Child violence experiences in institutionalised/orphanage care

Lorraine Sherr, Kathryn J. Roberts & Natasha Gandhi

View supplementary material ⬚

Published online: 09 Jan 2017.

Submit your article to this journal ⬚

Article views: 408

View related articles ⬚

View Crossmark data ⬚

Taylor & Francis
Taylor & Francis Group

🔓 OPEN ACCESS

Child violence experiences in institutionalised/orphanage care

Lorraine Sherr, Kathryn J. Roberts and Natasha Gandhi

Department of Infection & Population Health, University College London, London, UK

ABSTRACT

Institutions are not necessarily good environments for children. In the face of challenges such as HIV, Ebola, poverty, conflict and disaster the numbers have grown rather than reduced. Some countries have closed institutions down –driven by findings that cognitive developmental delay is associated with institutional care. Yet insight into abuse and violence within institutionalised settings is neglected. Maltreatment -violence and abuse -may be an issue. This systematic review series addresses violence and abuse experiences in institutionalised care, exploring firstly the frequency of abuse/violence in institutions, secondly any interventions to reduce such violence or abuse and thirdly the perpetrators of such violence or abuse. The final systematic review updates the findings on cognitive delay associated with institutionalised care. With a violence lens, cognitive delay may well be considered under the umbrella of neglect. Maltreatment and abuse may be a driver of cognitive delay. The keyword search covered several electronic databases and studies were included for data abstraction if they met adequacy criteria. Eight studies were identified on the prevalence of abuse in institutions and a further three studies reported on interventions. Only one study was identified documenting peer on peer violence in institutions. Sixty-six studies were identified examining cognitive development for institutionalised children. All but two of these record cognitive deficits associated with institutionalisation. Only two asked about violence or abuse which was found to be higher in institutionalised children. Overall the abuse experiences of children in institutions are poorly recorded, and in one study violence was associated with high suicidal attempts. The major intervention pathway for ameliorating cognitive challenge seems to be placement out of the institutions which shows benefits and redresses some cognitive outcomes – yet not a total panacea. The single study providing training and monitoring of harsh punishment and maltreatment showed immediate and decided reductions. This data suggest, despite the paucity of studies, violence and abuse, by commission or omission is prevalent in institutions, has an effect on child well-being and is amenable to intervention. Simple training or more complex structures to place children within conducive alternative environments (or to avoid institutionalised placements in the first place) seem to be the main pathway of intervention.

CONTACT Lorraine Sherr ✉ l.sherr@ucl.ac.uk

The underlying research materials for this article can be accessed at http://dx.doi.org/10.1080/13548506.2016.1271951

Background

The way in which children are cared for has a profound effect on their development (Engle et al., 2007) with lifelong implications (Campbell, Conti, Heckman, et al., 2014; Walker, Chang, Powell, Simonoff, & Grantham-McGregor, 2006; Walker, Chang, Vera-Hernández, & Grantham-McGregor, 2011). For most children care takes place within the family which is seen as protective (Fluke et al., 2012) – with initiatives set up to explore ways of ensuring the wellbeing of children outside of family care (Maholmes, Fluke, Rinehart, & Huebner, 2012). Yet there are multiple forms of alternative care arrangements for children, either as a result of interruptions in normative patterns or variations of culture and background. Such flexibility of approach includes single, dual or multiple parenting, nuclear or extended families, child headed households, adoption or foster caring. In the absence of families or designated adults, orphanages or institutionalised care arrangements have also evolved – either formally or informally. The drivers of such institutions have ostensibly been orphanhood, but on closer scrutiny there are often other drivers including illness, poverty, culture, politics or societal challenges such as war, conflict, disaster and displacement/migration (Williamson & Greenberg, 2010). Both push and pull factors have been identified, with the funding flows and commercial factors being issues not to be overlooked in the establishment and sustaining of institutions (Rotabi et al. 2016).

Both child survival (in the Millennium Development Goals) and thriving (now captured in the Sustainable Development Goals) are acknowledged as important global aims. In recent times the importance of early child experience has been consolidated in the evidence base both in terms of short and long term outcomes (Black & Hurley, 2016; Dua et al., 2016). Such outcomes cross a wide spectrum of achievement including education, employment, wellbeing, mental health and intergenerational parenting to mention a few. The advent of brain sciences has also highlighted the importance of the early years as brain cells proliferate, and early childhood is seen as an extremely important phase of development (Phillips & Shonkoff, 2000). The global community has begun to question institutionalised care arrangements – often triggered by the fact that children in such environments have been observed as neglected in some form. A series of systematic reviews and insights into cognitive development has shown that institutionalised care is invariably associated with poor cognitive development (Berens & Nelson, 2015; Johnson, Browne, & Hamilton-Giachritsis, 2006; Van IJzendoorn, Luijk, & Juffer, 2008). The picture, however, is complex. The literature also shows that disability in its own right is a predictor of institutionalisation and the cause and effect mechanisms are hard to disentangle. In this era of evidence based understanding it is also a challenge to ever understand true causal pathways, as random allocation to institutions could never be ethically defended. Indeed the current advice is the closure and non-utilisation of institutions in the first place. However, the astute studies can provide some rigour in interventions where random allocation to subsequent care environments has been possible and these have shown a number of key findings. Of note from these studies is the fact that the subsequent progress of children can be examined more scientifically in randomised controlled trials. For example, children randomly allocated to family care versus remaining in the institution fare better, those with cognitive delays show evidence of catch up and a detailed examination of the findings also show that age of placement and duration of stay in the institution are key predictors of subsequent achievement.

At this point in time there are a number of factors at play that should be considered. A series of systematic reviews have shown negative cognitive outcomes associated with

institutionalised care (Berens & Nelson, 2015; Johnson et al., 2006; Van IJzendoorn et al., 2008). Growth has been shown to be dramatically effected (Van IJzendoorn, Bakermans-Kranenburg, & Juffer, 2007). Enabling attachment has been questioned (Vorria et al., 2003; Zeanah, Smyke, Koga, Carlson, & the Bucharest Early Intervention Project Care Group, 2005). Some countries have dismantled such forms of care (e.g. UK, USA) while some are in the process of so doing (e.g. Ethiopia, Malawi, Rwanda, Georgia; Greenberg & Partskhaladze, 2014). A review in 2006 (Johnson et al., 2006) demonstrated that optimal child development was not facilitated by institutional care. Van IJzendoorn et al. (2011) propose that children exposed to institutional care can suffer from what they call 'structural neglect' which combines environmental challenges such as minimum physical resources, challenging staffing patterns and inadequacy in caregiver-child interactions all of which can impact child development. They note that the evidence is still unclear on the inevitability of irreversible scars and explore different institutional and child factors that may contribute to averting or compounding difficulties. Furthermore they suggested that lengthier periods of residence in such care were related to risk of harm to developmental trajectories – both physical and psychological. Such policy change needs to consider the mechanisms for dismantling such institutions, the handling of current residents in such environments, and the transition phases to new provision. At all times the primary consideration needs to be the needs and rights of the child.

At the very time when there is sound knowledge on the hazards of institutionalised care, there are clear warnings and cautions around diversion of funds and there is concern around problems such as orphan tourism (Richter & Norman, 2010). It is important to note that rather than declining in numbers there is a growth of institutions and orphanages to care for children globally. This has been driven by a number of factors. HIV infection and AIDS as an epidemic directly affected a number of countries, causing premature death among young adults and thus affecting child care provision and the level of orphaning among young children (Belsey & Sherr, 2011). The advent of HIV treatment and its global roll out has played a part in averting this situation, but full coverage and historical death rates have not removed the crisis resulting in a sudden and perhaps urgent need for alternative care provision where traditional safety nets were stretched to breaking point (Dawson, 2013; Foster, 2007; Heymann & Kidman, 2009; Seeley et al., 1993; Zagheni, 2011). This is not confined to HIV infection, and was seen as an issue in the recent Ebola outbreaks and high death tolls in Western Africa (Evans & Popova, 2015). Many forms of institutions proliferated to accommodate or care for such orphans. Conflict and poverty have also fed into the cycle of family breakdown and alternative care provision. Other drivers include disaster either natural or man-made, which has resulted in the abrupt breakdown of family care. Some children experience maltreatment prior to institutionalisation (Morantz, Cole, Ayaya, Ayuku, & Braitstein, 2013) and poverty and the strains of family life may have driven the placement of children in institutions.

The link between orphaning and orphanage placement of children is not direct. Many children in orphanages have surviving parents – i.e. they are not orphans; and many children who are orphaned are not in orphanages (Sherr et al., 2008). The care needs of older children or those with temporary requirements may differ from the traditional view of long term early orphanage placement and a variety of alternative provisions have emerged which may cloud the picture and affect the evaluation when different forms of care are being compared. Funding flows are often targeted on orphanage care which makes unfunded community

comparisons difficult methodologically as economic security may not be equal among groups. This can particularly cloud outcomes which are economically dependent – such as school enrolment. Transitional care may also not be equated with long term care. For example many infants move through transitional care en-route to international adoption. It is unclear how these infants compare to those who are cared for long term in institutions – even if eventually they are moved to adoptive families – national or international. Early studies differentiated between group homes and large impersonal institutions – showing the former to provide a more acceptable care environment. Subsequent evaluations need to differentiate between these for accurate insight.

From the standpoint of the violence literature, one can commence to examine institutionalisation as a form of neglect. Such child neglect is itself a neglected type of maltreatment considered in scientific research (Stoltenborgh, Bakermans-Kranenburg, & van Ijzendoorn, 2013). Violence in childhood – together with interventions for its prevention, have begun to provide a series of definitions for violence experiences as well as formulations to explore violence contexts. It seems that definitions provide a detailed continuum marked by severity of violence acts – both in terms of objective perpetration and subjective experience – as well as frequency or chronicity of exposure. Violence against children can be seen as both commission and omission. Commission refers to abuse, harsh punishments, physical psychological and sexual violence, whereas omission encompasses neglect and absence of positive experiences. Many researchers have tried to divide violence experiences according to home, school and community. Within this it is important to locate the effects of institutionalisation on children (Johnson et al., 2006). One could argue that neglect – or the failure to thrive and develop in the context of cognitive development – would be one ramification to explore. Secondly there are a number of anecdotal accounts of severity of experience within institutionalised care which would fall under the harsh punishment and abuse umbrella. These accounts – often in the popular press or within legal court proceedings – examine factors such as sexual and physical violence experience. Yet many of these are retrospective recollections and recall.

It seems timely to provide some definitive systematic review evidence on violence experiences for children in institutionalised/orphanage care. This review was thus set up to provide an up to date synthesis in the area. It was set up to examine a series of interlinked questions

(1) What is the prevalence of abuse or violence in institutionalised care? Can this be disaggregated and explored as staff/adult to child violence and peer on peer violence?
(2) What interventions have been utilised to reduce violence in institutionalised care?
(3) If cognitive delay is construed as neglect, what is the up to date evidence on cognitive delay within institutionalised care. This question has previously been addressed in a series of reviews, and this review will summarise these and update the findings.

