Mothers’ Acceptance-Rejection of Their Children Infected With HIV: The Role of the Mothers’ Social Axioms, Psychological Distress, and Relationships With the Partner

Eugene Tartakovsky and Liat Hamama
The School of Social Work, Tel Aviv University

All correspondence concerning this article should be addressed to Eugene Tartakovsky, The Bob Shapell School of Social Work, Tel Aviv University, P.O.B. 39040, Tel Aviv, 69978, Israel.
E-mail: etartakov@hotmail.com

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Objective The present study examines the effect of having a child infected with HIV on the mother–child relationship. The study also examines how the mother’s social axioms, psychological distress, and relationships with her partner affect her parenting of the child infected with HIV.

Method The study was conducted in Kazakhstan in the wake of a children’s HIV epidemic. Mothers of children infected with HIV (n = 53) were compared to mothers of healthy children (n = 97).

Results Compared to mothers of healthy children, mothers of children infected with HIV reported a higher level of acceptance of their children as well as a stronger belief in the “reward for application” axiom, a higher level of religiosity, and better relationships with their partner. Among mothers of both healthy children and children infected with HIV, the belief in the “reward for application” axiom, a low level of social cynicism, and good relationships with their partner was associated with a higher level of acceptance of their children. Among mothers of healthy children but not among mothers of children infected with HIV, psychological distress was associated with a lower level of acceptance of their children.

Conclusions Mothers of children infected with HIV demonstrated a mobilization pattern of adjustment to their child’s illness.

Key words anxiety; family functioning; HIV/AIDS; parenting.

Background
According to the latest data published by UNAIDS (2010), at the end of 2009 there were 2.5 million children under the age of 15 years living with HIV around the world. Most of these children acquired the infection from their mothers during pregnancy, birth, or breastfeeding, while about 10% of the children were infected with HIV in medical settings. Between 2005 and 2007, 139 children and 13 of their mothers were diagnosed as HIV positive in the city of Shymkent in Southern Kazakhstan. They were infected in State hospitals due to unsterile instruments and infusions of untested blood. Most children were under the age of 3 years at the time of infection (Komar, 2007).

The present study was conducted in 2008, in the context of a training program organized for Kazakhstan medics and social workers by an international charity organization (Tartakovsky, 2011). The study’s main goal was to investigate the effect of the child’s HIV infection on the mother–child relationship, and to examine possible psychological mechanisms of such an effect (cf. Forehand et al., 1998). The study focused on the families, where children but not their mothers were infected with HIV. The levels of acceptance–rejection (Rohner, Khaleque, & Cournoyer, 2009) were compared between mothers of children infected with HIV with mothers of healthy children. In addition, we examined how the mother’s social axioms, psychological distress, and relationship with her partner were related to her acceptance of her children, and how these factors differed among mothers of children infected with HIV and mothers of healthy children.
Only a few studies have focused on the parent-child relationship in families coping with HIV infection (cf. Tompkins, Henker, Whalen, Axelrod, & Comer, 1999; Tompkins & Wyatt, 2008), and the present study is the first of its kind that examines the parent-child relationship in families where children but not parents were infected with HIV. Previous studies conducted in families where children acquired HIV from their mothers found that the mother-child relationship is the most important factor affecting the children’s development and their resilience to the illness (Dobrova-Krol et al., 2010; Dutra et al., 2000; Forehand et al., 1998; Murphy, Mrellich, Herbeck, & Payne, 2009). In addition, the quality of the mother-child relationship significantly affected the children’s compliance to antiretroviral therapy (Marhefka, Tepper, Brown, & Farley, 2006). Therefore, studying the mothers’ acceptance of their children infected with HIV is important both theoretically and practically.

The Effect of the Child’s Illness on Parenting

A child’s illness is a powerful stressor for both the child and his or her caregivers. Most previous research has considered the illness of a child from a traumatic perspective; i.e., as a stressful event, which may cause psychological distress or even posttraumatic stress disorder in parents and a decrease in family functioning (APA, 2000; Mak & Ho, 2007; Woodward & Joseph, 2003). However, recently, researchers assumed that individuals coping with stressful events might not only suffer but also benefit from their experience. This phenomenon has been termed “posttraumatic growth,” and it includes changes in self-perception, worldviews, and relationships with others (Tedeschi & Calhoun, 1996). Empirical studies have confirmed that individuals who underwent traumatic events suffered from psychological distress; however, many of them also reported finding new goals in life, increased spirituality, and improvement in their close relationships (Calhoun & Tedeschi, 2006).

