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Research article

Estimating the number of children in formal alternative care: Challenges and results☆

Nicole Petrowski[a,*], Claudia Cappa[a,*], Peter Gross[b]

[a] Consultant (N. Petrowski) and Statistics Specialist (C. Cappa), Data and Analytics Section, Division of Data, Research and Policy, United Nations Children's Fund (UNICEF), 3 UN Plaza, New York, NY, 10017, USA
[b] Former Child Protection Specialist, Child Protection Section, Programme Division, United Nations Children's Fund (UNICEF), 3 UN Plaza, New York, NY, 10017, USA

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ABSTRACT

Given the relatively large body of literature documenting the adverse impacts of institutionalization on children's developmental outcomes and well-being, it is essential that countries work towards reducing the number of children in alternative care (particularly institutional care), and, when possible, reunite children with their families. In order to do so, reliable estimates of the numbers of children living in such settings are essential. However, many countries still lack functional administrative systems for enumerating children living outside of family care.

The purpose of this paper is to provide a snapshot of the availability and coverage of data on children living in residential and foster care from some 142 countries covering more than 80 per cent of the world's children. Utilizing these country-level figures, it is estimated that approximately 2.7 million children between the ages of 0 and 17 years could be living in institutional care worldwide. Where possible, the article also presents regional estimates of the number of children living in residential and foster care.

This work represents an important step to systematically identify and compile sources of data on children in alternative care and provides updated global and regional estimates on the magnitude of the issue. Its findings contribute to raising awareness of the urgent need to strengthen the capacity of countries to improve national systems for counting, monitoring and reporting on these vulnerable children.

1. Introduction

Article 27 of the United Nations Convention on the Rights of the Child (CRC) affords every child the right to "a standard of living adequate for the child's physical, mental, spiritual, moral and social development" and requires that parents or those responsible for the child "secure, within their abilities and financial capabilities, the conditions of living necessary for the child's development" (United Nations General Assembly, 1989). Additionally, Article 18 of the CRC states that "Parents or, as the case may be, legal guardians, have the primary responsibility for the upbringing and development of the child" (United Nations General Assembly, 1989). However, there are many conditions under which parents might find themselves unable to fulfil these obligations, rendering their children without proper parental care and protection. In such situations parents may decide that they are either unable or unwilling to provide necessities such as food, clothing, shelter, health

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* Corresponding authors.
E-mail addresses: npetrowski@unicef.org, nicole.petrowski@gmail.com (N. Petrowski), ccappa@unicef.org (C. Cappa), peterbgross@gmail.com (P. Gross).

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care, protection and/or education, or the State may intervene to remove their children. Such situations can result from a number of wide-ranging stressors including poverty, health issues, household or community violence, stigma, emergencies, or substance abuse, to name a few. Furthermore, children may be separated from their families as a result of parental death. This loss of parental care and protection may result in children having to live in alternative care arrangements. Article 20 of the CRC stipulates that States Parties are responsible for ensuring such care in situations where children are "temporarily or permanently deprived of his or her family environment" (United Nations General Assembly, 1989).

While there is considerable variability in both living conditions and caregiving environments across different alternative care settings, research has provided strong and consistent evidence indicating that nearly all domains of development are profoundly affected when children experience institutional care, with impacts ranging from impaired social and interpersonal development, including difficulties with forming secure attachments to caregivers, to delayed cognitive and language development (van IJzendoorn, Luijk, & Juffer, 2008; van IJzendoorn et al., 2011). Such children are also at heightened risk for psychopathology and exposure to abuse (see, for example: Barth, 2002 as cited in Beckett et al., 2006; Browne, 2009; Dozier, Zeanah, Wallin, & Shauffer, 2012; Ellis, Fisher, & Zahaire, 2004; Johnson, Browne, & Hamilton-Giachritsis, 2006; Nelson, 2007; Pinheiro, 2006; Roy, Rutter, & Pickles, 2004).

The wide recognition of the adverse impacts of institutionalization on developmental outcomes and children's well-being has led many countries to undertake efforts to reduce the numbers of children living in alternative care (particularly institutional care) and, whenever possible, to prevent institutionalization in the first place, or to reunite children with their families. Accurate and reliable estimates of the numbers of children living in alternative care are essential for countries to meet these objectives. Whether such data are available or not is, to a large extent, a reflection of how well the system functions to capture and record children in alternative care. This information can then be used to strengthen (or develop) national monitoring systems, to improve service provision and implement child care systems reforms that promote family strengthening and reunification. In addition, the availability of accurate and disaggregated data can directly inform government policy and practice in support of deinstitutionalization, by providing clear information on the characteristics of children placed in formal alternative care settings. This can also then be used to assess gaps in information and in service provision or interventions for children vulnerable to family separation in order to reduce the placement of children in formal alternative care.

While knowing how many children are in formal alternative care is crucial to inform policies and programming at country level, global and regional estimates of the number of institutionalized children are also key tools for international agencies and others to advocate for the reform of child care systems. In much the same way that global estimates on other issues such as child mortality, vaccination coverage or violence against children have been utilized, recent and accurate estimates on how many children are living in different alternative care arrangements in the world can help relevant international agencies and organizations ensure their efforts are appropriately targeted in supporting governments to work towards deinstitutionalization of children and to strengthen child protection systems, with a focus on the most vulnerable children such as those living in alternative care.

