conservation* (security, conformity, and tradition), *self-transcendence* (universalism, benevolence), and *self-enhancement* (hedonism, achievement, and power). These four values subscales were used in the proposed model. Value items were combined to yield a mean score for each of the four value subscales. Scale reliability and validity of the original instrument among different populations are adequate and have been described in detail elsewhere [29]. The modified instrument in the present population demonstrated adequate reliability with $\alpha=0.78$ (0.80 for mother-son dyads group, 0.76 for mother-daughter dyads group) for the open to change subscale, $\alpha = 0.76$ (0.77 for mother-son dyads group, 0.75 for mother-daughter dyads group) for the conservation subscale, $\alpha = 0.75$ (0.77 for mother-son dyads group, 0.73 for mother-

daughter dyads group) for the self-enhancement subscale, and $\alpha = 0.77(0.79$ for mother-son dyads group, 0.76 for mother-daughter dyads group) for the self-transcendence subscale.

Perceived parental monitoring knowledge.—Parent self-reports of their parental monitoring knowledge were assessed using Silverberg and Small's [30] *Parental Monitoring Scale*. Responses to such items as “I know where my child is after school” were based on a 5-point Likert Scale from (1) “Never” to (5) “Always”. The Cronbach's alpha for the scale in this sample was $0.82(0.82$ for mother-son dyads group, 0.80 for mother-daughter dyads group).

Parent-adolescent communication.—Maternal perceptions of parent-adolescent communication were assessed through the 19-item Parent-Adolescent Communication Scale [31], consisting of two subscales: open and problem family communication. Responses to these items were based on a 5-point Likert Scale from (1) “strongly disagree” to (5) “strongly agree”. For the present analyses, after rescoring the response of problem communication items in the reverse direction (such that a higher score indicated less problem communication), we calculated the z-scores of the open communication and recoded problem communication subscales. The z-scores of these two scales were combined to form a parent perceived parent-adolescent communication score for path analyses, with the higher score indicating more open parent-adolescent communication.

Analyses

Descriptive statistics and bivariate correlational analyses were first conducted to assess simple relationships between all measured variables in the model. Independent-sample t-tests were used to test the differences in the mean values between mother-son dyads and mother-daughter dyads. Kendall's tau-b correlation coefficients for the non-normal variables, risk behavior and monitoring and Pearson correlation coefficients for other variables were used to test the correlations of the measured variables in the bivariate correlation analyses. All statistical analyses above were performed using the SPSS 14.0 for windows. A significance level of 0.05 was adopted.

Path analysis was used to evaluate the hypothesized path diagram presented in Figures 1 and 2. All analyses were conducted using LISREL 8.71 [32]. Path analyses for mother-adolescent dyads (entire sample), mother-son dyads and mother-daughter dyads were separately performed. To assess differences in the model for mother-son and mother-daughter dyads, we performed multiple group comparisons in which covariances along with the measurement model were constrained to equal or invariant across the two groups. Standardized coefficients for all paths were estimated. Goodness of fit of a path model to data was evaluated through the Satorra-Bentler scaled chi-square ($S-B \chi^2$), root mean square error of approximation (RMSEA), and goodness of fit index (GFI). The Satorra-Bentler scaled chi-square statistic and the robust maximum likelihood (RML) estimation method are preferable to other estimates when data do not conform to assumptions of normality. Listwise deletion procedures were used to remove all missing data.

Results

Description of the study sample and measurements

The sample of 647 mother-adolescent dyads consisted of 309 (47.8%) mother-son dyads and 338(52.2%) mother-daughter dyads. All children were sixth grade students with a mean age of 10.45 years (range 9–13 years). With multiple risk behaviors consolidated, 46.3% (54.0% for boys, 39.2% for girls) reported their involvement in at least one of the targeted risk behaviors. Compared to boys, girls reported lower risk involvement with greater within-group variation.

Model components

Table 2 demonstrates means and standard deviations of predictor and outcome variables, and the comparisons of means between mother-son and mother-daughter dyads groups. Dyads significantly differed on two of the four parent-reported values (openness-to-change, self-enhancement), parent self-reported monitoring knowledge, and adolescent risk behaviors. Compared to mothers of daughters, boys' mothers reported higher scores of the openness-to-change and self-enhancement values, and reported lower parental monitoring knowledge.