In families caring for a child with a chronic medical condition, the child’s illness may cause either mobilization or demoralization of the parents (Kotchick et al., 1997; Mak & Ho, 2007). Mobilization assumes that parents of the child with the chronic medical condition may invest more efforts in their parenting, spend more time with the child, and try to compensate the child for his or her suffering. Therefore, parents of children with a chronic medical condition may be more caring and providing, while demonstrating higher acceptance than parents of healthy children (Tompkins et al., 1999; Tompkins & Wyatt, 2008). Demoralization assumes that parents of children with a chronic medical condition may feel guilty, overwhelmed and incompetent in dealing with the demands of the child’s illness, and they may feel disappointment and anger with the child for not fulfilling the parents’ expectations. Therefore, such parents may withdraw from their children and be less accepting than parents of healthy children (Hoekstra-Weebers et al., 2000; Mak & Ho, 2007; Plant & Sanders, 2007). Only a few empirical studies have investigated how a child’s illness affects parenting, and none of these studies focused on the parents of children infected with HIV. Of the few studies that have been conducted, none corroborated the demoralization pattern of parents’ adjustment to the child’s illness: In all the studies, the level of parental acceptance of their child with a chronic medical condition was either higher or similar to that found among parents of healthy children (Ansari, 2002; Hoekstra-Weebers et al., 2000; Mak & Ho, 2007; Mak, Ho, & Law, 2007; Plant & Sanders, 2007). However, empirical studies have also indicated that the level of parental acceptance depends on the characteristics of the child’s illness: Children with a physical disability were the most accepted, children with a mental disability were less accepted, and children with autistic spectrum conditions were the least accepted (Ansari, 2002; Mak & Ho, 2007). The researchers concluded that the level of parental acceptance of their child with a chronic medical condition was inversely related to the degree to which the child’s medical condition impairs his or her capacity for social interaction (Holroyd, 2010; Mak & Ho, 2007; Plant & Sanders, 2007).

Parents’ Psychological Characteristics Affecting Parenting

A generic parenting model assumes that the parents’ cognitive and emotional characteristics, as well as the relationship between the parents, affect parenting (Belsky, 1984). Cognitive characteristics of the parents include their worldviews or cognitive schemas of the self, the child, and the world, while the parents’ emotional characteristics relate to their psychological well-being/distress (Belsky, 1984; Beresford, 1994). The results of empirical studies mainly corroborate the generic parenting model. Parent’s positive worldviews, which include a sense of self-efficacy, an internal locus of control, and the belief in a just world, were associated with better parenting (Belsky, 1984; Fewell, 1986; Mak et al., 2007; Sigel, McGillicuddy-Delisi, A. V., & Goodnow, 1992; Teti, O’Connell, & Reiner, 1996). On the other hand, parents’ lack of trust and their perception of other people as manipulative and exploitative were associated with more problematic parenting (Belsky, 1984; Lai, Bond, & Hui, 2007; Rohner et al., 2009). Parents’ religiosity was associated with better care for children in
the general population; however, its effect was weak, and it was not always confirmed in families caring for children with a chronic medical condition (Beresford, 1994; Frosh, 2004). Parents’ high psychological well-being was associated with a higher level of acceptance, while parents’ psychological distress was associated with insensitive, apathetic, intrusive, and coercive parenting (Chalfin, Grus, & Tomaszeski, 2002; Holroyd, 2010; Plant & Sanders, 2007; Rohner & Khaleque, 2005; Teti & Gelfand, 1991; Teti et al., 1996). A positive relationship between the parents was associated with a higher attentiveness of the mothers towards their child’s needs, mothers’ better physical and emotional care in providing for their children, and more adequate and consistent disciplinary practices (Corwyn & Bradley, 1999; Hoekstra-Weebers et al., 2000; Krishnakumar & Buehler, 2000; Teti et al., 1996).

The Effect of the Child’s Illness on the Parents’ Psychological Characteristics

A generic parenting model assumes that similar factors affect the parenting of healthy children and children with a chronic medical condition (Belsky, 1984; Beresford, 1994). However, this model also assumes that the child’s illness may alter the parents’ psychological characteristics, including their worldviews, well-being/distress, and the relationship between the parents. In turn, changes in the psychological characteristics of the parents and in the relationship between the parents may affect the parent–child relationship (Beresford, 1994; Forehand et al., 1998; Teti, O’Connell, & Reiner, 1996). The effects of the child’s illness on the parents’ worldviews, psychological conditions, and family environment were investigated in several previous studies, and their results indicate that parents of children with a chronic medical condition may simultaneously suffer from stress while also demonstrating signs of post-traumatic growth (Rubin, 1996).

Only a few studies have compared the worldviews of parents of healthy children and parents of children with a chronic medical condition, and no such study included parents of children infected with HIV. Parents of children who suffered from a serious illness reported a stronger belief in a just world, as compared with individuals whose children were healthy (Janoff-Bulman, 1989). In addition, parents of children with a chronic medical condition often reported a strong belief that their efforts can positively influence the conditions of their children (Stillion & Papadatou, 2002). However, parents whose children were injured in an accident or suffered from a life-threatening illness perceived the world to be less benevolent than people whose children were healthy (Janoff-Bulman, 1989; Matthews & Marwit, 2003–2004). No study on the religiosity of parents of children with a chronic medical condition was found when preparing this article; however, several studies have demonstrated that individuals who suffered from a serious illness (including HIV) reported a higher level of religiosity and a greater return to their faith than healthy people (Biggar et al., 1999; Hefferon, Grealy, & Mutrie, 2009).