While the majority of the available research literature has focused on documenting the conditions of children living in alternative care (particularly institutional care) and its potential effects on child development and functioning, there have been only a few previous attempts to quantify the number of children living in different alternative care arrangements. Furthermore, available estimates have often been published with limited information on the methods used to obtain these, leaving room for doubts about their reliability and actual coverage. An often-quoted figure dating back to the 1980s suggested that between six and eight million children lived in residential care worldwide; however, the method of calculation remains unclear (Defence for Children International, 1985 as cited in Tolfree, 1995). The latest global estimate, published in 2009, put the number of children in institutional care at more than two million, with Central and Eastern Europe and the Commonwealth of Independent States (CEE/CIS) having the highest reported figure at around 800,000 children in institutional care (United Nations Children's Fund, 2009). More recently, the Transformative Monitoring for Enhanced Equity (TransMonEE) project estimated that more than 1.4 million children were in formal care (i.e., either residential or family-type care such as foster care or guardianship) in 2012 in 22 countries of CEE/CIS and the European Union (TransMonEE, 2014). In Latin America and the Caribbean, an estimate published in 2013 based on data from 27 countries in the region put the number of children in residential care at around 240,000 (Fondo de las Naciones Unidas para la Infancia, 2013).

Given the need for recent and accurately documented figures on children in alternative care, the present study has two main objectives. The first is to provide a broad overview of availability and coverage of administrative records of children living in alternative care, according to some basic criteria, across all regions of the world. The second is to utilize the existing country-level data in an attempt to generate global and regional estimates of the number of minors living in both residential and foster care. Countries are sub-divided into seven regions grouped by geographical concentration in which the United Nations Children's Fund (UNICEF) has an active programme presence (see Table 1): Eastern and Southern Africa (ESAR), West and Central Africa (WCAR), Middle East and North Africa (MENA), South Asia, East Asia and the Pacific (EAPR), Latin America and the Caribbean (LACR) and Central and Eastern Europe and the Commonwealth of Independent States (CEE/CIS). In addition to these seven regions, comprised mostly of low- and middle-income countries, the UNICEF classification also contains an additional group of 39 mostly high-income countries, hereafter referred to as industrialized countries.

Table 1
UNICEF regional classification.

Region	Countries and areas in the region
Eastern and Southern Africa	Angola; Botswana; Burundi; Comoros; Eritrea; Ethiopia; Kenya; Lesotho; Madagascar; Malawi; Mauritius; Mozambique; Namibia; Rwanda; Seychelles; Somalia; South Africa; South Sudan; Swaziland; Uganda; United Republic of Tanzania; Zambia; Zimbabwe
West and Central Africa	Benin; Burkina Faso; Cabo Verde; Cameroon; Central African Republic; Chad; Congo; Côte d'Ivoire; Democratic Republic of the Congo; Equatorial Guinea; Gabon; Gambia; Ghana; Guinea; Guinea-Bissau; Liberia; Mali; Mauritania; Niger; Nigeria; Sao Tome and Principe; Senegal; Sierra Leone; Togo
Middle East and North Africa	Algeria; Bahrain; Djibouti; Egypt; Iran (Islamic Republic of); Iraq; Jordan; Kuwait; Lebanon; Libya; Morocco; Oman; Qatar; Saudi Arabia; State of Palestine; Sudan; Syrian Arab Republic; Tunisia; United Arab Emirates; Yemen
South Asia	Afghanistan; Bangladesh; Bhutan; India; Maldives; Nepal; Pakistan; Sri Lanka
East Asia and the Pacific	Brunei Darussalam; Cambodia; China; Cook Islands; Democratic People's Republic of Korea; Fiji; Indonesia; Kiribati; Lao People's Democratic Republic; Malaysia; Marshall Islands; Micronesia (Federated States of); Mongolia; Myanmar; Nauru; Niue; Palau; Papua New Guinea; Philippines; Republic of Korea; Samoa; Singapore; Solomon Islands; Thailand; Timor-Leste; Tonga; Tuvalu; Vanuatu; Viet Nam
Latin America and the Caribbean	Antigua and Barbuda; Argentina; Bahamas; Barbados; Belize; Bolivia (Plurinational State of); Brazil; Chile; Colombia; Costa Rica; Cuba; Dominica; Dominican Republic; Ecuador; El Salvador; Grenada; Guatemala; Guyana; Haiti; Honduras; Jamaica; Mexico; Nicaragua; Panama; Paraguay; Peru; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Suriname; Trinidad and Tobago; Uruguay; Venezuela (Bolivarian Republic of)
Central and Eastern Europe and the Commonwealth of Independent States	Albania; Armenia; Azerbaijan; Belarus; Bosnia and Herzegovina; Bulgaria; Croatia; Georgia; Kazakhstan; Kyrgyzstan; Montenegro; Republic of Moldova; Romania; Russian Federation; Serbia; Tajikistan; the former Yugoslav Republic of Macedonia; Turkey; Turkmenistan; Ukraine; Uzbekistan

2. Background

In order to advance the implementation of the CRC commitments with regards to children without parental care and to better guide and inform policy and service delivery, the Guidelines for the Alternative Care of Children (hereafter referred to simply as 'the Guidelines') were welcomed by the United Nations General Assembly in November 2009, as a non-binding set of standards and principles that apply to the provision of formal alternative care.

The Guidelines provide, for the first time, clear definitions for many of the concepts related to the alternative care of children. Alternative care can be provided both formally and informally. 'Formal care' is defined as "All care provided in a family environment which has been ordered by a competent administrative body or judicial authority, and all care provided in a residential environment, including in private facilities, whether or not as a result of administrative or judicial measures" [United Nations General Assembly, 2009, para 29 (b) (ii)]. Alternatively, 'informal care' refers to "Any private arrangement provided in a family environment, whereby the child is looked after on an ongoing or indefinite basis by relatives or friends (informal kinship care) or by others in their individual capacity, at the initiative of the child, his/her parents or other person without this arrangement having been ordered by an administrative or judicial authority or a duly accredited body" [United Nations General Assembly, 2009, para 29 (b) (i)]. Within the sphere of 'formal care', a distinction is typically made between those services provided for, or arranged, either by the public (i.e., the State) or private (i.e., non-State) sectors. Non-State care providers can include non-governmental organizations (NGOs), faith-based organizations and any other private agencies (Cantwell, Davidson, Elsley, Milligan, & Quinn, 2012).

