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Development and Psychometric Evaluation of An Arab Version of the Family Peer Relationship Questionnaire

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Abstract

Little is known about parent and peer relationships in immigrant adolescents due to a dearth of culturally sensitive measures. We adapted the Family Peer Relationship Questionnaire (FPRQ) for Arab immigrant mothers and their adolescents. Mothers and adolescents completed parallel versions of the Arab FPRQ and measures of child behavior problems, child social relations, and maternal depression. Data analyses included confirmatory factor analysis and concurrent validity. The proposed four-factor structure was replicated in both the mother and child forms. Scores from the Arab FPRQ subscales and the other measures provided evidence of concurrent and discriminant validity, suggesting that the Arab FPRQ is a viable assessment tool.

Keywords

parent-child relationship; immigrants; adolescents; mother

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Interest in parent-child and peer relationships in adolescence is consistent with nursing's disciplinary goals for promoting healthy development and psychological well-being, improving quality of life, and bettering society (Gage, Everett, & Bullock, 2006). The quality of these relationships during adolescence has a major and long lasting impact on development and psychological functioning in a variety of life domains. Parent-child and peer relationships influence adolescents' self-concept, school performance, coping ability, mental health status, and life aspirations (Amato, 1994; Compas, Howell, Phares, Williams, & Giunta, 1989; Kim & Brody, 2005; Nelson, Hammen, Brennan, & Ullman, 2003). In fact, parent-child and peer relationships at this critical developmental stage have been

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demonstrated to shape productivity and psychological functioning well into adulthood (Flouri, 2004; Pulkkinen, Nygren, & Kokko, 2002; Rapee, 1997).

About 11% of the U.S. population, or about 32 million people, are immigrants. Many of these immigrants are parents of children. As a result, one in five or nearly 14 million children in the U.S. have foreign born parents. Children with foreign born parents represent the fastest growing segment of the U.S. population (Haskins, Greenberg, & Fremstad, 2004; Schmidley, 2001; Van Hook & Fix, 2000). For these adolescents, relationships with parents and peers are colored by living in two cultures with often conflicting norms and values (Aroian, 2006; James, 1997; Kwak, 2003; Rumbaut, 1994). Yet, due to a dearth of culturally sensitive measures, little is known about parent-child and peer relationships in adolescents with foreign born parents.

Unfortunately, there are even fewer measures available for smaller immigrant groups, such as Arab Muslims. Approximately 4 million adolescents or soon to be adolescents in the U.S. have Arab Muslim immigrant parents (Arab American Institute, 2007). Compared to other immigrant groups in the U.S., their parental and peer relationships may be even more complicated. First, many of the normative expectations for adolescent behavior in the U.S. are at odds with traditional interpretations of Islam about acceptable behavior for teenagers (Aroian, 2006). Second, in this historical moment, these youths and their families are the object of strong anti-Arab and anti-Muslim sentiments (Abu El-Haj, 2006). Studying this immigrant group is consistent with the mandate in the field of ethnic and minority parenting to extend the focus beyond Anglo, middle class families to families facing cultural discontinuity and discrimination (Garcia Coll & Pachter, 2002). This mandate is also consistent with nursing's interest in vulnerable populations.

We adapted the content of the Family Peer Relationship Questionnaire (FPRQ; Ellison, 1983; 1985) for age and cultural appropriateness for use with Arab Muslim immigrant mothers and their adolescent children. We also estimated the psychometric properties of the adapted Arab version of the FPRQ. Heretofore, the FPRQ has only been evaluated in American-born, schoolaged children and their parents. Our specific aims were to estimate the factor structure, internal consistency reliability, and concurrent and discriminant validity of the mother and child forms of the Arab FPRQ. These aims were part of a larger, longitudinal study on mother-child adjustment of Arab Muslim immigrants to the U.S. In this larger study, which was an extension of a model of risk and vulnerability in HIV positive mothers and their children (Hough, Brumitt, Templin, Saltz, & Mood, 2003), the quality of the mother-child relationship was an intermediary pathway in a causal model of the effects of maternal and child stress, coping, and social support on the adjustment of young adolescent children.

The FPRQ was chosen over other existing measures of family and peer relationships for the larger study because it focuses on dyadic relationships from the dual perspective of the parent and child and assesses multiple dimensions of parental support. Many other family measures focus on a single dimension of support, such as communication, or focus on family conflict or pathology rather than support. The larger study was limited to mothers because Arab mothers, like those in other cultures with sharply segmented gender roles, have almost sole responsibility for child rearing, even when they are carrying out the wishes of husbands and extended family (Hattar-Pollara & Meleis, 1995; Kulwicki, 2000; Telsiz, 1998).

Background and Conceptual Basis of the FPRQ

The FPQR was developed over 20 years ago to measure the quality of the schoolaged child's relationship with parents and peers from the dual perspective of the child and one or both

parents (Ellison, 1983). Using a socio-ecological model of child development (Bronfenbrenner, 1979) and literature about the importance of peer relationships and parental support for child development and competence, Ellison interviewed mothers, fathers, and schoolaged children 7 to 12 years old in 30 White American families ($N = 90$) in the Pacific Northwest about their day – to-day experiences and behavior.