Most researchers assume that the child’s illness increases the parents’ psychological distress. The researchers argue that parents of children with a chronic medical condition are anxious for their child’s well-being; they blame themselves for the child’s illness, and suffer from their inability to help their child recover (Beresford, 1994; Hoekstra-Weebers et al., 2000; Holroyd, 2010; Miller, Gordon, Daniele, Diller, 1999; Teti & Gelfand, 1991; Teti et al., 1996). However, the results of empirical studies that compared the level of distress in parents of children with a chronic medical condition with that in parents of healthy children are inconclusive. In some studies, parents of children with a chronic medical condition reported higher levels of depression and anxiety compared to parents of healthy children (Beresford, 1994; Hoekstra-Weebers et al., 2000; Miller et al., 1999), while other studies have found no difference between the two groups (Chalfin et al., 2002; Plant & Sanders, 2007). The results of two studies that compared the psychological well-being of parents of infected children with HIV with parents of healthy children were also contradictory: In one study no difference was found (Bachanas et al., 2001), while in another study parents of children infected with HIV reported greater distress (Wiener, Vasquez, & Battles, 2001). To explain these inconsistencies, the researchers assumed that the parents’ distress depends on the physical and psychological conditions of the child and the caregiving demands: parents of children who received good treatment and whose physical and psychological conditions were favorable did not experience high stress (Ong, Afifah, Sofiah, & Lye, 1991; Reidy, Taggart, & Assein, 1991). A child’s illness may either promote family cohesion, or parental relations may become more conflictual under the burden of dealing with the illness (Belsky, 1984; Krishnakumare & Buehler, 2000). Most studies that compared families of healthy children and children with a chronic medical condition have found no significant difference in the quality of relations between the parents, and only a few studies have found a heightened level of parental conflict in families of children with a chronic medical condition (Hoekstra-Weebers et al., 2000). When controlling for SES, no difference has been found in the divorce rate when comparing families of healthy children and children
with a chronic medical condition (Beresford, 1994). No study on parental relationships in families that care for children infected with HIV was found when preparing this article.

**The Present Study**

This study investigates the effect of the child’s illness on the mothers’ acceptance-rejection of her child, on her worldviews, psychological distress, and relationship with her partner. In addition, the study aimed to investigate the connection between the psychological characteristics of the mothers and their acceptance-rejection of their children. Thus, the study enabled an examination of the direct effect of the child’s infection with HIV on the mothers’ acceptance-rejection, as well as the mediating effects of the mothers’ psychological characteristics on the effect of the child’s illness on parenting.

In the present study, the mothers’ worldviews were operationalized based on their system of social axioms. The classification of social axioms was developed by Leung, Bond, and their associates (Bond et al., 2004a; Leung et al., 2002). The main advantage of social axioms over other classifications of worldviews (e.g., Janoff-Bulman, 1989) is that social axioms have been tested in dozens of various countries, and their cross-cultural equivalence has been confirmed (Bond et al., 2004a; Bond & Leung, 2010a, b). According to Leung et al. (2002, p. 289), “Social axioms are generalized beliefs about oneself, the social and physical environment, and the spiritual world.” The theory assumes the existence of five culturally universal axioms: religiosity, reward for application, social cynicism, social complexity, and fate control (Bond et al., 2004a; Bond, Leung, Au, Tong, & Chemonges-Nielsonb et al., 2004; Leung et al., 2002). However, in the present study, only three social axioms were used (religiosity, reward for application, and social cynicism), because the scales measuring fate control and social complexity demonstrated an unacceptably low internal consistency in the present study as well as in previous studies conducted in different countries (Leung et al., 2002; Neto, 2006; Safdar, Lewis, & Daneshpour, 2006).

The social axiom of religiosity refers to a belief in the existence of a supreme being and the positive social functions of religious practices. The reward for application axiom refers to a general belief that effort, knowledge, and careful planning lead to positive results. This axiom is close in its meaning to the sense of self-efficacy, internal locus of control, and the belief in a just world (Bond et al., 2004a; Bond, Leung et al., 2004; Safdar et al., 2006). Finally, social cynicism refers to a negative view of human nature, a mistrust of social institutions, and a disregard of ethical means for achieving one’s goals in life. Social cynicism has been associated with a low desire to cooperate with people from one’s close social environment, a low tendency to resolve conflicts peacefully, and a tendency to manipulate and exploit others (Bond et al., 2004a; Bond, Leung, 2004b; Lai et al., 2007). The connections between social axioms and different psychological variables have been intensively investigated during recent years (Leung & Bond, 2010a, b); however, no study on their connection with parenting has been conducted.

Based on the results of previous studies, the following main hypotheses were formulated:

1. Mothers of children infected with HIV would report greater acceptance of their children than mothers of healthy children.
2. Mothers of children infected with HIV would report a higher level of religiosity and a stronger belief in the reward for application axiom. There would be no difference between the two groups in psychological distress and in relations with the partners. However, mothers of children infected with HIV would report a higher level of social cynicism than mothers of healthy children.
3. In both groups of mothers, psychological distress and social cynicism would be associated with lower acceptance of their children, while a better relationship with the partner, a stronger belief in the reward for application axiom, and a higher level of religiosity would be associated with a higher level of acceptance.