Method

Search strategy

A series of systematic searches were undertaken in March 2016 to provide data for this review. The review was conducted according to guidance from the PRISMA 2009 checklist

(Moher, Liberati, Tetzlaff, & Altman, 2009), flow diagram and informed by the Assessment of Multiple Systematic Reviews to guide methodological quality (Shea et al., 2009). The papers yielded by the search strategies are reported using the PRISMA flow chart in the figures for each section.

Abuse prevalence in institutionalised care

The first was a search to identify studies reporting on the maltreatment of children within institutional care, in order to establish the rate and nature of abuse experienced by children within institutional care. The search strategy involved a key word search of the following electronic databases: PsycINFO (1872–2015), Medline (1950–2015), Web of Science (1900–2015) and Embase (1980–2015) and hand searching. Keyword search terms covering topics such as children, institutional care, development and maltreatment were used to identify relevant studies within databases (see Supplementary material for keyword search terms and number of results for each step within the electronic databases above).

Interventions to reduce abuse in institutionalised care settings

A sub-search was conducted as part of the above search to identify those studies that reported on the use of an intervention to reduce abuse/maltreatment within institutional care. These studies were drawn from the same search that identified articles reporting on prevalence where by a second set of data extraction was carried out to identify studies reporting on any interventions (see Figure 1 for the number of studies included in each set).
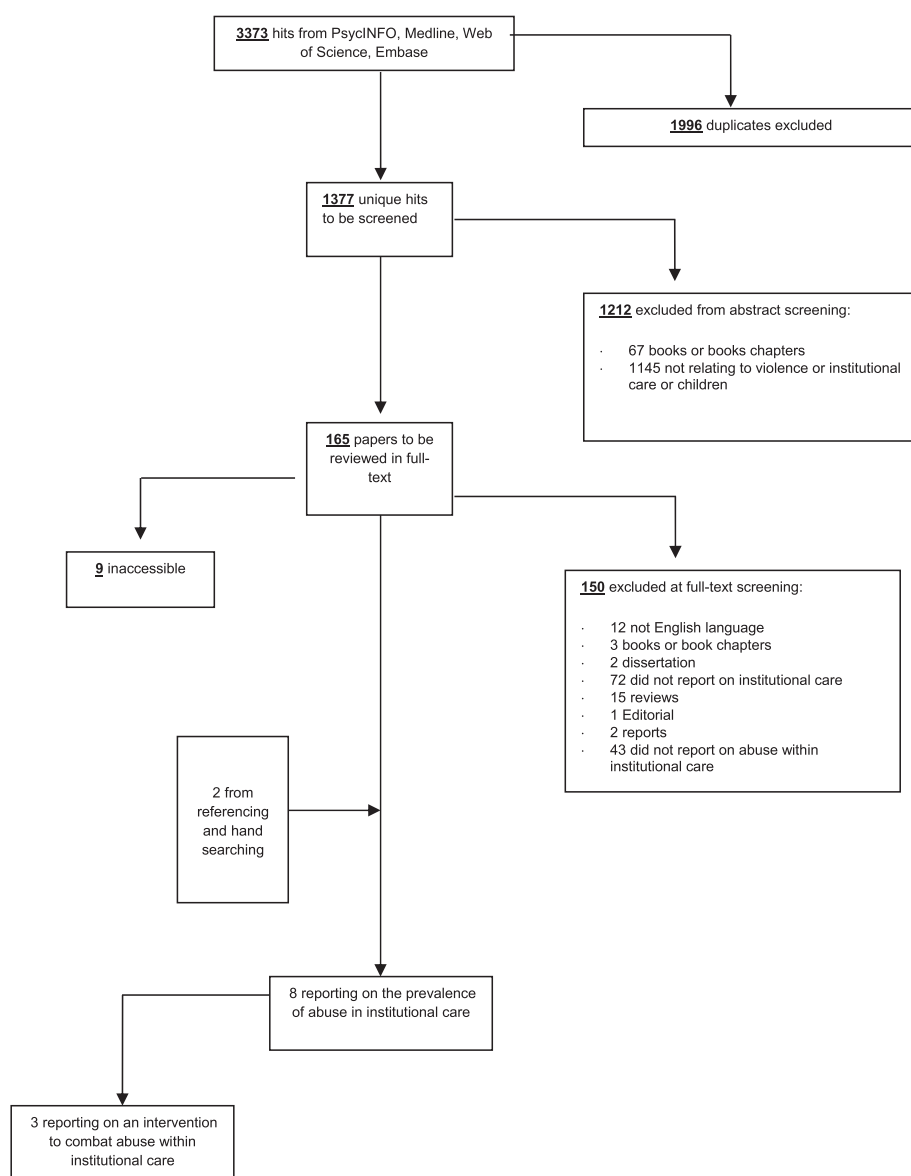
Peer violence in institutions

As a follow-up to the first search, a second search was conducted to identify studies reporting on peer violence within institutional care. This search involved a key word search of the databases outlined above and repeated the keyword search term topics with the addition of 'peer violence' (see Supplementary material for the keyword search terms used and the number of studies identified from each electronic database).

Abuse as neglect – updated review of cognitive development in institutions

A final search was conducted to identify studies that reported on the cognitive and social development of children within institutional care. The study involved a keyword search of the PsycINFO (1872–2016) and Medline (1950–2016) in March 2016, electronic databases as well as hand searching. Keyword search terms used topics including children, institutional care, cognitive development and social development to identify relevant studies (See Supplementary material for the keyword search terms used and the number of studies identified from each electronic database). A number of previous reviews on this topic have been conducted and these are summarised, included, and provide a source of references for this up to date data abstraction. This analysis goes beyond the previous reviews in that it explores whether any of the cognitive studies take measures on abuse and subsequently summarises the studies reporting on interventions to reduce the cognitive effects.

Criteria for inclusion

All studies identified with relevant keywords were then read and sorted for inclusion.

Figure 1. Flow chart: prevalence of abuse within institutional care systematic review – paper inclusion.

Abuse prevalence in institutionalised care

The criteria for inclusion of studies investigating maltreatment were original empirical research papers in English language, the inclusion of children within institutional care and the inclusion of a measure (self-report or observation) of maltreatment (violence or abuse) within institutional care. From this search, studies assessing the prevalence of abuse within institutional care were identified. Children in formal institutional care settings such as prisons, young offender or court ordered care placements or hospitalisation were not included.

Abuse interventions in institutionalised care

From this group, a sub-group of studies were identified from those that included an intervention to reduce maltreatment. These studies were required to meet the above criteria and include a comparison group not exposed to institutional care, a comparison group of some other form, or use a repeated measures design (see Figure 1 for an overview of how studies were excluded at each step).

The initial search generated 3373 hits of which 1996 were immediately excluded as duplicates leaving 1377 unique abstracts for screening. This first screen excluded 1212 abstracts based on 67 not fitting the type of publication criteria (i.e. books) and 1445 not relating to violence or abuse as set out. The remaining 165 papers were reviewed in full text. From the full screen 150 were excluded for not being in English language (12), book, book chapters or dissertations (5), 72 did not report on institutionalised care, 18 were reviews, editorials or reports, 9 were inaccessible and finally 43 had no measure of abuse within institutional care. Remaining papers were then used to track any references which may be applicable. This tracking generated 2 additional papers. The final papers for inclusion allowed for 8 reporting the prevalence of abuse in institutions and 3 reporting on interventions to combat such abuse (see Figure 1).

Peer on peer violence in institutional care

The criteria for inclusion for studies identifying peer violence were the same criteria used to identify the prevalence of abuse. Additionally, measures of maltreatment must have assessed peer on peer violence (see Figure 2 for an overview of how studies were excluded at each step). For the depth exploration of peer violence within institutional care – the paper inclusion flow chart is set out below. Key word searches generated 1391 hits of which 67 were excluded as duplicates and 1324 were screened on abstract resulting in 1267 exclusions and 57 remaining for full text review. On review, 54 were excluded (22 did not report on institutional care, 2 were reviews, 2 were inaccessible, 1 was a qualitative study, 24 had no measure of peer violence and finally 5 were non-academic reports). There was thus only one single paper on peer on peer violence in institutional care which met the systematic review inclusion criteria (see Figure 2).

Effect of institutions on cognitive development – abuse by neglect?

For studies assessing the impact of institutional care on child development (shown in Supplementary material) the criteria for inclusion were original empirical research papers in English language, the inclusion of children within institutional care and the inclusion of a measure (self-report or observation) of cognition or socialisation. The issue of cognitive development and institutionalised care has been the subject of previous systematic and comprehensive reviews (Berens & Nelson, 2015; Johnson et al., 2006). For the purpose of this review, search terms are set out in Supplementary material. All studies meeting eligibility criteria were included and subjected to data extraction. References of existing studies were followed through to add to the database of studies.

Cognitive/social development and institutional care – paper inclusion

As a result 356 hits were made with 29 papers excluded as duplicates leaving 327 unique hits to be screened in full. From these 258 were excluded – 60 as the incorrect type of
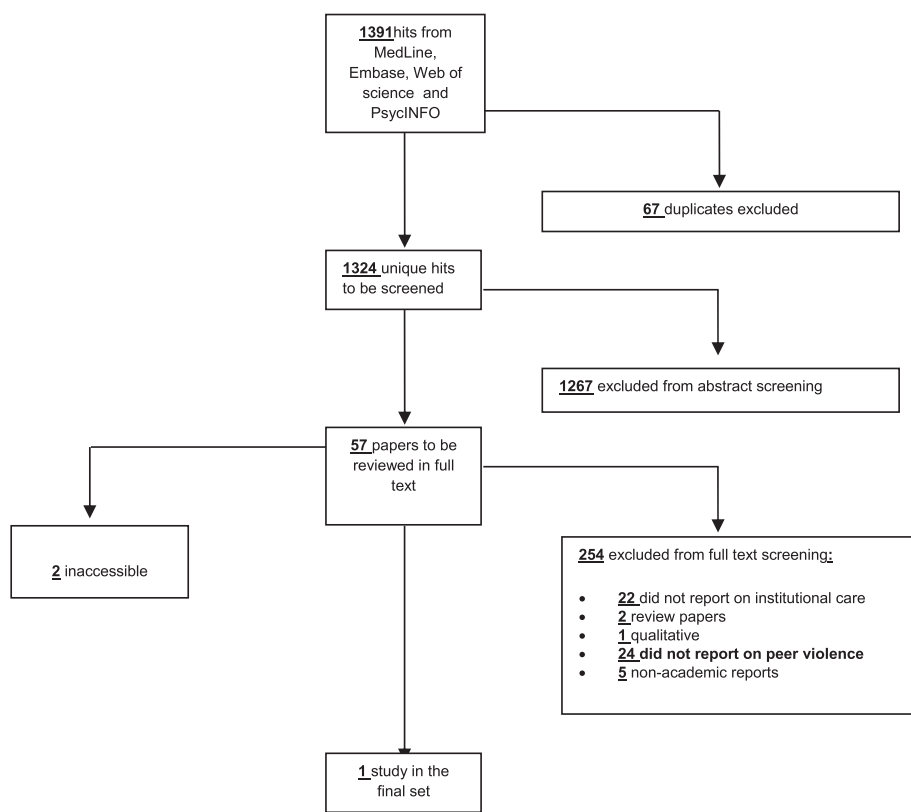
Figure 2. Peer violence within institutional care – paper inclusion.

publication (34 books, 2 non English, 3 case studies, 2 dissertations, and 19 reviews). 175 papers were excluded on sampling or design factors and 23 were inaccessible. Hand searching and comparisons with references from existing short listed papers or earlier reviews generated an additional 20 papers for inclusion. The final set for inclusion comprised 66 studies (see Figure 3).

