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INCLUSION MATTERS

Inclusive Interventions for Children with Disabilities

AN EVIDENCE AND GAP MAP FROM LOW- AND MIDDLE-INCOME COUNTRIES

UNICEF Innocenti – Global Office of Research and Foresight

ACKNOWLEDGEMENTS

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CONTENTS

The Evidence and Gap Map on Effectiveness of Inclusive Interventions for Children with Disabilities in Low- and Middle-income Countries is available at <https://www.unicef-irc.org/evidence-gap-map-children-with-disabilities>

Trino (10), a child living with disability, uses a low vision aid in a mainstream classroom in Freswota, Port Vila, Vanuatu.

EXECUTIVE SUMMARY

CONTEXT[1]

Across the world, 240 million children live with disabilities. Most of those children come from low- and middle-income countries (LMICs). They face numerous barriers that hinder their daily functioning and reduce their chances of fully participating in society. Those children experience challenges in accessing facilities, transportation vehicles and playgrounds, in communicating and learning effectively, and they face stigma directed towards them in society. The Convention on the Rights of Persons with Disabilities[2] requires international governments to ensure that the rights and freedoms of children with disabilities are protected and promoted. Despite global efforts, children with disabilities in LMICs continue to be left behind.

INCLUSIVE INTERVENTIONS FOR CHILDREN WITH DISABILITIES

We defined inclusive interventions for children with disabilities as focused activities to remove barriers and facilitate access to health, education and social services, and to enable their full participation in society. The scope of inclusive interventions is broad. It can range from legislation that prohibits discrimination against children with disabilities through to improving access to health services, implementing inclusive education in schools, and ensuring access to justice and redressal services. Those interventions focus on reducing stigma, improving living conditions, mainstreaming or promoting the empowerment of children with disabilities.

EVIDENCE AND GAP MAP

An evidence and gap map (EGM) is an interactive tool that presents the evidence landscape on a topic: where the evidence is and where it is lacking. It is developed through a stepwise, rigorous and objective process.

OBJECTIVES

To develop an EGM on inclusive interventions for children with disabilities living in LMICs by:

- systematically identifying the available evidence that assesses

Thanh looks smaller than other four-year-old children at his kindergarten.

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the effectiveness of inclusive interventions in LMICs designed to enable children with disabilities to access health, education and social services and to participate fully in society

- highlighting gaps in the current evidence to inform research, evaluation and evidence syntheses priorities globally

- identifying important factors related to population groups, intervention characteristics and settings, critical for the design and success of inclusive interventions.

SCOPE OF THE EGM

We structured our EGM with seven intervention domains and seven outcome domains to gain a comprehensive overview of the evidence on inclusive interventions for children with disabilities living in LMICs.

- **Intervention domains:** inclusion in health services; inclusion in education; awareness and non-discrimination; protection; adequate standard of living; family and community life; and empowerment.

- **Outcome domains:** health and well-being; access to health; education; adequate standard of living; violence prevention; empowerment; and intervention cost outcomes.

To understand the context of the available evidence, we collected data (when available) on population groups and settings included in the studies:

- **Population characteristics:** age; type of disability; sex; minority groups; children living in poverty; and LGBTQI+ groups.

- **Settings:** home; school; community; humanitarian; country income classification; and geographical region.

FINDINGS FROM THE EGM

We included 155 studies in our EGM: 29 systematic reviews and 126 primary studies assessing the effectiveness of inclusive interventions in improving outcomes for children with disabilities living in LMICs. Only 10 per cent of the evidence came from low-income countries. Bangladesh, Brazil, China, India, Kenya, Nigeria

and Turkey were the countries that appeared most commonly in the studies. Participants from different age categories – early childhood, middle childhood, early and late adolescence – were well represented in the evidence. Studies on inclusive interventions for children with visual, hearing and physical impairments and intellectual/developmental disorders were prevalent in the EGM while studies on learning disorders and psychosocial impairments were relatively less so. The commonly occurring settings were schools, participants' own homes and community settings. Only 2 per cent of studies were on interventions focused on girls (where girls represented 75 per cent or more of participants). Humanitarian settings were practicably not represented in the EGM.

