Evidence-based gender findings for children affected by HIV and AIDS – a systematic overview

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This review (under the International Joint Learning Initiative on Children and AIDS) provides a detailed evidence analysis of gender, children and AIDS. Six systematic reviews provide the most up to date evidence base on research surrounding children and HIV on key topics of treatment resistance and adherence, schooling, nutrition, cognitive development and orphaning and bereavement. Traditional systematic review techniques were used to identify all published studies on four key topics, then studies were selected according to adequacy criteria (sufficient size, control group and adequate measures). A gender analysis was performed on included studies, detailing whether gender was measured, results were analysed by gender or any gender-based findings. For family studies, both the gender of the parents and gender of the child are needed. Secondary analysis by gender was performed on existing systematic reviews for treatment resistance and adherence. Of the 12 studies on treatment resistance, 11 did not look at gender. One found boys at a seven-fold risk compared to girls. For medication adherence, gender was not significant. Of the 15 studies on schooling, 12 analysed findings by gender with an overall female disadvantage. Of the 14 studies on nutrition, nine analysed by gender with mixed findings. Of the 54 studies on cognitive development, 17 provided gender data, but only four analysed by gender with few differences established. Of the 15 studies on bereavement, seven analysed data by gender again with mixed findings. Major policies fail to provide gender data for young children. WHO, UNAIDS and the international data sets are not gathered or coded by gender for young children (generally under 15 years of age) despite well-established gender challenges in later life. This review shows that the current evidence base is inadequate. Data on gender variation and outcome are urgently needed to inform policy and research on children and HIV.

Keywords: gender; HIV/AIDS; children; policy

Background

Gender plays a well-established role in HIV prevention, transmission, vulnerability and response. Comprehensive studies have shown differential vulnerabilities and circumstances which affect males and females. This has covered epidemiology, access to treatment and research inclusion. Yet curiously, gender issues for children are neglected. In the non-HIV/AIDS literature gender is seen as an important factor in a number of developmental arenas, such as education, child development, cognition, socialising and parental interactions. Indeed, mental health, behavioural problems and access to education are all well-documented issues that are affected by gender.

Our society is bisected by gender. Within families, as within societies, gender affects the biological susceptibility to HIV/AIDS as well as the social susceptibility as gender roles, gender differences and gender responses intertwine with daily life. Much has been written about gender discrimination (Bhana, 2007), and how, from an early age, roles and role differentiation may adversely affect children generally, and girls specifically. Clearly family plays a key role in the construction of gender, gender roles, gender expectations and gender differences (Belden & Squires, 2008). Within this construction, there are a number of aspects of gender-related issues that are highly relevant to the study of HIV/AIDS, programme provision and research questions. In addition to biological gender differences, issues relate to gender differences in provision (within families and within the social network), social and cultural constructs of gender which disadvantage or disempower sub-groups, violence, sexual attitudes, gender selection and preferential treatment in terms of schooling, Alderman, Hoddinott, and Kinsey (2006), Liu, Raine, Venables, Dalais, and Mednick, (2003) nutrition, attention and provision, genital mutilation and marriage (Andersson, Cocker, & Shea, 2008). There are also gender issues associated with care, caring roles and the imbalance of impact on a young child with disruption of care according to the gender of the child and the caregiver.

Given these important aspects of gender, it is vital that research, policy and programme provision take

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gender into account from the earliest stages. This is done as a matter of course in the adult literature, yet is piecemeal within the children’s literature. Ignoring gender may directly affect both boys and girls. Given that, traditionally, greater gender discrimination is reported against girls; their situation should not be overlooked or inaccurately described. However this does not imply that boys are invulnerable. The lack of focus on boys may conversely indicate a greater effort to bring the focus on boys into line with girls. Not aggregating by gender does both males and females a disservice.

This review explores the issues of gender within key elements of HIV as it affects the lives of children. It provides detailed information in order to summarise gender-based knowledge and present guidance on gender sensitivity and provision in future policies for children.

Methods

As part of the Joint Learning Initiative on Children and AIDS, a series of systematic reviews were undertaken to study the evidence base. Six systematic reviews reported here provide the most up to date evidence base on research surrounding children and HIV on key topics. The six areas examined in relation to children are:

1. HIV treatment resistance.
2. Adherence to treatment.
3. HIV and schooling.
4. HIV and nutrition.
5. HIV and cognitive development.
6. HIV and bereavement.