Institutionalised care definition

The concept of institutional care used within this review includes large institutions dedicated to care for children with employed staff. Thus other institutions such as schools and hospitals were not considered. Our definition was not inclusive of rehabilitative or therapeutic care settings where children with specific identified emotional or behavioural problems may be placed or rehabilitation settings or youth detention settings. Thus studies reporting on violence and abuse within these settings (such as Attar-Schwartz, 2013, 2014; Attar-Schwartz & Khoury-Kassabri, 2015; Khoury-Kassabri & Attar-Schwartz, 2013) were excluded. Additionally, the findings of this review are not inclusive of non-academic surveys reporting on violence and abuse completed by organisations (Harr, 2011; Stavita, 2002) nor thesis or dissertation projects (Rus, 2012).
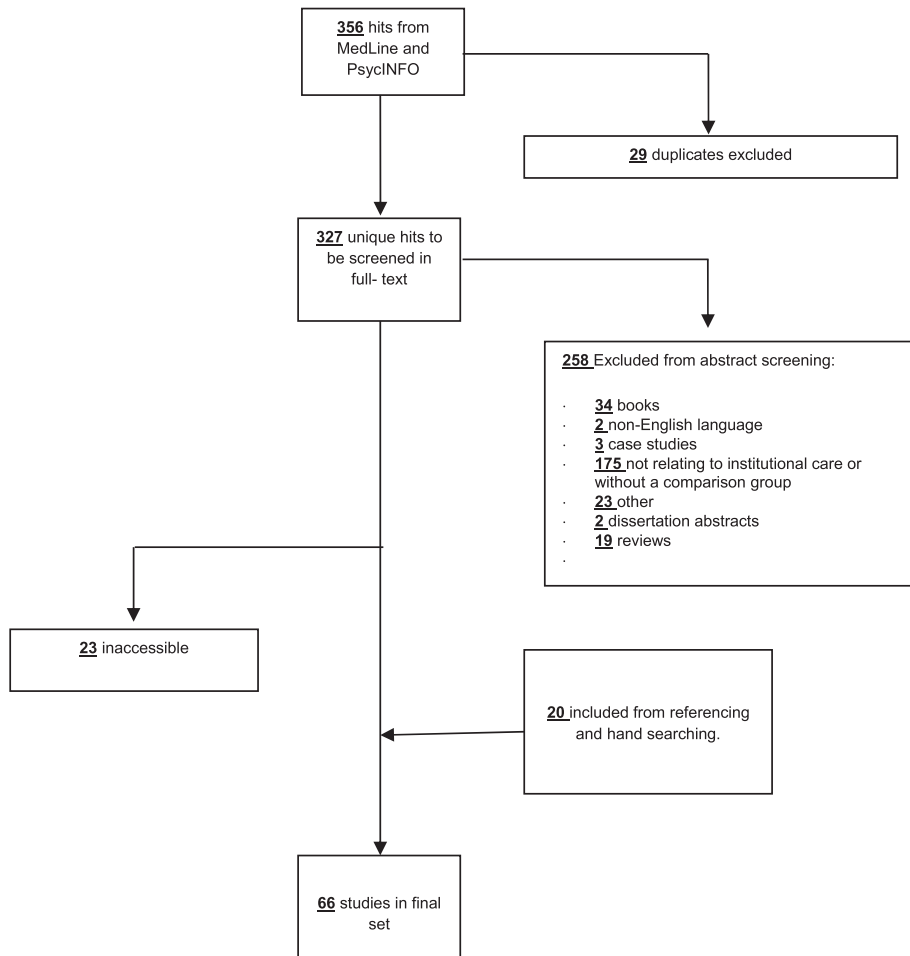
Figure 3. Flow chart: cognitive/social development and institutional care – paper inclusion.

Data extraction

For all four investigations, data extraction was carried out by the creation of a data abstraction database in excel and subsequent detailed interrogation of each full paper. Data from each study was extracted to a common table which had a set of key headings to ensure systematic and compatible insight. This included study, authors, place, date, sample, measures, detail and findings. Extraction was carried out by two psychologists and confirmation/ checking and arbitration for final inclusion was carried out by a third psychologist in the team. For the cognitive systematic review, all studies were examined to list location, authors, included sample, cognitive measures, cognitive outcomes and a further interrogation of the studies to specifically add to the data abstraction whether abuse in any form was measured, and what the findings on abuse were (see Figure 3 for an overview of how studies were excluded at each step of the cognitive review).

Results

Prevalence of abuse

Nine studies were identified examining prevalence of abuse in institutionalised settings. This included 2995 children. Despite the long history of abuse with multiple press and media reports, and the searches not being limited by date, such studies are all reported from 2011 to 2015. The studies cover a wide geographical range. Three emanated from Tanzania, two from Romania, 1 each from Kazakhstan, Netherlands and Israel and one multicounty study covered Cambodia, Ethiopia, India, Kenya and Tanzania. The age ranges varied from 7 years to 20 years. Thus there is no data at all on abuse for children under the age of 7 in institutionalised settings. The methodologies of the studies varied in terms of the recall period of abuse and the definitions of abuse. Not a single study used the same measure as another. Measures were either specific measures, derivatives from other measures or study specific questions. These are set out in the box below.

- Self reported if spanked, beaten, screamed or yelled at over three time periods.
- Life Events Checklist (Self reported measure by National Centre of PTSD).
- Maltreatment and Abuse Chronology of Exposure interview.
- Self report on physical abuse, psychological abuse and harsh verbal abuse.
- Survey questions:
(1) Have you been severely punished (beaten) by the staff – and how many times.
(2) Have you happened to be severely punished, inclusively beaten, by the staff.
(3) An adult in the residential care facility or foster family where I lived (1) hit me on the bottom with a hard object; (2) hit me with a fist or kicked me; (3) grabbed me around the neck and choked me; (4) beat me up; (5) burned or scalded me on purpose; (6) hit me on some other part of the body apart from the bottom with a hard object; (7) threatened me with a knife or gun; (8) threw or knocked me down).

Overall the prevalence was high (Table 1). Hermenau, Kaltenbach, Mkinga, and Hecker (2015; Tanzania) noted 93% reporting physical maltreatment at baseline. Gray et al. (2015a, 2015b) noted that 50.3% of 1053 children in institutional care across 5 countries reported physical or sexual abuse with no differences by gender, but more abuse among the younger age groups. Hermenau, Hecker, Elbert, and Ruf-Leuschner (2014) in Tanzania compared reports for children who were institutionalised from 0 to 4 years of age with those 5–14 years of age, and noted that 89% reported at least one experience of abuse, more so among those institutionalised at birth. In a comprehensive country wide study in the Netherlands, Euser, Alink, Tharner, van IJzendoorn, and Bakermans-Kranenburg (2014) found that adolescents exposed to institutional care were significantly more at risk of physical abuse than those in foster care or the general population. Rates for males were 31% and females were 18%. Rus et al. (2013) in a large sample of 1391 children aged 7–20 years, 39.5% recorded severe punishment or beatings by staff – 80% of whom record that this occurred many times and with greater odds for males. In a large (n = 1053) 5 country study, Gray et al. (2015a) predicted 50.3% [95% CI: 42.5, 58.0] of those children within institutional care experienced physical or sexual abuse. In a second study (Gray et al., 2015b) from the same group predicted prevalence of physical and sexual abuse for institutionalised children at age 13 was 49.4% of males and 51.3% of females and 13.6% for males and 12% for females when confined to the last 12 months. Pinto and Maia (2013) reported on 86 children in institutional care and noted emotional abuse for 36%, physical abuse for 34.9%, emotional neglect 57%, physical neglect 45.3% and sexual abuse 21%.

This limited data suggest a pervasive abuse problem for children in institutions, however abuse was defined. When comparisons are available (4 studies) the levels were higher than other forms of care or general population rates.

Peer on peer violence

During the course of the review, the concept of peer on peer abuse or violence within institutionalised settings was discussed and it was felt that a separate review and scan of the literature would be helpful to explore this specific form of abuse to understand if peer on peer violence was exacerbated within institutionalised settings. A thorough systematic review of peer on peer violence was undertaken and papers were sifted for those which provided information on residents in institutional care and orphanage environments. However, with the inclusion criteria and quality needs, the review revealed only a single study reporting on levels of peer on peer violence. This single study (Euser et al., 2014; Table 1) showed 9% of the victims from residential care reported youths of 18 years or older from the residential care facility as perpetrator.

Interventions to ameliorate abuse in institutions

The review identified 3 specific studies aimed at reducing such abuse and relevant to only 152 children (Table 2). Clearly the removal of children from such care environments may be another form of intervention, but these are rarely stated as being an abuse reduction intervention. The three studies include two from Tanzania by the same author (Hermenau et al., 2011, 2015), but seemingly on different groups of children in 2011 and again in 2015. It is unclear whether these are the same children, but in any event the numbers are very small (38 in one study and 28 in another). Both interventions involved caregiver training and as a result child report of maltreatment was reduced at follow up. This went down dramatically from 93% to 50% to 18% from baseline to two post-intervention follow up periods. In this study emotional maltreatment went down and reported depression also decreased significantly. In the Portuguese study, Pinto and Maia (2013) compared 80 children in institutions with 50 in home based care and found abuse higher in institutions. This was the only study in the review that provided specific information on suicidal behaviour, with institutional children reporting the astonishingly high rate of 52.3% suicidal attempts. This was significantly lower for the home based care group (32% $X = 5.28$, $p < .05$), but still notably high.

Abuse and cognitive/social development

A number of previous reviews have been conducted to explore the effects of institutionalised care on cognitive development. These will be briefly summarised prior to the results of this review.

(1) Johnson et al. (2006) searched for studies from 1944 to 2006 and identified 27 studies (involving 1663 children) to examine 3 domains of enquiry – attachment; social and behavioural development and cognitive development. No measures of abuse or violence were reported. From the 12 studies on attachment 11 reported disordered attachment of some form. Of the 17 studies on social and behavioural

Table 1. Prevalence of abuse.

