



## Education and disability in a conflict affected context: Are children with disabilities less likely to learn and be protected in Darfur?



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### ABSTRACT

The Sustainable Development Goal four aims at ensuring inclusive, free and equitable quality education. In a conflict setting such as Western Darfur, the education system has been destroyed, leaving millions of children out of schools. Various stakeholders, namely UNICEF and non-governmental organizations, have taken initiatives to rebuild schools and include all children since the beginning of the conflict in 2003. However, very little evidence is available to date on the education of children with disabilities living in conflict and post-conflict situations.

Between the 1st of October 2008 and the 28th of February 2009, we carried out a household survey in all localities and settlements in the rural council of Um Kher, part of the locality of Wadi Salih in the state of West Darfur, Sudan. We interviewed 11,089 heads of household about activity limitations and functioning difficulties associated with a health problem among all family members using a validated screening instruments, as well as 1436 children on various aspects of access to education, learning outcomes and psychological wellbeing. We found that in a context of protracted conflict, all children are at high risk of being excluded from schools and not learning when in school. We also found that children with disabilities were at higher risk of poorer psychological wellbeing, particularly those children with behavioral and mood disorders, as well as associated disabilities.

In a context of conflict and protracted crisis such as Darfur, promoting education requires a lot of external effort to ensure access and positive learning outcomes for all children, including children with disabilities. Our study shows poor basic cognitive learning outcomes for all children and the limited effectiveness of the protection of children in schools. Improving learning outcomes and mental wellbeing of vulnerable children in conflict, crisis and protracted crisis contexts require multilevel and multi-pronged interventions within and outside schools.

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### 1. Introduction

In contexts of emergency, conflicts and disaster, national education systems are often dismantled and schools are destroyed. In 2015 alone, 75 million children living in such contexts did not have access to schools (Nicolai, Hine, & Wales, 2016). Onsets of conflict and disaster invariably damage schools, displace populations and disrupt economic activities. As a result, poverty rates, early marriage for girls and child labor all increase, compounding impediments that prevent vulnerable children from accessing quality education. UNICEF's protective environment framework outlines

eight components working at different levels to establish a protective environment for children that enhance post-conflict recovery and development (Landgren, 2005, 2013). Among these, free access to inclusive, safe school systems with active and trained teachers are paramount in order to re-build peaceful societies. However, in the long term, this requires a strong commitment from the State for securing resources and setting-up mechanisms that prioritize promoting and respecting children's rights.

The conflict in Darfur, a state in the western part of Sudan situated at the boarder of Chad has resulted in a "protracted crisis" or a situation of complete disruption of the livelihoods of communities over a long period of time (over five years) (United Nations High Commissioner for Refugees, 2008). The length of the conflict in Darfur has created the conditions for an entire generation of children being uneducated. Darfur has been in a state of ongoing

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conflict since 2003 with West Darfur at the center. The conflict originated when two tribes of Darfur rebelled against the Central Government when they were left out of the peace negotiations between the North and the South and excluded from investments made by the Central Government in Khartoum (Ager, Boothby, & Bremer, 2009). The Government of Sudan (GoS) responded by arming and supporting Janjaweed militias; the militias have been instrumentalized for decades in the conflict with South Sudan and have instigated a series of attacks against the non-Arab civilian population in villages dominated by major rebel tribes. However, the root of the Darfur conflict remains complex and its continuation was exacerbated by a lack of interest of the GoS in Darfur, access to scarce water and quality land in a context of progressive desertification, ethnic hostility and the rivalry between Chad and Libya (De Juan, 2015; Olsson, 2010; Prunier, 2008).

Regardless of root cause(s), the civilian population has been subjected to forced displacement, violence, rape, with children being most at risk from violence in comparable armed conflict, including abductions, forced labor, sexual slavery and combat (Kaiser & Hagan, 2015). Evidence clearly shows that violence against, and the exploitation of, children in contexts of conflict lead to a wide range of dire and sometime long-term health and mental health, social and economic consequences (Betancourt et al., 2013; Newnham, Pearson, Stein, & Betancourt, 2015; Panter-Brick, Grimon, & Eggerman, 2014). In absence of support programs and interventions that have shown to be able to improve their mental health status (Brown, de Graaff, Annan, & Betancourt, 2017), children who have been exposed to armed conflict may face social and emotional difficulties which jeopardize the acquisition of knowledge, life skills and competencies to become productive citizens of their country (Attanayake et al., 2009; Slone & Mann, 2016). Vulnerable children including girls, poor children, children from minority, ethnic or religious groups, as well as children with disabilities, face the additional risk of exclusion from education in emergencies, particularly conflict. However, data pertaining to education of children with disabilities in conflict and post-conflict is crucially lacking (Burde, Guven, Kelcey, Lahmann, & Al-Abbadi, 2015). In turn, this lack of evidence is creating a major impediment to achieve the new Sustainable Development Goal for education (SDG4) (United Nations, 2015), that calls for a refocus on questions of not just access but of quality of education for vulnerable children. In this paper, using data from a large-scale household case control survey carried out in West Darfur in 2009, we examine access to school, acquisition of basic learning outcomes like reading, writing and counting as well as considerations of experienced wellbeing.

Following the introduction, section two of the present paper explores the literature on education in conflict and protracted crisis settings. Section three introduces data sources used in this study and methods of measurement of access to school, learning outcomes and psychological wellbeing. Section four provides results related to those outcomes of interest. Finally, section five presents conclusions and further discussions.

## 2. Background

### 2.1. The role of education

UNESCO spearheaded the Education for All (EFA) movement in the 1990's to promote a rights based approach to education that enables the flourishing of children and advance learning and the building of peaceful societies (UNESCO, 2000). The EFA goals included a specific focus on questions of quality (Goal 6). In 2000, access to primary education was identified as one of the eight Millennium Development Goals (MDG). However, experts

concede that the EFA goals as well as MDG 2 for 2015 have not been met: 69 million children of school-going age are not in school and over 750 million adults have no literacy skills; education is failing the most vulnerable groups by falling short on promises of equity and social justice (Trani, Kett, Bakhshi, & Bailey, 2011; UNESCO, 2014; Unterhalter, 2012, 2014).

In international policy and programs, education is tasked with breaching the void between two visions of EFA. A functional view of education focuses on questions of access to learning systems and places the priority upon providing children with the basic and minimal learning competences (literacy and numeracy) that constitute the foundational steps towards survival and income-generation. However, education also aims at enhancing abilities to reduce vulnerability to risk, increasing potentiality to fight poverty in the long-term, and providing the knowledge and skills with regards to broader issues such as health, communication technologies and civic engagement. Focusing on the quality of education also entails enhancing social cohesion, equipping individuals to play a role as participating members of their community and building peaceful and prosperous societies. This dichotomy in perspectives is evident in the distinction put forth by the Human Development and Capabilities Approach that recognizes the instrumental role that education plays in achieving various other capabilities (such as finding employment) but also states the importance of the intrinsic value of education as holding inherent value to improve Human life. Education fulfills an *instrumental social role* in that critical literacy, for example, fosters public debate and dialogue about social and political arrangements. "It has an *instrumental process role* by expanding the people one comes into contact with, broadening our horizons [...] It has an *empowering and distributive role* in facilitating the ability of the disadvantaged, marginalized and excluded to organize politically" (Walker & Unterhalter, 2007) p. 8. Re-conciliating the considerations of access/enrolment/basic learning with broader considerations of education as a fundamental human right and a process that fights inequality and exclusion is vital in situations of crisis such as conflicts. However, in numbers of Low and Middle-Income Countries (LMICs) and conflict contexts, educational achievement is most often viewed in terms of access and completion, with little attention to considerations of inclusion and equality.