Table 3 shows correlations between all observed variables in the model. The four value subscales were correlated with one another, with various degrees of correlations. Conservation and self-transcendence were correlated with both parental monitoring knowledge and parent-child communication; self-enhancement was correlated with parent-child communication. While open to change and self-enhancement values were correlated with child risk, these relationships were not further evaluated in the model analyses. Parental monitoring knowledge was correlated with parent-adolescent communication; both of these constructs correlated with adolescent risk involvement.

Path analyses of the hypothesized relationships

The hypothesized model evaluated based on the total sample (Figure 1) and on gender-based dyad comparisons (Figure 2). The standardized path coefficients for each model are provided in these figures. The exogenous variables (open to change, conservation, self-enhancement and self-transcendence) were allowed to covary.

The overall fit of the mother-child dyads model (Figure 2) was excellent [Satorra-Bentler scaled chi-square $\chi^2(9.13)/df(4) = 2.28$, $p = .06$; root mean square error of approximation (RMSEA) = .045; goodness of fit index (GFI) = .996]. Significance pathways in Figure 2 depict associations between maternal self-transcendence and parental monitoring knowledge with greater endorsement of self-transcendence being related to greater parental monitoring knowledge. Maternal conservation, self-enhancement and self-transcendence were significantly associated with parent-adolescent communication, with greater endorsements of conservation and self-transcendence being associated with open communication and maternal self-enhancement being inversely related to open communication. Parental monitoring knowledge was inversely related to adolescent risk behavior; parent-adolescent communication was indirectly related to adolescent risk behavior through its association with parental monitoring knowledge.

Figure 2 shows the separate path models for mother-son dyads and mother-daughter dyads. The goodness of fit of both mother-son and mother-daughter dyads models were excellent. For mother-son dyads, the Satorra-Bentler scaled chi-square $\chi^2(6.90)/df(4) = 1.73$, $p = .14$; root mean square error of approximation (RMSEA) = .049; and the goodness of fit index (GFI) = .994. For mother-daughter dyads group, the Satorra-Bentler scaled chi-square $\chi^2(3.16)/df(4) = 0.79$, $p = .53$; root mean square error of approximation (RMSEA) = .000; and the goodness of fit index (GFI) = .997. The following three paths indicated a statistically significant association for mother-son dyads, but not for mother-daughter dyads: (1) self-transcendence $\rightarrow$ monitoring knowledge; (2) self-enhancement $\rightarrow$ parent-adolescent communication; (3) monitoring knowledge $\rightarrow$ adolescent risk behavior. The previous significant association between self-transcendence and communication disappeared in the two subgroup models.

Global goodness of fit of multi-group model was good. The root mean square error of approximation (RMSEA) = .000; relative fit index (RFI) = .971. The Chi-square for this model was 8.14 and not significant, with a p value of 0.70. This means that the covariance structure as a whole was not different for mother-son and mother-daughter dyads (the mother-son and

mother-daughter dyads group Chi-square contributes 52.82% and 47.18% to the overall Chi-square for this group analysis, respectively).

Discussion

The values used in this study can be categorized in terms of their orientation (to individual or to group) or by Schwartz's larger classification system (e.g., self-transcendence). The present findings demonstrated that group-based values (i.e., collectivistic values) such as benevolence, universalism, conformity, tradition, and security were often associated with greater parent-perceived monitoring knowledge. By contrast, individual-based parent values such as self-enhancement (striving for achievement, power, and hedonism) were inversely related to monitoring knowledge and open perceptions of parent-adolescent communication. Collectively, these findings may suggest that parents who place emphasis on solitary or individualized values may tend to communicate less often with their children. These parents may also engage in family activities with their children on a less frequent basis and, and therefore have less of an opportunity to identify and address issues related to limited monitoring or their adolescent's involvement in risk behaviors. Alternatively, the adolescents may perceive their parent interactions as being less supportive and therefore, may not attempt to talk to their parent about their experiences. As a result of these perceptions, parents who focus on more individualized values may have less monitoring knowledge of their children's activities.

Whether perceived or real, limited monitoring knowledge and less effective communication have been associated with greater adolescent risk [33-35]. Parent perceptions of their communications with their children had no relationship with children's reports of risk involvement. Parent-adolescent communication, however, has been identified as a vehicle for effective value transmission and parental monitoring. Therefore, while these findings do not support the direct relationship between communication and adolescent risk involvement, the importance of communication within the parental monitoring process is evident.

Alternatively, parents who place greater emphasis on group-based values such as tradition and security may encourage communication or may have children who perceive their interactions with their parents as supportive. As described earlier, these parent-adolescent interactions may increase parents' opportunities to acquire additional information from their children, thus increasing their monitoring knowledge. As Grusec and Goodnow noted, not all parental values are identified and accepted by their children [36]. Therefore, an alternate interpretation of these findings could suggest that different adolescents are identifying and accepting different values from their parents which are associated with parental monitoring knowledge and parent-adolescent communication.