**Methods**

**Participants**

One hundred and sixty mothers completed the research questionnaires: 63 mothers of children infected with HIV and 97 mothers of healthy children. However, the questionnaires of 10 mothers who were HIV-positive were excluded from the sample in order to focus on the families where children but not their parents were infected with HIV. Table I presents the sociodemographic characteristics of the two samples. The mean age of the mothers was about 30 years, ranging from 21 to 58 years. The mean age of the children at the time of the study was about 4 years, ranging from 1 to 7 years. About 60% of the families lived in three-generation households, and 80% of mothers, who raised their children without a partner, lived with their parents. Mother’s age, child’s age, number of rooms in the family apartment (which indicated the family’s economic conditions), and the proportion of
Table I. Sociodemographic Characteristics of the Participants

<table>
<thead>
<tr>
<th>Sociodemographic characteristics</th>
<th>Mothers of children infected with HIV</th>
<th>Mothers of healthy children</th>
<th>Statistical test of difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>53</td>
<td>97</td>
<td>t(139) = 1.59, p = .115</td>
</tr>
<tr>
<td>Mother’s age, M (SD)</td>
<td>31.6 (7.43)</td>
<td>29.7 (6.09)</td>
<td></td>
</tr>
<tr>
<td>The child’s age at the time of the study, M (SD)</td>
<td>3.94 (2.52)</td>
<td>4.57 (1.83)</td>
<td>t(119) = 1.60, p = .113</td>
</tr>
<tr>
<td>Number of children in the family, M (SD)*</td>
<td>2.79 (1.19)</td>
<td>1.97 (1.09)</td>
<td>t(132) = 4.11, p = .000</td>
</tr>
<tr>
<td>Number of rooms in the family’s apartment, M (SD)</td>
<td>4.20 (2.07)</td>
<td>3.59 (1.74)</td>
<td>t(123) = 1.76, p = .082</td>
</tr>
<tr>
<td>Child’s gender, males (%)</td>
<td>64</td>
<td>54</td>
<td>χ²(130) = 1.35, p = .277</td>
</tr>
<tr>
<td>Single-parent families (%)</td>
<td>21</td>
<td>36</td>
<td>χ²(137) = 3.47, p = .063</td>
</tr>
<tr>
<td>Mother’s education, mothers graduated from a college or university (%)*</td>
<td>28</td>
<td>71</td>
<td>χ²(134) = 21.4, p = .000</td>
</tr>
<tr>
<td>Percent of working mothers (%)*</td>
<td>19</td>
<td>63</td>
<td>χ²(137) = 25.6, p = .000</td>
</tr>
</tbody>
</table>

Note: The samples’ means are significantly different: *p < .001.

single-parent families did not differ between the mothers of the healthy children and the mothers of children infected with HIV. However, the mothers of the children infected with HIV were less educated, had more children, and a greater proportion of them were unemployed. In the sample of mothers with children infected with HIV, the mean age at the time of diagnosis was 2.1 years (SD = 2.3), and the mean time that elapsed since diagnosis was 1.6 years (SD = 0.7). Sixty-seven percent of the children infected with HIV were receiving antiretroviral therapy at the time of the study.

Procedure

Between March and May 2008, questionnaires were distributed among all mothers of children infected with HIV who underwent medical testing and treatment in the HIV Regional Center in Southern Kazakhstan. They constituted about half of the mothers whose children were infected with HIV in State hospitals in Southern Kazakhstan. Mothers who did not visit the Center could not be approached, because to contact them in their homes meant breaching their privacy and exposing them to their neighbors. Among the participants of the present study, there was a higher proportion of children receiving antiretroviral treatment (67% vs. 33% among all the children infected with HIV). Similar questionnaires were distributed among mothers of healthy children in three randomly chosen kindergartens in the city. Only those mothers who reported that their children had no chronic disease were included in the study. Three mothers of children infected with HIV and five mothers of healthy children refused to participate in the study, claiming a lack of time. Both Russian and Kazakh versions of the questionnaire were available and about 2/3 of the participants completed the questionnaires in Kazakh. Signed informed consent was obtained from each participant. The study was approved and supervised by the Regional Health Department in Southern Kazakhstan.

Instruments

All questionnaires were translated from English to Russian and Kazakh and back translated by two tri-lingual translators. All questionnaires used 5-point Likert scales. The internal consistency of the instruments was measured using Cronbach’s alpha for the combined sample of mothers (mothers of children infected with HIV and mothers of healthy children). All questionnaires have been used in previous studies in Russia and other republics of the former Soviet Union, and their validity and cultural equivalence have been confirmed (Chazov et al., 2007; Leung & Bond, 2010; Lebedeva & Tatarko, 2007; Rohner, 2010; Scheer & Unger, 1998). The internal consistency of all the scales in the present study was similar to those obtained in previous studies.

Parental acceptance was measured using the Parental Acceptance-Rejection Questionnaire (PARQ) (Rohner & Khaleque, 2005). The PARQ consists of 60 items that reflect the physical, verbal, and symbolic behaviors parents use with their children that relate to acceptance or rejection. Example items: “I say nice things about my child” (acceptance); “I see my child as a nuisance” (rejection). The mean score of the entire scale was used, combining the acceptance and rejection items; higher scores reflect higher acceptance. Internal consistency of the scale was .75.