Outlining the main characteristics of education for the 21st century, the Delors Commission Report (Burnett, 2008) identified four pillars of education to fight inequality and allow education for life-long learning: (i) Learning to know that entails understanding the world (critical thinking skills, problem solving skills, decision making skills, etc.); (ii) Learning to be which focuses on autonomy and judgment, personal responsibility for our collective destiny (skills for internal locus of control, skills for managing stress, skills for managing feelings etc.); (iii) Learning to live together that promotes participation of the learner in the wider environment (communication skills, negotiation skills, refusal skills, assertiveness skills, interpersonal skills, cooperation skills, empathy skills, etc.); (iv) Learning to do for turning knowledge and understanding into useful action (the manual skills needed to carry out the desired behavior). Addressing the four pillars concurrently would thus allow for focusing on intrinsic as well as instrumental aspects of what constitutes education of quality.

### 2.2. Quality education for children with disabilities

Provision of education for children with disabilities has been shaped over the past decades by international conventions and frameworks, namely the Salamanca Declaration and the United Nations Convention for the Rights of Persons with Disabilities (UNCRPD), that have established it as a basic human right. The article 24 of the UNCRPD emphasizes the principle of the right to "an

inclusive, quality and free primary education and secondary education” (United Nations, 2006). However, national education policies and systems continue to reflect cultural and religious norms that are ubiquitous in societies. There are a number of approaches that aim to enable children with disabilities to access education and thus vary according to country, context, funding available, policy and legislations.

In number of LMICs, Special Education Needs (SEN) has been a major framework within which educational policies have been conceived. SEN is based on the assumptions that persons with disabilities, especially children, have very precise needs that can only be met in specialized and usually segregated settings. However, experience in countries where resources are more restricted, have shown the major limitations of separate structures: they are not cost-efficient and thus not sustainable, they are vulnerable to political priorities and may perpetuate views of disability that are discriminatory (Mattingly & McInerney, 2014).

In more recent years, Inclusive Education (IE), has been promoted as a means to improve access of all vulnerable children, especially those with disabilities. The links between “Inclusion” and “Quality” have been strongly established in international policy: IE advocates not just for making room for children with disabilities but truly ensuring that all the elements are in place to ensure that they benefit from learning and maximize their potential. In 2015, SDG four as well as the 2030 Agenda for Education identified the need to move from access to education towards considerations of quality, equity and inclusion (United Nations, 2015). However, IE programs struggle on the cusp of theoretical strategies and goals and implementation realities. Many LMICs have initiated mechanisms to ensure that children with disabilities have access to classrooms but evidence pertaining to equity in learning for children with disabilities remains insufficient. Furthermore, initiatives that are sometimes well-defined at the policy level are often ineffectively implemented due to lack of resources and expertise, as well as persistence of negative social attitudes leading to discrimination and exclusion (Jonah Eleweke & Rodda, 2002). As a result, IE programs often become equated with simply having disabled children present in class, rather than what they learn.

### 2.3. Education in crisis and protracted crisis contexts

There is limited research about education in crisis-affected areas – defined by an emergency situation caused by conflict or other types of disasters such as earthquakes, floods or droughts—specifically looking at access to school and learning outcomes (Burde et al., 2015). The scarce evidence that is available shows that educational activities in crisis and post-crisis situations can constitute a space for social interaction, learning and psychosocial support as well a means of child protection, for example from forced recruitments, exploitation and prostitution (Nicolai, 2009; Nicolai et al., 2016). However, children and youths in such situations have a need for broader knowledge than the basics learned in school such as awareness about risks, such as landmines, HIV/AIDS, and other health information, as well as vocational training and citizenship education (Lyby, 2002; Save the Children, 2008; Sinclair, 2002). Beyond protecting the child and restoring a sense of normality, including children in educational activities has positive and incremental effects on future economic growth, health indices and infant mortality rates, peace and security, and paves the way for good governance and active engaged citizenship (Save the Children, 2008; Smith Ellison, 2014; UNESCO, 2011).

Despite potential important positive outcomes, children in context of crisis are far less likely than any others to attend school. In fact, it is estimated that 476 million children aged 3–15 live in countries affected by crises and that 37 million of them are out of school in 2015 (Nicolai, Hine, & Wales, 2015). This is particularly

true for vulnerable groups such as poor children and girls (Jones & Naylor, 2014). Numerous issues plague education systems in countries affected by conflict or other crisis. For instance, it is estimated that 80 percent of Liberian schools were destroyed during the civil war that ended in 2003 (United Nations Development Program, 2006). Following Nepal’s 2015 earthquake, 36,000 classrooms were destroyed and an additional 17,000 classrooms damaged, disrupting education of more than one million children (UNICEF, 2015).

When schools do exist, the teaching-learning process is impacted by a myriad of challenges: poor quality teaching, overcrowded classrooms, lack of facilities and resources and very little support for teachers. Schools often lack equipment, educational material and trained teachers. A study showed that the overall volume of assistance received by countries in crisis are insufficient to meeting the EFA goals (Brannelly, Ndaruhutse, & Rigaud, 2009). Number of countries in crisis or protracted crisis contexts have strongly focused on providing access to schools for all children. In remote areas of Afghanistan, a government initiative supported by the international community aimed at implementing community and village-based schools alongside training female teachers and sensitizing communities to change religious and traditional beliefs and promote girls’ school-enrollment (Kissane, 2012). Such efforts seem to have had some impact on the gender gap in school enrollment and basic learning test scores but were found to be very sensitive to exogenous factors such as the distance to school (Burde & Linden, 2013). Village-based schools’ model can constitute an opportunity to improve primary education in rural areas of Afghanistan, and the need to work closely with the local decision-makers (village councils or *Shuras*) has become evident in order to achieve equity. Some initiatives have been attempted to empower marginalized groups such as the BRAC’s life skills education and livelihoods trainings for young Afghan women (Echavez, Babajanian, Hagen-Zanker, Akter, & Bagaporo, 2014). Although the need to reach out to the most marginalized groups in remote communities is undisputable, there is little agreement on the best approaches to strengthen and gauge the learning process itself. Furthermore, evidence that deciphers the association between schooling and better psychological wellbeing for children in general, and vulnerable children such as children with disabilities, is missing, specifically in contexts of crisis. Education has not been systematically prioritized in crisis contexts by donors or governments because of the assumed risk and the lack of mandate to deliver education in emergency situations. Given the duration and number of crisis situations, there has been a recent shift in prioritization of children accessing education in emergencies with the creation of the “Education Cannot Wait Fund” at the 2015 Oslo Summit on Education for Development.