From a content analysis of these interviews, 63 parallel parent (mother or father) and child items and one unique item for each version were generated about peer relationships and parental support. Items about peer relationships included the child's social competence and desire for social relationships with peers (Peer Relations). Items about parental support included the amount of time the parent and child spend together (Availability); the type and frequency of activities the parent and child engage in together (Togetherness); nurturance through disclosure by the child to the parent of a variety of positive, negative, and neutral experiences (Nurture-Disclosure); and the extent to which the parent encourages or aids the child in maintaining peer relations (Parent as Mediator). Availability and Togetherness items ask the parent and child to respond to a list of activities, such as shopping together, and specify how often in a typical month they do the activities together. Nurture-Disclosure items ask the parent and child to respond to how often the child talks with his or her parent about positive, negative, and neutral situations, for example if something good happens to the child, if something happens at school, or if the child has a problem at school. Parent as Mediator items ask the parent and child to respond to how often the parent encourages or facilitates the child's friendships. Examples of a mother and child version, respectively, are "I make suggestions to my child regarding how to get along with other children" and "My mother gives me suggestions on how to get along with my friends." Peer Relations items ask the parent and child to evaluate the child's ability to make friends and the child's interest in keeping these friendships, such as the child knowing how to make a friend with someone soon after they meet and the child liking to be with other children rather than being alone. All items are rated on a five point rating scale. Availability, Togetherness, and Nurture-Disclosure items are rated from *never* (1) to *almost every day* (5) and Parent as Mediator and Peer Relations items are rated from *never* (1) to *always* (5). High subscale scores indicate the child's greater competence with peers (Peer Relations) and greater parental support on each of the parent dimensions (Availability, Togetherness, Nurture-Disclosure, and Parent as Mediator).

The underlying structure of the parent and child forms of the FPRQ was evaluated in a second study, also conducted in the Pacific Northwest, with 101 White American middle class families (Ellison, 1985). Eighty six second grade children, 101 mothers, and 85 fathers completed and returned their respective forms of the FPRQ. Data from children, mothers, and fathers were analyzed separately, using principal components analysis and Cronbach's alpha. Results were generally consistent with the proposed construct of peer relations and the constructs related to parental support (Availability, Togetherness, Nurture-Disclosure, and Parent as Mediator). However, slightly different factor structures were obtained for the mothers and fathers. The most notable difference was the emergence of a Parent as Mediator factor for fathers but not for mothers. The inequality of the factor structure across mothers and fathers may have been due to different parenting roles for mothers and fathers. Another and more likely explanation is that inequality of the factor structure across mothers and fathers occurred because of the small samples used for factor analyzing a large number of items. The internal consistency reliability estimates of the subscales obtained from the factor analyses ranged from .70 to .92, regardless of whether the reference point or respondent was the father or mother or the child in relation to the mother or father.

The FPRQ has also been used in subsequent studies (Hough et al., 2003¹; Hough, Brumitt, Templin, Vallerand, & Mood, 2007; Lewis, Woods, Ellison, & Bensley, 1989). Although

none of these subsequent studies were psychometric evaluations, the FPRQ subscales performed according to theoretical expectations. In a study of the family's functioning with a mother's chronic illness (Lewis et al.), scores from the Togetherness subscale were significantly related to the family's coping behavior and significantly predicted child's psychosocial adjustment. As with the samples used for the development and psychometric evaluation of the original FPRQ, the sample for the Lewis et al. study was primarily middle class White Americans and school aged children living in the Pacific Northwest. In a study of coping and adjustment of poor, primarily African American HIV-positive women and their children, parental support - - as measured by the composite of mother and child scores on the Togetherness, Nurture-Disclosure, and Parent as Mediator subscales - - was significantly related in a negative direction to maternal emotional distress and positively related to child coping behavior (Hough et al., 2003). The children in the HIV affected family study were between 7 and 14 years of age ($M = 9.9$, $SD = 2.2$) and lived in metropolitan Detroit. A follow-up to the HIV family study was conducted approximately 3 years later (Hough et al., 2007). As a consequence of the time lapse, the children in the sample had aged. The FPRQ also performed according to theoretical expectations when these children had aged: The entire effect of HIV-related stressors on child behavior problems was mediated, in part, by the quality of the mother-child relationship as measured by the FPRQ Togetherness, Nurture-Disclosure, and Parent as Mediator subscales.

Although evidence for the reliability and validity of the FPRQ is promising, more extensive psychometric evaluation is needed before using the measure with adolescents in Arab Muslim immigrant families. The child's developmental stage likely tempers aspects of the parent-child relationship that are measured by the FPRQ. For instance, adolescents may disclose less to parents than younger children do. Likewise, parents may have less of a role in mediating adolescent peer relationships because older children exert more independence than younger children in making and maintaining peer relations. Cultural norms, however, also affect various dimensions of the parent-child relationship. Arab Muslim adolescents and their immigrant mothers may have different expectations about the kinds of activities mothers and adolescents participate in together, in part because of Islamic principles about modesty and appropriate behavior for women (Carolan, Bagherinia, Juhari, Himelright, & Mouton-Sanders, 2000; Haddad & Smith, 1996; Kulwicki, 2000). In addition, traditional Arab Muslim mothers may exert more control over adolescent peer relationships than mainstream American mothers. It has been documented, for example, that Arab immigrant mothers promote cultural adherence by arranging leisure activities with other Arab families who share their interpretation of appropriate teen behavior (Haddad & Smith, 1996; Hattar-Pollara & Meleis, 1995).

Arab Adaptation of the FPRQ

We adapted the content of the original English language items from the latest or current version of the FPRQ (Hough et al., 2003) for age and cultural appropriateness with Arab Muslim adolescents and their immigrant mothers. This adaptation of content was preliminary to and separate from subsequent translation of the FPRQ into Arabic. Five cultural informants, Arab immigrant women from the Middle East who had an average of 12 years of experience providing health and social services to local Arab Muslim families, evaluated each item. Whenever an item was evaluated as inappropriate or atypical for Arab Muslim mothers or adolescents, the cultural informants provided advice on how to revise or replace the item. Of note is that the version of the FPRQ evaluated by the cultural informants, contained 54 parallel items and one unique item on each of the parent and child forms. Items from the original Availability subscale, which pertained to the amount of time

¹Hough, formerly Ellison, is the author of the FPRQ

the parent and child spend together, had been dropped by Hough after she developed and evaluated the first version of the FPRQ. Thus, the current version of the FPRQ had four subscales -- Togetherness, Nurture-Disclosure, Parent as Mediator, and Peer Relations.

