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Children Affected by Maternal HIV/AIDS: Feasibility and Acceptability Trial of the Children United with Buddies (CUB) Intervention

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Abstract

Past research has shown that young children affected by maternal HIV present with elevated stress/anxiety and negative well-being. This pilot intervention for children age 7 – 14 affected by maternal HIV targeted improving positive child/mother communication, improving HIV/AIDS knowledge and reducing anxiety (especially related to transmission), and lessening feelings of stigma. Each of the three child intervention sessions included behavioral skills training and a themed craft exercise; mothers attended an open discussion group while the children attended their sessions. Study participants were 37 child/mother pairs. The study design was a randomized 2-group pretest-posttest experimental design. In addition, the intervention sessions were audiotaped for transcription. Results showed significant decreases in anxiety and worry for children in the intervention group, and increases in happiness and HIV/AIDS knowledge regarding transmission. Intervention group mothers reported greater social support. Qualitative findings for the intervention group children and mothers also support these findings. Early intervention reduces child stress, and may affect longer-term outcomes.

Keywords

Pilot Study; Maternal HIV/AIDS; Behavioral Intervention; Mother/Child Communication; Stress; Anxiety

Among children aware of their parent's HIV/AIDS status, findings have been mixed. However, it appears that approximately half of the children experience significant distress. For some children this may remit over time, while in others their anxiety becomes maladaptive. Armistead, Tannenbaum, Forehand, Morse, & Morse (2001) found that mothers living with HIV (MLH) perceived their children as demonstrating a variety of reactions to disclosure, with approximately half reacting negatively. Similar findings were reported by Murphy, Roberts, & Hoffman (2006), with 49% of the children in their sample

reporting high levels of worry since their MLH disclosed. According to Krauss, across four studies representing almost 270 children from 12 countries, the predominant reactions are sadness (41.64%) and worry (23.42%; Krauss, Letteney, De Baets, Baggaley, & Okero, 2013). Affected children may be traumatized, and suffer a variety of psychological reactions to maternal illness, enduring exhaustion and stress from worry, insecurity, and stigmatization and social isolation—all of which impact current and future functioning and mental health (Richter et al., 2009).

There also appear to be long-term consequences for children affected by maternal HIV. Compared to children of uninfected mothers, children of MLH report more psychological symptoms, including withdrawal, inattention, depression, and externalizing problems (Forsyth, Damour, Nagler, & Adnopo, 1996; Tompkins & Wyatt, 2008), and compared to children with asymptomatic mothers, children with symptomatic MLH showed more anxiety/depression. However, a good parent-child relationship may mitigate this relationship to some extent (e.g., Bauman, Camacho, Silver, Hudis, & Draimin, 2002; Tompkins & Wyatt, 2008). Over a two year period, Bauman, Silver, Draimin, & Hudis (2007) found that every uninfected 8 – 12 year old child of an MLH had clinically significant psychiatric and/or behavioral symptoms, with two thirds having chronic psychological problems, although few received any type of mental health service. Additionally, children of HIV-infected mothers have reported significantly lower quality of supportive relationships with their mother than children of noninfected mothers; again, a supportive relationship with the mother serves as a protective factor for the children (Klein et al., 2000).

The risk for psychosocial maladjustment in children living with an HIV-seropositive parent extends through late childhood into early to middle adolescence (Reyland, McMahan, Higgins-Delessandro, & Luthar, 2002), and younger children are more impacted by poor maternal health than are older children (Murphy, Marelich, & Herbeck, 2012). While there is sufficient research literature indicating that disclosure to young children is appropriate and in the long-term ends up beneficial for both children and MLH (cf., Murphy, 2008 for a review), there is also sufficient data indicating that many children do have strong emotional and behavioral reactions to dealing with having an HIV-infected mother. Children affected by maternal HIV/AIDS have been neglected in the HIV/AIDS response (e.g., Bhana, 2009; Richter et al., 2009). While early predictions that children of MLH may require very intensive therapeutic intervention are not supported, a large portion of these children are experiencing psychological distress and may benefit greatly from intervention. Such intervention may prevent anxiety from increasing and becoming maladaptive among a subset of children who have been identified in previous studies (e.g., Murphy, Roberts, & Hoffman, 2006), and early intervention may effect longer-term outcomes.