Social axioms were measured using the Social Axioms Survey, which consists of 60 items (Leung et al., 2002). Five scales measure the following social axioms: religiosity (8 items), reward for application (14 items), social cynicism (18 items), social complexity (12 items), and fate control (8 items). Example items: “Religious belief makes people good citizens” (religiosity); “Adversity can be overcome by effort” (reward for application); “Kind-hearted
people usually suffer losses” (social cynicism); “Current losses are not necessarily bad for one’s long-term future” (social complexity); “All things in the universe have been determined” (fate control). The internal consistency of each of the five scales in the present study was as follows: religiosity .61; reward for application .77; social cynicism .64; social complexity .50; fate control .47. Due to the low internal consistency of the social complexity and fate control scales, they were excluded from the study.

Mother’s psychological distress was measured using the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983). This scale includes 14 items that express the psychological symptoms of state anxiety and depression. Higher scores indicate a stronger degree of anxiety and depression. Example items: “I feel tense and wound up”; “I feel as if I am slowed down.” In the present study, internal consistency of the scale was .73.

Relationship with the partner was measured by the family cohesion, family conflict, and expressiveness subscales of the Family Environment Scale (FES) (Moos & Moos, 1984). Each scale consists of nine items. Example items: “In our family we help one another”; “In our family we put great effort into addressing disagreements peacefully”; “In our family it is hard to blow off steam.” Mothers were asked to assess the quality of their relationship with their partners, while those who lived without a partner assessed their relationship with other adults in the family who helped them in raising their child infected with HIV. Since the scores of the three subscales were highly correlated, a mean score of all items was used. Higher scores indicate a better relationship with the partner. The internal consistency of the combined scale was .87.

Data Analysis

ANCOVAs were conducted to test for the effect of the child’s HIV infection on the mothers’ acceptance of their children as well as other psychological characteristics of the mothers. The child’s HIV status (HIV-positive vs. healthy) was used as a categorical predictor. To control for the differences in the socio-demographic characteristics between the mothers of children with and without HIV, the analyses included three variables that were significantly different in the two groups: number of children in the family, mother’s education (secondary vs. tertiary), and mother’s employment status (working vs. unemployed). To test for the effects of the mother’s psychological characteristics on her parenting, a hierarchical regression analysis was conducted with acceptance-rejection as the predicted variable. The three demographic variables that were significantly different in the two groups of mothers were entered at the first step. The child’s HIV status was added at the second step.

Mothers’ psychological characteristics (social cynicism, belief in reward for application, religiosity, psychological distress, and relationship with the partner) were added at the third step. Finally, the interactions between the child’s HIV status and all the psychological characteristics of the mothers were added at the fourth step using the forward stepwise regression method. Following the suggestions of Baron and Kenny (1986) and Kenny (2009), interactions were calculated as a product of the standardized continuous variables (z-scores in cynicism, reward for application, religiosity, distress, and relationship with the partner) and a dichotomous variable “the child’s HIV status,” whose value was either 0 (no HIV) or 1 (infected with HIV). Interactive calculation tools were used to test for the significance of interaction effects, i.e. whether the strength of the association between the mother’s psychological characteristics and her acceptance of her child was significantly different in the group of mothers of children infected with HIV as compared to the mothers of healthy children (Preacher, Curran, & Bauer, 2003). In addition, statistical significance of the mediation effects of the mother’s psychological characteristics on the association between the child’s HIV status and the mothers’ acceptance of her children was tested using Sobel’s tests (Preacher & Leonardelli, 2001). In all the analyses, missing values were substituted by means. To assess the power of the statistical analyses in the present study, a posterior power analysis was conducted using the interaction tool provided by Soper (2011). The analysis indicated that the research sample size (n = 150) enabled detecting an effect size of $f^2 \geq .12$ (small-size effects corresponding to $R^2 \geq .11$ and $\eta^2 \geq .05$) at the level of significance $\alpha = .05$, the number of predictors 10, and a statistical power level of .80 or higher.

Results

Table II presents the results of the ANCOVAs comparing the psychological characteristics of the mothers of children infected with HIV and the mothers of healthy children. Compared to the mothers of healthy children, the mothers of children infected with HIV reported a higher level of parental acceptance, a higher belief in the reward for application axiom, a higher level of religiosity, and better relationships with their partners. In accordance with the accepted conventions regarding the effect sizes of ANCOVA statistics (Tidman & Dugard, 2007, p. 20), the obtained effect size of the child’s HIV status was small for the mother’s belief in the reward for application ($\eta^2 = .053$) and the religiosity axioms ($\eta^2 = .048$), and
Table II. Comparisons Between the Mothers of Children Infected with HIV and Mothers of Healthy Children