The cultural informants concluded that 12 of the FPRQ items from the latest version of the FPRQ were atypical, inappropriate, or not specific to the study population. Eleven of these twelve items were from the Togetherness subscale, and one item was from the Parent as Mediator subscale. Atypical or inappropriate items were either because the items pertained to younger children or were inconsistent with local interpretations of Islam about proper or typical behavior for women and adolescent children. An example of an age inappropriate activity was: "Help with bath or shampoo." Examples of activities that were atypical for Arab Muslim mothers or adolescents, respectively, were, "Play a sport" and children having a friend stay overnight as a social activity. An example of a nonspecific item was, "Go to a religious service."

We endeavored to keep the same number of items per subscale as the latest version of the FPRQ (Hough et al., 2003), in part because we wanted the flexibility to drop items with psychometric problems, and, in part, because we were concerned that simply dropping items because of inappropriate or atypical content might result in a less comprehensive or content relevant measure for Arab Muslim mothers and their adolescent children. It was challenging, however, for the cultural informants to develop a comparable number of culturally or age equivalent items. As a result, they recommended replacing two items with non parallel activities (i.e., replacing "Help with bath or shampoo" and "Tuck into bed" with "Take to Arabic school" and "Read the Koran"). The remaining 10 items involved minor word changes or substituting an atypical or non specific activity with a more commonly occurring or specific parallel activity. For example, "Play a sport" was changed to "Take to or watch a sport." "Go to a museum" was changed to "Go to a cultural festival." "Go to a religious service" was changed to "Go to a mosque."

We posed four hypotheses: (1) The four-factor structure --Togetherness, Nurture-Disclosure, Parent as Mediator, and Peer Relations -- would be replicated in both the mother and child forms of the Arab FPRQ, (2) scores from each of the Arab FPRQ subscales would be inversely related to internalizing and externalizing child behavior problems, (3) scores from the FPRQ Peer Relations subscale and a measure of the child's social support from friends would be positively related, and (4) the child's peer relations and social support from friends would be significantly stronger than correlations between the FPRQ subscales that pertained to maternal support (Togetherness, Nurture-Disclosure, and Parent as Mediator) and the child's social support from friends. Child behavior problems was chosen as a construct to explore concurrent validation based on research findings about the links between parental support and peer relations with various indicators of child psychological adjustment, including children's depression, anxiety, aggression, and delinquency (Dubrow, Edwards, & Ippolito, 1997; Garnefski, & Diekstra, 1996; Hough et al., 2003; Hough, Brumitt, Templin, Vallerand, & Mood, .2004; Webster-Stratton & Hammond, 1988). Although research findings suggest that there are circumstances when peer relations can be positively related to aggression and delinquency, it is less likely that these circumstances apply to adolescents with foreign-born parents. Rather, the potential for peers to influence adolescent behavior negatively is greater for adolescents of second or later generation immigrant parents (Chappin & Brook, 2001; Velez & Ungemack, 1995; Wong, 1997). Social competence was chosen as a construct to explore concurrent validation based on literature documenting social competence as a skill that enables people to garner social support (Reis & Collins, 2000; Spitzberg & Cupach, 1989).

Method

Participants

The sample for this study consisted of 645 mother-child dyads residing in metropolitan Detroit. The metropolitan Detroit Arab immigrant community is the largest Arab community in the U.S., conservatively estimated at 200 to 250 thousand Arab immigrants living in ethnic enclaves (Schopmeyer, 2000; Zogby, 1998). The first 402 mother-child dyads, hereafter referred to as the primary sample, were used for the primary analysis. Another 243 mother-child dyads were recruited later and used for cross validation. They are hereafter referred to as the cross validation sample. Criteria for study participation included being an Arab Muslim mother who had emigrated from the Middle East relatively recently (from a few months to 15 years) and had a child between the ages of 12 and 15 who was willing to participate in the study. The age range for the children was based on the longitudinal design of the larger study, which was to capture transitions from early to middle to late adolescence. Reading ability and English ability were not criteria for study participation because data collection occurred verbally in English or Arabic, and respondents had the choice of responding in English or Arabic. The majority of the mothers (97%) chose Arabic. The majority of the children (90.9%) chose English.

The sample was recruited through face-to-face advertisement directed towards mothers by Arabic speaking research assistants. The research assistants were also immigrants from the same countries of origin as the study participants and lived and worked in the local Arab community. They verbally advertised the study and recruited interested participants during informal day-to-day contact with other Arab Muslims (Aroian, Katz, & Kulwicki, 2006).

Characteristics of the primary sample are summarized in Table. 1. The high percent of mothers who were homemakers who were not looking for work outside of the home is consistent with gender roles in traditional Muslim families. The high unemployment rate among fathers was, in part, due to medical leave and disability, most likely from pre-migration trauma, including war and/or religious, ethnic, and political persecution.

To assess the equivalence of the primary and cross validation samples, we compared the two samples on each of the 11 demographic characteristics reported in Table 1 using a Bonferroni adjusted significance level of $\alpha = .0046$ (.05/11 comparisons). The primary and cross validation samples differed only on two variables: country of origin and time in the U.S. Compared to the primary sample, the cross validation sample had more immigrants from Yemen (22% vs. 7%) and fewer from Iraq (31% vs. 54% and had been in the U.S. approximately 0.7 years less.