In most circumstances, the relationships between parent-reported values, parental monitoring knowledge, and parent-adolescent communication were only found within mother-son dyads when the model was compared by adolescent gender. These findings conflict with those of Knafo and Schwartz who noted that daughters are better able to identify parent values more accurately than sons [11]. In this study, we were not able to collect information on psychosocial or demographic variables (e.g., single mother household) that may help to explain these findings. However, several possible explanations might be taken from within the Bahamian parent-adolescent interaction and larger scientific literature.

The present sample included adolescents who were younger than those studied previously [11]. In general, mother-daughter relationships have been shown to experience changes [conflict at times] in early adulthood as the daughter is striving to gain her identity and independence [37,38]. If experienced, daughters may not accept, express, or be affected by the values of their mothers during certain periods of development. This alternative is not directly

evaluated in this study and requires further explanation in future studies. However, there is some evidence that Bahamian mothers tend to bond with their sons during this developmental period while avoiding discussions about breast development and other issues that often accompany puberty with their daughters [39]. Finally, most variables used in this study were based on parent report rather than comparisons of parent and adolescent reports of their own values. Whether parents express distinct values to their sons compared to their daughters or whether children varied in which values they accepted remains to be studied.

Gender differences were also noted in the relationship between parental monitoring knowledge and adolescent risk involvement. As noted in previous studies [25,31,35], greater parental monitoring knowledge was associated with limited or no adolescent reports of risk involvement. This finding, however, was only supported among mother-son dyads. It is possible that the lower rates of risk involvement found among girls compared to boys in this sample obscured this relationship among mother-daughter dyads. However, Bahamian parents often describe knowing more about their sons' activities than their daughters' [39]. Additional studies examining Bahamian adolescent risk involvement are needed to address this issue.

Model associations among parental monitoring knowledge, values, and communication with adolescent risk behaviors may differ if we were to consider these risk behaviors separately. A composite risk behavior score is efficient in terms of identifying potential associations among variables; however, future studies should explore these relationships within the context of individual risk behaviors. For instance, the unique contribution of maternal values, communication, and parental monitoring knowledge may be more strongly associated within the context of adolescent sexual risk behavior than in terms of adolescent substance use. Different situations and contexts may pull different meanings from maternal values and the transmission of such values for adolescents. Their contribution to adolescents' decisions to engage in certain behaviors may differ as a result.

Limitations

There are several limitations related to the nature and application of these findings. First, causal relationships cannot be inferred from models depicted in this study due to their cross-sectional nature. We also could not infer how parent values and other family processes depicted in this model change as a function of time, child development, or experience. Furthermore, we were not able to evaluate recursive models and, therefore, could not investigate questions pertaining to how perceived monitoring knowledge, communication, or adolescent risk might affect parent values. Larger samples of parents and adolescents would allow for comparisons of models depicting adolescent- and parent-reports of each of the variables included in this study. They would also provide a greater opportunity to investigate true gender differences in these relationships. In the present study, we could only begin to evaluate gender differences across mother-daughter and mother-son dyads. Future studies would extend these findings by comparing model relationships among a sample of mothers who would be participating with their daughters and sons, thereby providing potentially different reports based on the gender of their children. Larger models could include more detail with regards to larger latent constructs broken down into individually-assessed factors—particularly with regards to adolescent risk behaviors. A substantial literature documents the co-variance among risk behaviors and, therefore, clustering the seven risk behaviors into a single risk score may be empirically justified. Nonetheless, specific risk behaviors differ with regard to their associations and consequences. Thus, clustering seven risk behaviors into one composite risk score may have altered the association between such variables as communication and risk outcomes.

Implications

Researchers have begun to explore family processes such as parental monitoring and communication in more detail. Understanding differences in parent monitoring knowledge and parent-adolescent communication is essential for building effective family-based risk reduction programs. While recent studies have explored differences in monitoring knowledge as a function of how parents obtain their monitoring information, more work is needed to understand the reasons parents choose certain monitoring approaches over others. One of the potential contributors of parenting decisions could be parents' existing value structure. The more we know about why parents choose to monitor and interact with their children, the easier it will be to work with families to produce behavior change when their monitoring and communication choices are not effective for avoiding risk outcomes.