WHERE THE EVIDENCE IS AND WHERE THE GAPS ARE

Approximately 75 per cent of the studies came from the health domain. This mostly included studies of interventions focused on improving access to habilitation and rehabilitation services, early childhood interventions and certain health system interventions such as training health workers and deploying community health workers

APPROXIMATELY 75 PER CENT OF THE STUDIES CAME FROM THE **HEALTH DOMAIN.**

to work with children with disabilities and their caregivers. Inclusive education models were moderately represented in the EGM with multiple studies on 'mainstreaming' children with disabilities into classrooms and on training teachers and school staff. However, many of the studies in the education domain lacked sufficient definitions and detail and so more studies of comprehensive inclusive education implementation are needed. Studies on reasonable accommodation in schools and universal learning design were lacking. The evidence in the remaining intervention domains was sparse and more evidence is needed in the following areas:

- awareness and non-discrimination (stigma-reduction interventions, media/ information campaigns, policies/ legislation to promote inclusion and prevent discrimination)

- protection (birth registration and disability recognition/registration, access to justice/redressal mechanisms, violence/abuse prevention interventions and protection in online environments)

- adequate standard of living (social protection, skills training for work, accessibility in the community and access to water, sanitation and hygiene (WASH), housing and food)

- family and community life (preventing family separation, ending institutional and segregated settings, community support services and inclusion in sports, arts, cultural and recreational activities)

- empowerment (advocacy and community mobilization, enabling children with disabilities to express their

Two visually impaired girls, Shelly López and Yulisa Esteban Lorenzo (both 8 years old) are laughing at a joke told by one of their teachers.

views, self-help groups and organizations of persons with disabilities).

RECOMMENDATIONS TO FUTURE RESEARCH AND EVALUATION

- **More primary studies and evidence syntheses** are needed in the social aspects of addressing disability for which the current evidence base is critically lacking. Even within the health domain, certain areas such as accessibility of health facilities, access to general health services, use of new assistive technologies and devices, and accountability mechanisms in the healthcare system need more primary impact evaluations and evidence syntheses.

- More studies are needed to explore the efforts of **transforming education systems to be inclusive** rather than solely focusing on providing access to mainstreaming. We also need better outcome reporting from those studies to assess the impact on academic attainment.

- More research should evaluate the impact of a **rights-based approach to disability** to overcome barriers at the institutional or systemic level.

- **Incorporating better data collection** on children with disabilities in impact evaluations will help us to understand how various programmes and interventions are working (or not) for children with disabilities.

- Facilitating **meaningful participation of children with disabilities in research** by incorporating their views and perspectives (including as peer researchers) in the design and implementation of interventions and evaluations is important. Furthermore, effective collaboration between research institutions and organizations of persons with disabilities is needed.

- No evidence was found that directly addresses how disability intersects with age, gender, ethnicity or other identity characteristics, which can amplify and create multiple layers of discrimination and exclusion. More studies are needed on how children's experiences, specific needs and barriers to inclusion may change across **intersectional identities** and how that affects intervention design and outcomes.

- There is little evidence on intervention costs and cost-

FURTHERMORE, **EFFECTIVE COLLABORATION** BETWEEN RESEARCH INSTITUTIONS AND ORGANIZATIONS OF PERSONS WITH DISABILITIES IS NEEDED.

effectiveness of different inclusion strategies beyond certain intervention types that stem from the health domain. More **cost and cost-effectiveness evaluations** are needed to support planning and implementation of these interventions.