Study	Location	Sample	Measure of abuse	Prevalence
Abuse by staff				
1. Rus et al. (2013)	Romania	1391 (648 female) children within institutional care. Age 7–20 years (M 12.86 [SD = 2.8])	Survey question: 'Have you happened to be severely punished (beaten) by the staff?' including both physical and emotional abuse. For 'yes', they were asked: how many times have you been severely punished by the staff? (Once/ many times)	39.5% had been severely punished or beaten by the staff - 7.7% once and 31.8% reported many times. Males > severe punishment (OR = 1.79) than females (p < .001)
2. Euser et al. (2014)	The Netherlands	N = 329: 168 adolescents (38% female) in institutional care (age: 16.1 [SD = 1.43]) vs. 115 adolescents (53% female) in foster care (age: 15.1 [SD = 1.86])	Self- report questionnaire of 24 questions. Eight physical abuse where included (i.e. An adult in the residential care facility or foster family where I lived (1) hit me on the bottom with a hard object; (2) hit me with a fist or kicked me; (3) grabbed me around the neck and choked me; (4) beat me up; (5) burned or scalded me on purpose; (6) hit me on some other part of the body apart from the bottom with a hard object; (7) threatened me with a knife or gun; (8) threw or knocked me down)	Adolescents exposed to institutional care significantly higher risk of physical abuse than foster care (Risk Ratio – 1.9; 95% CI:1.2–3.0)
Physical abuse not related to age for any out of home care settings. Males > physical abuse than females (31% vs. 18%)
42% of those physically abused chose not to disclose the perpetrator. Of those who did disclose, (71%) abused by an employee- their perpetrators were other adults (e.g. teachers, security personnel, strangers; 26% in residential care). Two reported more than one type of perpetrator
Abuse by peers				
3. Euser et al. (2014)	The Netherlands	N = 329: 168 adolescents (38% female) in institutional care (age: 16.1 [SD = 1.43]) vs. 115 adolescents (53% female) in foster care (age: 15.1 [SD = 1.86])	Same as 2 above	Institutional care significantly higher risk of exposure to physical abuse than foster care (Risk Ratio – 1.9; 95% CI:1.2–3.0)
9% of the victims from residential care reported youths of 18 years or older from the residential care facility as perpetrator
Abuse, perpetrator not specified/measured				
4. Hermenau et al. (2015)	Tanzania	28 (14 female) children within institutional care. Age 7–12 years (M 9.79y [SD = 1.45])	Physical maltreatment defined as being spanked or beaten. Emotional maltreatment as being screamed or yelled at. Maltreatment and abuse Chronology of Exposure was used to assess adverse childhood experience over 3 time periods	Physical Maltreatment: 93% reported physical maltreatment at baseline, 50% at time 1 and 18% at time 2. Emotional Maltreatment: 61% at baseline, 32% at time 1, and 79% at time 2. N analysed by age or gender
5. Gray et al. (2015a)	Cambodia
Ethiopia
India
Kenya
Tanzania	1053 (551 female) children in institutional care. Age 10–12 years	Potentially traumatic experiences were assessed using the Life Events Checklist (LEC), a self-report measure developed by the National Centre of Post-Traumatic Stress Disorder (PTSD)	50.3% [95% CI: 42.5, 58.0] of children within institutional care experienced physical or sexual abuse. Did not differ by gender however, incidence of abuse higher within younger adolescents (10–13 years) vs. (14–15 years). 6.6% of children within institutional care reported violence within the family or care setting within the previous 12 months compared to 9.1% of children within family based care

6. Gray et al. (2015b)	Cambodia Ethiopia India Kenya Tanzania	1053 (551 female) children in institutional care. Age 10–12 years	Potentially traumatic experiences were assessed using the Life Events Checklist (LEC), a self-report measure developed by the National Centre of Post-Traumatic Stress Disorder (PTSD). This study focused on gender comparisons	Gender specific estimates of abuse within groups were comparable. 50.3% [95% CI: 42.5, 58.0] of those children within institutional care reported physical or sexual abuse. Within the institutional care group the predicted prevalence of physical and sexual abuse at age 13 was 49.4% of males and 51.3% of females. Incidence of physical and sexual abuse within the last 12 months (age 13) was found to be 13.6% males and 12% of females
7. Hermenau et al. (2014)	Tanzania	$N = 70 – 35$ children who were institutionalised at birth-4 years of age (16 female) vs. 35 children institutionalised at 5–14 years of age (16 female). Interview age mean 10.5 years range 8–15 years)	Structured interview. Adverse childhood experiences were assessed using the Maltreatment And Abuse Chronology Of Exposure Paediatric Interview. This reflected the number of experienced and witnessed types of physical, emotional, and sexual maltreatment by caregivers toward children	62 (89%) children reported that they had least experienced one ACE type in institutional care. Children who were institutionalised at birth-4 years were more likely to experience abuse than those children aged 5–14 years
8. Hermenau et al. (2011)	Tanzania	38 children within institutional care (IC; 47% female, age: $M = 8.56$ years [R: 3–16 years])	Children were asked 41 questions about violence (http://www.vivo.org). At t1 children were asked about the violence they had experienced at home, school, in the neighbourhood and within the orphanage over their life time. At time 2, children were asked about the violence they had experienced in these settings over the past 6 months	At t1 children reported that they had experienced and average of $M = 4.03$ [$SD = 3.99$], different violent events within the orphanage over their lifetime. At t2 children reported that they had experienced an average of $M = 1.93$ [$SD = 2.40$], different violence event within the orphanage within the last 6 months. Findings aggregated by age and gender were not presented in this study
9. Pinto and Maia (2013)	Portugal	86 children in institutional care (IC) vs. 50 children in home based care (HBC) vs. 80 in the comparison group. 111 females, age: range 14–23 years ($M = 17.05$ years, SD $= 1.8$ years)	Children completed ACE study questionnaire - evaluates 10 categories of adverse childhood experiences including Emotional abuse: two items (e.g. 'How often did a parent, stepparent, or adult living in your home swear at you, insult you, or put you down'). A response of often or very often to at least one of the items. Physical abuse: four items (e.g. 'While you were growing up, that is, during your first 18 years of life, how often did a parent, stepparent, or adult living in your home push, grab, slap, or throw something at you?'). A response of often or very often to the first item or sometimes, often, or very often to the second item. Sexual abuse: four items (e.g. 'During the first 18 years of your life, did an adult, relative, family friend or stranger ever touch or fondle your body in a sexual way?'). A response of yes to any of the four items. Emotional neglect: five reverse-scored items (e.g. there was someone in my family who helped me feel important or special). A response of never or once in response to one of the five items. Physical neglect: five items (two reverse-scored items) (e.g. 'I didn't have enough to eat'; 'I knew there was someone there to take care of me and protect me.)	Children exposed to IC overall reported higher levels of abuse compared to those children in the HBC intervention on self-report measures (emotional abuse: IC [36%] vs. HBC [18%]; $X = 11.36$, $p < .01$; physical abuse: IC [34.9%] vs. HBC [14%]; $X = 14.50$, $p < .01$; emotional neglect: IC [57%] vs. HBC [42%]; $X = 10.21$, $p < .01$; physical neglect: IC [45.3%] vs. HBC [20%]; $X = 22.59$, $p < .01$; sexual abuse: IC [21%] vs. HBC [12.2%]; $X = 2.16$, n.s.). Based on documented abuse reported in official records children in IC greater amount of physical neglect, emotional neglect and sexual abuse when compared to the HBC intervention group (physical neglect: IC [94.1%] vs. HBC [76%], $X = 9.39$, $p < .01$; emotional neglect: IC [38.8%] vs. HBC [32%], $X = .634$, n.s.; sexual abuse: IC [9.4%] vs. HBC [6%], $X = .49$, n.s.)

Table 2. Interventions for violence/abuse in institutions.

Study	Location	Sample	Description of intervention	Measures	Findings	Comment
1. Hermenau et al. (2015)	Tanzania	28 children within institutional care (IC; 14 female; age: M 9.79 [SD 1.45])	Training for caregivers of children in IC. Aimed to prevent abuse and improve care quality. Mental health and exposure to abuse within IC assessed at 3 time points; 20 m prior, 1 m prior and 3 m following caregiver training	Structured interview. Maltreatment and Abuse Chronology of Exposure was used. Children's Depression Inventory (CDI), The Strengths and Difficulties Questionnaire (SDQ) and the Reactive-Proactive Questionnaire (RPQ completed	A reduction in reported exposure to maltreatment over time. 93% at t1 and 18% at t3. Significantly less physical maltreatment at t3 compared to t1, $\chi^2(1) = 4.27$, $p = .018$, and t0, $\chi^2(1) = 17.39$, $p < .001$. Emotional maltreatment for 61% at baseline, 32% at t1, and 79% at t3. Depressive symptomology changed over time, $F(252) = 15.00$, $p < .001$ as did internalising and externalising problems, $F(254) = 12.58$, $p < .001$. RPQ scores reduced over time; t3 to t0, $t(23) = 6.27$, $p < .001$. Findings not aggregated by age or gender	Following the caregiver training intervention, children reported improved caregiving, less physical maltreatment by caregivers, improved mental health and reduced aggressive behaviour. The authors do not comment on the prevalence of violence in terms of gender or age
2. Pinto and Maia (2013)	Portugal	86 children in institutional care (IC) vs. 50 children in home based care (HBC) vs. 80 in the comparison group. 86 children in institutional care (IC) vs. 50 children in home based care (HBC) vs. 80 in the comparison group. 111 females, age: range 14–23 years (M = 17.05 years, SD = 1.8 years)	This study assessed psychopathology, childhood adversity, physical health and health risk behaviours among youths who received one of two different protective interventions which comprised movement from family into residential or foster care (HBC vs. IC). Comparisons were made between groups and with a comparison group	Social-demographic questionnaire, brief symptom inventory (evaluating psychological distress), Rotterdam symptom checklist (measure of physical and psychological symptoms), health risk behaviour checklist, ACE study questionnaire (evaluation of adverse childhood experience). Official records grid.	Children exposed to IC overall reported higher levels of abuse compared to those children in the HBC intervention on self-report measures (emotional abuse: IC [36%] vs. HBC [18%]; $X = 11.36$, $p < .01$; physical abuse: IC [34.9%] vs. HBC [14%]; $X = 14.50$, $p < .01$; emotional neglect: IC [57%] vs. HBC [42%]; $X = 10.21$, $p < .01$; physical neglect: IC [45.3%] vs. HBC [20%]; $X = 22.59$, $p < .01$; sexual abuse: IC [21%] vs. HBC [12.2%]; $X = 2.16$, n.s.). Documented abuse in official records IC > physical neglect, emotional neglect and sexual abuse than HBC (physical neglect: IC [94.1%] vs. HBC [76%], $X = 9.39$, $p < .01$; emotional neglect: IC [38.8%] vs. HBC [32%], $X = .634$, n.s.; sexual abuse: IC [9.4%] vs. HBC [6%], $X = .49$, n.s.). No significant differences on risk behaviours. IC group significantly > attempt suicide (IC [52.3%] vs. HBC [32%], $X = 5.28$, $p < .05$)	Significantly higher levels of abuse were identified in the IC group compared to the HBC group. While only one significant difference was found between groups with regard to risk behaviours, attempted suicide was found to be greater in the IC group

| 3. Hermenau et al. (2011) | Tanzania | 38 children within institutional care (IC; 47% female, age: M = 8.56 years [R: 3–16 years]) | The intervention consisted of a new instructional system which included training for caregivers. Following an initial workshop, the implementation of the system was supervised for 6 months. Additionally, physical punishment was banned and any maltreatment would lead to dismissal. Children over 12 years were informed of ban and received sex education | Children were asked 41 violence questions (http://www.vivo.org). At t1 violence at home, school, neighbourhood and orphanage over their lifetime. At time 2, over the past 6 months. Plus socio-demographic information, physical health, mental health (SDQ), Post-traumatic stress disorder (UCLA PTSD Index for Children), depression and suicidality (Mini-International Neuropsychotic Interview kid for children and adolescence; section A and C) and aggression (reactive–proactive questionnaire). | Violence within the orphanage was found to reduce between t1 and t2 (t1: M 4.48[SD 4.14]; t2: M 1.93[2.40]; t[28] = 3.42, p < .01), with Cohen's d indicating a large effect (d = .86) | Experiences of violence within institutional care were found to reduce dramatically after the implementation of a training intervention for staff and the introduction of a zero-tolerance policy concerning maltreatment |

development all recorded some evidence of negative social or behavioural conse-
quences. Of the 13 studies on cognitive development, 12 reported poor cognitive
performance. They noted that the degree of delay varied according to the standard
of care provided.