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Figure 1. Standardized coefficients for associations in path-analytic model (Total: mother-child dyads)

Note: Model fit indices: Satorra-Bentler scaled chi-square, S-B $\chi^2(4, N = 625) = 9.13, p = .06$; root mean square error of approximation (RMSEA) = .045; Goodness of fit index (GFI) = .996. * $p < 0.05$, ** $p < 0.01$, ⁺ $p < 0.10$.

Figure 2. Standardized coefficients for associations in path-analytic model (Mother-son dyads/ Mother-daughter dyads)

Note: The first coefficient on each path is for mother-son dyads group; the second is for mother-daughter dyads group. * $p < 0.05$, ** $p < 0.01$, + $p < 0.10$. For mother-son dyads group, model fit indices: Satorra-Bentler scaled chi-square, S-B $\chi^2(4, N = 296) = 6.90$, $p = .14$; root mean square error of approximation (RMSEA) = .049; Goodness of fit index (GFI) = .994. For mother-daughter dyads group, model fit indices: Satorra-Bentler scaled chi-square, S-B $\chi^2(4, N = 329) = 3.16$, $p = .53$; root mean square error of approximation (RMSEA) = .000; Goodness of fit index (GFI) = .997.

Table 1
Definitions of Types of Values and the Items that Represent and Measure Them

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<i>Power:</i> Social status and prestige, control or dominance over people and resources (social power, authority, wealth)
<i>Achievement:</i> Personal success through demonstrating competence according to social standards (successful, capable, ambitious, influential)
<i>Hedonism:</i> Pleasure and sensuous gratification for oneself (please, enjoying life)
<i>Stimulation:</i> Excitement, novelty, and challenge in life (daring, a varied life, an exciting life)
<i>Self-direction:</i> Independent thought and action-choosing creating, exploring (creativity, freedom, independent, curious, choosing own goals)
<i>Universalism:</i> Understanding, appreciation, tolerance and protection of the welfare of all people and of nature (broadminded, wisdom, social justice, equality, a world at peace a world of beauty, unity with nature, protection the environment)
<i>Benevolence:</i> Preservation and enhancement of the welfare of people with whom one is in frequent personal contact (helpful, honest, forgiving, loyal, responsible)
<i>Tradition:</i> Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self (humble, accepting my portion of life, devout, respect for tradition, moderate)
<i>Conformity:</i> Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms (politeness, obedient, self-discipline, honoring parents and elders)
<i>Security:</i> Safety, harmony and stability of society, of relationships, and of self (family security, national security, social order, clean, reciprocation of favors)

Note. Directly inserted from Bardi & Schwartz[13].

Table 2
Descriptive Statistics of Measured Variables for Parent-child Dyads

Variables	Mother-child dyads (Total) (N=647) Mean (SD)	Mother-son dyads (N=309) Mean (SD)	Mother-daughter dyads (N=338) Mean (SD)
Parent report			
Openness-to-change	4.17 (0.87)	4.26 (0.89)	4.08 (0.85)**
Conservation	5.05 (0.61)	5.05 (0.62)	5.04 (0.61)
Self-enhancement	3.72 (0.91)	3.82 (0.94)	3.62 (0.88)**
Self-transcendence	5.02 (0.68)	5.01 (0.70)	5.02 (0.67)
Monitoring	4.74 (0.49)	4.67 (0.55)	4.80 (0.43)**
Communication	0.00 (0.43)	-0.02 (0.42)	0.02 (0.44)
Child report			
Risk behavior	0.68 (0.90)	0.84 (0.98)	0.53 (0.79)**

Note: ** $p < 0.01$.

Table 3

Correlations of measured variables

Variables	1	2	3	4	5	6	7
1 Openness-to-change	1a 1b 1c						
2 Conservation	.28** .33** .24**	1 1 1					
3 Self-enhancement	.76** .77** .75**	.22** .27** .18**	1 1 1				
4 Self-transcendence	.33** .36** .29**	.70** .71** .69**	.24** .26** .23**	1 1 1			
5 Monitoring	.01 .03 .01	.10** .11* .10*	-.02 .02 -.03	.11** .12** .10*	1 1 1		
6 Communication	-.04 .06 -.13*	.27** .29** .26**	-.11** -.05 -.16**	.24** .26** .21**	.22** .24** .19**	1 1 1	
7 Risk behavior	.08** .08 .06	.02 .05 -.01	.08* .08 .05	.03 .05 .02	-.15** -.16** -.10	-.09** -.10* -.07	1 1 1

Note: a-total (mother-child dyads), b-mother-son dyads, c-mother-daughter dyads.

* p <0.05 ** p <0.01.