- Studies need to reflect **diverse contexts.** There is a need for better geographical representation especially from **low-income country** settings; a critical need for studies in **humanitarian settings** that occur in LMICs; and a need for studies focusing on the aftermath of the **COVID-19 pandemic.** More studies are required that concentrate on **girls with disabilities, children living in poverty, children from racial/ethnic minorities and indigenous, migrant, internally displaced and refugee groups.**

- **An EGM of qualitative studies** could also help to identify the available literature on the perspectives and preferences of children with disabilities and on how effective interventions might work.

Fatima Mohammadi, an 18-year-old girl from Balkh, northern Afghanistan. She is a Grade 11 student. In the afternoon, she plays basketball with a group of girls her age.

Debyan Angel Estuardo Aquino Santiago (7 years old) paints with his private teacher in Quetzaltenango, Guatemala.

INTRODUCTION

CHILDREN WITH DISABILITIES IN LOW- AND MIDDLE-INCOME COUNTRIES

Globally, nearly 240 million children live with disabilities, a majority of whom come from low- and middle-income countries (LMICs).[3] International conventions such as the Convention on the Rights of the Child (CRC)[4] and the more recent Convention on the Rights of Persons with Disabilities (CRPD)[2] – ratified in 2008 – affirm the human rights and fundamental freedoms of children with disabilities. The CRPD recognizes that "persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others".[2] This framing emphasizes the role of attitudes and the environment in disability inclusion, and that a wider range of multisectoral responses beyond healthcare and rehabilitation are needed to empower children with disabilities. Both conventions underscore the need for inclusive approaches to developing and financing interventions, services and data collection to enable

children with disabilities to exercise their rights and participate fully in society. Children with disabilities are not a homogeneous group. Some groups face higher chances of being excluded such as indigenous children with disabilities,[5] girls with disabilities,[6] children with psychosocial disabilities and those with intellectual disabilities.[7]

However, several challenges compromise the opportunity to invest in childhood and adolescence in ways that support life course improvements in the social, emotional, economic, physical and psychological well-being of children with disabilities. As a result, children with disabilities continue to be one of the most marginalized and excluded populations.[8,9] Marginalization takes several forms, including segregated and institutional care; stigma; inadequate access to assistive technologies; physical, communication or attitudinal barriers; and inadequate social support mechanisms. Those barriers reduce the likelihood that children with disabilities will be able to attend and fully participate in school, access medical services, live in their communities and be adequately represented in society.[8,10,11] Consequently, children with disabilities have continual experiences of exclusion and are not able to participate in the programmes and services they need to develop life skills, exercise their rights and have outcomes that are comparable to those of their peers.[3,12,13]

Social challenges such as poverty, conflict and weak policy and implementation apparatus further compound exclusion in LMICs. Further, in humanitarian crisis contexts resulting from natural hazards or conflicts, children with disabilities face barriers that further limit their access to basic services and assistance while also placing them at increased risk of harm.[14]

DEFINING INCLUSIVE INTERVENTIONS FOR CHILDREN WITH DISABILITIES

Disability inclusion requires interventions that aim to remove the barriers that children with disabilities in LMICs face in accessing health, education and social services and to facilitate their full participation in society. Such interventions are referred to as inclusive interventions in this report. They focus on facilitating interventions in many ways such as by reducing stigma and discrimination, improving living conditions, incorporating mainstreaming approaches or promoting empowerment.

Inclusive interventions focus on improving participation of children with disabilities in all aspects of life.[15] They include legislation that bans disability-based discrimination; the provision of adapted, affordable and high-quality support and resources to communities, caregivers

and families; and ensuring that children with disabilities grow up in clean, safe and inclusive environments. They concentrate on aspects such as self-efficacy, motivation, social support, self-regulation, neighbourhood design, access to adapted neighbourhood resources such as green spaces[16] and leisure opportunities. Inclusive interventions also comprise policies[17] that include the voices, needs and priorities of children with disabilities in how resources are designed, funded and implemented. Such interventions need to span a wide variety of sectors of service provision, for example governance, health (including nutrition) and education, and societal spheres such as workplaces, the family, natural and built environments, and schools. They also need to target a wide range of contexts including rural, urban and situations of risks and emergencies, and be relevant to the diversity of children with disabilities. Inclusive interventions are implemented at different levels starting at the individual and family levels and extending to the community and systemic ones.