### 2.4. Quality education of children with disabilities in crisis and protracted crisis contexts

The general situation for persons with disabilities, particularly children, in contexts of crisis is often more challenging than for other groups. They are often at a higher risk of violence –including sexual violence for girls with disabilities – because they are less able to flee conflict zones (Kett & Trani, 2012; Kett & van Ommeren, 2009). Children with disabilities might be separated from their caregivers during a crisis (Kett & Trani, 2012). Furthermore, humanitarian workers often have preconceived ideas that children with disabilities cannot learn alongside others and need special education structures and specific interventions, and that adults with disabilities cannot participate in labor or other community activities. Yet, some existing evidence increasingly shows that twin-tracking – combining mainstreaming intervention with targeted support, particularly for education – is the most effective approach (dos Santos-Zingale & McColl, 2006).

There has been little consideration of children with disabilities in many post-conflict reconstruction and development programs, even though some guidelines do exist, for example those drafted by the Inter-agency Network on Education in Emergencies (INEE) ([International Network for Education in Emergencies, 2012](#)). According to these guidelines, ensuring that children with disabilities are consistently included involves measures such as ensuring school buildings are physically accessible – including any schools being reconstructed; providing training and support to teachers; and awareness raising amongst teachers, parents, other children, communities, humanitarian actors and policy makers. It also includes life skills training and capacity building of the wider community. INEE advocates a number of key strategies to ensure inclusion: (i) Address negative perceptions of disability; (ii) Ensure that schools are prepared, and that facilities are accessible and modified for persons with disabilities; (iii) Balance the need for integration and learning; (iv) Use local resources and technology. Education of children with disabilities raises several challenges in crisis context that are not fully addressed by the rights-based approach on its own. However, evidence that provides examples of the contextual adaptation and implementation of such guidelines as well as their impact, remain close to non-existent.

### 3. Survey method and data

#### 3.1. Survey design, setting and participants

Between the 1st of October 2008 and the 28th of February 2009, we surveyed 11,089 households in all rural and urban localities, nomadic settlements (*Ferricks and Damra*) and Internally Displaced Persons (IDP) settlements in the rural council of Um Kher, part of the locality of Wadi Salih in the state of West Darfur that has been the stage of extensive attacks of villages, followed by destruction or abandonment since 2003 ([Flint & Waal de, 2008](#)). We interviewed 11,089 heads of household on household member characteristics (gender, age, matrimonial status, employment, education, income) and household assets (type of housing, possession of land and animals, agricultural production). We randomly selected 10% of these households for interviews on disability prevalence as well as vulnerability of children aged 6–18 years. Face-to-face interviews were conducted with 1436 children on various aspects of access to services (education and health), nutrition, employment, livelihoods, social participation, care, love, mistreatment and psychological wellbeing. Heads of household were also interviewed with the 35-item validated disability screening questionnaire (DSQ-35) and responded to questions on behalf of all the members of the household ([Trani, Babulal, & Bakhshi, 2015](#)).

#### 3.2. Outcomes variables

Access to education was assessed by asking if the child had completed at least a couple of months in school. It was important to ensure that there was some consistency in attending school and that a child was not withdrawn from school by her/his parents for assistance with household chores or farming or due to lack of resources to pay for fees. Two months of continuous schooling was deemed a minimum in the Western Darfur context to ensure a child was in class for the school year. We specifically asked about government run schools, private schools run by NGOs, community schools, training centers and religious schools. We also asked children and caregivers if the teacher was present and actually teaching.

Fundamental learning outcomes were assessed by asking children over eight, if they knew how to read, write and count. If the

response was positive, we then asked the child to demonstrate the skill, to read, write and count through simple assessments. Self-rated psychological wellbeing index was measured using eight questions that examined behavioral and emotional signs and psychosomatic reactions. Do you feel happy? When do you feel happy? Do you have problem sleeping? Do you have bad dreams/nightmares? Do you get headaches? Do you get stomachache? Do you get nausea? Do you get any other form of aches? Participants selected one of the following options: 1 = never; 2 = almost never; 3 = rarely, less than 1 time a month; 3 = sometimes, 2–3 times a month; 4 = often, 1 time a week; 5 = almost always, almost everyday. Responses were reverse coded for “When do you feel happy?” so that a higher score represented a lower state of wellbeing. Options were slightly different for “Do you feel happy?”: 1 = very happy; 2 = rather happy; 3 = neither happy nor sad; 4 = rather sad; 5 = very sad. The 8 items tool was tested for internal consistency. We found a Cronbach’s  $\alpha$  of 0.73 indicating good internal consistency ([Nunnally & Bernstein, 1994](#)).

#### 3.3. Independent variable

Following [Trani and Bakhshi \(2008\)](#) we defined disability as “the condition that results from the interaction between an individual impairment in functioning and the community and social resources, beliefs and practices that enable or prevent a person from participating in all spheres of social life and taking decisions that are relevant to his/her own future”. ([Trani & Bakhshi, 2008](#)) p. 49. Disability was measured with the DSQ-35 ([Trani et al., 2015](#)). We used a four-level Likert-type scale (1 = no, never; 2 = yes, sometimes; 3 = yes, often; and 4 = yes, constantly/always), adapted and tested for internal consistency. Six types of disability were screened for: motor or physical disability, sensory disability, learning and developmental disability, behavioral disability mood and affect disability and neurological disability. In absence of any established cut-offs and any gold standard, we used frequency of occurrence of items to elaborate an overall prevalence score of disability. No sign of disability corresponded to absence of positive answers to any of the 35 items (56.0% of the total sample); ‘mild’ level of disability is reflected by one answer “Yes, sometimes” to any of the 35 items (12.5%); ‘moderate’ disability when the respondent gave between 2 and 3 answers “Yes, sometimes” or 1 answer “Yes, often” (10.3%); ‘severe’ more than 3 answers “Yes sometimes” or between 1 and 3 answers “Yes, often” (14.1%) and very severe at least 1 answer “Yes constantly, always” or more than 3 answers “Yes, often” (7.1%). We regrouped the disability score in three categories: (1) no disability, (2) mild/moderate and (3) severe/very severe disability. We then regrouped no disability and mild/moderate disability together. We compared answers for children with severe disability to other children. We also compared children by type of disability (physical and sensory/intellectual and neurological/behavioral and mood/associated disabilities) to children with or without mild/moderate disability.

#### 3.4. Covariates

The child’s age and gender, the head of household’s gender, marital status (married, polygamous/married, monogamous/not married, divorced, widowed), education status (no education/any education) employment status (currently working full time/not currently working full time), and size of land possessed (20% smallest land size; 60% mid land size; 20% largest land size) were included as covariates. Demographic and socioeconomic factors were included in the models due to potential confounding with the three outcomes ([Filmer, 2008](#); [World Bank & World Health Organisation, 2011](#)).