Two different methods of analysis were undertaken. For Topics 1 and 2 (HIV treatment resistance and adherence to treatment) clear and recent systematic reviews already existed. For the purpose of this study, all shortlisted papers from these reviews were gathered and recoded according to gender variables. In addition, if any more recently published studies meeting the same criteria were identified, they were added to the body and subjected to the secondary analysis by gender as described below.

For the remaining four topics (schooling, nutrition, cognitive development and bereavement), original systematic literature reviews were undertaken. Research evidence was gathered by detailed study of peer-reviewed published studies. We gathered articles using electronic database searches covering Embase, Medline and Psychinfo until 2006. For all searches the terms “HIV”, “AIDS” and “Children” were used and specialised searches then included terms such as “Orphan”, “School”, “Education”, “Bereavement”, “Nutrition” and “Development”. A search for allied studies was conducted by following up cross-referred articles. Identified articles were reviewed and hand sorted to include all reports that reached adequacy criteria. These criteria included sufficient sample size, presence of a control group and adequate outcome measures.

For each of the six topics, the finalised list of included studies was then subjected to a gender analysis. This second level review coded on the presence or absence of reported data on gender distribution (both for the child sample and the parent data where appropriate). Studies were then scrutinised to explore whether the results firstly reported on gender, secondly were analysed by gender and finally provide a review of gender-based findings.

Results

HIV treatment resistance

A systematic review (Arrivé et al., 2007) looked at all studies that examined Neviripine (NVP) resistance in mothers and children. They identified 33 reports where “offspring” received NVP, of which 24 were excluded on methodological grounds. The 11 that were entered into a meta-analysis (covering 339 children) revealed that half the children who became infected despite NVP treatment developed resistance. No data on gender of the child were given. A relevant study on treatment resistance was subsequently identified in the literature. Only this study provided gender related data, and revealed that boys were at a seven-fold risk of developing resistance to treatment. In this research, resistance was defined as triple resistance (resistance to three classes of drugs) (Delaugerre et al., 2007)

Adherence to treatment

The most comprehensive review – carried out by Simoni et al. (2007) – reported that gender was not a significant factor in treatment adherence. Few studies appeared to analyse gender.

HIV and schooling

Fifteen studies meeting inclusion criteria were identified comparing the impact of HIV infection on schooling (Ainsworth, Beegle, & Koda, 2005; Akresh, 2004; Bennell, 2005; Bhargava, 2005; Bicego, Rutstein, & Johnson, 2003; Case & Ardington, 2005; Case, Paxson, & Ableidinger, 2004; Chatterji et al.,
2005; Evans & Miguel, 2007; Kamali et al., 1996; Mishra et al., 2005; Monasch & Boerma, 2004; Nyamukapa & Gregson, 2005; Sharma, 2006; Yamano & Jayne, 2005).

Of these, 12 analysed findings by gender (see Table 1), with an overall female disadvantage.

**HIV and nutrition**

Fourteen studies were identified comparing the effect of HIV infection on nutrition between HIV affected and control children (Bhargava, 2005; Bridge, Kipp, Jhangri, Laing, & Konde-Lule, 2006; Chatterji et al., 2005; Crampin et al., 2003; Kamali et al., 1996; Lindblade, Odhiambo, Rosen, & DeCock, 2003; Masmas et al., 2004a,b; Mishra et al., 2005; Panpanich, Brabin, Gonani, & Graham 1999; Rivers, Silvestre, & Mason, 2004; Ryder, Kamenga, Nkusu, Batter, & Heyward, 1994; Sarker, Neckermann, & Muller 2005; Watts et al., 2007).

Of these, nine reported and analysed the findings by gender (see Table 2). The findings were mixed with some identifying a gender disadvantage, while others failed to establish a gender difference.

**HIV and cognitive development**

In total, 54 studies on the effect of HIV on cognitive development were identified (Sherr, Mueller, Varrall, & JLIICA Working Group 1, 2008, in press). Of these 17 provided data on gender of participants, only four proceeded to analyse their findings according to gender: few differences were identified.