WHAT IS AN EGM?

From UNICEF: "An Evidence Gap Map (EGM) is an intuitive, visual, and interactive tool designed to provide an overview of the existing evidence on a topic, theme, or domain. EGMs highlight gaps in the evidence base and show where evidence is more abundant. EGMs most commonly include quantitative impact evaluations and systematic reviews of intervention effectiveness, or 'what works'. EGMs of qualitative studies, which map the evidence on 'how' and 'why' interventions work, are becoming more common."[18]

Our EGM focuses on identifying the available systematic reviews and primary studies on the effectiveness of inclusive interventions and identifying the gaps where such research is unavailable. The EGM is set up as a matrix with intervention types or domains organized as rows and with outcomes or indicators organized in columns. Studies are placed in various cells of the matrix depending on the interventions they include and the outcomes/indicators they report. Empty or sparsely populated cells in the EGM would suggest gaps in the evidence that need further research. Users can explore the EGM to locate specific areas of interest and subsequently view the available evidence.

EGMs do not provide an evidence synthesis or statistically analyse data in the way a systematic review does. An EGM is a comprehensive database of relevant, quality research. The EGM process is rigorous, stepwise and objective.[19,20]

WHY WE NEED AN EGM ON INCLUSIVE INTERVENTIONS

Multiple global reports have highlighted the need to bridge gaps in the evidence on inclusive interventions to support the design and implementation of effective and high-quality programmes. They include the *World Report on Disability*;[21] UNICEF's *State of the World's Children*;[22] and the United Nations Department of Economic and Social Affairs' *Flagship Report on Disability and Sustainable Development Goals*.[23] These reports call for strengthening the evidence base on the experience and measures of disability; rehabilitative, supportive and assistive interventions in various settings and sectors; and barriers to implementing inclusive interventions and measures to address them. The Sustainable Development Goals,[24] which emphasize inclusiveness, equality and equity; UN treaty bodies; and the Global Action on Disability Network[25] all call for improved data and evidence for disability inclusion.

The goals of inclusive interventions require that systems are changed and norms are challenged. They also require that access to education, healthcare services, protection and an adequate standard of living are prioritized across a wide range of disabilities. Additionally, a shift in the framing of interventions away from solely medical approaches and towards inclusive ones is needed. The evidence base on inclusive interventions for children with disabilities, which is framed away from medical approaches and towards inclusive societal interventions, is perceived to be weak and represents a critical gap.

UNICEF is developing a Global Research Agenda for Children with Disabilities to address that gap. The research agenda aims to serve as a global good to support UNICEF's broader disability programming and advocacy agenda, as well as supporting global evidence generation by other organizations, governments and communities with a focus on children with disabilities.

As a vital step in developing the research agenda, this EGM was conceptualized to document the existing evidence on effective interventions for children with disabilities living in LMICs.

Saran and colleagues[26] developed an EGM on the effectiveness of interventions for *persons* with

disabilities in LMICs. That EGM included interventions for both children and adults and used the community-based rehabilitation (CBR) matrix[27] as the organizational framework. Most of the evidence came from healthcare-focused interventions and from select middle-income countries.

Sharma et al.[28] is an ongoing, complementary UNICEF EGM on the effectiveness of interventions to promote mental health and reduce the morbidity of mental illness in children and adolescents. Taken together with our EGM, both maps provide a comprehensive overview on the effectiveness of interventions to reduce barriers and improve outcomes for children with disabilities living in LMICs.

Tereza is playing the piano at the music hall in Komitas Chamber Music House in Yerevan, Armenia.