### 3.5. Data analysis

Participant characteristics were examined using descriptive statistics. Binary logistic regression tested associations of disability status or type and access to education and literacy. Linear regression analyses evaluated associations between disability status, disability type, education and psychological wellbeing. Analyses adjusted for potential cofounders including gender, age, head of household gender, education level, marital status, and wealth index. Scatterplots and histograms were visually checked to ensure normal distribution. Default, forced entry method was used for logistic regression. Collinearity diagnostics and residual analysis were used to determine models did not violate assumptions of linearity, independence of errors and multicollinearity. Interaction terms between disability status and wealth index were used to investigate whether the association between disability and psychological wellbeing was moderated by level of wealth. One model analyzed maintained the same demographic variables while examining the interaction between disability and gender. Robustness checks were conducted using a probit model for the models for education and results remained unchanged (data not shown). All analyses were conducted in SPSS version 23 (Chicago, IL, USA) and Stata version 14 (College Station, TX, USA).

## 4. Results

Table 1 presents descriptive statistics for the sample of children age 6–18 years old stratified by disability status (Table 1). Bivariate analyses (i.e. t-tests, chi square tests) revealed that children with disabilities lived more often in households headed by a woman, where the head was not educated and single (very rarely), divorced or separated. Children with and without disability in the sample did not differ in terms of average age, gender, education status, basic learning outcomes and wealth distribution of the household. On average, 23.3% of children accessed schools and among those 45.2% could read and write. Interestingly, there was no significant difference according to the disability status in reasons why children were not in school. For both disabled and non-disabled children, economic stress either resulting in lack of money to pay fees, teachers' wages, books, furniture, uniform or forcing them

to work to help the family or because they were left without someone to care for them were the main reasons driving absence of schooling. Violence (from teachers, staff, other children or on the way to school) explained the rest. Yet, girls were more at risk to undergo violence compared to boys, regardless of their disability status. School quality came last and for a small percentage (4.5% of overall responses). Children with disabilities' score on the index of psychological wellbeing were statistically significantly higher indicating a lower state of psychological wellbeing.

Table 2 presents the results of regression models one and two predicting access to education. In both models, disability had no effect on access to school, but age, gender, size of land owned, head of household's education status were all statistically significantly ( $p < .05$ ) associated with having access to education. Respectively in models one and two, there was a 2.49 and 2.46 higher likelihood of having access to education with every one-year increase in age. Girls, regardless of disability status, were 2.75 and 2.80 times less likely to have access compared to boys. If the head of household was uneducated or was polygamous, children were less likely to have access. Finally, the wealth index did not influence access to education.

We also examined the effect of being disabled on basic learning outcomes adjusting for the same demographic and socioeconomic covariates (Table 3). Disability status and type were not significantly associated with lower literacy. Age and gender were statistically significant. Each one-year increase in age was associated with a higher likelihood of being able to acquire basic cognitive skills. Compared to boys, girls were 65% less likely to acquire those skills. Children living in a household headed by a woman were less likely to be literate. Education and marital status of the head of household as well as wealth of the household were not significantly associated with basic learning outcomes.

Finally, we investigated the association between education, disability status and type and child psychological wellbeing using linear regression analyses (Table 4). Poorer psychological wellbeing was significantly associated with disability, particularly for children with behavioral and mood disorders, as well as associated disabilities. Children living in poorer household were also more likely to have poorer psychological wellbeing. Surprisingly boys were more likely to have poorer psychological wellbeing than girls.

**Table 1**  
Descriptive statistics by disability status.

| Variables                                   | Non disabled children (N = 1231) | Children with disabilities (N = 205) | P value     |
|---|----------------------------------|--------------------------------------|-------------|
| Age (mean, SD)                              | 10.32(3.65)                      | 10.68(3.68)                          | 0.192       |
| Girls (n,%)                                 | 52.32(644)                       | 48.29(99)                            | 0.286       |
| Head of household woman                     | 25.51(311)                       | 41(82)                               | $p < 0.001$ |
| Head of household educated                  | 33(402)                          | 21.61(43)                            | 0.001       |
| Head of household                           |                                  |                                      | 0.024       |
| Married monogamous                          | 61.28(747)                       | 63(126)                              |             |
| Married polygamous                          | 24.28(296)                       | 17(34)                               |             |
| Single/divorced/separated                   | 14.44(176)                       | 20(40)                               |             |
| Household land size                         |                                  |                                      | 0.34        |
| 20% smallest                                | 17.64(211)                       | 17.28(33)                            |             |
| 60% middle                                  | 64.05(766)                       | 68.59(131)                           |             |
| 20% largest                                 | 18.31(219)                       | 14.14(27)                            |             |
| Child received some education               | 38.02(468)                       | 38.05(78)                            | 0.993       |
| Child literate (read, write & count)        | 18.85(232)                       | 21.95(45)                            | 0.297       |
| Why no school                               |                                  |                                      |             |
| Girls                                       |                                  |                                      | $p < 0.001$ |
| No money for fees                           | 27.89(135)                       | 23.61(17)                            |             |
| No money for other expenses                 | 28.1(136)                        | 29.17(21)                            |             |
| Violence in school or on the way            | 21.28(103)                       | 18.06(13)                            |             |
| Need to work                                | 17.98(87)                        | 20.83(15)                            |             |
| Education not useful/poor quality/no school | 4.75(23)                         | 8.33(6)                              |             |
| No money for fees                           | 32.23(107)                       | 28.12(18)                            | $p = 0.595$ |
| No money for other expenses                 | 32.23(107)                       | 35.94(23)                            |             |
| Violence in school or on the way            | 9.04(30)                         | 9.38(6)                              |             |
| Boys  |                                  |                                      |             |
| Need to work                                | 23.49(78)                        | 20.31(13)                            |             |
| Education not useful/poor quality/no school | 3.01(10)                         | 6.25(4)                              |             |
| Child wellbeing index                       | 0.33 (0.11)                      | 0.40(0.12)                           | $p < 0.001$ |