(2) Van IJzendoorn, Juffer, and Klein Poelhuis (2005) carried out a meta-analysis of
62 studies including 17.767 adopted children to compare their cognitive develop-
ment with those who remained in institutional care or in the family of birth and
non-adopted siblings. Van IJzendoorn et al. (2008) provided a meta-analysis of
75 studies covering just under 4000 children from 19 countries to explore cogni-
tive development of children in institutions comparing them with foster family
children. They found substantially lowered IQ levels for institutionalised children.

Our review identified 66 studies with developmental outcomes within institutionalised
settings for 5640 children (including early adopted children $n = 306$). The detailed data
abstract table is set out in Supplementary material. Of the 66 studies identified in this review,
measuring cognitive and/or social development within institutional care 45 included specific
measures of cognitive development. Of these 45, 42 reported that children exposed to insti-
tutional care experienced cognitive deficit and three studies reported no cognitive deficit.
These three studies (Whetten et al., 2009; Wolff & Fesseha, 1999; Wolff, Tesfai, Egasso, &
Aradomt, 1995 [2 studies – baseline and follow up from the same group]) are all notable. The
Wolff et al. study (1995) and Wolff and Fesseha (1999) compared institutionalised children
to refugee children – and it is probably important to reflect that both groups suffer hard-
ships and challenge. The Whetten et al. study (2009) which is a large multi-country study
compared all children in institutions (defined as group homes with 5 or more children)
to community residing peers. The inclusion age was on 6–12 years so does not include
younger children) and the observational study did not control for resources allocated to
either group. An additional four studies highlighted the detrimental effects of institutional
care on cognition indirectly, reporting on social measures and the association between
poor social development and cognitive deficit. 16 studies reporting on cognitive and social
development randomised children to receive a specific intervention; either movement to a
non-institutionalised setting ($n = 15$) or to receive care from staff who had received specific
training ($n = 1$). Of the 15 studies reporting on the movement of children to a non-institu-
tionalised setting, 7 studies record cognitive improvements in the children who received the
intervention, 4 studies recorded social improvements and 2 studies recorded both cognitive
and social improvements within these children. 2 studies (Levin, Zeanah, Fox, & Nelson,
2014; Sheridan, Fox, Zeanah, McLaughlin, & Nelson, 2012) reported on cognitive outcomes
and recorded no significant difference between those children within institutional care and
those who had received the foster care intervention. The 1 study reporting on a training
intervention (Berument, 2013) recorded cognitive improvement although the intervention
was found to have no effect on the social development gap (Table 3).

Within the 66 studies identified, 43 studies report on the social and behavioural devel-
opment of children within institutional care. 41 of these studies found institutional care
to have detrimental effects on the development of children. Only one study reported that
children within institutional care fair better on social measure compared to children within
a control group (Whetten et al., 2009) (Table 4).

Table 3. Summary of studies noting cognitive effects (present, absent or indirect).

Cognitive deficit	No cognitive deficit	No cog. measure but yes social measure	Indirect association – cog. deficit
Sonuga-Barke et al. (2008)	Whetten et al. (2009)	Román et al. (2012)	Rutter et al. (2007)
Rutter + English/Romanian Adoptee Team (1998)	Wolff et al. (1995) – no cog. but social deficit	Fisher et al. (1997)	O'Connor et al. (2000)
Beckett et al. (2006)	Wolff and Fesseha (1999)	McLaughlin et al. (2012)	Croft et al. (2001)
Smyke et al. (2007)		Drury, Gleason, et al. (2012)	Smyke et al. (2010)
Nelson et al. (2007)		Lawler et al. (2014)	
Pollak et al. (2010)		Kang et al. (2014)	
McDermott et al. (2012)		Gabrielli et al. (2015)	
Bos et al. (2009)		Simsek et al. (2008)	
Güler et al. (2012)		Rus et al. (2014)	
Loman et al. (2013)		Erol et al. (2010)	
Govindan et al. (2010)		Simsek et al. (2007)	
Bauer et al. (2009)		Davidson-Arad et al. (2003)	
Tottenham et al. (2010)		Zeanah et al. (2009)	
Mehta et al. (2009)		Lee et al. (2010)	
Sheridan et al. (2012)		Daunhauer et al. (2005)	
Hanson et al. (2015)		Andersson (2005)	
Tottenham et al. (2011)		McGoron et al. (2012)	
Vanderwert et al. (2010)			
Vorria et al. (2003)			
Dobrova-Krol et al. (2010)			
Marcovitch et al. (1997)			
Drury, Theall, et al. (2012)			
Fox et al. (2011)			
Ahmad et al. (2005)			
Beckett et al. (2007)			
Bos et al. (2010)			
Ghera et al. (2009)			
Miller et al. (2005)			
Roy and Rutter (2006)			
Vorria et al. (2006)			
Cermak and Daunhauer (1997)			
Chisholm (1998)			
Johnson et al. (2010)			
Kreppner et al. (2007)			
Lin et al. (2005)			
McLaughlin et al. (2010)			
Stevens et al. (2008)			
Slopen et al. (2012)			
Merz et al. (2013)			
Levin et al. (2014)			
Cardona et al. (2012)			
Berument (2013)			

Within the 66 studies only two measured any form of maltreatment such as abuse, violence or any other harsh punishment or experience. The first showed a relation to amygdalae formation as the outcome (Hanson et al., 2015) and the second showed that children in institutional settings were significantly more likely to experience forms of abuse/violence measured (Whetten et al., 2009 reported in Gray et al., 2015a, 2015b). The latter were drawn from the same five country study of 6–12 year olds where no differences in cognitive outcomes had been identified – yet more abuse was recorded.

It is a stark finding that despite the fact that so many research groups, obviously concerned about the wellbeing and development of children in institutions carried out detailed and depth evaluation of children in institutions and only two included violence measures in their design.

Table 4. Summary of studies showing presence or absence of social development issues linked with institutional care.

Social development issues	No social development issues
Ahemd et al. (2005)	Whetten et al. (2009)
Andersson (2005)	
Beckett et al. (2007)	
Cermak and Daunhauer (1997)	
Chishom (1998)	
Croft et al. (2001)	
Daunhauer et al. (2005)	
Davidson-Arad et al. (2003)	
Dobrova-Krol et al. (2010)	
Drury, Gleason, et al. (2012)	
Erol et al. (2010)	
Fisher et al. (1997)	
Gabrielli et al. (2015)	
Ghera et al. (2009)	
Hanson et al. (2015)	
Kang et al. (2014)	
Lawler et al. (2014)	
Lee et al. (2010)	
Marcovitch et al.(1997)	
McGoron et al. (2012)	
McLaughlin et al. (2010)	
McLaughlin et al. (2012)	
O'Connor et al. (2000)	
Román et al. (2012)	
Rus et al. (2014)	
Rutter et al. (2007)	
Simsek et al. (2008)	
Simsek et al. (2007)	
Slopen et al. (2012)	
Smyke et al. (2010)	
Smyke et al. (2007)	
Sonuga-Barke et al. (2008)	
Tottenham et al. (2010)	
Tottenham et al. (2011)	
Vorria et al. (2003)	
Vorria et al. (2006)	
Wolff et al. (1995)	
Zeanah et al. (2009)	
Wolff and Fesseha (1999)	
Kreppner et al. (2007)	
Stevens et al. (2008)	
Berument (2013)	

Discussion

Abuse and institutionalised care is a subject that merits close and careful examination. Some children are removed from family care into alternative care environments as a result of abuse – yet a clear and full understanding of the abuse experienced in such environments is needed. The strategy of removal may perpetuate rather than avert such abuse. Institutionalised care seems to contribute to the cycles of abuse. What is surprising is the fact that there is so much more to child development and thriving than cognitive development, yet there is an abundance of studies on the effects of institutionalised care on cognitive outcomes, but a dearth on abuse experiences and the consequences. The literature on abuse and violence also suggests that such exposure may directly or indirectly affect cognitive development, and as such there needs to be a more complex lens with which to

view these children. The existing and this updated systematic review clearly demonstrate cognitive delay in children reared in institutionalised settings. Violence in childhood is a topic of current focus (see Violence against children studies [Centres for Disease Control & Prevention (CDC), 2015], UNICEF, WHO and various initiatives), but exploration within institutions is lacking. Prevalence and intervention studies have only reached the published literature in the last 5 years.

High levels of abuse within institutional care have been identified by the reports of organisations such as UNICEF. Children report being physically hurt, beaten and abused by staff and report witnessing the abuse of other children by staff within institutions (Harr, 2011; Stavita, 2002). Rus (2012) also identified high levels of physical punishment by staff within institutions, with the majority of children affected reporting multiple occasions for such punishment. Such experiences may cultivate more generalised abuse, and peer on peer abuse was identified in one study – clearly a topic in need of more detailed examination. The perpetrators of abuse in institutions includes staff, other adults and peers, but is poorly studied. Peer violence has been described in both qualitative and in depth studies (Barter, Renold, Berridge, & Cawson, 2004; Sekol, 2013) and although these studies did nto meet the inclusion criteria for the systematic review, preliminary data suggests that peer violence may be enhanced in residential environments and exacerbated by the subcultures within such environments. It is also important to differentiate studies which include residential care for reasons linked with juvenile correction and legal placement/removal from more traditional institutionalised orphanage type care.

Studies of children within institutions are fraught with difficulties in understanding, comparisons and conclusions. Institutionalised care brings a lot of challenges. All studies need to understand the trigger reasons for the child being placed in the institution in the first place. These may have profound effects on any variables under measurement. The review shows that when randomised controlled methodology is utilised for subsequent placement of children, cognitive delay can be averted and ameliorated. Thus cognitive stimulation neglect, however it is represented, seems to be present in institutions and amenable to change. The broader literature suggests that such catch up is not inevitable or comprehensive (The Leiden Conference, 2012) with indices such as head circumference, social, behavioural, cognitive and attachment measures being explored (Judge, 2003; Van Londen, Juffer, & van IJzendoorn, 2007).