OBJECTIVES OF EGM ON INCLUSIVE INTERVENTIONS FOR DISABILITIES

The principal objective of this EGM is to appraise and highlight gaps in the available evidence on inclusive interventions for children with disabilities in LMICs.

The key objectives of our EGM are to:

- search for and identify the existing evidence assessing the effectiveness of inclusive interventions in LMICs that enable children with disabilities to access health, education and social services

- identify gaps in the current evidence base to facilitate priority setting of a global research agenda that will include research, impact evaluations and evidence synthesis

- identify context-specific factors, such as population groups, intervention characteristics and settings, critical for the design and success of inclusive interventions

- create an interactive database of the available evidence and gaps.

Omar Faruk poses in front of the camera with his friends at their house at Ahmedpur Union, Char Fasson, Bhola, Bangladesh.

CONCEPTUAL APPROACH

The CBR approach (see Figure 1) was introduced by the World Health Organization (WHO) in the late 1970s as part of the International Conference on Primary Health and the Alma Ata Declaration.[29] That strategy aimed to make use of local resources in delivering rehabilitation services to persons with disabilities in LMICs. The WHO and other United Nations agencies called for CBR guidelines that would promote a community-based inclusive development approach.[29,30] In turn, that would support a stronger integration of inclusion, community involvement and accountability.[31]

We used a modified CBR framework to identify themes that would capture the essence of these interventions given the unclear impact of CBR[32] and our goal of identifying interventions that explicitly aim for inclusion of children with disabilities living in LMICs. Guided by subject matter specialists on our team and our advisory group, we mapped this approach against relevant principles in the CRPD and the CRC[2,4] to come up with themes that could be operationalized into interventions, outcomes and contextual factors for the EGM (see Figure 2).

FIGURE 1: CBR matrix[27]

CBR MATRIX

HEALTH	EDUCATION	LIVELIHOOD	SOCIAL	EMPOWERMENT
PROMOTION	EARLY CHILDHOOD	SKILLS DEVELOPMENT	PERSONAL ASSISTANCE	ADVOCACY AND COMMUNICATION
PREVENTION	PRIMARY	SELF-EMPLOYMENT	RELATIONSHIPS, MARRIAGE, AND FAMILY	COMMUNITY MOBILIZATION
MEDICAL CARE	SECONDARY AND HIGHER	WAGE EMPLOYMENT	CULTURE AND ARTS	POLITICAL PARTICIPATION
REHABILITATION	NON-FORMAL	FINANCIAL SERVICES	RECREATION, LEISURE AND SPORTS	SELF-HELP GROUPS
ASSISTIVE DEVICES	LIFELONG LEARNING	SOCIAL PROTECTION	JUSTICE	DISABLED PEOPLE'S ORGANIZATIONS

Using these themes, and with the support of our advisory group and subject matter specialists, we operationalized our conceptual approach into inclusive intervention domains (see Figure 2). The intervention types and corresponding examples for these domains are provided in Table 1.

We also used WHO's International Classification of Function, Disability and Health (ICF) as a framework for choosing outcome domains relevant to our intervention domains.[33] The ICF considers impairments, their impact on function and other contextual factors that contribute to disability, thus using a biopsychosocial approach to disability. Our finalized outcome domains and types are listed in Table 2.

FIGURE 2: Consolidated inclusive intervention domains combining elements of CBR, CRPD and CRC

HEALTH
- Life and survival
- Early identification
- Promotion
- Prevention
- Medical care
- Habilitation and rehabilitation
- Assistive technologies

EDUCATION
- Early childhood
- Primary
- Secondary and higher
- Non-formal
- Lifelong learning
- Inclusive learning, assessment and school environment

AWARENESS AND NON-DISCRIMINATION
- Identity
- Stigma reduction
- Gender equality
- Minority culture, language, religion

PROTECTION
- Best interests of child
- Freedom from exploitation, violence and abuse
- Access to justice
- Protection of child's liberty