Young Children's HIV/AIDS Knowledge & Implications for Intervention

How young children deal with maternal HIV disclosure partially reflects their cognitive abilities. Various studies have shown that children have different perceptions of health and illness depending upon their age and developmental stage (e.g., Hergenrather & Rabinowitz, 1991; Koopman, Baars, Chaplin, & Zwinderman, 2004). Kindergarten age children can believe illness is a punishment for misbehaving or that it can occur magically (e.g., Kister &

Patterson, 1980; Perrin & Gerrity, 1981). At the school age period, children have fears and misconceptions regarding HIV transmission (Fassler, McQueen, Duncan, & Copeland, 1990), such as proximity being sufficient for transmission (Osborne, Kistner, & Helgemo, 1993). Misconceptions are prevalent: in one sample of children aware of their mother's status, 78% had misconceptions about casual contact and transmission and 27% were worried they might get HIV (Murphy, Steers, & Dello Stritto, 2001). These children also may have no one to talk with about their fears; the majority believes that if a family member has HIV it should be kept a secret.

Fear of contracting HIV is more prevalent among younger children. By grades 4 and 5 most children recognize they cannot contract HIV simply by being near someone infected, although they still think it can be transmitted the way more familiar illnesses are contracted (e.g., sneezing or coughing). They understand the concept of contagion or contamination, but the belief is usually centered on an external object/event that might cause illness (e.g., going outside without a coat; Vacik, Nagy, & Jessee, 2001). Furthermore, even among children who know the primary routes of HIV transmission, there are misunderstandings about the mechanism of transmission for each route. Wells, Hoppe, Simpson, & Gillmore (1995) suggested younger children might not differentiate among proscribed drugs, instead ascribing consequences of using each substance to all substances they have learned are "bad" (e.g., drinking too much alcohol, smoking marijuana). As Schonfeld, Johnson, Perrin, O'Hare, & Cicchetti (1993) have noted, children's understanding of causality and treatment of HIV/AIDS follows the same developmental sequence for their understanding of other general illnesses. However, their conceptual understanding of the processes is significantly less advanced for HIV than for colds, despite the fact that viruses cause both. The investigators speculate this most likely reflects the relative absence of developmentally appropriate explanations about the cause of HIV and children's lesser familiarity with the disease. Most importantly, as Schonfeld et al. note, the discrepancy suggests that with appropriate educational intervention, children have the conceptual ability to achieve a better comprehension of HIV/AIDS.

Foundations for the Present Study: PACT & the CUB Demonstration Project

The Parents And children Coping Together (PACT; MH057207; P.I.: Murphy) was designed to longitudinally assess MLH and their young, well children age 6 – 11 years of age. Throughout the course of the study (which just completed its final and 15th year), the UCLA research team has published numerous papers specific to disclosure and child outcomes. Within the cohort, 92% of MLH report that their young children were aware they take medications, and 39% reported the children seemed worried and anxious about this (Murphy, Steers, & Dello Stritto, 2001). Approximately 25% of the children ask about their mother's health every week or more, and 27% ask once a month or more. During the course of the study both quantitative and qualitative interviews confirmed the need for child intervention to address three topic areas (e.g., Murphy, Roberts, & Hoffman, 2002, 2003).

The first topic area involved teaching concrete coping strategies, especially improved communication, to deal with child concerns (e.g., on being able to talk to his mother about HIV: "... it would be ... wrong ... and she'll hate me and call me the worstest kid or

something”; “I’m scared”). Some children feel the need to self-monitor their communication in order to not upset their mothers, lest this result in their worsening her health (e.g., “I don’t bring my issues up . . . I wouldn’t tell her about my problems”; “Not to worry her or put any stress on her . . . I always just keep it to myself”). Not talking to their MLH proves to be exceptionally challenging: “I have to come in here cheerful. That’s why I know how to front so good . . . I don’t want her stressing out so it’s like, ‘Mom, everything’s great,’ and inside I’m like, ‘Mom, I’m f***** dying’”). MLH confirm this as a problem issue (e.g., “We rarely talk about HIV”; “He’s always been fairly open with me in discussing anything except the HIV”; “I have a daughter and she is quiet. She just shows no emotions. I think she’s really worried.”

The second topic identified was the need to provide accurate information about transmission that children could use to alleviate anxiety and depression (e.g., “ . . . forks . . . he just give it to me like and not washing it, I could get infected”; “that’s why they don’t want us to be swimming in the pools . . . “; “because I’m scared that I might catch it too because we eat from the same plate . . . “). These anxieties often prevent the children from physical contact with their mother.

The third topic identified was the need to assist children in feeling less isolated, stigmatized, and anxious (Murphy, Roberts, & Hoffman, 2002; Murphy, Roberts, & Hoffman, 2006). Children aware of maternal HIV status reported a variety of worries (e.g., “I just keep it a secret. I think they might judge me differently”; “People are not going to be my friend cause they think I could pass it to them”; “I can’t even tell my best friend, I’m scared to lose my best friend.”) The children also note that having support may be helpful (e.g., “[if another child told him his mother had HIV] “. . . me and him would be feeling the same thing, that would make us closer, because both of our moms have the same sickness”).