Data Collection

Our data were collected from January 2004 through November, 2006. Research assistants contacted interested study participants and arranged a time for data collection. Data collection occurred in the study participants' homes and involved obtaining consent and assent from the mother-child dyad and then physically separating them in two private rooms to verbally administer the measures. The mothers and children were given a single check for \$60, payable to the mother, for their time.

In addition to the parent and child forms of the Arab FPRQ, measures used for concurrent validation included the Child Behavior Checklist (CBCL/4–18), completed by the mothers; its parallel version, the Youth Self-Report (YSR; Achenbach & Rescorla, 2001), completed by the children; and the Friends subscale of the Multidimensional Scale of Perceived Social Support (MSPSS-F; Zimet, Dahlem, Zimet, & Farley, 1988), completed by the children. Collection of these data took an average of half an hour each with the mothers and children.

Children were more straightforward in their responses, whereas mothers elaborated and interjected social conversation (Aroian et al., 2006).

Arabic language versions of the measures were developed through translation and back-translation as a validity check and further evaluated by committee consensus; disagreements were resolved before accepting the final Arabic language versions. The committee consisted of five bilingual immigrants from Iraq and Lebanon, which were the two predominant origin countries for our study sample. Translation was symmetrical or decentered, aiming at loyalty of meaning and equal familiarity and colloquialness in both languages (Werner & Campbell, 1970).

The CBCL/4–18 and the YSR assess behavioral and emotional problems in children and adolescents (Achenbach & Rescorla, 2001). The CBCL/4–18 elicits parent reports about the child and the YSR elicits self-reports from the child. Items on both the CBCL/4–18 and the YSR correspond with minor rewording. Both versions contain 120 problem items about the child and use a 3-point rating scale (0 [*not true*], 1 [*somewhat/sometimes true*], or 2 [*very/often true*] now or within the last 6 months). The Withdrawn, Somatic Complaints, and Anxious/Depressed scales are summed to yield an Internalizing Problem Score, and the Delinquent Behavior and Aggressive Behavior scales are summed to yield an Externalizing Problem score.

Previously reported test-retest and internal consistency reliabilities are high on the Internalizing ($r = .91$, Cronbach's $\alpha = .90$; $r = .80$, Cronbach's $\alpha = .90$), and Externalizing ($r = .92$, Cronbach's $\alpha = .94$; $r = .89$, Cronbach's $\alpha = .90$) scales of the CBCL/418 and YSR, respectively (Achenbach & Rescorla, 2001). Previously reported correlations between the CBCL scale scores and scores from the closest counterpart scales of other child behavior parent ratings, such as the Corner Parent Questionnaire and Quay-Peterson Revised Behavior Problem Checklist, are moderately high ($r = .82$ and $.81$, respectively). Similar reliability and validity data have also been obtained in multiple ethnic and language groups, suggesting that the CBCL/4–18 and YSR are robust across cultures (Crijnen, Achenbach, & Verhulst, 1999). The internal consistency reliability of the internalizing, and externalizing subscales of the CBCL/4–18, respectively, with Arab mothers was $.81$ and $.90$. The internal consistency reliability of the internalizing, and externalizing subscales of the YSR, respectively, with Arab youth was $.88$ and $.86$.

The MSPSS is a self-report of support adequacy from multiple sources, including friends, family, and significant others (Zimet et al., 1988). The Friends subscale has three items, each of which is rated along a 7-point scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Reliability, validity, and factor structure have been demonstrated across a number of different samples (Cecil, Stanley, Carrion, & Swann, 1995; Dahlem, Zimet, & Walker, 1999; Zimet, Powell, Farley, Wekman, & Berkoff, 1990), including Arab immigrant youth (Ramaswamy, Aroian, & Templin, in press). The original factor structure was consistently replicated across these studies. The Family, Friends, and Significant Others subscales were each internally consistent (none of the Cronbach alphas obtained for any of the subscales was lower than $.80$). The internal consistency reliability of the 3 item Friend subscale of the MSPSS was $.72$ with Arab youth.

Data Analysis

Data from the parent and child forms of the Arab FPRQ were analyzed separately, using confirmatory factor analysis (CFA) to test the proposed four factor model for both the parent and child form. CFA was performed with AMOS 6.0 structural equation modeling (SEM) software using maximum likelihood (ML) estimation. The covariance matrix was used as input. The models were identified by fixing one path loading for each factor to one. The

factors were allowed to correlate. Overall model fit was evaluated using three criteria, the Chi-square divided by $df < 3.0$, the root mean square error of approximation (RMSEA) less than .08 (Browne & Cudeck, 1993), and the comparative fit index (CFI) greater than .9 (Bentler & Bonett, 1980). Fit was also evaluated by checking standardized residuals greater than 2.00 and for out of range parameter estimates (e.g., negative error variances). Prior to analysis, missing item level data were imputed by using the individual's average score from the scale associated with the missing item. Total missing data was less than 1% for any one scale and overall. Using the scale average to impute missing data was appropriate because the scale average had the same potential range as the individual items.

CFA was also used in the exploratory mode (Jöreskog, 1993) to find the best fitting model. This best fitting model was validated in a second sample. Additional analyses of the best fitting model included tests of reliability, concurrent and discriminant validity, comparing item and subscale scores for the mothers and children, and evaluating factorial invariance of the mother and child forms by gender of the child.