**HIV and bereavement**

Despite the fact that many millions of children have lost parents to HIV, we could only identify 15 controlled studies on the issue of HIV and bereavement (Atwine, Cantor-Graae, & Bajunirwe, 2005; Bhargava, 2005; Cluver & Gardner, 2006; Dowdney et al., 1999; Forehand et al., 1999; Grantham-McGregor, Walker, & Chang, 2000; Gregson et al., 2005; Lee, Detels, Rotherham-Borus, & Duan, 2007; Lester et al., 2006; Makame, Ani, & Grantham-McGregor, 2002; Operario, Pettifor, Cluver, MacPhail, & Rees, 2007; Rotherham-Borus, Stein, & Lester, 2006; Rotherham-Borus, Weiss, Alber, & Lester, 2005; Sengendo & Nambi, 1997; Tremblay & Israel, 1998; Wolchik, Tein, Sandler, & Ayers, 2006; Wood, Chase, & Aggleton, 2006).

It is important to note both the gender of the deceased parent to understand the complexities of gender effects. Of these studies, four reported on the gender of parent and child, one provided no gender data and 12 described gender of the child. Seven of the studies proceeded to analyse the data by gender. Mixed gender differences were noted with patterns and clusters of response (see Table 3). There was no systematic difference pointing to overall gender differences.

**Discussion**

Few studies report specifically on gender within the literature on HIV and child outcomes. Despite the wealth of literature on HIV treatment and children, and existence of clear systematic reviews of this evidence, gender is rarely even mentioned. When gender is recorded, a distinction between biological gender issues and pre-existing social factors is not explicit. Furthermore, if gender is recorded, it does not necessarily follow that results are analysed according to gender.

Gender of the child was not reported as a significant factor in outcome for medication adherence in a systematic review of adherence in children. Adherence is vital for efficacy in children (Simoni et al., 2007), yet the majority of studies are not conducted in resource-poor settings where the majority of HIV infected children reside. Studies are confounded by their coverage of a wide age range of children. These issues may have skewed the current picture. In terms of resistance to treatment, our analysis find that the only study to report on gender shows that males are reported at seven times greater risk than females. This dramatic finding was identified in the only study that carried out gender-based analysis (Delaugerre et al., 2007). In addition to this outcome of male vulnerability being particularly important given the traditional focus on female disadvantage, the finding vividly highlights the gender gap in the evidence base and would suggest an urgent need to examine resistance data by gender.

Similarly, gender disparities are noted in other areas of the child HIV treatment literature. Sex differences have been noted in disease progression in children (ECS, 2002, 2003). Two studies have demonstrated that girls were at elevated risk of infection in mother to child transmission (Gabiano et al., 1992; Temmerman et al., 1995). Thorne and Newell (2004) studied 3231 mother child pairs (1684 boys (52%) and 1547 girls (47.9%)). Of these, 10.6% (350 children – 48.6% boys and 51.4% girls) were infected. Associations between gender and mother to child transmission in multivariable regression (allowing for antiretroviral treatment, cesarean section and maternal CD4 cell count) girls were 1.5 times at greater risk of HIV infection relative to boys. When the data were examined according to mode of
| Study                              | Country    | Sample                                                                 | Control group | Gender description | Analysed by gender effects | Child gender findings | Death of parent gender findings | Child and parent gender interaction |
|-----------------------------------|------------|------------------------------------------------------------------------|---------------|--------------------|---------------------------|----------------------|-------------------------------|-----------------------------------|
| Ainsworth, Beegle, and Koda (2005) | Tanzania   | Kagera health and development survey - longitudinal survey from 1991 to 1994. About 757 households completed all rounds. Sixty-two primary schools | Non-orphans   | Y Child/Parent     | Y Child/Parent            | Female negative effect on hours of attendance | Maternal death Negative effect on enrolment and attendance | Female maternal, female double orphans Negative effect on hours of attendance |
| Akresh (2004)                     | Burkina Faso | Survey of 606 household heads and their 812 wives. About 300 paired households that had exchanged a foster child between 1998 and 2000 | Siblings      | N                  | N                         | –                    | –                             | –                                 |
| Bennell (2005)                    | Uganda, Malawi, Botswana | Review and analysis of empirical studies, DHS surveys | Non-orphans | See below         |                           |                      |                               |                                   |
| Study                  | Country       | Sample Description | Control Group | Analysed by Gender Effects | Child Gender Findings | Death of Parent Gender Findings | Child and Parent Gender Interaction |
|-----------------------|---------------|--------------------|---------------|----------------------------|-----------------------|---------------------------------|-------------------------------------|
| Uganda                | Uganda        | Y                  | Parent        | Y                          | Parent                | Maternal death Negativity on dropping out Parental death Negative effect on repeating grade Double death negative effect on dropping out positive effect on attendance | –                                   |
| Malawi                | Malawi        | Y                  | Child Parent  | Y                          | None independent of parental gender | Maternal death Negative effect on repeating grade | –                                   |
| Bhargava (2005)       | Ethiopia      | Y                  | Child         | Y                          | Child Maternal death  | Female Negative effect on participation | –                                   |
| Bicego, Rutstein, and Johnson (2003) | Zimbabwe        | Y                  | Parent        | Y                          | Parent                | Maternal and double parent death Negative effect on correct grade level | –                                   |
Table 1 (Continued)