The two main types of alternative care settings referred to in the literature are those that are 'family-based' versus those that comprise different care arrangements, with the latter generally being understood to mean 'not in the home of a family'. The two main forms of 'family-based' care discussed are kinship care and foster care, while recognizing that other forms do exist. 'Kinship care' has been defined as "family-based care within the child's extended family or with close friends of the family known to the child, whether formal or informal in nature" [United Nations General Assembly, 2009, para 29 (c) (i)] whereas 'foster care' comprises "situations where children are placed by a competent authority for the purpose of alternative care in the domestic environment of a family other than the children's own family that has been selected, qualified, approved and supervised for providing such care" [United Nations General Assembly, 2009, para 29 (c) (ii)]. While generally the 'competent authority' represents the State at either the national, regional or local level, in some situations it may also be an NGO, particularly in countries where the formal child protection system is not well developed.

When it comes to care settings that are not family-based, two of the main types are residential care and supervised independent living arrangements (typically only provided to children who have reached a certain age, usually sometime in adolescence). 'Residential care' is "care provided in any non-family-based group setting, such as places of safety for emergency care, transit centres in emergency situations, and all other short- and long-term residential care facilities, including group homes" [United Nations General Assembly, 2009, para 29 (c) (iv)]. Thus, this definition encompasses a wide range of care settings, from small group homes to large residential facilities such as orphanages or institutions. In these types of

arrangements, caretakers are typically paid personnel, working in a shift pattern, who normally do not reside in the facility or institution.

While the available literature and previous research have provided broad definitions of different alternative care arrangements, there is considerable variability in service models in real-life settings. Foster care, for instance, can include not only traditional types of arrangements where children are placed in the home of a family, but also other models. In some settings, including in the Russian Federation, Ukraine, Georgia and South Africa, the terms 'guardianship' and 'kinship' (or 'relative') foster care are defined as formal care arrangements that are sanctioned, monitored and supported by the statutory organs, with children cared for by friends, relatives or kin (Delap & Melville, 2011).

As with foster care, residential care varies in practice and in many parts of the world facilities such as boarding schools, madrassas, pagodas and other types of services might be considered as a form of residential care, depending on the country context. For instance, in some countries boarding schools are paid for by parents or caregivers and are highly prestigious whereas in other countries, they are free to the users and serve to provide food, shelter and education to children in cases where parents or caregivers may not otherwise be able to do so. This highlights the importance of keeping in mind that some children may find themselves living in residential-like facilities in order to access education or other services, rather than because they are in need of care and protection (Delap & Melville, 2011). In the case of the former children, some may return to their families regularly (on weekends, for example), while others do not, thus complicating which children should be counted as among those in residential care (Delap & Melville, 2011).

Worldwide, different historical trajectories and societal views have influenced the development of current models of alternative care. For instance, in Central and Eastern Europe and the former Soviet Union during the 20th century, some children viewed as being in need of special protection were considered a social 'problem' that families were deemed incapable of dealing with; thus the responsibility for such children was given to the State instead of trying to understand the causes of a child's difficulties or reasons for vulnerability and working with families in crisis to provide support services and assistance (Burke, 1995; Carter, 2005). These children were placed in large-scale institutions that began to proliferate in countries of the region particularly following the turmoil of the Second World War (Pinheiro, 2006). Since the collapse of the Soviet Union in the early 1990s, widespread use of residential care institutions has continued throughout the region. This is due in large part to the poor economic conditions that followed, lack of support systems and social assistance for families, and the persistent and deeply-rooted belief "[. . .] that institutional care was an acceptable – even an ideal – form of childcare" (Carter, 2005; p. 11).

In comparison, many traditional African societies viewed the care and upbringing of children as a responsibility shared by parents, extended family and the larger community (Assim, 2013). Therefore, a strong tradition of kinship care in many African cultures, dating back to pre-colonial times, is still in existence today whereby children who are orphaned, abandoned or otherwise without parental care, are looked after by relatives and other extended family members (Assim, 2013; Biemba et al., 2010). Here, kinship care is an integral and inseparable part of what constitutes a family (Assim, 2013), guided by cultural norms and traditional values that view the care of children as the binding duty of all family members (Assim, 2013; Bennett, 1999) and by the South African tradition of 'ubuntu' whereby all humanity is believed to be interconnected through a shared universal bond (Dreyer, 2015). However, the continuing impact of the HIV and AIDS epidemic coupled with, among other things, high levels of poverty and inequality, political and economic instability, and armed conflict, has put a strain on the ability of the extended family and kinship system to absorb childrearing responsibilities in situations of parental loss (Assim, 2013). In many African countries, faith-based organizations, international and national NGOs and private donors have stepped in to create institutions in order to respond to the growing number of children who have been orphaned due to various causes (Pinheiro, 2006).

Thus, a country's or region's history of care provision is likely to have shaped its current child welfare systems, and to have influenced societal perspectives and beliefs about the care and protection of children. Understanding the historical trajectory of a country or region can therefore shed light on the size and characteristics of its contemporary system of alternative care provision.

3. Methods

The compilation of country-level data on the number of children living in formal alternative care (residential care and foster care) took place between 2012 and 2017. UNICEF country offices were contacted and asked to gather the most recent data on the number of children in residential and foster care from existing and verifiable national sources applying the standard definitions from the Guidelines for the Alternative Care of Children in classifying care arrangements as residential care and foster care. Although every effort was made to identify sources that adhered to the definitions provided in the Guidelines, some things were left open to interpretation. Because the types of services considered as residential care vary by country context (as mentioned earlier), respondents were also encouraged to use their local knowledge and understanding to identify whether service models such as boarding schools, villages of small group homes, monasteries etc. provide residential care services in their country. Similarly, due to the wide differences in how foster care is defined across settings, children in guardianship or kinship care, for example, may be considered as living in formal foster care arrangements within the context of a particular country.