**Table 2**  
Predicting access to school for children (N = 1396).

| All models                                    | Model 1 <sup>A</sup> |           | Model 2 <sup>B</sup> |           | Model 3 <sup>C</sup> |           | Model 4 <sup>D</sup> |           | Model 5           |            | Model 6            |           |
|---|----------------------|-----------|----------------------|-----------|----------------------|-----------|----------------------|-----------|-------------------|------------|--------------------|-----------|
|   | OR                   | (95%CI)   | OR                   | (95%CI)   | OR                   | (95%CI)   | OR                   | (95%CI)   | OR                | (95%CI)    | OR                 | (95%CI)   |
| Age (y)                                       | 1.09***              | 1.05–1.12 | 1.09***              | 1.05–1.12 | 1.09***              | 1.05–1.12 | 1.09***              | 1.05–1.12 | 1.09***           | 1.05–1.12  | 1.09***            | 1.05–1.12 |
| Gender (Ref = male)                           | 0.37***              | 0.29–0.46 | 0.36***              | 0.27–0.46 | 0.37***              | 0.29–0.46 | 0.37***              | 0.29–0.46 | 0.35***           | 0.27–0.44  | 0.37***            | 0.29–0.46 |
| Disability (Ref = Not disabled)               | 1.18                 | 0.86–1.60 | 1.08                 | 0.71–1.63 | 1.05                 | 0.66–1.65 | 0.96                 | 0.49–1.86 | 1                 | 0.703–1.42 | NA                 | NA        |
| Disability (Ref = Not disabled)               | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA         | –                  | –         |
| Physical and sensory                          | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA         | 0.53               | 0.23–1.22 |
| Mental and cognitive                          | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA         | 1.71               | 0.73–3.99 |
| Behavioural and mood                          | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA         | 1.1                | 0.70–1.71 |
| Multiple                                      | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA         | 1.01               | 0.46–2.22 |
| Head of household gender (Ref = Male)         | 0.87                 | 0.62–1.22 | 0.87                 | 0.62–1.22 | 0.88                 | 0.62–1.23 | 0.87                 | 0.61–1.21 | 0.87              | 0.61–1.22  | 0.88               | 0.62–1.23 |
| Head of household education (Ref = Educated)  | 0.71 <sup>†</sup>    | 0.53–0.92 | 0.7 <sup>†</sup>     | 0.53–0.92 | 0.7 <sup>††</sup>    | 0.53–0.91 | 0.68 <sup>††</sup>   | 0.51–0.90 | 0.7 <sup>††</sup> | 0.53–0.91  | 0.71 <sup>†</sup>  | 0.54–0.93 |
| Marital Status (Ref = Single)                 | 1.09                 | 0.72–1.63 | 1.08                 | 0.72–1.62 | 1.1                  | 0.73–1.65 | 1.09                 | 0.72–1.63 | 1.07              | 0.71–1.61  | 1.11               | 0.73–1.66 |
| Land size (Ref = Smallest size tertile (1st)) | –                    | –         | –                    | –         | –                    | –         | –                    | –         | –                 | –          | –                  | –         |
| 3rd tertile Largest size                      | 1.49 <sup>†</sup>    | 1.09–2.03 | 1.49 <sup>†</sup>    | 1.09–2.03 | 1.27                 | 0.90–1.79 | 1.48 <sup>†</sup>    | 1.09–2.02 | 1.36              | 0.99–1.87  | 1.5 <sup>†</sup>   | 1.1–2.04  |
| 2nd tertile (Middle size)                     | 1.07                 | 0.82–1.38 | 1.07                 | 0.82–1.38 | 1.1                  | 0.82–1.45 | 1.07                 | 0.82–1.38 | 1.04              | 0.79–1.35  | 1.07               | 0.82–1.38 |
| Gender*Disability                             | NA                   | NA        | 1.21                 | 0.65–2.22 | NA                   | NA        | NA                   | NA        | NA                | NA         | NA                 | NA        |
| Landsize ownership*disability                 | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA         | NA                 | NA        |
| Disability*Landsize (Largest)                 | NA                   | NA        | NA                   | NA        | 2.36 <sup>†</sup>    | 1.06–5.25 | NA                   | NA        | NA                | NA         | NA                 | NA        |
| Disability*Landsize (Middle)                  | NA                   | NA        | NA                   | NA        | 0.77                 | 0.36–1.58 | NA                   | NA        | NA                | NA         | NA                 | NA        |
| Head of household education*disability        | NA                   | NA        | NA                   | NA        | NA                   | NA        | 1.3                  | 0.61–2.75 | NA                | NA         | NA                 | NA        |
| Gender*disability*Landsize ownership          | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | –                 | –          | NA                 | NA        |
| Female*Disability*Largest landsize            | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | 2.96 <sup>†</sup> | 1.13–7.70  | NA                 | NA        |
| Female*Disability*Middle landsize             | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | 1.4               | 0.59–3.30  | NA                 | NA        |
| Constant                                      | 0.43 <sup>††</sup>   | –         | 0.44 <sup>††</sup>   | –         | 0.44 <sup>††</sup>   | –         | 0.44 <sup>††</sup>   | –         | 0.46 <sup>†</sup> | –          | 0.44 <sup>††</sup> | –         |

Note: CI, confidence interval; OR: odds ratio, significance at the \*\*\*( $p \leq 0.001$ ), \*\*( $p \leq 0.01$ ), \*( $p \leq 0.05$ ). Base choice for each outcome is no access to school. The reference category for a predictor is in parentheses.

<sup>A</sup> This model treated the disability predictor as Not disabled vs. disabled.

<sup>B</sup> This model treated the disability predictor as Not disabled vs. disabled with interaction between disability and gender.

<sup>C</sup> This model treated the disability predictor as Not disabled vs. disabled with interaction between disability and asset.

<sup>D</sup> This model treated the disability predictor as Not disabled vs. types of disability.