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mothers of children infected with HIV, M (SD)</th>
<th>Mothers of healthy children, M (SD)</th>
<th>ANCOVA results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance–rejection***</td>
<td>4.18 (0.43)</td>
<td>3.74 (0.73)</td>
<td>F(4,118) = 14.5; p = .000; $\eta^2 = .110$</td>
</tr>
<tr>
<td>Social cynicism</td>
<td>3.41 (0.40)</td>
<td>3.28 (0.41)</td>
<td>F(4,118) = 32; p = .574; $\eta^2 = .003$</td>
</tr>
<tr>
<td>Reward for application*</td>
<td>3.87 (0.49)</td>
<td>3.57 (0.53)</td>
<td>F(4,118) = 6.64; p = .011; $\eta^2 = .053$</td>
</tr>
<tr>
<td>Religiosity*</td>
<td>3.57 (0.44)</td>
<td>3.11 (0.66)</td>
<td>F(4,118) = 5.98; p = .016; $\eta^2 = .048$</td>
</tr>
<tr>
<td>Mother’s psychological distress</td>
<td>2.69 (0.62)</td>
<td>2.53 (0.50)</td>
<td>F(4,118) = .87; p = .352; $\eta^2 = .007$</td>
</tr>
<tr>
<td>Relations with the partner***</td>
<td>3.79 (0.54)</td>
<td>3.48 (0.53)</td>
<td>F(4,118) = 12.9; p = .000; $\eta^2 = .100$</td>
</tr>
</tbody>
</table>

Note. The samples’ means are significantly different: *p < .05; **p < .01; ***p < .001.

Table III. Summary of Hierarchical Regression Analysis for Variables Predicting Parental Acceptance–Rejection

<table>
<thead>
<tr>
<th>Predicting variables</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>$\beta$</td>
<td>B</td>
</tr>
<tr>
<td>Mother’s education</td>
<td>.15</td>
<td>.13</td>
<td>.11</td>
<td>.28</td>
</tr>
<tr>
<td>Mother’s employment status</td>
<td>.21</td>
<td>.12</td>
<td>.16</td>
<td>.00</td>
</tr>
<tr>
<td>Number of children</td>
<td>.05</td>
<td>.05</td>
<td>.09</td>
<td>-.01</td>
</tr>
<tr>
<td>Child’s HIV status</td>
<td>.63</td>
<td>.12</td>
<td>.47***</td>
<td>.27</td>
</tr>
<tr>
<td>Social cynicism</td>
<td>-.23</td>
<td>.10</td>
<td>-.15*</td>
<td>-.22</td>
</tr>
<tr>
<td>Belief in reward for application</td>
<td>.43</td>
<td>.09</td>
<td>.33***</td>
<td>.36</td>
</tr>
<tr>
<td>Religiosity</td>
<td>.10</td>
<td>.07</td>
<td>.09</td>
<td>.09</td>
</tr>
<tr>
<td>Psychological distress</td>
<td>-.17</td>
<td>.08</td>
<td>-.14*</td>
<td>-.58</td>
</tr>
<tr>
<td>Relations with the partner</td>
<td>.50</td>
<td>.08</td>
<td>.41***</td>
<td>.48</td>
</tr>
<tr>
<td>Child’s HIV status * Mother’s</td>
<td>.39</td>
<td>.06</td>
<td>.41***</td>
<td></td>
</tr>
<tr>
<td>psychological distress</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R$^2$</td>
<td>.03</td>
<td>.19</td>
<td>.66</td>
<td>.74</td>
</tr>
<tr>
<td>Adjusted R$^2$</td>
<td>.01</td>
<td>.16</td>
<td>.64</td>
<td>.72</td>
</tr>
</tbody>
</table>

Note. Step 1: sociodemographic characteristics. Step 2: HIV status (mothers of infected vs. mothers of healthy children) added. Step 3: psychological characteristics of the mother (social cynicism, belief in reward for application, religiosity, psychological distress, and relationship with the partner) added. Step 4: stepwise inclusion of interactions between HIV status and psychological characteristics of the mothers.

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

medium for the mother’s acceptance-rejection ($\eta^2 = .110$) and her relationship with the partner ($\eta^2 = .100$). The differences between the two groups in social cynicism and psychological distress were not significant.

Table III presents the results of the hierarchical regression analysis for the variables predicting parental acceptance–rejection. The sociodemographic variables (mother’s education, employment status, and number of children) predicted an insignificantly small proportion of the variance in the mother’s acceptance–rejection, and no sociodemographic characteristic was significantly related to acceptance–rejection. The child’s HIV status that was added to the analysis at step two significantly improved the prediction, and a positive regression coefficient of the child’s HIV status ($\beta = .47$) indicated that mothers of children infected with HIV had a higher level of acceptance of their children than mothers of healthy children. When the mothers’ psychological characteristics were added to the analysis at step three, this significantly improved the prediction. The following variables were positively related to parental acceptance: belief in reward for application ($\beta = .33$) and relations with the partner ($\beta = .41$). The following variables were negatively related to parental acceptance: social cynicism ($\beta = -.15$) and psychological distress ($\beta = -.14$). After adding the mother’s psychological characteristics, the child’s HIV status continued to predict the mother’s level of acceptance; the corresponding regression coefficient decreased but remained significant ($\beta = .20$). At the next step, interactions between the child’s HIV status and the five variables reflecting the psychological characteristics of the mothers were included in the analysis. Only one interaction (the child’s HIV status with the mother’s psychological distress) significantly improved the prediction ($\Delta R^2 = .08$).
The significant effect of the interaction between the child’s HIV status and the mother’s psychological distress on acceptance-rejection ($\beta = .41$) indicated that the effect of the mothers’ psychological distress on their acceptance of their children was less negative among mothers of children infected with HIV compared to mothers of healthy children. To test for the statistical significance of the effect of mother’s psychological distress on their acceptance-rejection separately in the groups of mothers of healthy children and children infected with HIV, statistics for a simple slope ($\omega$) for each of these two groups were calculated, using the interactive tool developed by Preacher et al. (2003). Among mothers of healthy children, the mother’s psychological distress was significantly and negatively related to the mothers’ acceptance of their children ($\omega = -.58(.09); t = 6.35, p = .000$), while among mothers of children infected with HIV, the mothers’ psychological distress was not significantly related to their acceptance of their children ($\omega = -.19(.14); t = 1.34; p = .183$).