When available from existing national sources, country offices were also asked to compile disaggregated data by sex and disability status for each type of care facility (i.e., State residential, non-State residential and foster care) and to provide the reference year, source of the information and supporting documentation.

In addition to the figures compiled by country offices, data for a further 43 countries (mainly those in CEE/CIS and OECD countries) were identified through independent data searches. Sources included situation analysis reports, Eurochild national reports on alternative care, government websites and UNICEF Country Office Annual Reports which include estimates of the rate of children living in residential care facilities. Another key source of information was the TransMonEE database that includes over 400 indicators relevant to the social and economic well-being of children, young people and women in 28 countries of Central and Eastern Europe and the European Union. The database includes the number of children in residential care institutions, defined as "a collective living arrangement where children are looked after by adults who are paid to undertake this function" (TransMonEE, n.d., p. 8) as well as those children living in foster care, defined as "formal, temporary placements made by the State with families that are trained and supervised by social services. Foster parents normally receive a special fee or allowance" (TransMonEE, n.d., p. 8). Within the sphere of residential care, the TransMonEE database differentiates between those children in public institutional care defined as full-time care of the State either on a permanent or temporary basis, and those living in non-public institutional care which are typically NGO or church-run services, financed in whole or in part by non-State actors. Another important source of supplementary information was a 2009 survey carried out by the member organizations of Eurochild to collect information on the numbers of children in alternative care, including those in residential and family-based care (Eurochild, 2010). A total of 30 European countries participated in the survey with data mainly provided on the basis of administrative records from relevant government ministries and National Statistical Offices.

Country-level information compiled through both the data compilation and independent data searches was entered into an electronic database that included the estimated number of children living in residential care and formal foster care (disaggregated by sex and disability status when available) as well as details about the data source. For countries with available data from multiple years, the most recent data point was reviewed for inclusion in the final database. A basic quality check was conducted and data points which met the following criteria were included in the final database: information was available on the reference year (i.e., the year to which the data are referring) and source of the data and there was supporting documentation. Data points that were missing any of these details, and for which additional searches did not produce the necessary information, were excluded from the database. In instances in which there was a discrepancy in the data gathered through the different mechanisms, UNICEF country focal points were contacted, informed about the data discrepancies and asked to advise on what the best available estimate should be for inclusion in the database, in consultation with relevant national counterparts.

The final database contains data points from 142 countries that met the inclusion criteria. It is important to highlight that the availability of country data relied on reporting by UNICEF country offices. A non-response was therefore assumed to mean that no reliable source of data on children in alternative care could be located. It should also be noted that not all the data points correspond to the same reference year (see Findings for more details).

For each country with available data, a rate was obtained by dividing the estimated number of children in residential (or foster) care by the population of children under age 18 in that country in the reference year for the available data and multiplying by 100,000. Weighted regional rates were then produced on the basis of population estimates for the year 2016 from the United Nations Population Division (United Nations, Department of Economic and Social Affairs, Population Division, 2015). Regional numbers of children in residential and foster care were estimated (separately) for each of the eight regional groupings using two different methods. Under the first method (referred to as "SUM" later), regional estimates of the number of children in residential (or foster) care were calculated as a sum of the available figures representing a subset of countries with available data for the year ranges indicated in Tables 2 and 3. Under the second method (termed "RATE APPLIED"), the weighted regional rate described above was applied to the 2016 regional population to produce an estimate of the number of children in residential (or foster) care which effectively "assigns" the regional rate to those countries with missing data. This is a standard procedure commonly used to calculate regional aggregates and was done based on the assumption that countries within the same region tend to have (somewhat) similar cultures and practices relating to the alternative care of children. We can therefore assume that countries with missing information are likely to have a similar rate of children living in alternative care as other countries in the region. Numbers produced on the basis of the two methods cannot be directly compared since those estimated with the "SUM" method reflect a subset of countries with data across a range of years while those using the "RATE APPLIED" are standardized for the full regional population for the year 2016. A minimum threshold of at least one-third (i.e., 33%) population coverage was established for presentation of regional and global aggregates using the "RATE APPLIED" method. This said, caution is still warranted when interpreting figures based on lower population coverage as there is some level of uncertainty around the estimates. For global estimates, the preferred method was to calculate a weighted average of regional data (as opposed to a weighted average of country data). The findings presented in this paper include only global and regional, not country-level, estimates.

Table 2
Number of countries, number of countries with residential care data, population coverage of children aged 0 to 17 years and year range of data sources, by region.

Region	Number of countries in the region	Number of countries with residential care data	Population coverage of children aged 0–17 years	Year range
CEE/CIS	21	21	100%	2006–2016
South Asia	8	8	100%	2007–2013
LACR	33	31	99%	2010–2017
Industrialized countries	39	28	94%	2001–2013
EAPR	29	10	87%	2010–2016
MENA	20	14	86%	2007–2016
ESAR	23	14	63%	2004–2013
WCAR	24	14	33%	2010–2015
World	197	140	84%	2001–2017

4. Findings

4.1. Data coverage

Of the 197 countries and areas included in UNICEF's global reporting, data on the number of children in alternative care were identified for 142 countries. Of these 142 countries, more than half (86) had data on both residential and foster care while the remaining 56 only had data for either residential care or foster care but not both.

Some 140 countries corresponding to 84 per cent of the world's children had available residential care figures, covering a period from 2001 to 2017. The most recently available data for all countries (with the exception of Greece and Zimbabwe) were from the year 2006 and later. A total of 39 countries had data for the period between 2006 and 2010 while data for the remaining 99 countries referred to the years between 2011 and 2017. There were 48 countries for which data from multiple years (i.e., trend data) were identified. This mainly included countries of the CEE/CIS region such as Albania, Armenia, Belarus, Georgia, Kazakhstan, the Republic of Moldova, Romania and Turkey but also some countries in LACR such as Bolivia, Chile, Colombia, Costa Rica, Guatemala, Mexico, Panama and Uruguay; in Africa such as Cabo Verde and Malawi; and in Asia and MENA such as Cambodia, Egypt and Fiji. The most common source of residential care data identified was, overwhelmingly, administrative records from government ministries, National Statistical Offices or designated NGOs and other authorities in charge of national child welfare. A total of 119 countries had administrative records as the data source for estimates of children in residential care (data for 16 of these countries, all EU Member States, were sourced from the 2009 Eurochild survey). The remaining 21 countries had either a census of facilities and institutions or population-based survey as the source of residential care data.