The review concludes that comparison groups matter. For example one study compared institutionalised children to refugee children and found no differences. However, it can surely be concluded that both are negative environments for children. Other studies use comparison groups where one is resourced and the other is not – thus providing inadequate comparisons and as they are not comparing like with like, where poverty is a driver of institutionalised care, conclusions need to be taken with caution. The studies clearly suggest that in terms of cognitive development, age of placement in the institution, age of removal from the institution and duration of stay matter. The younger the placement the worse the outcome. The longer the stay the worse the outcome. The earlier the change and the quicker the change the better the outcome. However, studies also suggest that other environments, such as foster care, are not guarantees of protection for children.

The process of reintegration and children into family has been documented as a potential intervention in the literature, yet no evaluations are to hand (Rotabi, Pennell, & Roby, 2012).

The review also suggests that definitions matter. For example one study included large institutions with any that had 5 plus children. The latter may be better described as a group home. Data that conflates these may be misleading as it is established that a group home is preferable to a large institution. The drivers of institutional placement must be understood and their role in child development disentangled. Such drivers include free food, access to school and school equipment and shelter. Such poverty drivers themselves may be linked with neglect and abuse.

There is a dearth of insights into interventions that work. In the few studies that attempted interventions, mostly from training and monitoring types of programmes, sudden and clear reductions in violence and abuse was recorded. This may reflect social and normative changes and signify a ground shift of opinion on child discipline that reaches these environments. For the most part interventions were seen to be around removal from the institution. The considerable body of studies on such removal show consistent gains for children on many variables. However, it seems that while many children are still cared for in institutions, interventions to address violence are somewhat unpalatable and are not considered, implemented or studied.

Rehabilitative and therapeutic care has also been found to the setting of peer and caregiver violence. A group of large scale studies identified children to be exposed to physical maltreatment by staff (Attar-Schwartz, 2013; Khoury-Kassabri & Attar-Schwartz, 2013), both physical and verbal victimisation by peers (Attar-Schwartz & Khoury-Kassabri, 2015) as well as sexual victimisation by peers (Attar-Schwartz, 2014). Younger children and particularly children with greater levels of adjustment difficulties were found to be particularly vulnerable within these settings (Attar-Schwartz, 2013; Attar-Schwartz & Khoury-Kassabri, 2015; Khoury-Kassabri & Attar-Schwartz, 2013). However this review was confined to specific institutions. A broader look at different types of institutions may be needed. Children in prison or youth detention centres, those in therapeutic residential environments and those in rehabilitative residential settings were beyond the scope of this review. Studies clustering numerous care settings as well as institutional care under the umbrella term of 'residential care' report on both peer and caregiver violence (Attar-Schwartz, 2008, 2009), however, this aggregation leads to a lack of clarity within the data and regrettably does not allow for a specific focus on the prevalence of abuse within institutional settings. For such children pre-existing factors associated with the reasons for their institutionalised care in the first place may be pertinent, but there is potential for harsh treatment, abuse and violence in all types of such settings and our findings cannot easily generalise to these.

Abuse in institutions is confirmed, yet the paucity of studies looking at this, monitoring this or even asking the children is lamentable. Even where large funded studies enter institutions for the sake of detailed cognitive measurement, few consider including abuse measures or bother to examine abuse experiences – a clear driver of cognitive development and attainment.

There are too few studies on interventions to provide a clear picture. Those that exist show that reductions in abuse experience is possible with intervention. Indirect interpretation can also show that removal from institutions can result in cognitive catch up and as such the reversal of neglect is possible. The data suggests that younger children are more at risk of abuse and boys are more at risk of harsh punishments.

The abuse itself breeds subsequent problems. Intergenerational abuse is one potential outcome. Peer on peer violence may be enhanced within institutionalised environments.

The causal factors for this are unclear. Either there is a lack of supervision, peers learn from observation of staff that violence is acceptable, or that the hot house of emotions erupts in elevated peer on peer violence. This may be enhanced by the fact that troubled and difficult to control children may be disproportionately represented among those who are placed in institutions in the first place.

Disclosure statement

Funding

References

Ahmad, A., Qahar, J., Siddiq, A., Majeed, A., Rasheed, J., Jabar, F., & Von Knorring, A. L. (2005). A 2 year follow up of orphans' competence, socioemotional problems and post-traumatic stress symptoms in traditional foster care and orphanages in Iraqi Kurdistan. *Child: Care, Health and Development, 31*, 203–215.

Andersson, G. (2005). Family relations, adjustment and well-being in a longitudinal study of children in care. *Child & Family Social Work, 10*, 43–56.

Attar-Schwartz, S. (2008). Emotional, behavioral and social problems among Israeli children in residential care: A multi-level analysis. *Children and Youth Services Review, 30*, 229–248.

Attar-Schwartz, S. (2009). School functioning of children in residential care: The contributions of multilevel correlates. *Child Abuse & Neglect, 33*, 429–440.

Attar-Schwartz, S. (2013). Runaway behavior among adolescents in residential care: The role of personal characteristics, victimization experiences while in care, social climate, and institutional factors. *Children and Youth Services Review, 35*, 258–267.

Attar-Schwartz, S. (2014). Experiences of sexual victimization by peers among adolescents in residential care settings. *Social Service Review, 88*, 594–629.

Attar-Schwartz, S., & Khoury-Kassabri, M. (2015). Indirect and verbal victimization by peers among at-risk youth in residential care. *Child Abuse & Neglect, 42*, 84–98.

Barter, C., Renold, E., Berridge, D., Cawson, C. (2004). *Peer violence in children's residential care*. New York, NY: Palgrave MacMillan.

Bauer, P. M., Hanson, J. L., Pierson, R. K., Davidson, R. J., & Pollak, S. D. (2009). Cerebellar volume and cognitive functioning in children who experienced early deprivation. *Biological Psychiatry, 66*, 1100–1106.

Beckett, C., Maughan, B., Rutter, M., Castle, J., Colvert, E., Groothues, C., … Sonuga-Barke, E. J. (2006). Do the effects of early severe deprivation on cognition persist into early adolescence? Findings from the English and Romanian adoptees study. *Child Development, 77*, 696–711.

Beckett, C., Maughan, B., Rutter, M., Castle, J., Colvert, E., Groothues, C., … Sonuga-Barke, E. J. (2007). Scholastic attainment following severe early institutional deprivation: A study of children adopted from Romania. *Journal of Abnormal Child Psychology, 35*, 1063–1073.

Belsey, M., & Sherr, L. (2011). The definition of true orphan prevalence: Trends, contexts and implications for policies and programmes. *Vulnerable Children & Youth Studies, 6*, 185–200.

Berens, A. E., & Nelson, C. A. (2015). The science of early adversity: Is there a role for large institutions in the care of vulnerable children? *The Lancet, 386*, 388–398.

Berument, S. K. (2013). Environmental enrichment and caregiver training to support the development of birth to 6-year-olds in Turkish orphanages. *Infant Mental Health Journal, 34*, 189–201.

Black, M. M., & Hurley, K. M. (2016). Early child development programmes: Further evidence for action. *The Lancet Global Health, 4*, e505–e506.

Bos, K. J., Fox, N., Zeanah, C. H., & Nelson, C. A. (2009). Effects of early psychosocial deprivation on the development of memory and executive function. *Frontiers in Behavioral Neuroscience, 3*, 1–7. doi: 10.3389/neuro.08.016.2009

Bos, K. J., Zeanah, C. H., Smyke, A. T., Fox, N. A., & Nelson, C. A. (2010). Stereotypies in children with a history of early institutional care. *Archives of Pediatrics & Adolescent Medicine, 164*, 406–411.

Campbell, F., Conti, G., Heckman, J. J., Moon, S.H., Pinto, R., Pungello, E. & Pan, Y. (2014). Early childhood investments substantially boost adult health. *Science, 343*, 1478–1485.

Cardona, J. F., Manes, F., Escobar, J., López, J., & Ibáñez, A. (2012). Potential consequences of abandonment in preschool-age: Neuropsychological findings in institutionalized children. *Behavioural Neurology, 25*, 291–301.

Centres for Disease Control & Prevention. (2015). *Violence against children surveys.* Retrieved from http://www.cdc.gov/violenceprevention/vacs/vacs-survey-methods.html

Cermak, S. A., & Daunhauer, L. A. (1997). Sensory processing in the postinstitutionalized child. *American Journal of Occupational Therapy, 51*, 500–507.

Chisholm, K. (1998). A three year follow-up of attachment and indiscriminate friendliness in children adopted from Romanian orphanages. *Child Development, 69*, 1092–1106.

Croft, C., O'Connor, T. G., Keaveney, L., Groothues, C., & Rutter, M. (2001). Longitudinal change in parenting associated with developmental delay and catch up. *Journal of Child Psychology and Psychiatry, 42*, 649–659.

Daunhauer, L. A., Bolton, A., & Cermak, S. A. (2005). Time-use patterns of young children institutionalized in Eastern Europe. *OTJR: Occupation, Participation and Health, 25*, 33–40.

Davidson-Arad, B., Englechin-Segal, D., & Wozner, Y. (2003). Short-term follow-up of children at risk: Comparison of the quality of life of children removed from home and children remaining at home. *Child Abuse & Neglect, 27*, 733–750.

Dawson, H. (2013). HIV/AIDS, the erosion of social capital and the collapse of rural livelihoods in the Nkomazi district of South Africa. *African Journal of AIDS Research, 12*, 185–194.

Dobrova-Krol, N. A., Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Juffer, F. (2010). Effects of perinatal HIV infection and early institutional rearing on physical and cognitive development of children in Ukraine. *Child Development, 81*, 237–251.

Drury, S. S., Gleason, M. M., Theall, K. P., Smyke, A. T., Nelson, C. A., Fox, N. A., & Zeanah, C. H. (2012). Genetic sensitivity to the caregiving context: The influence of 5httlpr and BDNF val66met on indiscriminate social behavior. *Physiology & Behavior, 106*, 728–735.

Drury, S. S., Theall, K., Gleason, M. M., Smyke, A. T., De Vivo, I., Wong, J. Y. Y., … Nelson, C. A. (2012). Telomere length and early severe social deprivation: Linking early adversity and cellular aging. *Molecular Psychiatry, 17*, 719–727.

Dua, T., Tomlinson, M., Tablante, E., Britto, P., Yousfzai, A., Daelmans, B., & Darmstadt, G. L. (2016). Global research priorities to accelerate early child development in the sustainable development era. *The Lancet Global Health*, *4*, e887–e889.

Engle, P. L., Black, M. M., Behrman, J. R., Cabral de Mello, M., Gertler, P. J., Kapiriri, L., … Young, M. E. (2007). International Child Development Steering Group. Strategies to avoid the loss of developmental potential in more than 200 million children in the developing world. *The Lancet, 369*, 229–242.