Findings

To test the proposed four factor model for both the parent and child form (Hypothesis 1), the primary sample ($n = 402$ dyads of mothers and children) was used to estimate three CFA models for the mothers and three corresponding models for the children. The first CFA model used all 55 items of the Arab FPRQ, but this model did not fit the mother and child data well. The standardized factor loadings from the CFA ranged from .17 to .85 for the mothers and from .13 to .80 for the children. Fit indices for the mother's model were as follows: $\chi^2 (1424, N = 402) = 4045.05, p < .01$; $\chi^2 / df = 2.84$; $CFI = .57$; and $RMSEA = .07$. The overall fit of the child CFA model was slightly higher but still poor ($\chi^2 (1424, N = 402) = 3372.99, p < .01$; $\chi^2 / df = 2.37$; $CFI = .66$; and $RMSEA = .07$).

An exploratory CFA was conducted to identify a better fitting model. First items that did not have a loading of .35 or greater on either the parent or child form of the Arab FPRQ were omitted. After eliminating 23 items using this criterion, the models were re-estimated. Fit was substantially improved by omitting items with small loadings but was still less than adequate. Modification indices were used to identify items that needed additional paths to other factors/loadings or that exhibited substantial correlations among their error terms. Initially, modifications were made independently in the parent and child forms allowing correlated error within but not across factors. After fitting the model independently for mothers and children, it was apparent that similar modifications were being made to both the parent and child forms. The same few items on the parent and child forms also had cross-factor loadings. For the sake of parsimony, these items were eliminated so that all retained items would load on only one factor. The resulting model contained 30 items with loadings ranging from .30 to .91 for the mothers and .40 to .85 for the children. Nine pairs of items had correlated errors. All of the correlated errors were within factors. The same model fit the mother and child data equally well [$\chi^2 (390, N = 402) = 740.85, p < .01$; $\chi^2 / df = 1.90$; $CFI = .90$; and $RMSEA = .05$ for mothers and $\chi^2 (390, N = 402) = 646.53, p < .01$; $\chi^2 / df = 1.66$; $CFI = .92$; and $RMSEA = .04$ for children]. The fact that the empirically derived changes identified in the parent form resulted in a good fit when applied to the child form suggests that these changes were not merely capitalizing on chance.

When concurrent validity was examined in this second model, however, the Nurture-Disclosure subscale was unexpectedly negatively correlated with theoretically related constructs. More specifically, the Nurture-Disclosure subscale was correlated positively with child internalizing and externalizing behavioral problems, indicating that the more a child talks to his/her mother, the more problem behaviors she or the child reports for the child.

Contrary to how FPRQ subscales were correlated in other study populations (Ellison, 1983; 1985; Hough et al., 2003), we also found that the Nurture-Disclosure factor in both the parent and child forms was virtually uncorrelated with the other FPRQ factors.

To examine plausible explanations for the unpredicted direction of these relationships between Nurture-Disclosure and child internalizing and externalizing behavior problems, we correlated each of the 12 items from the original Nurture-Disclosure subscale with the scores from the mother's report of the child's internalizing and externalizing problems. The results showed that four of the previously omitted items had correlations in the anticipated direction with the aforesaid measures. We observed that the eight Nurture-Disclosure items we had retained involved disclosing negative situations (e.g., if something bad happens to the child), whereas the other four omitted Nurture-Disclosure items involved disclosing neutral (e.g., if something happens at school) or positive situations (e.g., if the child is happy). To further understand the unexpected results we obtained with the negative disclosure items, we conducted additional analyses with data from the follow-up study of HIV positive mothers and their children (Hough et al., 2004). In contrast with our study findings, all of the Nurture-Disclosure items, not just items about positive or neutral disclosure, were in the expected direction and inversely related to HIV positive mothers' reports of their child's behavior problems.

To make the Nurture-Disclosure subscale more consistent with theoretical expectations for the FPRQ, we constructed a third CFA model for the mothers and children by replacing the eight items of the Nurture-Disclosure subscale with the four previously omitted Nurture-Disclosure items. Following the same rule of omitting items loading lower than .35, one of the four items was dropped. Thus, the Nurture-Disclosure subscale in the third model had 3 items, two that pertained to positive disclosure and one that pertained to neutral disclosure.

The results of fitting this third and final model to the mother and child data are shown in Figure 1. The standardized path coefficients for the mothers are on the left and the child coefficients are in parentheses on the right. Each model had a good fit to the data [$\chi^2(260, N = 402) = 532.88, p < .01; \chi^2/df = 2.06; CFI = .91$; and $RMSEA = .05$ for mothers; and $\chi^2(260, N = 402) = 458.86, p < .01; \chi^2/df = 1.77, CFI = .92$, and $RMSEA = .04$ for children]. The standardized factor loadings ranged from .31 to .89 for the mothers and .40 to .84 for the children and all were significant. The mother and child loadings for corresponding items were similar. The largest differences were found on the Parent as Mediator factor where the standardized loadings of two items differed by more than .20 (see item, "Friends at home" and "Invites friends"). Otherwise the standardized loadings were mostly within .10 of each other. The correlations among the four factors ranged from .30 to .61 for the mothers' and .23 to .56 for the children. Although the range of the correlations was similar for the mothers and children, the pattern was somewhat different. The correlation between the Parent as Mediator and Nurture-Disclosure factors was the highest for mothers, whereas the correlations for the Parent as Mediator and Togetherness factors was the highest for the children.