In comparison, only 88 countries had available foster care data covering a period between 2006 and 2017, representing just 25 per cent of the world's children. A reliable global estimate on the number of children in foster care could not therefore be calculated, due to low population coverage. All data sources for foster care were from 2006 and later, with 25 of the countries having data for the years 2006 to 2010 and the remaining 63 countries having data spanning the years from 2011 to 2017. Trend data for foster care were available for 27 countries, half of which are from the CEE/CIS region. As was the case with residential care, administrative records were the most common source of figures on children in foster care (85 countries), with the remaining 3 countries having either a census or population-based survey as the source.

The proportion of the regional population of children covered by the available data for each of the two types of alternative care was calculated to allow for a comparison of data coverage across regions. As can be seen in Table 2, when it comes to residential care, South Asia and Central and Eastern Europe and the Commonwealth of Independent States (CEE/CIS) had the greatest coverage with data identified for all countries in the regions, followed by Latin America and the Caribbean (LACR) and industrialized countries with data available for 31 of the 33 and 28 of the 39 countries in the region, respectively, covering 99 and 94 per cent of the regional populations of children. In each of the Middle East and North Africa (MENA), Eastern and Southern Africa (ESAR) and East Asia and the Pacific (EAPR) regions, regional population coverage reached at least 60 per cent. The only region with population coverage of less than 50 per cent was West and Central Africa (WCAR), where data were available for only 14 of the 24 countries in the region, representing 33 per cent of the regional population of children.

Across all regions, it was more difficult to locate reliable data on children in foster care than on those in residential care (Table 3). In South Asia, for instance, where data on the number of children in residential care were identified for all countries, only one (Sri Lanka) had data for the number of children in foster care. Therefore, population coverage for foster care was much lower in most regions but some did reach at least 33 per cent coverage and regional rates and estimates using the "RATE APPLIED" method were calculated for these regions. Data on the number of children in foster care were found for 28 of the 39 industrialized countries, covering 96 per cent of the regional child population. The regions with the second and third highest regional population coverage for foster care were CEE/CIS at 90 per cent and MENA at 61 per cent. The remaining five regions all had population coverage that was less than 33 per cent, with both South Asia and EAPR falling below 10 per cent.

Table 3
Number of countries, number of countries with foster care data, population coverage of children aged 0 to 17 years and year range of data sources, by region.

Region	Number of countries in the region	Number of countries with foster care data	Population coverage of children aged 0–17 years	Year range
Industrialized countries	39	28	96%	2006–2013
CEE/CIS	21	17	90%	2010–2017
MENA	20	8	61%	2010–2016
ESAR	23	5	30%	2010–2014
LACR	33	20	27%	2011–2017
WCAR	24	7	17%	2011–2013
EAPR	29	2	5%	2010–2012
South Asia	8	1	1%	2010
World	197	88	25%	2006–2017

Table 4
Number of children aged 0 to 17 years in residential care and number of children in residential care per 100,000 population, by region and by method of calculation.

	SUM: Number of children in residential care	RATE APPLIED: Number of children in residential care	Rate of children in residential care per 100,000	Population coverage of children aged 0–17 years
CEE/CIS	629,000	664,000	666	100%
Industrialized countries	367,000	384,000	192	94%
EAPR	654,000	772,000	153	87%
MENA	170,000	212,000	126	86%
ESAR	163,000	286,000	120	63%
LACR	188,000	189,000	97	99%
WCAR	38,000	126,000	51	33%
South Asia	91,000	93,000	15	100%
World	2,300,000	2,726,000	120	84%

Note: Figures in this table have been rounded.

As mentioned earlier, many countries had data for only one of the two types of alternative care (i.e., either foster or residential care). For example, although there is an equal number of industrialized countries with data on residential care and foster care (28 each), this does not correspond to the same set of countries. Data for Canada on the number of children in foster care were identified but not on the number of children in residential care while the opposite was true for Greece.

For some countries, there were discrepancies in the available data. The most commonly encountered issue was data points from different sources but with the same reference year. In these instances, there were generally differences in either data coverage (i.e., whose data are and are not included) or in the definitions used. Methods of data collection also differed across sources. For example, in one country, an estimate for the number of children in residential care from a census was around 5000 while there was also another, much lower, figure (around 900) for the same year, based on administrative records. One source of the difference was that the census figure included children residing in both public and private institutions while the administrative data referred only to those children in public residential care. Additionally, the census definition was much broader and included types of residential facilities such as corrective/penal institutions and boarding schools that were not considered to be residential care for administrative purposes.

4.2. Global and regional estimates of residential care

Applying the "SUM" method described earlier, approximately 2.3 million children between the ages of 0 and 17 years are estimated to be living in residential care in the 140 countries with available data (Table 4). When the respective regional rates are applied to those countries with missing data ("RATE APPLIED" method), the global estimate of the number of children in residential care is approximately 2.7 million children between the ages of 0 and 17 years, or 120 children per 100,000.