Erol, N., Simsek, Z., & Münir, K. (2010). Mental health of adolescents reared in institutional care in Turkey: challenges and hope in the twenty-first century. *European Child & Adolescent Psychiatry, 19*, 113–124.

Euser, S., Alink, L. R. A., Tharner, A., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2014). Out of home placement to promote safety? The prevalence of physical abuse in residential and foster care. *Children and Youth Services Review, 37*, 64–70.

Evans, D. K., & Popova, A. (2015). West African Ebola crisis and orphans. *The Lancet, 385*, 945–946.

Fisher, L., Ames, E. W., Chisholm, K., & Savoie, L. (1997). Problems reported by parents of Romanian orphans adopted to British Columbia. *International Journal of Behavioral Development, 20*, 67–82.

Fluke, J. D., Goldman, P. S., Shriberg, J., Hillis, S. D., Yun, K., Allison, S., & Light, E. (2012). Systems, strategies, and interventions for sustainable long-term care and protection of children with a history of living outside of family care. *Child Abuse & Neglect, 36*, 722–731.

Foster, G. (2007). Under the radar: Community safety nets for AIDS-affected households in sub-Saharan Africa. *AIDS Care, 19*(Sup1), 54–63.

Fox, N. A., Almas, A. N., Degnan, K. A., Nelson, C. A., & Zeanah, C. H. (2011). The effects of severe psychosocial deprivation and foster care intervention on cognitive development at 8 years of age: findings from the Bucharest Early Intervention Project. *Journal of Child Psychology and Psychiatry, 52*, 919–928.

Gabrielli, J., Jackson, Y., & Brown, S. (2015). Measurement of behavioral and emotional outcomes of youth in foster care: Investigation of the roles of age and placement type. *Journal of Psychopathology and Behavioral Assessment, 37*, 422–431.

Ghera, M. M., Marshall, P. J., Fox, N. A., Zeanah, C. H., Nelson, C. A., Smyke, A. T., & Guthrie, D. (2009). The effects of foster care intervention on socially deprived institutionalized children's attention and positive affect: Results from the BEIP study. *Journal of Child Psychology and Psychiatry, 50*, 246–253.

Govindan, R. M., Behen, M. E., Helder, E., Makki, M. I., & Chugani, H. T. (2010). Altered water diffusivity in cortical association tracts in children with early deprivation identified with tract-based spatial statistics (TBSS). *Cerebral Cortex, 20*, 561–569.

Gray, C. L., Pence, B. W., Ostermann, J., Whetten, R. A., O'Donnell, K., Thielman, N. M., & Whetten, K. (2015a). Prevalence and incidence of traumatic experiences among orphans in institutional and family-fased settings in 5 low- and middle-income countries: A longitudinal study. *Global Health: Science & Practice, 3*, 395–404. doi:10.9745/GHSP-D-15-00093

Gray, C. L., Pence, B. W., Ostermann, J., Whetten, R. A., O'Donnell, K., Thielman, N. M., & Whetten, K. (2015b). Gender (in) differences in prevalence and incidence of traumatic experiences among orphaned and separated children living in five low-and middle-income countries. *Global Mental Health, 2*, e3.

Greenberg, A. L., & Partskhaladze, N. (2014). How the Republic of Georgia has nearly eliminated the use of institutional care for children. *Infant Mental Health Journal, 35*, 185–191.

Güler, O. E., Hostinar, C. E., Frenn, K. A., Nelson, C. A., Gunnar, M. R., & Thomas, K. M. (2012). Electrophysiological evidence of altered memory processing in children experiencing early deprivation. *Developmental Science, 15*, 345–358.

Hanson, J. L., Nacewicz, B. M., Sutterer, M. J., Cayo, A. A., Schaefer, S. M., Rudolph, K. D., … Davidson, R. J. (2015). Behavioral problems after early life stress: Contributions of the hippocampus and amygdala. *Biological Psychiatry, 77*, 314–323.

Harr, R. N. (2011). *Violence against children in state-run residential institutions in Kazakhstan: An assessment.* Astana: UNICEF.

Hermenau, K., Hecker, T., Elbert, T., & Ruf-Leuschner, M. (2014). Maltreatment and mental health in institutional care – Comparing early and late institutionalized children in Tanzania. *Infant Mental Health Journal, 35*, 102–110.

Hermenau, K., Hecker, T., Ruf, M., Schauer, E., Elbert, T., & Schauer, M. (2011). Childhood adversity, mental ill-health and aggressive behavior in an African orphanage: Changes in response to trauma-focused therapy and the implementation of a new instructional system. *Child and Adolescent Psychiatry and Mental Health, 5*(9), 1–9.

Hermenau, K., Kaltenbach, E., Mkinga, G., & Hecker, T. (2015). Improving care quality and preventing maltreatment in institutional care – A feasibility study with caregivers. *Frontiers in Psychology, 6*, 1–7. doi:10.3389/fpsyg.2015.00937

Heymann, J., & Kidman, R. (2009). HIV/AIDS, declining family resources and the community safety net. *AIDS Care, 21*(Sup1), 34–42.

Johnson, D. E., Guthrie, D., Smyke, A. T., Koga, S. F., Fox, N. A., Zeanah, C. H., & Nelson, C. A. (2010). Growth and associations between auxology, caregiving environment, and cognition in socially deprived Romanian children randomized to foster vs. ongoing institutional care. *Archives of Paediatrics & Adolescent Medicine, 164*, 507–516.

Johnson, R., Browne, K., & Hamilton-Giachritsis, C. (2006). Young children in institutional care at risk of harm. *Trauma Violence & Abuse, 7*, 34–60.

Judge, S. (2003). Developmental recovery and deficit in children adopted from Eastern European orphanages. *Child Psychiatry and Human Development, 34*, 49–62.

Kang, H., Chung, I. J., Chun, J., Nho, C. R., & Woo, S. (2014). The outcomes of foster care in South Korea ten years after its foundation: A comparison with institutional care. *Children and Youth Services Review, 39*, 135–143.

Khoury-Kassabri, M., & Attar-Schwartz, S. (2013). Adolescents' reports of physical violence by peers in residential care settings: An ecological examination. *Journal of Interpersonal Violence*, *29*, 659–682. doi:10.1177/0886260513505208

Kreppner, J. M., Rutter, M., Beckett, C., Castle, J., Colvert, E., Groothues, C., … Sonuga-Barke, E. J. (2007). Normality and impairment following profound early institutional deprivation: A longitudinal follow-up into early adolescence. *Developmental Psychology, 43*, 931–946.

Lawler, J. M., Hostinar, C. E., Mliner, S. B., & Gunnar, M. R. (2014). Disinhibited social engagement in postinstitutionalized children: Differentiating normal from atypical behavior. *Development and Psychopathology, 26*, 451–464.

Lee, R. M., Seol, K. O., Sung, M., & Miller, M. J. (2010). The behavioral development of Korean children in institutional care and international adoptive families. *Developmental Psychology, 46*, 468–478.

The Leiden Conference. (2012). The development and care of institutionally reared children: The Leiden Conference on the development and care of children without permanent parents. *Child Development Perspectives, 6*, 174–180.

Levin, A. R., Zeanah, C. H., Fox, N. A., & Nelson, C. A. (2014). Motor outcomes in children exposed to early psychosocial deprivation. *The Journal of Pediatrics, 164*, 123–129.

Lin, S. H., Cermak, S., Coster, W. J., & Miller, L. (2005). The relation between length of institutionalization and sensory integration in children adopted from Eastern Europe. *American Journal of Occupational Therapy, 59*, 139–147.

Loman, M. M., Johnson, A. E., Westerlund, A., Pollak, S. D., Nelson, C. A., & Gunnar, M. R. (2013). The effect of early deprivation on executive attention in middle childhood. *Journal of Child Psychology and Psychiatry, 54*, 37–45.

Maholmes, V., Fluke, J. D., Rinehart, R. D., & Huebner, G. (2012). Protecting children outside of family care in low and middle income countries: What does the evidence say? *Child Abuse & Neglect, 36*, 685–688.

Marcovitch, S., Goldberg, S., Gold, A., Washington, J., Wasson, C., Krekewich, K., & Handley-Derry, M. (1997). Determinants of behavioural problems in Romanian children adopted in Ontario. *International Journal of Behavioral Development, 20*, 17–31.

McDermott, J. M., Westerlund, A., Zeanah, C. H., Nelson, C. A., & Fox, N. A. (2012). Early adversity and neural correlates of executive function: Implications for academic adjustment. *Developmental Cognitive Neuroscience, 2*, S59–S66.

McGoron, L., Gleason, M. M., Smyke, A. T., Drury, S. S., Nelson, C. A., Gregas, M. C., … Zeanah, C. H. (2012). Recovering from early deprivation: Attachment mediates effects of caregiving on psychopathology. *Journal of the American Academy of Child & Adolescent Psychiatry, 51*, 683–693.

McLaughlin, K. A., Fox, N. A., Zeanah, C. H., Sheridan, M. A., Marshall, P., & Nelson, C. A. (2010). Delayed maturation in brain electrical activity partially explains the association between early environmental deprivation and symptoms of attention-deficit/hyperactivity disorder. *Biological Psychiatry, 68*, 329–336.

McLaughlin, K. A., Zeanah, C. H., Fox, N. A., & Nelson, C. A. (2012). Attachment security as a mechanism linking foster care placement to improved mental health outcomes in previously institutionalized children. *Journal of Child Psychology and Psychiatry, 53*, 46–55.

Mehta, M. A., Golembo, N. I., Nosarti, C., Colvert, E., Mota, A., Williams, S.C., … Sonuga-Barke, E. J. (2009). Amygdala, hippocampal and corpus callosum size following severe early institutional deprivation: The English and Romanian Adoptees study pilot. *Journal of Child Psychology and Psychiatry, 50*, 943–951.

Merz, E. C., McCall, R. B., Wright, A. J., & Luna, B. (2013). Inhibitory control and working memory in post-institutionalized children. *Journal of Abnormal Child Psychology, 41*, 879–890.

Miller, L., Chan, W., Comfort, K., & Tirella, L. (2005). Health of children adopted from Guatemala: Comparison of orphanage and foster care. *Pediatrics, 115*, e710–e717.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*, e1000097.

Morantz, G., Cole, D. C., Ayaya, S., Ayuku, D., & Braitstein, P. (2013). Maltreatment experiences and associated factors prior to admission to residential care: A sample of institutionalized children and youth in western Kenya. *Child Abuse & Neglect, 37*, 778–787. doi:10.1016/j.chiabu.2012.10.007

Nelson, C. A., Zeanah, C. H., Fox, N. A., Marshall, P. J., Smyke, A. T., & Guthrie, D. (2007). Cognitive recovery in socially deprived young children: The Bucharest Early Intervention Project. *Science, 318*, 1937–1940.

O'Connor, T. G., Rutter, M., & English and Romanian Adoptees Study Team. (2000). Attachment disorder behavior following early severe deprivation: Extension and longitudinal follow-up. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*, 703–712.