The results of the conducted statistical analyses indicated that the child’s HIV status was significantly correlated with the mother’s acceptance of their children. In addition, the child’s HIV status was significantly correlated with the mother’s belief in the reward for application axiom and the mother’s relations with her partner, which, in turn, were significantly correlated with the mother’s acceptance of her children. These findings indicate that the mothers’ belief in the reward for application axiom and their relations with their partners may mediate the effect of the child’s HIV status on the mothers’ acceptance of their children. To test for the statistical significance of these mediating effects, two Sobel tests were conducted (Preacher & Leonardelli, 2001). Both tests yielded significant: for reward for application ($z = 2.26; SE = 0.06; p = .024$) and for relationship with the partner ($z = 3.12; SE = .07; p = .002$), thus confirming the significance of the mediating effects.

**Discussion**

The present study examined the effect of having a child infected with HIV on parenting. This study is the first to focus on parenting in families where children but not their parents are infected with HIV. The present study contributes to the scientific knowledge in the field by revealing some of the psychological mechanisms through which a child’s illness affects parenting. In addition, the study broadens the understanding of the psychological consequences of children’s HIV infection in developing countries, where most children infected with HIV are currently living (UNAIDS, 2010).

In this study, the psychological characteristics of mothers of children infected with HIV were compared with mothers of healthy children. Mothers of children infected with HIV reported greater acceptance of their children than mothers of healthy children. In addition, mothers of children infected with HIV demonstrated a stronger belief in the reward for application axiom, better relationships with their partners, and a higher level of religiosity than mothers of healthy children. Psychological distress and social cynicism did not differ in the two groups. Therefore, the mothers of children infected with HIV demonstrated the mobilization pattern of adjustment to their child’s illness. This pattern of the mothers’ adjustment to the child’s HIV infection was similar to that found in mothers of children suffering from other illnesses (Kotchick et al., 1997; Mak & Ho, 2007). The general psychosocial characteristics of the HIV infection as well as the specific circumstances of the HIV children’s epidemic in Kazakhstan may account for the mobilization pattern of the mothers’ adjustment to the child’s HIV infection. HIV is not a fatal illness when it is diagnosed on time and when correct treatment is provided (Shernoff, 1998). When treated properly, children with HIV may develop normally and function well (Dobrova-Krol et al., 2010; Marhefka et al., 2006). HIV is not associated with conduct problems in children and, therefore, does not impair relations between the child and his or her parents (USAIDS, 2010). The good medical treatment and strong social support that the families with children infected with HIV received in Kazakhstan may have helped the mothers of these children to mobilize (Tartakovsky, 2011).

The mothers of both healthy children and children infected with HIV, who had a stronger belief in the reward for application axiom, reported higher levels of acceptance of their children. Several psychological mechanisms may be responsible for this phenomenon. It is probable that mothers who have a stronger belief in the reward for application may believe that the child’s problems are solvable and they have the ability to help their children. In addition, mothers who have a stronger belief in the reward for application axiom may use more problem-focused coping strategies, which are associated with better parent-child relationships (Beresford, 1994; Mak et al., 2007; Teti et al., 1996). The findings of the present study indicated that caring for a child infected with HIV may strengthen the mothers’ belief in the reward for application axiom. The nature of HIV treatment requires parents to be very consistent in bringing their children for regular testing and providing them with the appropriate
drug treatment. When parents are able to maintain this intense regimen, their children may function at a level similar to that of healthy children, and the prognosis may be very good (Marfellka et al., 2006). Thus, parents who care for their children according to the medical requirements are fully rewarded for their efforts, which may increase their belief in the reward for application axiom. Statistical tests conducted in the present study confirmed that the heightened belief in the reward for application axiom among the mothers of children infected with HIV partly mediated their heightened acceptance of their children. Thus, it is probable that caring for children with a chronic medical condition leads mothers to develop a stronger belief in the reward for application axiom, which, in turn, leads to improved parenting.

The results of the present study confirmed the premise of the generic parenting model that a good relationship with one’s partner is important for the parenting of both healthy children and children with a chronic medical condition (Belsky, 1984). Good relationships with their partners increase mothers’ sense of self-efficacy and mastery in her relations with the children, while also enabling the couple (or the mother and her parents) to share child-rearing responsibilities (Hoekstra-Weebers et al., 2000; Krishnakumar & Buehler, 2000). However, the strong connection between the relationship between partners and the mother–child relationship may also be explained by a common underlying variable: the mother’s personality (Belsky, Crnic, & Woodworth, 2006; Spinath & O’Connor, 2003). The results of the present study indicate that the relationship with the partner mediates the heightened acceptance of the children infected with HIV by their mothers: the child’s illness may lead to a stronger relationship between the parents, which in turn, permits the mothers to be more accepting of their children with a chronic medical condition.