Table 4 also presents regional figures and rates of children in residential care according to the two methods of calculation. Regardless of the calculation method, the available data seem to suggest that the region with the highest rate of children in residential care is CEE/CIS at 666 children per 100,000, a rate that is over five times higher than the global average of 120 per 100,000. CEE/CIS also has the second largest estimated number of children in residential care, after East Asia and the Pacific in which 772,000 children are estimated to be living in residential care under the "RATE APPLIED" method (representing approximately 28 per cent of all children in residential care worldwide). This translates into a rate of 153 children living in residential care in the region per 100,000. Industrialized countries have the third largest estimated figure at 384,000 (according to the "RATE APPLIED" method) but second highest rate with 192 children between the ages of 0 and 17 per 100,000 living in institutional care, more than one and a half times higher than the global rate.

Table 5
Number of children aged 0 to 17 years in foster care and number of children in foster care per 100,000 population, by region and by method of calculation.

	SUM: Number of children in foster care	RATE APPLIED: Number of children in foster care	Rate of children in foster care per 100,000	Population coverage of children aged 0–17 years
CEE/CIS	657,000	788,000	790	90%
Industrialized countries	774,000	799,000	399	96%
MENA	31,000	52,000	31	61%
ESAR	94,000	n/a	n/a	30%
LACR	54,000	n/a	n/a	27%
WCAR	4,000	n/a	n/a	17%
EAPR	4,000	n/a	n/a	5%
South Asia	4,000	n/a	n/a	1%

Note: Regions in bold had insufficient data coverage to calculate estimates using the "RATE APPLIED" method. Figures in this table have been rounded.

4.3. Regional estimates of foster care

As shown previously, only three regions reached a sufficient population coverage of at least 33 per cent to calculate the number of children aged 0 to 17 years living in foster care using the "RATE APPLIED" method (see Table 5). Based on this method, there are an estimated 788,000 children (790 per 100,000) in CEE/CIS and 799,000 children (399 per 100,000) in industrialized countries living in foster care.

5. Limitations

One major limitation in this field of work is that existing data on children in alternative care in many countries continue to be very weak. Reasons for this include poor administrative records or non-functional systems for capturing and recording the number and characteristics of children in care, inconsistent implementation of data quality assurance processes, and a lack of resources or investment in collecting reliable data. Additionally, evidence from some parts of the developing world suggests the presence of many unregistered or unrecorded facilities that further hinder measurement efforts at the country level (Delap, 2011). Attempts to assess the extent to which official government-produced administrative data on the number of children in residential care accurately reflect the scale of institutionalization in a country remain scarce. For instance, a national modelling study conducted in Cambodia produced an estimate of the number of children living in residential care that was around four times higher than a previously reported government figure (Stark, Rubenstein, Pak, & Kosal, 2017). That said, the study relied on a series of assumptions and on an unverified sampling frame. Additionally, the estimate was extrapolated on the basis of a subsample of institutions that, as acknowledged by the authors, were unlikely to be fully representative of Cambodia. Finally, there are currently no validated gold-standards for estimating the number of children living in residential care and it is therefore difficult to assess whether the discrepancies in figures observed in the case of Cambodia might be applicable to other contexts. The figures presented in this paper at both global and regional levels are not exempt from the above issues since they are based on underlying country data, with all the potential weaknesses described above. While it would have been reasonable to explore the possibility of developing statistical models to offset the general lack of high-quality data, the purpose of the present study was not only to estimate the numbers of children in formal alternative care but also to provide a sense of how different country systems are functioning to count such children. In fact, the figures presented here are best understood as giving an indication of whether, and how well, a country's monitoring systems are able to enumerate children in residential and foster care rather than representing an exact count of such children. Some countries with a large population of children in residential or foster care are likely to have better developed and more functional records and information systems while others do not, despite having large numbers of children recorded as being in care. Higher reported figures do not necessarily mean there is a higher incidence of institutionalization among children in any given country but might rather be a reflection of a more stable and functional system for identifying and counting such children. In fact, several of the countries that were found to have the highest numbers and rate of children in residential care are high-income, with greater capacity and better resources in place for the systematic collection of such data. Unfortunately, very few countries were able to supply data disaggregated by sex and disability status.

A few additional words of caution that should be kept in mind when interpreting the figures presented in this paper. First, all the figures presented here reflect data from only those countries for which a reliable source could be identified after a reasonable search was conducted. Second, given the many challenges with accurately counting the number of children in alternative care, any estimates presented here at the global and regional levels are likely to underestimate the actual numbers of children living under these different care arrangements. Regional estimates in particular should also be viewed in light of the fact that there can be wide variations in the numbers of children in alternative care across countries within the same region. Finally, and related to the previous point, is that the actual makeup of the types of arrangements counted as residential and formal foster care varies somewhat across countries included in these analyses and this should be kept in mind when interpreting the findings. While reasonable efforts have been made to verify the comparability of country estimates, detailed documentation on the nature of the available data was limited overall and the actual coverage of the figures could not always be verified. In some countries, figures on the number of children in residential care may have only

included those living in State-run facilities and would therefore be an underestimate since children in privately-run (i.e., non-State) institutions would not have been included in the reported estimate.

6. Discussion

While this study is not exempt from some of the limitations affecting previous estimation attempts, it does have a few strengths. Firstly, the estimates presented in this paper are the result of a thorough and comprehensive search to locate and compile data on children in alternative care from as many countries as possible, resulting in a data coverage exceeding 80% of the world's children. Secondly, a concerted effort was made to carry out a basic quality check on all the data being considered for inclusion in the analyses. Finally, attempts were made to reconcile any discrepancies in figures reported by different government ministries or agencies that contradicted one another.

The original purpose of compiling country-level data on the number of children in alternative care was to generate more recent global and regional estimates and to explore to what extent existing national administrative systems are able to enumerate such children. From the beginning, the process was seen as a challenge as many countries still lack a functional system for producing accurate statistics on the number of children in alternative care. Therefore, one of the important contributions of the current work is that it raises awareness of the urgent need to strengthen the capacity of countries to more accurately count, monitor and report on children in alternative care by improving administrative systems. Such advances are essential to develop evidence-based services and policy responses that aim to: 1) reduce the number of children living in alternative care (particularly institutional care); 2) prevent family separation when possible (while promoting family reunification) and; 3) ensure placement of children in appropriate, preferably family-based, alternative care arrangements that meet their best interests, when necessary. Having more accurate data on the numbers of children in care will also allow for stakeholders to see trends and changes over time, thus enabling a process of thoughtful reflection on the impact of their work and areas for improvement.