| Study                        | Country            | Sample                                                                 | Control group | Gender description | Analysed by gender effects | Child gender findings | Death of parent gender findings | Child and parent gender interaction |
|------------------------------|--------------------|------------------------------------------------------------------------|---------------|---------------------|-----------------------------|-----------------------|----------------------------------|-----------------------------------|
| Case and Ardington (2005)    | South Africa       | Longitudinal data from a demographic surveillance area office. HSE surveys. ~20,000 children | Non-orphans   | Y Child Parent      | Y Child Parent              | No gender difference on any measure of schooling | Maternal and double parent death Negative effect on enrolment, years completed money spent on education | No interaction                      |
| Case, Paxson, and Ableidinger (2004) | Ten sub-Saharan Africa | Nineteen DHS studies (Ghana, Kenya, Malawi, Mozambique, Namibia, Niger, Tanzania, Uganda, Zambia, Zimbabwe) | Non-orphans   | Y Child Parent      | Y Child Parent              | No gender difference on any measure of schooling | No gender difference Negative effect on enrolment for all orphans | No interaction                      |
| Chatterji, et al. (2005)     | Rwanda, Zambia     | Zambia: 496 primary caregivers, 504 children, 563 adolescents Rwanda: 570 primary caregivers 656 children, 402 adolescents | Y             | Y Child Parent      | N                           | –                     | –                                | –                                 |
| Evans and Miguel (2007)      | Kenya              | About 7815 children with completed questionnaire data and parental mortality data | Y Non-orphans | Y Child Parent      | Y Child Parent              | No gender difference       | Maternal death Negative effect on participation | No interaction                      |
| Kamali et al. (1996)         | Uganda             | Rural population cohort 10,000 people 52% under 15 yrs. Demographic, socio-economic, serological surveys | Y Non-orphans | Y Parent            | N                           | –                     | –                                | –                                 |
| Study                     | Country       | Sample                                                                 | Control group | Gender description | Analysed by gender effects | Child gender findings | Death of parent gender findings | Child and parent gender interaction |
|--------------------------|---------------|------------------------------------------------------------------------|---------------|-------------------|---------------------------|----------------------|-----------------------------|------------------------------------|
| Mishra et al. (2005)     | Kenya         | The 2003 KDHS. About 9865 households. Population-based nationally-representative surveys link individual HIV test results | Y HIV+ parents HIV- parents | Y Child | Y Child | Female | Negative effect on attendance | Maternal death, paternal death | No interaction |
| Monasch and Boerma (2004)| Forty sun-Saharan Africa | Twenty-three MICS surveys Fourteen DHS surveys | Y Non-orphans | Y Child | Y Child | No gender difference | On attendance | Double parental death | No interaction |
| Nyamukapa and Gregson (2005) | Zimbabwe | First round data from Manicaland study. About 8399 households About 2402 children of primary school completion age. | Y Non-orphans | Y Child | Y Child | Male negative effect on completion rate | Maternal death | Male negative effect on completion rate | Male negative effect on completion |
| Sharma (2006)            | Malawi        | Longitudinal. Five rounds between 2000 and 2004. Five hundred and thirty-four rural households | Y Non-orphans | Y Child | Y Child | Female | Negative effect on dropping out | No gender difference | No interaction |
| Yamano and Jayne (2005)  | Kenya         | Three-year panel of rural household surveys. About 1266 households included in all three surveys. | Y Children No adult mortality | Y Child | Y Child | Female | Negative before death | Male Negative after death |  