**Table 3**  
Predicting literacy for children (N = 1396).

| All models                                    | Model 1 <sup>A</sup> |           | Model 2 <sup>B</sup> |           | Model 3 <sup>C</sup> |           | Model 4 <sup>D</sup> |           | Model 5           |           | Model 6           |           |
|---|----------------------|-----------|----------------------|-----------|----------------------|-----------|----------------------|-----------|-------------------|-----------|-------------------|-----------|
|   | OR                   | (95%CI)   | OR                   | (95%CI)   | OR                   | (95%CI)   | OR                   | (95%CI)   | OR                | (95%CI)   | OR                | (95%CI)   |
| Age (y)                                       | 1.22**               | 1.17–1.27 | 1.22***              | 1.17–1.27 | 1.22***              | 1.17–1.27 | 1.22***              | 1.17–1.27 | 1.22***           | 1.17–1.27 | 1.22***           | 1.17–1.26 |
| Gender (Ref = male)                           | 0.36***              | 0.26–0.49 | 0.37***              | 0.26–0.51 | 0.36***              | 0.26–0.49 | 0.36***              | 0.26–0.49 | 0.34***           | 0.24–0.46 | 0.36***           | 0.26–0.49 |
| Disability (Ref = Not disabled)               | 1.33                 | 0.91–1.94 | 1.39                 | 0.86–2.24 | 0.88                 | 0.47–1.62 | 1.06                 | 0.47–2.40 | 1.13              | 0.74–1.74 | NA                | NA        |
| Disability (Ref = Not disabled)               | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA        | NA                | –         |
| Physical and sensory                          | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA        | 0.66              | 0.22–1.96 |
| Mental and cognitive                          | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA        | 0.7               | 0.19–2.48 |
| Behavioural and mood                          | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA        | 1.41              | 0.82–2.41 |
| Multiple                                      | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                | NA        | 1.66              | 0.70–3.92 |
| Head of household gender (Ref = Male)         | 0.63 <sup>†</sup>    | 0.39–0.98 | 0.63 <sup>†</sup>    | 0.39–0.98 | 0.64                 | 0.40–1.00 | 0.62 <sup>†</sup>    | 0.39–0.97 | 0.62 <sup>†</sup> | 0.39–0.98 | 0.62 <sup>†</sup> | 0.39–0.97 |
| Head of household education (Ref = Educated)  | 0.87                 | 0.62–1.21 | 0.87                 | 0.62–1.21 | 0.85                 | 0.60–1.18 | 0.84                 | 0.58–1.19 | 0.86              | 0.61–1.19 | 0.89              | 0.63–1.24 |
| Marital Status (Ref = Single)                 | 1.06                 | 0.62–1.79 | 1.06                 | 0.62–1.80 | 1.08                 | 0.63–1.84 | 1.06                 | 0.62–1.79 | 1.04              | 0.61–1.77 | 1.03              | 0.60–1.75 |
| Land size (Ref = Smallest size tertile (1st)) |                      | –         |                      | –         |                      | –         | 0                    | –         | 0                 | –         |                   | –         |
| 3rd tertile Largest size                      | 1.33                 | 0.90–1.97 | 1.33                 | 0.89–1.96 | 0.99                 | 0.62–1.55 | 1.32                 | 0.89–1.95 | 1.2               | 0.79–1.80 | 1.3               | 0.88–1.93 |
| 2nd tertile (Middle size)                     | 1.2                  | 0.85–1.66 | 1.19                 | 0.85–1.66 | 1.13                 | 0.79–1.62 | 1.19                 | 0.85–1.66 | 1.17              | 0.83–1.63 | 1.17              | 0.84–1.63 |
| Gender*Disability                             | NA                   | NA        | 0.88                 | 0.40–1.90 | NA                   | NA        | NA                   | NA        | NA                | NA        | NA                | NA        |
| Landsize ownership*disability                 | NA                   | NA        | NA                   | NA        |                      |           |                      |           | NA                | NA        | NA                | NA        |
| Disability*Landsize (Largest)                 | NA                   | NA        | NA                   | NA        | 3.79**               | 1.47–9.73 | NA                   | NA        | NA                | NA        | NA                | NA        |
| Disability*Landsize (Middle)                  | NA                   | NA        | NA                   | NA        | 1.22                 | 0.48–3.03 | NA                   | NA        | NA                | NA        | NA                | NA        |
| Head of household education*disability        | NA                   | NA        | NA                   | NA        | NA                   | NA        | 1.34                 | 0.52–3.37 | NA                | NA        | NA                | NA        |
| Gender*disability*Landsize ownership          | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | –                 | –         | NA                | NA        |
| Female*Disability*Largest landsize            | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | 3.16 <sup>†</sup> | 1.05–9.45 | NA                | NA        |
| Female*Disability*Middle landsize             | NA                   | NA        | NA                   | NA        | NA                   | NA        | NA                   | NA        | 1.39              | 0.45–4.27 | NA                | NA        |
| Constant                                      | 0.04***              |           | 0.04***              |           | 0.04***              |           | 0.04***              |           | 0.04***           | –         | 0.04***           |           |

Note: CI, confidence interval; LL, upper limit; UL, upper limit; OR: odds ratio, significance at the \*\*\*( $p \leq 0.001$ ), \*\*( $p \leq 0.01$ ), \*( $p \leq 0.05$ ).

Base choice for each outcome is no access to school. The reference category for a predictor is in parentheses.

<sup>A</sup> This model treated the disability predictor as Not disabled vs. disabled.

<sup>B</sup> This model treated the disability predictor as Not disabled vs. disabled with interaction between disability and gender.

<sup>C</sup> This model treated the disability predictor as Not disabled vs. disabled with interaction between disability and asset.

<sup>D</sup> This model treated the disability predictor as Not disabled vs. types of disability.