A possible starting point to building capacity and improving administrative systems, if not already in effect, would be to establish a system for officially registering alternative care providers that includes a requirement for regularly scheduled inspections and submission of regular reports several times a year on the number of children in care. A 'gatekeeping system,' with contextual data gathered by social/child welfare workers on the reasons why children enter alternative care, can be used for triangulation and to help identify some of the root causes of institutionalization. When not already in place, governments could also consider implementing a national case management system that clearly outlines standards and guidelines for arranging, coordinating and monitoring alternative care services that best meet the needs and interests of children. Such a system would have the potential to generate anonymized data that could be extracted to inform policy and service planning and provision.

Another important finding was that identifying sources of data on the numbers of children in foster care is even more challenging. While the available data on children in residential care covered 84 per cent of the world's children, available data on children in foster care represented just 25 per cent of the global population of children. At the regional level, five of the eight regions had population coverage for foster care that was less than 33 per cent, with South Asia and East Asia and the Pacific both falling far below 10 per cent. Even in the Middle East and North Africa and CEE/CIS, where sufficient population coverage was reached for foster care, the level of coverage was far lower than that of residential care. Interestingly, in CEE/CIS, the estimate calculated for the number of children in foster care was actually higher than that for residential care, even though data coverage for foster care was lower, which might suggest that foster care programmes are in widespread use in the region despite the fact that systems for tracking such children might be less well established. The overall difficulties encountered with locating reliable sources of national foster care data could be a reflection of limited investment and resources to build, maintain or improve mechanisms for monitoring and collecting data on children's placements in formal foster care arrangements. On the other hand, low coverage of available foster care statistics as compared to residential care may also indicate a real lack of available formal foster care arrangements in many countries, despite the recommendation contained within the Guidelines that children should be provided with a range of options for alternative care that meet their individual needs and best interests (United Nations General Assembly, 2009). In many places, particularly in low- and middle-income countries, provision of foster care services still requires considerable development and this finding further emphasizes the need for more and better data collection so that governments and their partners, including international agencies, can work to expand the range of available options for alternative care in countries.

Regional figures on alternative care should also be viewed in light of both current cultural and societal contexts as well as a region's (or country's) history of institutionalization which has likely impacted present-day approaches to service provision. In Africa, for instance, the historical and cultural trend for extended family and relatives to look after children without parental care continues to predominate even today and is likely to be one important factor contributing to the relatively piecemeal use and application of formal foster care in that part of the world (Parry-Williams & Dunn, 2009). This notion was also borne out in the current exercise given the inability to identify sources of data on foster care for many countries in Africa. Similarly, the significantly lower foster care figure for the Middle East and North Africa as compared to residential care could indicate that many countries in the region do not use or rely on placement in formal foster care as a preferred form of alternative care; resistance to fostering in some parts of the Middle East has been documented elsewhere (Tolfree, 1995).

Finally, while this study's ultimate goal was limited to making a case for improving administrative systems in order to generate more accurate figures on the number of children in alternative care, there continues to be a large gap in the existing research on the factors that cause children to be separated from their families, the characteristics of such children and the experiences they have under different care arrangements. Such knowledge is essential for countries to develop effective services, policies and child welfare systems that take into account the best interests of children and for States Parties to meet their obligations under the CRC to protect some of their most vulnerable children.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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References

Assim, U. M. (2013). *Understanding kinship care of children in Africa: A family environment or an alternative care option (doctoral dissertation)*. South Africa: Faculty of Law at the University of the Western Cape.

Barth, R. P. (2002). *Institutions vs Foster Homes: The empirical base for a century of action*, University of North Carolina School of Social Work, Jordan Institute for Families, Chapel Hill, cited in: Pinheiro, P. S. (2006). *World Report on Violence against Children*, UN Secretary-General's Study on Violence against Children, Geneva: United Nations, p. 183.

Beckett, C., Maughan, B., Rutter, M., Castle, J., Colvert, E., Groothues, C., & Sonuga-Barke, E. J. S. (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.

Bennett, T. W. (1999). *Human rights and african customary law under the south african constitution*. Juta.

Biemba, G., Beard, J., Brook, B., Bresnaham, M., Flynn, D., & Simon, J. (2010). *The scale, scope and impact of alternative care for OVC in developing countries: A review of literature*. Boston, MA: Center for Global Health and Development, Boston University. Retrieved from. http://www.bu.edu/cghd/files/2012/11/The-Scale-Scope-and-Impact-of-Alternative-Care-for-OVC-in-Developing-Countries-A-Review-of-Literature.pdf

Browne, K. (2009). *The risk of harm to young children in institutional care*. London, United Kingdom: Save the Children UK and Better Care Network. Retrieved from. http://www.bevaikunamu.lt/wp-content/uploads/2013/12/the_Risk_of_Harm1.pdf

Burke, M. A. (1995). *Child institutionalization and child protection in central and eastern europe (Innocenti occasional papers, economic policy series, No. 52)*. Florence, Italy: UNICEF International Child Development Centre. Retrieved from. http://www.unicef-irc.org/publications/pdf/eps52.pdf

Cantwell, N., Davidson, J., Elsley, S., Milligan, I., & Quinn, N. (2012). *Moving forward: Implementing the 'Guidelines for the alternative care of children'*. Scotland, United Kingdom: Centre for Excellence for Looked After Children in Scotland at the University of Strathclyde. Retrieved from. http://www.unicef.org/protection/files/Moving_Forward_Implementing_the_Guidelines_English.pdf