The mother qualitative interview findings confirmed the importance of these issues (i.e., communication and transmission fears). They also expressed concern about what and how much to tell their child about fluctuations in their health and antiretroviral treatment. Finally, MLH are concerned about physical contact with their children. Previous research indicates this is often an issue in families with HIV/AIDS. Schuster, Beckett, Corona, & Zhou (2005) found that Hispanic parents were more likely than African American parents and parents who were white or of other races/ethnicities to fear transmitting HIV to a child; parents interviewed in Spanish were also more likely than parent interviewed in English to have such fears. The authors concluded that the findings regarding Hispanic parents were particularly concerning, given the evidence that Hispanic parents typically engage in high levels of physical affection (Calzada & Eyberg, 2002; Zayas & Solari, 1994).

Identification of these three topics as areas of key importance for child intervention for this population of children is consistent with previous parent-child and family functioning research. Parental illness and family functioning have been linked in numerous research studies (e.g., Dura & Beck, 1988; Mikail & von Baeyer, 1990). Moreover, family functioning and family interaction styles have long been associated with child outcomes (Carbonell, Reinherz, & Giaconia, 1998; Murphy, Marelich, Dello Stritto, Swendeman, & Witkin, 2002; Nostlinger, Bartoli, Gordillo, Roberfroid, & Colebunders, 2006; Roosa,

Dumka, & Tein, 1996). Research has shown that less positive family functioning can lead to poorer mental health outcomes among children—particularly in the context of children living with parental illness (Gazendam-Donofrio et al., 2007; Trask et al., 2003). Specific to families affected by parental HIV, Rosenblum and colleagues (2005) found positive family functioning associated with greater resilience and negative family functioning associated with more risk behaviors. In terms of parent-child interaction and communication, effective communication skills are a key aspect of successful family functioning (Forehand & Long, 1996). Studies have shown that supportive and affirmative parent-child interactions and relationships positively impact child adjustment over time (e.g., Sroufe, 2005). However, lack of a positive, close bond between parents and children is linked to mental health symptomatology later in life for the children (Ingram & Ritter, 2000, Nickell, Waudby, & Trull, 2002).

Goals of the Current Study

In order to test some of the relationships between variables of interest and outcomes in the correlational studies discussed in the Introduction (above), a randomized, controlled, small demonstration trial of a support group intervention was conducted with children age 7 – 14 (N = 37). All MLH of these children had disclosed their HIV status to the children. Children of these mothers were randomly assigned to: (1) attend “Children United with Buddies” (CUB), a support group intervention; or (2) a waiting list control group. CUB was designed to allow children of similar age groups to: (1) learn concrete coping strategies, especially communication with their MLH; (2) obtain accurate and age-appropriate information on how HIV is not transmitted, and on HIV illness and treatment; and (3) feel less isolated through providing connection to peers who share similar issues, and promoting support for normalization and validation of fears and concerns. MLH were offered attendance at a parent discussion group while their children attended the child groups. These parent discussion groups were designed to address concerns about: communication with children; talking to young children about transmission risks; fluctuations in health, response to HAART, and effect on parenting; and physical contact with the children (i.e., fears of transmission or fear about catching an opportunistic infection from the child). The aims of the study were as follows:

1. to determine if the CUB intervention improved child/mother communication;
2. to determine whether the CUB intervention improved children’s knowledge about HIV, casual contact, and transmission; and
3. to determine if the CUB intervention reduced children’s anxiety related to HIV/AIDS.

In addition, there were two exploratory aims: to investigate concerns and fears of the children through transcription of the audiotaped intervention sessions (thematic analyses conducted); and to investigate the concerns and fears of mothers through transcription and analysis of the audio-taped discussion sessions.

Method

Participants

Study participants were 37 mother-child dyads recruited through HIV/AIDS service organizations in Los Angeles County or through their concurrent participation in a longitudinal maternal HIV study at UCLA. Inclusion criteria were that the mother was diagnosed HIV+, the mother and child were both English speaking and had no psychiatric condition that would make them unable to participate, and the mother had a well 7 – 14 year-old child who agreed to participate in the study. In addition, study participation required that the child was aware of the mother's HIV status, and this was confirmed through a series of indirect questions asked of the child at baseline.

Upon enrollment, participants were assigned code numbers, previously randomized by computer, which assigned them to either the immediate intervention group (n = 23) or the wait-list intervention condition (n = 14), with this group serving as a control initially, then provided the intervention after the formal study period. After consent and child assent, enrolled mother/child dyads were interviewed at baseline and follow-up. All procedures were approved by UCLA's Institutional Review Board.