Notes: DHS = Demographic & Health Surveys; HSE = Household Socio-Economic; KDHS = Kenya Demographic & Health Survey; MICS = Multiple Indicator Cluster Survey; C-SAFE = Consortium for Southern Africa Food Emergency; WFP = World Food Program; OVC = orphans and vulnerable children; PWH = parents with HIV/AIDS; STI = sexually transmitted infection.
| Study                        | Country          | Sample                                                                 | Control group                                                                 | Gender findings | Analysed by gender | Child gender findings | Death of parent gender findings | Child and parent gender interaction |
|-----------------------------|------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------|--------------------|------------------------|-----------------------------|----------------------------------|
| Bhargava (2005)             | Ethiopia         | National orphans in Ethiopia (2001–2002), ~1000                       | Non-orphans and non-AIDS orphans                                              | N               |                    |                        |                             |                                  |
| Bridge, Kipp, Jhangri, Laing, and Konde-Lule (2006) | Uganda | Cross-sectional, questionnaire and anthropometric measures About 205 homes sampled | Children from non-AIDS affected households                                      | Y               | Child Parent       | No gender difference | No gender difference | No interaction                   |
| Chatterji et al. (2005)     | Rwanda and Zambia | Zambia: 496 primary caregivers 504 children, 563 adolescents           | Orphans compared with vulnerable children                                      | Y               | Child Parent       | No gender difference | No gender difference | No interaction                   |
| Crampin et al. (2003)       | Malawi           | Population survey About 1106 children included                         | Non-orphans                                                                   | N               |                    |                        |                             |                                  |
| Kamali et al. (1996)        | Uganda           | Rural population cohort 10,000, 52% < 15 yrs                            | Non-orphans                                                                   | N               |                    |                        |                             |                                  |
| Lindblade, Odhiambo, Rosen, and DeCock (2003) | Kenya            | 1999 with follow up in 2000, 1347 children at baseline, 78.3% follow-up | Non-orphans                                                                   | Y               | Child Parent       | No gender difference | Paternal death               | No interaction                   |
| Masmas et al. (2004a)       | Guinea-Bissau     | Approximately 1100 interviews (300 case children, 800 non-orphan controls) | Non-orphans                                                                   | Y               | Child Parent       | No gender difference | No gender difference | On nutritional status            |

Table 2. Gender findings on systematic review of the effects of HIV on nutrition.
| Study                        | Country                  | Sample                                                                 | Control group                                      | Analysed by gender                  | Child gender findings | Death of parent gender findings | Child and parent gender interaction |
|------------------------------|--------------------------|------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------|----------------------|----------------------------------|-------------------------------------|
| Masmas et al. (2004b)        | Guinea-Bissau            | Approximately 1100 interviews (300 case children, 800 non-orphan controls) | Non-orphans                                        | Yes/No Child/Parent (Maternal death only) | Y Child             | No gender difference             | On mortality                        |
| Mishra et al. (2005)         | Kenya                    | The 2003 KDHS About 9865 households                                     | Positive and negative parents                      | Yes/No Child/Parent                 | Y Child             | Male                            | Negative effect on stunting, being underweight and wasting |
| Panpanich, Brabin, Gonani, and Graham (1999) | Malawi                  | Cross-sectional study (76 orphanage children, 137 village orphans, 80 village non-orphans) | Non-orphans                                        | Yes/Yes Child/Parent               | Y Child             | Female in orphanages             | Negative effect on malnourishment Male in orphanages |
| Rivers, Silvestre, and Mason (2004) | Botswana, Uganda, Malawi | Analysis of: 30 DHS and MICS II surveys, two sub-national UNICEF surveys, six C-SAFE/WFP surveys | Non-orphans                                        | Yes/Yes Child/Parent               | Y Child             | No gender difference             | Maternal death Negative effect on malnourishment |
| Ryder, Kamenga, Nkusu, Batter, and Heyward (1994) | Zaire                   | About 466 HIV+ women, their children and fathers                       | HIV- women and families                             | N N                                 | N N                  | –                               | –                                   |
| Sarker, Neckermann, and Muller (2005) | Uganda                  | Cross-sectional survey (241 orphans, 278 non-orphan controls)          | Non-orphans                                        | Yes/Yes Child/Parent               | Y Child             | No gender difference             | On health status                     |
delivery (Caesarian section or vaginal delivery), for C Section girls were twice as likely to be infected compared to boys. Read et al. (2003, cited in Thorne et al., 2004) noted in a meta-analysis of HIV postnatal transmission via breastfeeding that boys were at a significantly greater risk of HIV infection than girls. Coovadia et al. (2007) monitored 1372 infants and found that of those who were HIV negative at six weeks, mixed breast and formula feeding was associated with increased HIV infection to the infant. In this study they reported on gender (49% males, 49% females) and showed that gender played no part in transmission. These data lend further support to the need for systematic investigation of gender within child HIV research.