To further validate this third model, we ran the model with the cross validation sample ($n = 243$ mother-child dyads). The model replicated very well in the parent and the child forms [$\chi^2(260, N = 243) = 438.80, p < .01; \chi^2/df = 1.68; CFI = .90$; and $RMSEA = .06$ for mothers and; $\chi^2(260, N = 243) = 437.11, p < .01; \chi^2/df = 1.69; CFI = .89$; and $RMSEA = .05$ for children]. Path coefficients were also of comparable magnitude across the respective factors.

Two multigroup SEMs were used to investigate the gender equivalence of the factor model for boys and girls, one with data from the parent form and one with data from the child form. Mothers were split into two groups depending on the gender of the focal child.

Children were split into two groups according to their gender. To increase statistical power, the primary and cross validation samples of mothers ($n = 645$) and the primary and secondary samples of children ($n = 645$) were combined for these analyses. Two tests were conducted for each multigroup SEM; two for the parent form and two for the child form. One of the tests was for equivalence of factor loadings and the other was for equivalence of item means.

Analysis of the mothers' data showed that the factor loadings were nearly equivalent across gender groups, $\chi^2(21, N = 645) = 23.19, p = .33, \Delta RMSEA < .01, \Delta CFI < .01$. Item means were also very similar across gender groups as evidenced by the small change in RMSEA and CFI, $\chi^2(25, N = 645) = 123.19, p < .33, \Delta RMSEA = .003, \Delta CFI = .02$. The largest difference between the means was for the item on the parent form, "Mother encourages child to spend time with friends". The difference was .24, with mothers rating this item higher for boys than for girls. The gender differences between factor loadings and item means were even smaller in the child data. The change in χ^2 was not significant and change in RMSEA and CFI were less than .01 for the test of equal factor loadings, $\chi^2(21, N = 645) = 8.89, p = .99, \Delta RMSEA < .01, \Delta CFI < .01$. The test for equality of means resulted in a significant change in $\chi^2(25, N = 645) = 45.59, p < .01$, but very small changes in RMSEA and CFI; $\Delta RMSEA < .01, \Delta CFI < .01$.

To examine the reliability and validity of this model for the mothers and children, four subscales (Togetherness, Nurture-Disclosure, Peer Relations, and Parent as Mediator) were computed for the factors. Using data from the primary sample ($n = 402$), each subscale was computed by averaging the item scores that make up the factor. The item and scale means and standard deviations and scale reliabilities are displayed in Table 2. The mother and child scale scores are similar, all within a mean of 0.3 *SD* of the mean. This similarity was also reflected at the level of the individual items. Internal consistency reliability estimates (Cronbach's alpha) for the subscales ranged from .66 to .81 for the mothers and .69 to .81 for the children. The validity coefficients (i.e., the correlations between parent and child forms of the same scale) ranged from .39 for the Parent as Mediator subscale to .64 for the Togetherness subscale, indicating moderately good convergent validity.

Table 3 displays the correlation coefficients that were calculated to examine the concurrent validity of FPRQ subscales (Hypotheses 2 and 3). All of the correlations between the four FPRQ subscales and the measures of child behavior problems (internalizing and externalizing behaviors from mother reports on the CBCL and child reports on the YSR), and child's support from friends (MSPSS-F) were in the expected direction. With one exception, the correlations for all of the hypothesized relationships were also statistically significant. The only exception was the lack of a significant relationship between mothers' reports of her child's internalizing behavior problems and the Parent as Mediator subscale. The statistically significant relationship between children's reports of support from friends and the Togetherness subscale was not a hypothesized relationship.

Discriminant validity of the FPRQ Peer Relations subscale (Hypothesis 4) was supported. The correlation between child's Peer Relations subscale and social support from friends was .38. Using a test of dependent correlations, this correlation was found to be significantly higher ($p < .01$) than the correlations of the FPRQ subscales that pertained to maternal support (Togetherness, Nurture-Disclosure, and Parent as Mediator) and the child's social support from friends.

Disattenuated validity coefficients (i.e., correlations between the parent and child form of each scale corrected for unreliability) are displayed in Table 4 on the diagonal. These correlations indicate the extent to which mother and children agree in their perceptions of

family and peer relations. The validity coefficients ranged from .39 to .69 for Parent as Mediator and Togetherness, respectively. The disattenuated correlations among the four FPRQ subscales for the parent and child forms in the final model are displayed in Table 4. The correlations among the subscales from the parent form are in the upper triangle and correlations among the subscales from the child form are in the lower triangle. The pattern of correlations for mothers and children is similar with the lowest correlations occurring between Peer Relations and Togetherness for both mothers and children. The symmetry in the table is additional evidence for the construct validity of the instrument.

Discussion

We were able to develop a reliable and valid version of the FPRQ for use with Arab immigrant mothers and their early to middle adolescent children by omitting items with low factor loadings or items with cross factor loadings and/or correlated measurement error. The measure performed according to theoretical expectations once we dropped items from the Nurture-Disclosure subscale that were about disclosing negative rather than positive or neutral situations. The internal consistency reliability of the subscales was high and concurrent validity was demonstrated by a number of statistically significant correlations between the four final Arab FPRQ subscales and theoretically related concepts pertaining to child behavior problems and child social support from friends. Only one of the hypothesized relationships was not significant, the relationship between parent as mediator and the mother's report of child internalizing behavior problems. There was high agreement between the parent and child forms of the Arab FPRQ, as indicated by obtaining similar means and standard deviations, a good fit for the same factor structures, and like patterns of correlations among the subscales on both forms. The observation that dropping items that were identified as problematic in the parent form resulted in a good fit when the same changes were applied in the child form provided confidence that the good fit achieved by reducing the number of items in the Arab FPRQ was not merely capitalizing on chance. Cross validation of the model with a second sample provided additional confidence. Tests of gender invariance also suggest that the Arab FPRQ is unbiased in the assessment of quality of mother child relationship with respect to boys and girls, regardless of the whether the mother or the child is the respondent.