At baseline, MLH mean age was 37.6 years (SD = 6.1); child mean age was 10.5 (SD = 2.14) and 54% were female. MLH racial/ethnic composition was 49% African-American/Black, 32% Latino/Hispanic (including Latino/mixed), 14% Caucasian, and 5% other (non-Latino).

Assessment Procedures

Assessments were conducted in the family home unless the MLH chose a different location (e.g., treating clinic). Mother and child interviews were conducted in separate rooms to ensure confidentiality. Interviewers were blind to group assignment; separate staff conducted the intervention sessions. Immediately after each assessment, mothers were paid \$35 cash, and children were paid \$10 cash.

Intervention Procedures

For mother-child dyads assigned to the intervention condition, sessions took place within 1 – 3 weeks of the baseline appointment and were spaced one week apart. The majority of participants assigned to the intervention condition completed all 3 sessions. For those assigned to the wait-list control, the intervention was conducted after their follow-up assessment, and 64% of the dyads participated.

There were four facilitators for the intervention, two for the child sessions and two for the concurrent mother sessions, with one of each pair of facilitators holding a Master's degree in psychology (MFT, or MA in clinical psychology). Intervention sessions lasted 60 – 75 minutes. Interventions were conducted in waves, in order to place children in age-appropriate groups (7 – 9; 9 – 11; 12 – 14). There was an average of 6 mother-child dyads per intervention wave. Mothers in both the intervention group and wait-list control group were paid \$45 cash at the completion of each intervention session; children were not paid

but were allowed to take home leftover arts and crafts supplies and projects from their sessions.

Description of CUB Intervention

A support group format was selected, as social support groups with age-appropriate peers may provide significant benefit for children of MLH. Social support group intervention is one of the most widely used approaches offered to individuals with chronic illness and their families (e.g., Bogat, Sullivan, & Grober 1993; Kelly et al., 1993): they have been conducted for young children whose parents have cancer (e.g., Bedway & Smith, 1996), who have a mentally ill parent (e.g., Jordan, Excell, & Waggoner, 1999), and who have lost a parent (e.g., Huss & Ritchie, 1999). Most importantly for children affected by maternal HIV, stigma associated with disclosure may create increased levels of anxiety, shame, and guilt (Hawk, 2007), which a social support intervention may assist in alleviating.

Each of the child sessions included: (1) general discussion in the support group; (2) teaching of a behavioral skill with practice, and homework to practice the skill with their MLH; and (3) a craft section of the session that tied into the theme of the session. For all sessions after the first, children and MLH were asked at the beginning of the session to briefly discuss how the homework assignment had gone, and barriers to success were problem-solved within the group. Session 1 for both mothers and children focused on communication. For children, the importance of communication as a coping skill was discussed, and this was followed by a discussion of the potential pros and cons of talking to their mothers about HIV. The session then covered good communication skills with a homework assignment to practice using these skills to talk about HIV with their mother, plus a role-play to demonstrate communication skills. The craft for this session was making a mask; masks that could be designed and painted were used, with a discussion of inside vs. outside feelings. For MLH, a general discussion group focused on talking about HIV with their children was conducted. Mothers were informed of their child's homework assignment, and the mother's complimentary homework assignment was to facilitate and encourage their child's new efforts at communication.

Session 2 for both mother and child focused on the topic of HIV transmission fears. The children's session began with a group discussion on Session 1's homework assignment, with children describing their homework completion and group assistance when they reported encountered barriers. Session 2 then focused on ways HIV cannot be transmitted, centered on casual contact. Their homework assignment was to share a provided list of ways HIV cannot be transmitted and to engage their mother in a conversation on the topic. The craft section of this session was making a calendar cover focused on family and family closeness; the children left their drawing with staff and it was made into a calendar for them to take home at the final session. The MLH session began with reviewing the outcomes of the child's Session 1 homework assignment, followed by discussion of transmission of HIV through casual contact.

Session 3 for both mother and child focused on the topic of HIV stigma and secrets. The child's session began with a review of the homework assignment and then proceeded to a discussion of how the "secret" or stigma of HIV is handled within their families. Children

were asked to make a list of potential “safe” people, with whom they wished they could discuss their MLH’s status. The craft portion of this session was making a covered box as a gift for their mother, into which the child inserted a private, written message. Finally, there was a closing discussion, with HIV placed in the context of other medical illnesses. As with the other sessions, the mother’s final session paralleled that of the child’s with a discussion of reactions to the homework assignment, followed by a group discussion on the topics of HIV secrets and stigma and how that is handled within their families.