Phillips, D. A., & Shonkoff, J. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academies Press.

Pinto, R. J., & Maia, Â. C. (2013). Psychopathology, physical complaints and health risk behaviors among youths who were victims of childhood maltreatment: A comparison between home and institutional interventions. *Children and Youth Services Review, 35*, 603–610.

Pollak, S. D., Nelson, C. A., Schlaak, M. F., Roeber, B. J., Wewerka, S. S., Wiik, K. L., … Gunnar, M. R. (2010). Neurodevelopmental effects of early deprivation in postinstitutionalized children. *Child Development, 81*, 224–236.

Richter, L., & Norman, A. (2010). AIDS orphan tourism: A threat to young children in residential care. *Vulnerable Children and Youth Studies, 5*, 217–229.

Román, M., Palacios, J., Moreno, C., & López, A. (2012). Attachment representations in internationally adopted children. *Attachment & Human Development, 14*, 585–600.

Rotabi, K., Pennell, J., & Roby, J. L. (2012). Family group conferencing as a culturally adaptable intervention: Reforming intercountry adoption in Guatemala. *International Social Work, 55*, 402–416.

Rotabi, K., Roby, J., & Bunkers, K. (2016). Altruistic exploitation: Orphan tourism and global social work. *British Journal of Social Work*. doi:10.1093/bjsw/bcv147

Roy, P., & Rutter, M. (2006). Institutional care: Associations between inattention and early reading performance. *Journal of Child Psychology and Psychiatry, 47*, 480–487.

Rus, A. V. (2012). Child abuse in residential care institutions in Romania [electronic resource] (Thesis). Texas Christian University, Fort Worth.

Rus, A. V., Butterfield, M. E., Cross, D. R., Purvis, K. B., Parris, S. R., & Cliff, S. (2014). Early care experience and later functioning of Romanian foster children. *Revista de Cercetare si Interventie Sociala, 44*, 20–43.

Rus, A. V., Stativa, E., Pennings, J. S., Cross, D. R., Ekas, N., Purvis, K. B., & Parris, S. R. (2013). Severe punishment of children by staff in Romanian placement centers for school-aged children: Effects of child and institutional characteristics. *Child Abuse & Neglect, 37*, 1152–1162.

Rutter, M., Colvert, E., Kreppner, J., Beckett, C., Castle, J., Groothues, C., … Sonuga-Barke, E. J. (2007). Early adolescent outcomes for institutionally-deprived and non-deprived adoptees. I: Disinhibited attachment. *Journal of Child Psychology and Psychiatry, 48*, 17–30.

Rutter, M., & the English and Romanian Adoptees (ERA) Study Team. (1998). Developmental catch-up, and deficit, following adoption after severe global early privation. *Journal of Child Psychology and Psychiatry, 39*, 465–476.

Seeley, J., Kajura, E., Bachengana, C., Okongo, M., Wagner, U., & Mulder, D. (1993). The extended family and support for people with AIDS in a rural population in south west Uganda: A safety net with holes? *AIDS Care, 5*, 117–122.

Sekol, I. (2013). Peer violence in adolescent residential care: A qualitative examination of contextual and peer factors. *Children and Youth Services Review, 35*, 1901–1912.

Shea, B. J., Hamel, C., Wells, G. A., Bouter, L. M., Kristjansson, E., Grimshaw, J., … Boers, M. (2009). AMSTAR is a reliable and valid measurement tool to assess the methodological quality of systematic reviews. *Journal of Clinical Epidemiology, 62*, 1013–1020.

Sheridan, M. A., Fox, N. A., Zeanah, C. H., McLaughlin, K. A., & Nelson, C. A. (2012). Variation in neural development as a result of exposure to institutionalization early in childhood. *Proceedings of the National Academy of Sciences, 109*, 12927–12932.

Sherr, L., Varrall, R., Mueller, J., JLICA Workgroup 1 Members, Richter, L., Wakhweya, A., … Kimou, J. (2008). A systematic review on the meaning of the concept 'AIDS Orphan': Confusion over definitions and implications for care. *AIDS Care, 20*, 527–536.

Simsek, Z., Erol, N., Oeztop, D., & Oezcan, O. O. (2008). Epidemiology of emotional and behavioural problems in children and adolescents reared in orphanages: A national comparative study. *Turkish Journal of Psychiatry, 19*(3), 1–13.

Simsek, Z., Erol, N., Öztop, D., & Münir, K. (2007). Prevalence and predictors of emotional and behavioral problems reported by teachers among institutionally reared children and adolescents in Turkish orphanages compared with community controls. *Children and Youth Services Review, 29*, 883–899.

Slopen, N., McLaughlin, K. A., Fox, N. A., Zeanah, C. H., & Nelson, C. A. (2012). Alterations in neural processing and psychopathology in children raised in institutions. *Archives of General Psychiatry, 69*, 1022–1030.

Smyke, A. T., Koga, S. F., Johnson, D. E., Fox, N. A., Marshall, P. J., Nelson, C. A., & Zeanah, C. H. (2007). The caregiving context in institution-reared and family-reared infants and toddlers in Romania. *Journal of Child Psychology and Psychiatry, 48*, 210–218.

Smyke, A. T., Zeanah, C. H., Fox, N. A., Nelson, C. A., & Guthrie, D. (2010). Placement in foster care enhances quality of attachment among young institutionalized children. *Child Development, 81*, 212–223.

Sonuga-Barke, E. J., Beckett, C., Kreppner, J., Castle, J., Colvert, E., Stevens, S., … Rutter, M. (2008). Is sub-nutrition necessary for a poor outcome following early institutional deprivation? *Developmental Medicine & Child Neurology, 50*, 664–671.

Stavita, E. (2002). *Survey on child abuse in residential care institutions in Romania*. Bucharest: UNICEF.

Stevens, S. E., Sonuga-Barke, E. J., Kreppner, J. M., Beckett, C., Castle, J., Colvert, E., … Rutter, M. (2008). Inattention/overactivity following early severe institutional deprivation: Presentation and associations in early adolescence. *Journal of Abnormal Child Psychology, 36*, 385–398.

Stoltenborgh, M., Bakermans-Kranenburg, M. J., & van Ijzendoorn, M. H. (2013). The neglect of child neglect: A meta-analytic review of the prevalence of neglect. *Social Psychiatry & Psychiatric Epidemiology, 48*, 345–355. doi:10.1007/s00127-012-0549-y

Tottenham, N., Hare, T. A., Millner, A., Gilhooly, T., Zevin, J. D., & Casey, B. J. (2011). Elevated amygdala response to faces following early deprivation. *Developmental Science, 14*, 190–204.

Tottenham, N., Hare, T. A., Quinn, B. T., McCarry, T. W., Nurse, M., Gilhooly, T., … Thomas, K. M. (2010). Prolonged institutional rearing is associated with atypically large amygdala volume and difficulties in emotion regulation. *Developmental Science, 13*, 46–61.

Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Juffer, F. (2007). Plasticity of growth in height, weight and head circumference: Meta-analytic evidence for massive catch-up after international adoption. *Journal of Developmental and Behavioral Pediatrics, 28*, 334–343.

Van IJzendoorn, M. H., Juffer, F., & Klein Poelhuis, C. W. (2005). Adoption and cognition development: A meta-analytic comparison of adopted and nonadopted children's IQ and school performance. *Psychological Bulletin, 131*, 301–316.

Van IJzendoorn, M. H., Luijk, M. P. C. M., & Juffer, F. (2008). Detrimental effects on cognitive development of growing up in children's homes: A meta-analysis on IQ in orphanages. *Merrill Palmer Quarterly, 54*, 341–366.

Van IJzendoorn, M. H., Palacios J., Sonuga-Barke, E. J., Gunnar, M. R., Vorria, P., McCall, R. B., … Juffer, F. (2011). Children in institutional care: Delayed development and resilience. *Monographs of the Society for Research in Child Development, 76*, 8–30.

Van Londen, W. M., Juffer, F., & van IJzendoorn, M. H. (2007). Attachment, cognitive, and motor development in adopted children: Short-term outcomes after international adoption. *Journal of Pediatric Psychology, 32*, 1249–1258.

Vanderwert, R. E., Marshall, P. J., Nelson, C. A. III, Zeanah, C. H., & Fox, N. A. (2010). Timing of intervention affects brain electrical activity in children exposed to severe psychosocial neglect. *PLoS One, 5*, e11415.

Vorria, P., Papaligoura, Z., Dunn, J., Van IJzendoorn, M. H., Steele, H., Kontopoulou, A., & Sarafidou, Y. (2003). Early experiences and attachment relationships of Greek infants raised in residential group care. *Journal of Child Psychology and Psychiatry, 44*, 1208–1220.

Vorria, P., Papaligoura, Z., Sarafidou, J., Kopakaki, M., Dunn, J., & Van IJzendoorn, M. H., & Kontopoulou, A. (2006). The development of adopted children after institutional care: A follow-up study. *Journal of Child Psychology and Psychiatry, 47*, 1246–1253.

Walker, S. P., Chang, S. M., Powell, C. A., Simonoff, E., & Grantham-McGregor, S. M. (2006). Effects of psychosocial stimulation and dietary supplementation in early childhood on psychosocial functioning in late adolescence: Follow-up of randomised controlled trial.*British Medical Journal, 333*, 472–477.

Walker, S. P., Chang, S. M., Vera-Hernández, M., & Grantham-McGregor, S. (2011). Early childhood stimulation benefits adult competence and reduces violent behavior. *Pediatrics, 127*, 849–857.

Whetten, K., Ostermann, J., Whetten, R. A., Pence, B. W., O'Donnell, K., Messer, L. C., … Positive Outcomes for Orphans (POFO) Research Team. (2009). A comparison of the wellbeing of orphans and abandoned children ages 6–12 in institutional and community-based care settings in 5 less wealthy nations. *PLoS One, 4*, e8169. doi: 10.1371/journal.pone.0008169

Williamson, J., & Greenberg, A. (2010). *Families, not orphanages*. New York: Better Care Network.

Wolff, P. H., & Fesseha, G. (1999). The orphans of Eritrea: A five-year follow-up study. *Journal of Child Psychology and Psychiatry, 40*, 1231–1237.

Wolff, P. H., Tesfai, B., Egasso, H., & Aradomt, T. (1995). The orphans of Eritrea: A comparison study. *Journal of Child Psychology and Psychiatry, 36*, 633–644.

Zagheni, E. (2011). The impact of the HIV/AIDS epidemic on kinship resources for orphans in Zimbabwe. *Population and Development Review, 37*, 761–783.

Zeanah, C. H., Egger, H. L., Smyke, A. T., Nelson, C. A., Fox, N. A., Marshall, P. J., & Guthrie, D. (2009). Institutional rearing and psychiatric disorders in Romanian preschool children. *American Journal of Psychiatry 166*, 777–785.

Zeanah, C. H., Smyke, A. T., Koga, S. F., & Carlson, E., & the Bucharest Early Intervention Project Care Group (2005). Attachment in institutionalized and community children in Romania. *Child Development, 76*, 1015–1028.