It is also noteworthy that the final model is not consistent with the original conceptualization of how child disclosure operates in the context of parent-child relationships (Ellison, 1983;1985). Ellison conceptualized that disclosure by the child to the parent would be nurturing regardless of whether disclosure was about positive, neutral, or negative situations. Yet, when we applied the criterion of only retaining items with factor loadings greater than .35 and obtained a Nurture-Disclosure subscale consisting exclusively of items about negative disclosure, we found that scores from the mother suggest that the more a child talks to her, the more behavior problems she reports for her child. As a result of this unanticipated finding, we replaced Nurture-Disclosure items about negative situations with items about positive and neutral situations in the final model. Although both models had equally good fits with like factor loadings, we selected the model with the neutral and positive disclosure items as the final model because Arab mothers apparently do not perceive negative disclosure similarly to the other aspects of parental support that are measured by the FPRQ. Perhaps negative disclosure is interpreted differently in Arab immigrant families than in White American and Black American families. In Arab immigrants, the cultural norm may be to not dwell on negative situations. If this is the case, then children who communicate negatively are likely to be perceived as having more behavior problems.

Another issue pertains to the 11 items from the Togetherness subscale that were revised or replaced at the outset, before administering the Arab FPRQ to the study sample and before

conducting analyses. Revising or replacing this many items at the outset may have resulted in a Togetherness subscale with restricted applicability for other study populations. The segmented gender roles in our study population, for example, most likely resulted in a set of activities biased towards ones that mothers rather than fathers do with their children. It is also noteworthy that the original set of Togetherness items was generated by interviews with White American families in the Pacific Northwest of the U.S. (Ellison, 1983). The Pacific Northwest is known for its outdoor, sporty lifestyle -- a lifestyle that is inconsistent in some urban settings as well as with Islamic proscriptions for gender segregation and modesty. We anticipate that researchers wishing to use the FPRQ with other study populations will need to evaluate the original as well as our revised/replaced Togetherness items for content validity and generate a larger pool of items for testing than those presented in our final or in Ellison's original Togetherness subscale.

Likewise, researchers may want to use the original, longer forms of the other three FPRQ subscales (i.e., Nurture-Disclosure, Parent as Mediator, and Peer Relations) to explore reliable and valid versions of the FPRQ for their own study populations. Psychometric analyses of the original or other versions of the FPRQ have not been extensive, and only through replication and comparison can it be determined whether our Arab version is appropriate for other study populations. Fortunately, each of the original FPRQ subscales contains more items than needed to construct reliable multidimensional scales. As such, researchers have great flexibility to extend and refine the original FPRQ Togetherness, Nurture-Disclosure, Parent as Mediator, and Peer Relations subscales to advance understanding of these important components of parent-child and peer relationships.

Even though there was generally good agreement between the mother and child forms of the FPRQ, we also recommend using both forms to obtain multiple perspectives and more complete information about mother-child and peer relationships. The correlations between corresponding FPRQ subscales on the mother and child forms ranged from .39 to .69. The lowest correlation, the .39 correlation between the mother and child forms of the Parent as Mediator subscale, for example, suggests two possibilities that are yet to be resolved: Mothers may overestimate or underestimate mediating their child's peer relationships or children may be unaware of their mother's behavior in this regard. Similarly, the .44 correlation between the mother and child forms of the Peer subscale suggests the possibility that mothers have a better understanding of child peer relations than the child. For example, she may better assess friendship potential in terms of like abilities, interests, and access. On the other hand, children may have more direct information than their mothers about their peer relationships, perhaps because peer relationships become more private as children progress from young and middle childhood to adolescence. Obtaining both mother and child perspectives may reduce measurement error and result in more accurate scores from these subscales or allow further comparison about which perspective is more valid.

A major limitation of this study is that we only have data from mothers for the parent form of the Arab FPRQ. It is possible that a different factor structure would have been obtained from fathers, particularly since gender roles are more segmented in the Islamic culture and mothers have almost sole responsibility for day to day parenting activities (Carolan et al., 2000; Hattar-Pollara & Meleis, 1995; Kulwicki, 2000). Another limitation was the restricted educational level and years in the U.S. of our study sample. Similar to the speculation that the activities parents engage in with their children may vary by geographic location or gender of the parent, more variability in educational level and years in the U.S. may have resulted in a slightly different configuration of which Togetherness items were retained. Islamic principles about acceptable activities for mothers and adolescents are embraced differently, depending upon a host of social, economic, and political factors (Moghadam, 2004). Arab parents with higher education, those living in less dense ethnic enclaves, or

those whose time living in the U.S. is more longstanding may be less traditional and more apt to engage in some of the activities that were assessed as not typical for our study population.

Nonetheless, our study findings suggest that nurses can use the Arab FPRQ with confidence to assess parent child and peer relationships in Arab Muslim youth with immigrant parents. Although we evaluated the measure in the context of immigration to the U.S., it is likely that with only minor modifications, the FPRQ can be used to assess Arab Muslim mothers and adolescents living elsewhere in the world, including their homelands. Given the differences between Arab Muslim and mainstream U.S. cultures, our findings are also encouraging for other researcher who may be interested in adapting the FPRQ for use with other cultural groups. It is striking that we were able to achieve a fit with the Arab FPRQ that was consistent with the four factor structure Ellison (1983) proposed originally with schooled children in White American families.

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Figure 1.