The intervention was developed by the first author, an expert in child development and HIV. In addition, it was reviewed by a physician specializing in HIV/infectious disease.

Measures: Mother Outcomes

Social Support—Mother’s social support was measured using the Social Provisions Scale (SPS; Cutrona & Russell, 1987). The 24-item scale consists of six subscales measuring dimensions of social support (social attachment, social integration, reassurance of worth, reliable alliance with others, guidance, and social nurturance); higher scores indicate more support. The social integration, guidance, and social nurturance subscales were applicable to the current study and thus were the only scales evaluated; Cronbach’s alpha for each was .66, .85, and .64, respectively.

Family Functioning—To assess family functioning, the Family Functioning Scale (Bloom & Naar, 1994) was administered to MLH. Of the available subscales, the Democratic Family Style and the Family Sociability subscales were applicable to the current study (the Conflict subscale was also considered, but yielded a low alpha and was dropped). MLH rated on the degree to which specific family characteristics were ‘like’ her family, where higher scores indicate greater similarity to their family. Cronbach’s alphas in this sample were .78 for Democratic Family Style and .81 for Family Sociability.

HIV Knowledge—Mothers were administered 19 items assessing their knowledge of whether HIV can be transmitted through various means; higher scores indicate greater HIV knowledge (e.g., “Can you catch HIV by sharing a toothbrush with someone?”). This scale is simply summed based on the number of correct items.

Measures: Child Outcomes

Child Behavior—The Aggressive and Anxiety/Depression subscales of the Child Behavior Checklist (CBCL; Achenbach, 1991) were administered to MLH. Cronbach’s alphas in this sample were .93 and .85, respectively.

Anxiety—The Physiological and Worry/Oversensitivity subscales from the Revised Children’s Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978; 1985) were administered to children to assess these components of anxiety. Cronbach’s alpha in this sample was .67 for Physiological and .67 for Worry/Oversensitivity.

Parent-child Attachment—The Parent subscale from the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987) was administered to the children. Two subscales,

Communication and Alienation, were applicable to the current study and were evaluated. Higher total scores reflect more of the characteristic. Cronbach's alphas in this sample were .66 and .52, respectively.

Self-concept—Two subscales from the Piers-Harris Children's Self-Concept Scale (Hughes, 1984; Piers, 1993) were administered to the children. The Happiness and Satisfaction subscale was applicable for the current study and thus was evaluated (the other subscale -- freedom from anxiety -- was not used because other child anxiety measures [i.e., RCMAS and CBCL] were already part of the analyses). Higher total scores reflect greater child happiness and satisfaction in regards to self-concept. Cronbach's alpha in this sample could not be calculated due to the combination of small sample size and yes/no format of the items, which yielded zero variance for some of the individual items. However, due to the additive nature of this subscale and its long history of viability in the literature, we deemed its use tenable.

HIV transmission knowledge—Children were administered the same 19 HIV knowledge items as the mothers (see above). This scale is summed based on the number of correct items.

Analyses

Observed means and standard deviations for analysis variables by control and intervention group are noted in Table 1. The design was a randomized 2-group pretest-posttest experimental design. For the main analyses, we used simple main effects within ANOVA to evaluate change across time for each group (see Table 2). The reported effects are the decomposition of the within and the between-within interaction effect from repeated measures factorial ANOVA (retaining the same error term), and provide an assessment of the change from baseline to follow-up within each group (cf., Jaccard, 1998; Winer, 1971). No pre-existing group differences at the .10 level were noted at baseline. In addition, we provide effect size estimates based on r per Cohen (1992), with values of .10, .30, and .50 indicative of small, medium, and large effects (respectively).

Brief qualitative analyses are also reported for children and MLH in the intervention group, based on discussion groups run separately with both the children and their mothers. These are provided to show some of the changes occurring over the course of the intervention. The original methodology used to analyze the discussion group recordings are based on a summary-aided approach (see Miles & Huberman, 1994), with an outside analyst not involved in the study planning or data collection summarizing various themes and ideas that were part of the intervention, and illustrating with quotes where appropriate. The current paper utilizes quotes taken directly from the discussion group recordings that emphasize positive intervention effects.

Results

Child Outcomes

Simple main effects tests (see Table 2) showed a significant increase in HIV knowledge regarding transmission in the intervention group, $F(1, 31) = 16.93$ ($p < .001$), with a large effect size of $r = .59$, while the control group did not evidence a significant change from baseline to follow-up. Therefore, increases in HIV knowledge were noted only for the intervention group children.