In this study, it was hypothesized that mothers of children infected with HIV would report a higher degree of cynicism, because their children were infected in State hospitals, a situation that might decrease their trust in other people. However, the mothers of children infected with HIV did not significantly differ in their measures of social cynicism from the mothers of the healthy children. A possible reason for this may be the dedicated medical treatment and intense financial and social support that the families of the infected children received in Kazakhstan (Komar, 2007; Tartakovsky, 2011). However, in mothers of both healthy children and children infected with HIV, social cynicism was associated with greater rejection of their children. This indicates that mothers tend to extend their general negative view of human nature and mistrust in people to their relationships with their children. In addition, the results of the present study confirm that social cynicism harms the mother–child relationship just as it harms other human relationships (Lai et al., 2007).

The effect of the mothers’ psychological distress on their acceptance of their children differed between the mothers of healthy children and children infected with HIV. Among the mothers of healthy children, higher levels of anxiety and depression were associated with a lower level of acceptance, while among mothers of children infected with HIV the mother’s psychological distress was not significantly related to her emotional bond with the child. This finding contradicts the results of previous studies conducted among mothers of children with a chronic medical condition, which have found the mothers’ psychological distress to have a negative effect on their parenting (Mak et al., 2007; Miller et al., 1992; Plant & Sanders, 2007). However, a previous study conducted among women who were HIV-positive found that these women tended to silence their own needs and attend to the needs of their children first (DeMarco, Lynch, & Board, 2002). This indicates that in the case of HIV infection, mothers may maintain their emotional bond with their children even when suffering from distress.

In the present study, mothers of children infected with HIV reported a higher level of religiosity than mothers of healthy children. This finding is consistent with the results of previous studies that demonstrated that people under stress often deepen their religiosity (Frosh, 2004; Tedeschi & Calhoun, 1996). However, in the present study, religiosity was not related to parenting, either among mothers of healthy children or among mothers of children infected with HIV. A possible explanation may be found in the ambivalent attitude of the monotheistic religions towards children. On one hand, Judaism, Christianity, and Islam consider procreation as one of the main personal duties and, therefore, stress the importance of caring for children (Frosh, 2004; Tarazi, 2001). On the other hand, the monotheist religions subdue the children’s interests to those of their parents, stress the children’s obedience to their parents, and permit or even encourage physical punishment of children (Greven, 1992).

**Limitations of the Present Study**

There were several methodological limitations in the present study. First, the sample of mothers of children infected with HIV was not representative of the entire studied population. Only those mothers who came to the HIV Center for testing or treatment of their children during a particular period participated in the study. Among them, there was a higher proportion of mothers whose children...
received antiretroviral therapy and, therefore, required medical attention. However, it is possible that this did not affect the results obtained, because the children’s antiretroviral therapy status was found to not be related to parenting. The second methodological limitation relates to the small size of the samples. Multi-centered studies are needed to obtain adequately large samples in order to apply multivariate models using more advanced analytical procedures, such as path analysis. The third limitation relates to the study’s design as a correlational study, relying solely on the mothers’ self-reports. Further studies should apply a longitudinal design and use various sources of information (e.g., mothers, fathers, and children). Finally, the study was conducted in the socio-cultural context of the children’s HIV epidemic in Kazakhstan, which raises the question of the study’s cultural specificity. The study’s results may be generalized to countries where infected children receive good medical treatment and families receive financial compensations and social support from governmental and nongovernmental organizations. However, in those developing countries where the socioeconomic conditions for children infected with HIV and their families are less benign, the child’s illness may damage the parent-child relationship, increase the parents’ psychological distress, and harm the mothers’ relationships with their partners to a higher degree than that found in the present study (cf. Raviola, Machoki, Mwaikambo, & Good, 2007, for an analysis of the situation in Kenya).

Conclusions and Clinical Applications

This study contributes to the theoretical knowledge on parenting in families raising children infected with HIV. Its results demonstrate that the mother’s worldviews, especially her belief in the reward for application axiom, and her relationship with her partner are important factors influencing her relationship with the child infected with HIV. From a practical point of view, the results of this study may contribute to improving psychosocial services for families coping with HIV infection. These services should focus on helping parents of children infected with HIV (and probably parents of all children with a chronic medical condition) to strengthen their belief in the reward for application axiom. In addition, psychosocial services should help fathers (or other significant caregivers) provide maximum possible support for the mothers. Therefore, family therapy may be the treatment of choice in helping families with children with a chronic medical condition (Mitrani et al., 2003; Shernoff, 1998). The results of the present study may increase optimism among the helping professionals working in the field of HIV, for they indicate that families tend to apply the mobilization pattern of coping with the child’s illness and preserve a strong emotional bond with their children. This bond is paramount for the normal development of children coping with HIV.

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Conflicts of interest: None declared.

References