Carter, R. (2005). *Family matters: A study of institutional childcare in central and eastern europe and the former soviet union*. London, United Kingdom: EveryChild. Retrieved from. http://p-ced.com/reference/Family_Matters_summary.pdf

Delap, E. (2011). *Scaling down: Reducing, reshaping and improving residential care around the world*. London, United Kingdom: EveryChild. Retrieved from. https://www.everychild.org.uk/sites/default/files/docs/ScalingDown_LowResProof_FINAL.pdf

Delap, E., & Melville, L. (2011). *Fostering better care: Improving foster care provision around the world (Positive care choices: Working paper 2)*. London, United Kingdom: EveryChild. Retrieved from https://www.everychild.org.uk/sites/default/files/docs/FosteringBetterCare.pdf

Dozier, M., Zeanah, C. H., Wallin, A. R., & Shauffer, C. (2012). Institutional care for young children: Review of literature and policy implications. *Social Issues and Policy Review*, *6*(1), 1–25. http://dx.doi.org/10.1111/j.1751-2409.2011.01033.x

Dreyer, J. S. (2015). Ubuntu. *International Journal of Practical Theology*, *19*(1), 189–209. http://dx.doi.org/10.1515/ijpt-2015-0022

Ellis, B. H., Fisher, P. A., & Zahaire, S. (2004). Predictors of disruptive behavior, developmental delays, anxiety, and affective symptomatology among institutionally reared Romanian children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *43*(10), 1283–1292.

Eurochild. (2010). *Children in alternative care, National Surveys* (2nd ed.). Retrieved from. http://eurochild.org/fileadmin/public/05_Library/Thematic_priorities/06_Children_in_Alternative_Care/Eurochild/Eurochild_Publication_-_Children_in_Alternative_Care_-_2nd_Edition_January2010.pdf

Fondo de las Naciones Unidas para la Infancia. (2013). *La situación de niños, niñas y adolescentes en las instituciones de protección y cuidado de América Latina y el Caribe*. Panamá, República de Panamá: UNICEF Oficina Regional para América Latina y el Caribe. Retrieved from. http://www.unicef.org/lac/UNICEF_Estudio_sobre_NNA_en_instituciones.pdf

Johnson, R., Browne, K. D., & Hamilton-Giachritsis, C. E. (2006). Young children in institutional care at risk of harm. *Trauma Violence and Abuse*, *7*(1), 1–26.

Nelson, C. A. (2007). A neurobiological perspective on early human deprivation. *Child Development Perspectives*, *1*(13–18), 13–18. http://dx.doi.org/10.1111/j.1750-8606.2007.00004.x

Parry-Williams, J., & Dunn, A. (2009). Family and Kinship Care, using information collected from alternative care assessments made in 9 East and Southern Africa Countries for UNICEF ESARO and Country Offices. In *Presentation given at the first international conference in africa on family based care for children.*

Pinheiro, P. S. (2006). *World report on violence against children, UN secretary-General's study on violence against children, Geneva*. Geneva: United Nations. Retrieved from. http://www.unicef.org/violencestudy/5.%20World%20Report%20on%20Violence%20against%20Children.pdf

Roy, P., Rutter, M., & Pickles, A. (2004). Institutional care: Associations between overactivity and lack of selectivity in social relationships. *Journal of Child Psychology and Psychiatry*, *45*(4), 866–873. http://dx.doi.org/10.1111/j.1469-7610.2004.00278.x

Stark, L., Rubenstein, B. L., Pak, K., & Kosal, S. (2017). National estimation of children in residential care institutions in Cambodia: A modelling study. *BMJ Open*, *7*, e013888. http://dx.doi.org/10.1136/bmjopen-2016-013888

Tolfree, D. (1995). *Roofs and roots. the care of separated children in the developing worl*. United Kingdom: Save the Children Fund UK. Retrieved from. http://www.childtrafficking.com/Docs/tolfree_1995_roofs_and_root.pdf

TransMonEE. (2014). *TransMonEE 2014 Key Features*.. Retrieved from. http://www.transmonee.org/Downloads/EN/2015/TM_2014_brochure_v1.pdf

TransMonEE (n.d.). TransMonEE Indicators and Variables. Definitions used in the Country Data Collection Template in 2014. Retrieved from http://www.transmonee.org/about.php.

United Nations Children's Fund. (2009). *Progress for children: A report card on child protection (Number 8)*. New York, NY: UNICEF. Retrieved from. http://www.unicef.org/publications/files/Progress_for_Children-No.8_EN_081309.pdf

United Nations General Assembly. (1989). *Convention on the Rights of the Child, UN document A/RES/44/25*. New York, NY: United Nations. Retrieved from. http://www.un.org/documents/ga/res/44/a44r025.htm

United Nations General Assembly. (2009). *Guidelines for the Alternative Care of Children, UN document A/RES/64/142*. Geneva: United Nations [Retrieved from. http://www.unicef.org/protection/alternative_care_Guidelines-English.pdf

United Nations, Department of Economic and Social Affairs, Population Division (2015). *World Population Prospects: The 2015 Revision*, CD-ROM Edition, United Nations New York, 2015.

van IJzendoorn, M. H., Luijk, M., & Juffer, F. (2008). IQ of children growing up in children's homes: A meta-analysis on IQ delays in orphanages. *Merrill-Palmer Quarterly-Journal of Developmental Psychology*, *54*(3), 341–366. Retrieved from. https://openaccess.leidenuniv.nl/bitstream/handle/1887/13186/artikel%20IQ%20orphanages.pdf?sequence=1

van IJzendoorn, M. H., Palacois, J., Sonuga-Barke, E. J. S., Gunnar, M. R., Vorria, P., McCall, R. B., . . . & Juffer, F. (2011). Children in institutional care: Delayed developed and resilience. *Monographs of the Society for Research in Child Development*, *76*(1), 8–30. http://dx.doi.org/10.1111/j.1540-5834.2011.00626.x