Simple main effects were also utilized to assess the effects of the intervention on children's anxiety and worry. Reductions in both were noted for the intervention group ($p < .01$) with close to large effects exceeding $r = .48$, but not for the control group. Similar findings were noted for Piers Harris happiness subscale, revealing increases in children's happiness ($p < .05$) for the intervention group, $F(1, 28) = 4.47$, with a medium effect size of $r = .37$. Findings for CBCL aggression and anxiety subscales also showed a trend for reductions ($p \leq .10$) for the intervention group, $F(1, 30) = 2.91$ evidencing a medium effect of $r = .30$, but not for the control group.

Simple main effects tests were utilized to assess the effects of the intervention on parent-child attachment variables (communication and alienation). For both the intervention and control groups, greater communication and less maternal alienation were evident ($p < .001$).

Maternal Outcomes

Simple main effects were utilized to assess the effects of the intervention on mothers' social relationships. Significant increases in guidance and integration were noted for the intervention group ($p < .05$), both with medium effect sizes exceeding $.39$. A significant increase in nurturance was noted for the intervention group ($M = 12.65$ baseline, $M = 13.40$ follow-up; a medium effect of $r = .31$), while for the control group a significant decrease in nurturance was noted ($M = 13.00$ baseline, $M = 12.00$ follow-up). For family functioning, sociability showed a trend of an increase for the intervention group ($p < .10$), with a $.29$ effect size. No changes in HIV-knowledge or stigma were noted for either group of mothers.

Intervention Group Qualitative Analyses

Intervention group discussions were audiotaped for both the child and MLH groups (with consent). Comments captured in these discussions illustrate the progress made over the course of the intervention.

During the second and third child intervention session, a 'check-in' was conducted at the beginning of the session to assess the progress of the different homework assignments. Such check-ins were also made with the mothers regarding progress that they perceived in their children.

Child Comments on Successful Implementation of Homework on Child-Mother

Communication. One of the homework assignments for the children was to ask their mothers a question about the mother's HIV. Keys for this homework were for the child to utilize new tools for such a discussion, including thinking about what they are going to ask

before asking, picking a time to talk, making eye contact, and making sure the mother gave an engaged answer. Comments made by the children regarding the success of this homework included, “When she wasn’t busy I talked with her and I [asked] her how did she get HIV,” and “I talked to my mom and I ... picked a good time. She wasn’t watching TV or cooking or talking to any of her friends and then I talked to her about how I feel.” Another child noted, “I just asked her ... about her T-cells.” It was also stated, “I talked with my mom and dad ... I hugged and kissed my mom and my dad. And we had good eye contact ... and I waited for a good time to ask her too ... when nobody was around.”

MLH Comments on Successful Implementation of Homework on Child-Mother

Communication. Comments from the mothers also show evidence of better communication. One mother commented, “You can’t believe [the effect of] one class of really openness with these kids can do ... I mean with my son, he opened his heart to me and even just the communication--not just the HIV. Yes, he did his homework ... just one thing of opening them up to be able to speak the truth about their life? One hour. Look what it did ...for them.” Another mother commented after the child had been in one session that she was “so amazed” that his communication with her different; “He’s been more at ease with me.” Another mother noted her child was becoming more physical with her (wanting to spend time with her, grabbing her hand at night). One mother noticed a change in her child, with the mother commenting that during the week she “enjoyed the friendship” between them. Another anecdote was shared by a mother regarding her son, “He was asking me about stress -- how does stress affect my HIV ... we talked about the testing ... and all the details again. We talked about the way the medicines affect [me], how some of them work, some of them [one can] build a resistance to after awhile.”

Child & MLH Comments on Homework Regarding Casual Transmission. Comments were also elicited regarding a “list” of possible ways one cannot get HIV, which is indicative of increased communication. The homework assignment for children was to take the list home and share the information with their mothers. After this assignment, one child reported that they spoke with their mother “...about the stuff in my folder about not getting HIV.” Other children reported doing this task with their mothers with positive results. Mothers also reported that their children discussed the list with them. One mother commented that her son had a concern about giving HIV to his friends even though he was not infected, “Well mom, what if I’m playing with other kids?” Another mother commented that her son “was more at ease and that he was okay with [the list]”, but wanted “the details ... just the little details” again about how she contracted HIV.

Discussion

Children who attended the intervention group were able to discuss sensitive topics related to their mothers’ HIV status. Thus, the major goal of the study in terms of feasibility was successful. More unexpectedly, despite this preliminary study not being powered for efficacy, there were significant differences found for children in the intervention group compared to children in the control group. Intervention children showed a significant increase in HIV knowledge following the intervention compared to the control group children. This understanding on the part of the children seemed to translate to more physical

closeness with their MLH (noted through both child and MLH qualitative comments identified through the audiotaped intervention sessions), which is critically important for child development and sense of belonging and security.