Our original systematic reviews demonstrate the lack of attention given to gender considerations in key areas of the children and HIV literature. Of those that do analyse data with gender as a variable, findings are equivocal. Our review identifies females at a disadvantage for school attendance and achievement, with more mixed findings for nutritional status and bereavement outcomes. Male children may be at a disadvantage with respect to treatment resistance. Parental gender is much less well explored, with only four of 15 papers on bereavement reporting the gender of the deceased parent. We know that reporting orphan type in terms of parent gender is vital (Sherr, Varrall, Mueller, & JLICA Working Group 1, 2008). Individual settings and circumstances need to be taken into account given the lack of comprehensive data. No clear difference by gender was found within the cognitive development and HIV literature (Sherr et al., 2008, in press), however, as only four of 54 studies analysed by gender, conclusions are tentative. These findings need to be treated with caution given that the overall literature is inadequate, with gender often under reported and analysed.

Overall, the child literature is difficult to navigate. The neglect of gender information in parenting, a constant oversight of fathers and the focus on mothers may skew understanding. In studies of early childhood there is often incomplete gender data. This is most notable for babies, where the term “infant” supplants male and female infants, and the literature is invariably not disaggregated by gender. Even when gender is recorded, the data is often not analysed according to gender and thus data for evidence-based understanding (such as in transmission, infection, outcome, schooling, nutrition, bereavement and cognitive development) is not clarified by gender. Many major policies fail to provide gender data for young children. Global statistics are collected by gender only for those over 15 years of age. This was true for many reports such as World health Organisation,

| Study             | Country       | Sample            | Gender Analysed by gender | Child gender findings | Child/Parent Analysed by gender | Death of Parent gender findings | Heightened risk of stunting and being underweight | Maternal death gender findings | Heightened risk of being underweight | Paternal death gender findings | Heightened risk of being underweight | Double parental death heightened risk of being underweight | Child and parent gender interaction |
|-------------------|---------------|-------------------|---------------------------|----------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Watts et al. (2007) | Zimbabwe      | Analysis of data from ~<30,000 children | Yes                     | Y                    | Y                             | No gender difference            | On health and nutritional status | Maternal death                     | Parental death                   | Double parental death           | Maternal death                     | No interaction                        | No interaction                        |