Four factor confirmatory factor analysis model of the Arab Family and Peer Relationship Questionnaire (FPRQ). Results for parallel mother and child forms ($N = 402$) are shown with standardized factor loadings and factor correlations from the maternal form on the left and the coefficients from the child form in parentheses on the right. All coefficients are significant.

Table 1

Characteristics of Participants in Primary Sample (N = 402)

Variable	<i>M (SD) or %</i>
Mother's age (years)	39.9 (6.2)
Marital status (% Married)	83.3
Country or origin:	
Iraq	54.0
Lebanon	32.1
Other Arab Country	13.9
Length of time U.S. (years)	8.6 (3.9)
Immigration status:	
Refugee	53.5
Immigrant	38.8
Tourist, student, or work visa	7.7
Mother's education:	
Less than high school	65.9
College degree	6.5
Mother's employment:	
Homemakers	82.0
Employed full or part time	11.2
Child's age (years)	13.8 (1.2)
Child's gender (% girls)	48.0
Father's education ^a :	
Less than HS	48.4
College degree	16.7
Father's employment ^a	
Full time	43.3
Part time	18.8
Unemployed	37.9

^aPercent based on mothers with husbands/fathers in the home (i.e., mothers were not widowed, divorced, or separated) *n* = 335.

Table 2

Mother and Child Arab Family Peer Relationship Questionnaire Item and Scale Means and Standard Deviations and Scale Reliability (item range = 1 – 5) in the Primary Sample (N = 402).

Subscale Items	Mother Version			Child Version		
	M	SD	α	M	SD	α
Togetherness Subscale	2.23	.59	.77	2.33	.64	.79
Go to social activities ^a	2.28	1.11		2.48	1.24	
Dance, listen to, or play music with.	2.32	1.57		2.44	1.57	
Take to or watch a sport ^a	1.45	.95		1.62	1.15	
Shop, do errands together	3.50	.92		3.57	1.01	
Take to an after school activity or a friend's house ^a	2.30	1.19		2.45	1.30	
Go to the library	2.02	1.17		2.01	1.18	
Go to a movie or play	1.32	.69		1.60	.95	
Go to a party ^a	1.80	.83		2.02	.87	
Go to a picnic	2.50	1.10		2.25	1.05	
Go for a walk ^a	2.63	1.32		2.66	1.31	
Go to a park	2.68	1.12		2.76	1.14	
Go to the beach or swimming	1.95	1.12		2.10	1.17	
Nurture Disclosure Subscale Items	4.08	.94	.77	4.07	.90	.71
(Talk) if something good happens to the child.	4.11	1.13		4.16	1.04	
(Talk) if something happens at school.	3.94	1.24		3.81	1.28	
(Talk) if the child is happy.	4.21	1.02		4.25	1.05	
Peer Relations Subscale Items	4.26	.69	.81	4.32	.69	.81
(The child) finds it easy to make friends.	3.96	1.13		4.05	1.10	
(The child) is a good friend to have.	4.66	.67		4.61	.71	
Other children seem to enjoy being with the child.	4.28	.99		4.40	.80	
Other children seem comfortable around the child.	4.33	.90		4.33	.86	

Subscale Items	Mother Version			Child Version		
	M	SD	α	M	SD	α
Other children seem to want to talk with the child.						
(The child) likes to be with other children than being alone.	4.24	.98		4.23	.88	
	4.11	1.04		4.34	.87	
Parent As a Mediator Subscale Items						
	3.53	.79	.66	3.27	.86	.69
(The parent) likes the child's friends to visit him/her at their house.						
	3.75	1.09		3.72	1.09	
(The parent) lets the child invite a friend to come on outings with the family.						
	3.10	1.14		3.06	1.17	
(The parent) encourages the child to spend time with his/her friends.						
	2.87	1.30		2.69	1.24	
(The parent) is interested in knowing how the child gets along with the other children.						
	4.41	.91		3.61	1.28	

Note. Text in parenthesis either refers to an action or the subject the item pertains to.

^aNew (replaced or revised) item.

Correlations of the Parent and Child FPRQ Subscales with Child Behavior Problems and Child Social Support from Friends in the Primary Sample (N = 402).

Table 3

Subscales	Mother Measures			Child Measures		
	CBCL-INT	CBCL-EXT	YSR-INT	YSR-EXT	MSPSS-F	
Togetherness	-.19**	-.17**	-.18**	-.15**	.10*	
Nurture-Disclosure	-.19**	-.35**	-.24**	-.23**	.13**	
Peer Relations	-.24**	-.33**	-.29**	-.24**	.38**	
Parent as Mediator	-.01	-.15**	-.23**	-.22**	.22**	

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

Note. CBCL- INT = Internalizing subscale and CBCL- EXT = Externalizing subscale of the Child Behavior Checklist. YSR-INT = Internalizing subscale and YSR- EXT = Externalizing subscale of the Youth Self Report. MSPSS-F= Multidimensional Scale of Perceived Social Support, Friend subscale. Correlations are between maternal reported FPRQ subscales and CBCL and between child reported FPRQ subscales and YSR and MSPSS-F.

Table 4

Disattenuated Correlations Among the Mother and Child Forms of the FPRQ Subscales in the Primary Sample (N = 402)

Composite Subscale	1	2	3	4
1. Togetherness	.69	.48	.27	.41
2. Nurture Disclose	.51	.62	.58	.53
3. Peer	.26	.49	.44	.53
4. Mediator	.58	.43	.43	.39

Note. Correlations above the diagonal are for the mother FPRQ subscale and correlations below the diagonal are for the child FPRQ subscales. The diagonal contains the correlation coefficients between the corresponding subscales of the mother and child models. All correlations are significant at the $p < .01$ level.