**Table 4**  
Predicting Mental Wellbeing for children (N = 1396).

| All models                                    | Model 1 <sup>A</sup> |                 | Model 2 <sup>B</sup> |                    | Model 3 <sup>C</sup> |                 | Model 4             |                    | Model 5             |                    | Model 6 <sup>D</sup> |                                  |
|---|----------------------|-----------------|----------------------|--------------------|----------------------|-----------------|---------------------|--------------------|---------------------|--------------------|----------------------|----------------------------------|
|   | B                    | (95%CI)         | B                    | (95%CI)            | B                    | (95%CI)         | B                   | (95%CI)            | B                   | (95%CI)            | B                    | (95%CI)                          |
| Age (y)                                       | −0.01                | −0.02 to 0.002  | −0.01                | −0.009 to 0.006    | −0.01                | −0.02 to 0.044  | −0.01               | −0.02 to 0.001     | −0.01               | −0.02 to 0.002     | −0.01                | −0.021 to 0.001                  |
| Age*Age (y)                                   | 0.0004               | −0.0002 to 0.01 | 0.0004               | −0.00003 to 0.0009 | 0.0004               | −0.0001 to 0.01 | 0.0004              | −0.00003 to 0.0009 | 0.0004              | −0.00005 to 0.0009 | 0.0004               | −9.78.10 <sup>−6</sup> to 0.0009 |
| Gender (Ref = male)                           | −0.01 <sup>+</sup>   | −0.03 to −0.002 | −0.02 <sup>+</sup>   | −0.025 to −0.002   | −0.01 <sup>+</sup>   | −0.03 to −0.003 | −0.01 <sup>+</sup>  | −0.03 to −0.00     | −0.02 <sup>+</sup>  | −0.03 to −0.00     | −0.02 <sup>+</sup>   | −0.03 to −0.003                  |
| Disability (Ref = Not disabled)               | 0.06 <sup>***</sup>  | 0.04 to 0.08    | 0.05 <sup>***</sup>  | 0.03 to 0.083      | 0.06 <sup>**</sup>   | 0.02 to 0.09    | 0.07 <sup>***</sup> | 0.05 to 0.09       | 0.06 <sup>***</sup> | 0.03 to 0.09       | NA                   | NA                               |
| Disability (Ref = Not disabled)               | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | –                    | –                                |
| Physical and sensory                          | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | 0.02                 | −0.02 to 0.06                    |
| Mental and cognitive                          | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | 0.01                 | −0.03 to 0.05                    |
| Behavioural and mood                          | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | 0.07 <sup>***</sup>  | 0.05 to 0.09                     |
| Multiple                                      | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | 0.10 <sup>***</sup>  | 0.06 to 0.13                     |
| Education (Ref = No school)                   | −0.01                | −0.02 to 0.00   | −0.01                | −0.02 to 0.01      | −0.01                | −0.02 to 0.01   | −0.01               | −0.02 to 0.01      | −0.01 <sup>+</sup>  | −0.02 to 0.00      | −0.01                | −0.02 to 0.00                    |
| Head of household gender (Ref = Male)         | 0.02 <sup>+</sup>    | 0.00 to 0.04    | 0.02 <sup>+</sup>    | 0.00 to 0.04       | 0.03 <sup>+</sup>    | 0.01 to 0.04    | 0.03 <sup>++</sup>  | 0.01 to 0.05       | 0.02                | 0.01 to 0.04       | 0.02                 | 0.00 to 0.04                     |
| Head of household education (Ref = Educated)  | 0.01                 | −0.00 to 0.03   | 0.01                 | −0.00 to −0.03     | 0.01                 | −0.00 to 0.03   | 0.01                | −0.00 to 0.030.01  | 0.01                | −0.00 to 0.02      | −0.008               | −0.02 to 0.004                   |
| Marital Status (Ref = Monogamous)             |                      |                 |                      |                    |                      |                 |                     |                    |                     |                    |                      | NA                               |
| Polygamous                                    | −0.003               | −0.02 to 0.01   | −0.002               | −0.02 to 0.01      | −0.003               | −0.02 to 0.01   | −0.003              | −0.02 to 0.01      | −0.003              | −0.02 to 0.01      | −0.003               | −0.01 to 0.01                    |
| Single  | 0.01                 | −0.01 to 0.03   | 0.01                 | −0.01 to 0.03      | 0.01                 | −0.01 to 0.03   | 0.01                | −0.01 to 0.03      | 0.00                | −0.02 to 0.02      | 0.01                 | −0.01 to 0.03                    |
| Land size (Ref = Smallest size tertile (1st)) |                      |                 |                      |                    |                      |                 |                     |                    |                     |                    |                      |                                  |
| 3rd tertile Largest size                      | 0.03 <sup>***</sup>  | 0.02 to 0.05    | 0.03 <sup>***</sup>  | 0.02 to 0.05       | 0.03 <sup>***</sup>  | 0.02 to 0.05    | 0.03 <sup>***</sup> | 0.02 to 0.05       | 0.03 <sup>***</sup> | 0.020 to 0.05      | 0.03 <sup>***</sup>  | 0.02 to 0.05                     |
| 2nd tertile (Middle size)                     | 0.03 <sup>***</sup>  | 0.01 to 0.05    | 0.03 <sup>***</sup>  | 0.01 to 0.05       | 0.03 <sup>***</sup>  | 0.013 to 0.045  | 0.03 <sup>***</sup> | 0.01 to 0.05       | 0.03 <sup>***</sup> | 0.013 to 0.05      | 0.03 <sup>***</sup>  | 0.01 to 0.04                     |
| Gender*Disability                             | NA                   | NA              | 0.01                 | −0.02 to 0.00      | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | NA                   | NA                               |
| Landsize ownership*disability                 | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | 0.003               | −0.03 to 0.03      | NA                   | NA                               |
| Disability*Landsize (Largest)                 | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | 0.03 <sup>***</sup> | 0.02 to 0.05       | NA                   | NA                               |
| Disability*Landsize (Middle)                  | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | NA                   | NA                               |
| Head of household* education*disability       | NA                   | NA              | NA                   | NA                 | NA                   | NA              | −0.03               | −0.06 to 0.01      | NA                  | NA                 | NA                   | NA                               |
| Gender*disability*Landsize                    | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | NA                   | NA                               |
| Female*Disability*Largest landsize            | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | −0.0006              | −0.069 to 0.068                  |
| Female*Disability*Middle landsize             | NA                   | NA              | NA                   | NA                 | NA                   | NA              | NA                  | NA                 | NA                  | NA                 | −0.016               | −0.11 to 0.083                   |
| Constant                                      | 0.036 <sup>***</sup> | –               | 0.36 <sup>***</sup>  | –                  | 0.36 <sup>***</sup>  | –               | 0.36 <sup>***</sup> | –                  | 0.36 <sup>***</sup> | –                  | 0.36 <sup>***</sup>  | 0.38 <sup>***</sup>              |

Note: Higher score represents poorer well being. The reference category for a predictor is in parentheses.

<sup>A</sup> This model treated the disability predictor as Not disabled vs. disabled.

<sup>B</sup> This model treated the disability predictor as Not disabled vs. disabled with interaction between disability and gender.

<sup>C</sup> This model treated the disability predictor as Not disabled vs. disabled with interaction between disability and asset.

<sup>D</sup> This model treated the disability predictor as Not disabled vs. types of disability.

Having attended school did not seem to protect children against poor psychological wellbeing. Interactions between disability and gender, disability and gender of the head of household and disability and wealth index did not modify the relationship between disability and self-rated psychological wellbeing.

Our results suggest that in a conflict and humanitarian crisis context such as Darfur, children with disabilities do not have worse access to school or differences on basic learning outcomes compared with non-disabled children. In such contexts, all children face a higher risk of being excluded from schools and not learning when in school. Unfortunately, evidence about education of children with disabilities in crisis context is largely missing (Burde et al., 2015). However, this finding does not echo other studies from protracted crisis contexts such as Afghanistan where it has been shown that access to school and learning basic cognitive skills can be more challenging for children with disabilities (Trani, Bakhshi, & Nandipati, 2012). A possible explanation is that overall, only a minority of all children attended school. Level of wealth as measured by land ownership does not influence access to school indicating that either shortage of schools is a major driver of lack of schooling, or that even wealthier households are reluctant to send children to school. This may be explained by parents not understanding the advantages in sending children to school, questioning the quality and safety of the learning environment or because children are needed for doing other tasks such as helping with farming or household chores at home (Trani & Cannings, 2013).

Our results do show that children with disabilities have poorer psychological wellbeing than other children in Darfur. This is of great concern considering that hardship and adversity that children face in general in conflict affected settings are not only linked to experiencing war-related violence, but also to daily life stressors such as poverty, domestic and community violence. This makes them more prone to developing mental health disorders such as depression, anxiety, posttraumatic stress disorder (PTSD) and stress (Panter-Brick, Eggerman, Gonzalez, & Safdar, 2009; Panter-Brick, Goodman, Tol, & Eggerman, 2011; Tol et al., 2011; Tol et al., 2012). Unfortunately, children with disabilities are at an even higher risk of experiencing events that can lead to poor psychological wellbeing in a context of crisis (Trani, Biggeri, & Mauro, 2013). They may be more vulnerable to harm such as physical and sexual violence, disruption of family structure and functioning, abduction, displacement or even recruitment into armed groups that have been shown to affect all children in war (Wessells & Kostelny, 2013). Children with disabilities might also experience signs of anxiety and depression such as sadness, loneliness, disrupted sleeping patterns or even suicidal ideation because of peer victimization, often linked to prejudice, social exclusion and discrimination.