Notes: DHS = Demographic & Health Surveys; HSE = Household Socio-Economic; KDHS = Kenya Demographic & Health Survey; MICS = Multiple Indicators Cluster Survey; C-SAFE = Consortium for Southern Africa Food Emergency; WFP = World Food Program; OVC = orphans and vulnerable children; PWH = parents with HIV/AIDS; STI = sexually transmitted infection.
| Study                                      | Country   | Sample Description | Control Group | Gender | Analysed by gender | Child Gender findings | Death of Parent Gender findings | Child and Parent gender interaction |
|-------------------------------------------|-----------|--------------------|---------------|--------|--------------------|-----------------------|---------------------------|----------------------------------|
| Atwine, Cantor-Graae, and Bajunirwe (2005)| Uganda    | 11–15 yrs 123 case children (parent(s) died of AIDS), 110 controls | Non-orphans   | Child/ Parent      | Y                     | No gender difference on psychological distress measures | No gender difference             | No interaction                   |
| Bhargava (2005)                           | Ethiopia  | The National Survey Orphans in Ethiopia (2001–2002) Approximately 1000 | Non-orphans and non-AIDS | Y Child, Parent (Maternal death) | Y Child              | Female Negative effect on emotional adjustment and social adjustment | –                              | –                                |
| Cluver and Gardner (2006)                 | South Africa | 6–19 yrs Thirty case/30 matched controls | Non-orphans   | Child/ Parent      | Y                     | No gender differences On psychological well-being | No gender difference             | No interaction                   |
| Dowdney et al. (1999)                     | UK        | 2–16 yrs Sixteen boys, 29 girls matched controls | Y            | Y Child/ Parent    | Y                     | Male Negative effect on externalising scores, and total problem scores | No gender difference             | No interaction                   |
| Forehand et al. (1999), Gregson et al. (2005) | USA      | 6–11 yrs 20 case children 40 controls | Y            | Y maternal death   | N                     | Female Increased risk of HIV infection, STI symptoms and teenage pregnancy | Maternal death                  | Female maternal orphans Increased risk HIV poor reproductive health, commencement of sex and marriage, no secondary school |
| Lee, Detels, Rotherham-Borus, and Duan (2007) | USA      | 11–18 yrs About 206 adolescents with PWH intervention, 207 control group | Y            | Y Child/ Parent    | Y                     | Male Increased risk of depression | –                              | –                                |
| Lester et al. (2006)                      | USA       | 12–18 yrs About 423 adolescents intervention vs. no intervention | Y            | Y Child/ Parent    | Y                     | Female Increased risk of depression | –                              | –                                |
Table 3 (Continued)

| Study                          | Country       | Sample                  | Gender findings                          | Death of Parent Gender findings | Child and Parent gender interaction |
|--------------------------------|---------------|-------------------------|------------------------------------------|---------------------------------|-------------------------------------|
| Makame, Ani, Grantham Mcgregor  | Tanzania      | 10–14 yrs, Forty-one AIDS orphans, 41 controls | Female negative effect on internalising problems | –                              |                                     |
| Operario, Pettifor, Cluver, MacPhail, and Rees (2007) | South Africa | 15–24 yrs, About 11,904 cases national survey | Female Increased risk of HIV infection, commencement of sex and multiple partners Male Increased risk of unprotected sex | –                              |                                     |
| Rotherham-Borus, Stein, and Lester (2006) | USA | 11–18 yrs, Longitudinal 6 year study, 288 (intervention vs. no intervention) | Female Increased risk of emotional distress Male Increased substance Male difference On psychosocial adjustment | –                              |                                     |
| Rotherham-Borus, Weiss, Alber, and Lester (2005) | USA | 11–18 yrs, Six year study About 414 adolescents | Female Increased risk of emotional distress Male Increased substance Male difference On psychosocial adjustment | –                              |                                     |
| Sengendo, and Nambi (1997) | Uganda        | About 172 orphans (6–20 yrs), 24 controls | Maternal death Increased risk of depression | –                              |                                     |
| Wolchik, Tein, Sandler, and Ayers (2006) | USA | Mean age 11.46, 339 cases longitudinal | Female Negative effect on fear of abandonment, internalising problems and self-esteem | –                              |                                     |
| Wood, Chase, and Aggleton (2006) | Zimbabwe      | 7–22 yrs, Fifty-six OVC, 41 adults | –                                         | –                              |                                     |
UNAIDS and international country data sets. Treatment need, uptake, rollout, cotrimoxicol availability were all not recorded according to gender in global statistics. It is crucial to know of any gender considerations in terms of treatment access and availability. Not surprisingly there appears to be a lack of gender focus in programmatic provision for young children; girl children run a risk of discrimination whilst boy children may be overlooked.

Despite well-established gender challenges in later life, the omission of gender data from current policy and research leads to ignorance by neglect. Gender needs to be routinely monitored and analysed in research with young children. Clear gender differences in early adulthood, such as distribution of HIV infection by age, treatment access and adherence cannot be traced to childhood if no data are available. Data on gender variation and outcome are urgently needed to inform policy and research. Inattention to gender differences in infancy may create irreversible foundations for complex disparities and discrimination.

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