Just as importantly, intervention children reported significantly less anxiety and worry following the intervention, and significantly more happiness, compared to control group children. The burden and strain of young children living with worry and fear—and possibly feeling they have no one to talk to about this stress because they are afraid of upsetting their MLH—is likely to impact them negatively in numerous ways (Armistead et al., 2001; Krauss et al., 2013; Murphy et al., 2006; Richter, 2004). Such stress can impact their sleep patterns, eating habits, academic progress, social interactions (e.g., fear of making friends should they find out their mother's status), and self esteem. A brief intervention such as CUB may serve to alleviate some of this stress for children affected by maternal HIV/AIDS.

The child outcome findings are consistent with previous research cited in the introduction to this paper that would indicate that positive parent-child communication and interactions are critical for successful child outcomes. For example, Rosenblum and colleagues (2005) found positive family functioning associated with greater resilience among children. Specific to parent-child interaction and communication, evidence indicates that supportive and affirmative parent-child interactions and relationships positively impact child adjustment over time (e.g., Sroufe, 2005).

Although the children were the main target of the intervention, and the support groups for the MLH were less structured than for the children, significant outcomes were found for the intervention group MLH compared to the control group. Intervention MLH showed significant increases in guidance and integration. Moreover, a significant increase in nurturance was noted for the intervention group, while for the control group a significant decrease in nurturance was found. For family functioning, sociability showed an increase for the intervention group.

There are a number of limitations to the current study that warrant mention. First, in some cases we accepted a $p \leq .10$ level of significance due to our small sample size, thus increasing the risk of Type I error. However, our small sample size runs the risk of inflated Type II error if we adopt standard cutoffs (.05 or .01). To help support our findings, we included effect sizes, and further were careful to note findings at $\leq .10$ level as trends. Also regarding issues of power, we were unable to include specific covariates or moderators into our analyses (e.g., child age, race-ethnicity) due to small sample size and increased levels of Type II error. Future studies addressing the current or similar interventions should strive for larger samples, and the inclusion of demographic and other possible covariates.

An additional caveat concerns the simple main effect results and missing data in the follow-up assessment, which varies across variables assessed. Though we have no direct information regarding the reasons for missing data, we can surmise that attrition played a role. However, missing value analyses across demographics and variables only show a tendency for the missing data to be associated with slightly older children (no maternal variables showed differences--only child age). Thus, it is possible our conclusions might be

slightly biased toward younger populations. Another limitation regards the qualitative findings reported. Here, the findings are intended to support the quantitative findings, and do not represent a full qualitative report. A more thorough qualitative analysis of the transcripts is required to make a definitive evaluation of the maternal and child reports, and to reveal additional themes and sub-themes that might emerge beyond those directly related to the intervention reported here. However, the quotes were representative of the majority of the MLH who were randomized to the intervention group.

Given the limited sample size and that this was primarily a demonstration study not powered for efficacy, it is of note that all of the child outcomes showed a trend or were significantly different for the intervention compared to the control group except for stigma. The scale used primarily focused on stigma directed towards the mother, so it is possible that the intervention children felt less isolated and stigmatized themselves (e.g., due to friendships in the group), but did not report any effects related to stigmatization of their MLH. The intervention mothers also did not report any increase in HIV knowledge, despite the fact that they were given the handout their children were provided. However, as noted earlier, the MLH intervention was very unstructured. It is possible that a more structured intervention for the MLH would increase positive outcomes for both them and their children. Thus, future work in this area needs to focus on stronger family intervention components. For example, the MLH part of the CUB intervention could include more structured behavioral skills training, which may further improve children's response to the intervention.

Children have been neglected in the HIV/AIDS response. Hawk's (2007) review called for identifying effective ways to improve follow-up for children affected by maternal HIV/AIDS. Further, in a Cochrane Collaboration review, King, De Silva, Stein, & Patel (2009) found that no studies of interventions for improving the psychosocial well being of school age children affected by HIV/AIDS could be identified—and they included psychological therapy, psychosocial support and/or care, medical and social interventions in their systematic search. They urged that high quality intervention studies be conducted. Given the paucity of research on clinical interventions for children affected by maternal HIV/AIDS—especially young children—there is a critical need to develop brief interventions such as CUB, which is evidence informed and assists children coping with parental HIV infection in a developmentally appropriate way (Qiao, Li, & Stanton, 2013). Since younger children are more impacted by poor maternal health than are late adolescents/young adults (Murphy, Marelich, & Herbeck, 2012), early intervention such as CUB appears to reduce current anxiety, and may effect longer-term outcomes.