School attendance does not particularly protect children with disabilities against anxiety and distress in the context of Darfur. Yet, studies have shown that education, under certain conditions, can create a safe space that is inclusive, supportive and respectful, that in turn can improve the psychological wellbeing of children and students learning outcomes (Hamre & Pianta, 2005). In particular, effective classroom teacher-student and student-student interactions such as respectful and trustful relationships, well-defined expectations from the teacher, engaging learning opportunities and student-centered learning environment have been shown to impact educational achievement in high-income contexts. Conducive classroom environment has also proven to improve mental health status for all children, including those identified with functional difficulties such as behavioral and emotional problems (Cappella et al., 2012; Cappella, Jackson, Bilal, Hamre, & Soulé, 2011; Hamre & Pianta, 2005; Liew, Chen, & Hughes, 2010; Merritt, Wanless, Rimm-Kaufman, Cameron, & Peugh, 2012;

Wilson, Pianta, & Stuhlman, 2007). To date, existing studies offer mixed findings about school-based programs' effectiveness on emotional or subjective wellbeing in crisis and low-income contexts. In the Democratic Republic of Congo there was no significant positive effect of a universal school-based program on students' subjective wellbeing defined as peer victimization and mental health problems (Wolf et al., 2015). In Burundi, even though a school based multi-layered care package intervention implemented by paraprofessionals did not show a main effect in reducing symptoms of PTSD, depression, and anxiety, it did indicate some differences in mental health outcomes over time between treatment and control groups associated to specific socio demographic characteristics such as age, displacement status, household size or composition (Tol et al., 2014). In Sri Lanka, a similar intervention did not yield a main effect in primary outcomes but showed some effect for specific subgroups such as boys for anxiety and PTSD (Tol et al., 2012). An intervention in Nepal showed no main effect but it also indicated an effect for subgroups of children on psychological problems and other outcomes (Jordans et al., 2010). Finally, a significant effect on the intervention on PTSD and sense of hope was found but not on changes in traumatic idioms, depression, anxiety or functioning (Tol et al., 2008).

Various factors may explain the lack of protective effect created by schools. First, the relative low availability of schools in the context of Darfur at the time reduced accessibility, particularly for children with mobility limitations. Similarly, younger children with disabilities might have had restricted access to child centered or friendly spaces (CFS) that aim at promoting protection, education and psychosocial support through various activities in a supportive environment (Slone & Mann, 2016). Schools in CFS have been shown to offer children protection and safeguard children against harm. Yet, in our study, the absence of impact of schooling on psychological wellbeing suggests that teachers and NGO workers in CFS are not necessarily equipped to provide psychosocial support and special assistance to children. Parents might be opposed to children being in schools rather than helping with farming or household chores. Further, they might also believe that their disabled child may be unable to learn. A complex set of factors compound to hinder not just access to school but also the teaching-learning process. Our results raise the important question regarding a higher need for child protection and psychosocial support, particularly for children with disabilities in protracted crisis contexts such as Darfur. Although providing relief and services to persons with disabilities in 'situations of risk and humanitarian emergencies' is embedded in Article 11 of the UNCRPD (United Nations, 2006), more targeted interventions require robust evidence.

Education is central to children's resilience in crisis contexts. School based intervention programs have been shown to help children cope with trauma related to war exposure (Slone & Shoshani, 2008; Slone, Shoshani, & Lobel, 2013). Furthermore, by developing cognitive as well as psychosocial skills, education will help children, particularly those with disabilities, to learn to protect themselves and navigate an often-hostile environment (Wessells & Kostelny, 2013). Future research will need to examine precisely how protective mechanisms such as child friendly spaces and schools could be more inclusive of children with disabilities. Fighting prejudice of parents of other children, of teachers, of NGO workers towards disability has been shown to be essential to improve access to school and learning outcomes for children with disabilities. One effective way to reduce prejudice entails involving children with disabilities and their caregiver in the process of school inclusion. Unfortunately, the Global Education Cluster created by the Inter Agency Standing Committee (IASC), an important structure which coordinates education initiatives in emergency settings, does not make any reference to children with disabilities'

needs in its emergency preparedness and response (Anderson & Hodgkins, 2010). Yet, a first step was made in 2011 towards better consideration for disability in emergency situations. Disability was included as a crosscutting issue in humanitarian interventions in the revised minimum standards in core areas of humanitarian assistance done by the Sphere Project, but little information is available about how to implement better access to school for children with disabilities (The Sphere Project, 2011).

This study has several limitations. First, it shares the limitations associated with cross-sectional designs: disability might be associated with low psychological wellbeing but we cannot establish causality. Another limitation is the reliance on self-report measures of psychological wellbeing and limited information about exposure to adverse events associated to the ongoing conflict. We extensively ask children respondents about exposure to danger, torture, suffering, witnessing of traumatic experiences, or exposure to war related losses and found relatively low level of experience of violence or mistreatment (7%). Yet we found that almost all children (90.6%) had at least one sign of mental stress and 45% had five or more showing high level of stress in line with findings from other studies looking at children's exposure to violence or adverse events in conflict contexts (Attanayake et al., 2009; de Jong, Komproe, & Van Ommeren, 2003; Qouta & Odeh, 2005). A third limitation is that we did not assess psychosocial skills that gauge self-esteem, self-efficacy, resilience, communication or relationships which could have shed light on the association between disability and non-cognitive learning outcomes. Future research will have to address this gap.

## 5. Conclusion

In the face of the ongoing conflict in Darfur, more effort is needed to increase schooling but also positive learning outcomes for children, including children with disabilities. Our study shows a trend for generalized poor basic learning outcomes for all children. Findings also demonstrate the large failure of the protective function assigned to education in a conflict context. Following other experts and scholars, we suggest that improving learning outcomes and mental wellbeing of vulnerable children such as children with disabilities in crisis and protracted crisis contexts require multilevel and multipronged interventions. If the international community is involved through various NGOs, they must mainstream disability in their education-focused interventions. At the school level, improving teachers' working conditions but also providing training and support on how to deal with diverse needs in the classroom has been shown to have an impact on inclusion and children's achievements. At the community level, sensitization of the community on the diversity of needs of children and the fact that all children, including children with disabilities, can learn and be successful if there is a supportive environment is essential. Finally, within the family, demonstrating the positive impact of education on multiple factors (health, child flourishing, contribution to the family wellbeing) and sensitizing parents about the capacity of children with disabilities to learn and succeed are key to universal quality education promoted by SDG goal four.

One of the primary barriers to overcome is the widespread attitudes towards inclusive education. There is a need for more engagement of parents within the education system, such as encouraging the formation and function of School Management Committees (SMC) and community teachers associations (CTA), which involve parents and the wider community in decision-making processes in schools. Work already done of inclusive child-child mentoring systems must be fostered and encouraged. Teachers need more training and support in order to facilitate inclusion. But they also need regular salaries, and may need extra

incentives to attract them to the more remote parts of Darfur. Parents of disabled children need more support to overcome stigmatization, discrimination, and lack of parental expectations.

The right to Education For All (EFA), as a Flagship Goal pushed by UNESCO, is largely shared by teachers, parents and even other children. A first exception to this assumption is the question of mental impairment. As we showed above, children with mental illness and intellectual disabilities are particularly discriminated against. Therefore, despite some of the successes of universal primary education, issues of non-inclusion in emergency contexts remain of great concern. There is a general need to focus on those still out of school – the most vulnerable children – with specific focus on children with disabilities, in particular children with mental disabilities. Issues that will need to be tackled therefore include how to identify these children, how to raise awareness, how to improve teacher standards, influence government and donors to put the adequate resources needed to address the challenges of inclusion and ensure that children with disabilities are given their right to quality education.

## Declaration of interest

We declare that we have no conflict of interest.

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