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Table 1

Means and Standard Deviations

	Control		Intervention	
	Baseline <i>M (SD)</i>	Follow-up <i>M (SD)</i>	Baseline <i>M (SD)</i>	Follow-up <i>M (SD)</i>
Mother Outcomes				
<i>Social Provisions (Mother report)</i>				
Guidance	12.58 (2.11)	13.17 (1.34)	13.50 (2.28)	14.15 (2.08)
Nurturance	13.00 (1.81)	12.00 (1.86)	12.65 (1.81)	13.40 (2.37)
Integration	12.25 (2.09)	12.25 (2.05)	12.50 (1.50)	13.50 (2.14)
<i>Family Functioning</i>				
Democratic Family Style (Mother report)	13.33 (3.63)	14.67 (2.77)	15.30 (3.63)	14.55 (4.63)
Sociability (Mother report)	13.33 (3.93)	14.17 (3.38)	14.65 (3.51)	15.50 (3.15)
<i>HIV-Knowledge Items (Mother report)</i>	15.83 (1.34)	16.25 (0.62)	16.25 (1.07)	16.70 (1.34)
<i>Stigma</i>	2.03 (1.23)	1.77 (0.93)	1.56 (0.80)	1.64 (0.88)
Child Outcomes				
<i>CBCL (Mother report)</i>				
Aggression	11.58 (9.41)	10.67 (6.21)	13.75 (8.08)	11.70 (7.46)
Anxiety	5.58 (4.12)	5.75 (4.73)	7.10 (4.39)	5.45 (4.54)
<i>RCMAS (Child Report)</i>				
Physiological Anxiety	1.62 (1.56)	1.31 (1.60)	4.06 (2.24)	2.89 (2.40)
Worry	3.50 (2.65)	2.58 (3.37)	5.06 (2.60)	3.67 (2.99)
<i>IPPA (Child Report)</i>				
Communication	28.42 (4.01)	37.75 (2.63)	29.06 (4.48)	35.06 (4.80)
Less Alienation	18.92 (3.90)	30.00 (3.44)	16.59 (3.28)	28.53(3.66)
<i>Piers-Harris (Child report)</i>				
Happiness and Satisfaction	9.46 (0.78)	9.62 (0.87)	9.18 (1.13)	9.47 (1.07)
<i>HIV-Knowledge Items (Child Report)</i>	14.46 (2.70)	14.77 (1.69)	12.60 (3.93)	15.30 (1.81)
<i>Stigma</i>	1.93 (1.21)	2.08 (1.28)	2.19 (1.00)	2.23 (1.03)

Table 2

Simple main effects of time within group (mother and child reports)

	Control		Intervention	
	<i>F</i>	(df1, df2)	<i>F</i>	(df1, df2)
Mother Outcomes				
<i>Social Provisions (Mother report)</i>				
Guidance	2.69	(1, 30)	5.58*	(1, 30)
Nurturance	3.40 ⁺	(1, 30)	3.19 ⁺	(1, 30)
Integration	0.00	(1, 30)	5.66*	(1, 30)
<i>Family Functioning</i>				
Democratic Family Style (Mother report)	3.07 ⁺	(1, 30)	1.62	(1, 30)
Sociability (Mother report)	1.58	(1, 30)	2.74 ⁺	(1, 30)
<i>HIV-Knowledge Items (Mother report)</i>	1.36	(1, 30)	2.65	(1, 30)
<i>Stigma</i>	2.59	(1, 30)	0.39	(1, 30)
Child Outcomes				
<i>CBCL (Mother report)</i>				
Aggression	0.35	(1, 30)	2.91 ⁺	(1, 30)
Anxiety	0.02	(1, 30)	3.42 ⁺	(1, 30)
<i>RCMAS (Child Report)</i>				
Physiological Anxiety	0.55	(1, 29)	10.89**	(1, 29)
Worry	2.59	(1, 29)	8.90**	(1, 29)
<i>IPPA (Child Report)</i>				
Communication	62.45***	(1, 28)	38.71***	(1, 28)
Less Alienation	104.23***	(1, 27)	171.40***	(1, 27)
<i>Piers-Harris (Child report)</i>				
Happiness and Satisfaction	0.93	(1, 28)	4.47*	(1, 28)
<i>HIV-Knowledge Items (Child Report)</i>	0.14	(1, 31)	16.93***	(1, 31)
<i>Stigma</i>	0.35	(1, 29)	0.04	(1, 29)

⁺ p ≤ .10.

* p < .05.

** p < .01.

*** p < .001.