ADEQUATE STANDARD OF LIVING
- Skills development for work
- Poverty reduction
- Social protection
- Housing
- WASH
- Food security

FAMILY AND COMMUNITY LIFE
- Community support
- Parental guidance and family life
- Relationships
- Culture and arts
- Play, recreation, leisure and sports
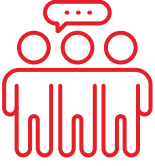
PARTICIPATION AND EMPOWERMENT
- Right to be heard and express views
- Access to information
- Peer support groups
- Advocacy and organizations of persons with disabilities (OPDs)
- Community mobilization

TABLE 1: Intervention domains and intervention types with examples

Intervention domain	Intervention types	Example(s)
Inclusion in health services	Access to early childhood screening and interventions	■ Access to screening programmes for under-5s; outreach visits to young children with disabilities.
	Access to general health services	■ Access to routine health services such as well-child visits, immunizations, health emergencies and menstrual hygiene management.
	Inclusion in health promotion and prevention interventions	■ Physical activity, nutrition and other behaviour change interventions.
	Access to specialist services	■ Access to habilitation and rehabilitation services.
	Access to assistive devices and technology	■ Provision of assistive devices and assistive technology.
	Accessibility (healthcare facilities)	■ Accessible healthcare facilities with features such as ramps, accessible washrooms, signage and personal assistance staff.
	Health system strengthening	■ Training healthcare workers; community health worker interventions; accountability mechanisms; child/youth-friendly health services; support for transition from paediatric to adult healthcare services; informed consent policies in healthcare.

Intervention domain	Intervention types	Example(s)
Inclusion in education	Access to education	■ Early childhood education; primary and secondary education; non-formal education for children with disabilities.
	Inclusive education and accessibility	■ Mainstreaming education/transition from special education to inclusive education; provision of individualized support and reasonable accommodation; universal design for learning and assessment; inclusion in sports, extracurriculars, social activities; accessibility of all education facilities, teaching and learning materials, curricular and extracurricular activities; universal design interventions; inclusive information technology infrastructure including alternative communication systems; access to sign language education.
	Educational system strengthening	■ Support for transitions from primary to secondary school; peer support; access to complaint/redressal mechanisms; training for teachers and school staff.
	Lifelong learning	■ Pre-graduation training programmes for children on social and independent living skills.

Intervention domain	Intervention types	Example(s)
Awareness and non-discrimination	Stigma-reduction interventions	■ Education or training interventions that specifically target stigma against children with disabilities; addressing stigma and discrimination faced by girls with disabilities.
	Media/information campaigns (to raise awareness)	■ Social media or mass media campaigns that promote awareness and inclusion of children with disabilities.
	Policies/legislation to promote accessibility and inclusion	■ Legislating/mandating accessibility in public spaces and services; adoption of inclusion policies in various settings.
	Policies/legislation to prevent discrimination	■ Anti-discrimination; affirmative action; reasonable accommodation.
Protection	Access to birth registration	■ Increasing facilities to register births and disability registration as a right to be officially identified as a person with disabilities, especially in remote areas; removing fees associated with birth registration.
	Access to justice/redressal services	■ Intervention programmes to help represent assault victims in court; training for law enforcement personnel, judges and other public-engagement personnel; procedural and age-appropriate accommodations.
	Violence/abuse prevention interventions	■ Behaviour-skills training programme for awareness of abuse situations and self-protection skills; bystander interventions; prevention of child labour practices; policies/legislation protecting against abuse/violence; anti-bullying interventions.
	Protection in online environments	■ Cyber-safety programmes for children.

Intervention domain	Intervention types	Example(s)
Adequate standard of living	Social protection	■ Cash transfers; vouchers; in-kind provisions; health insurance plans; disability allowance/grants; disability extra cost compensation.
	Skills training for work	■ Skills training programmes for children with intellectual disabilities.
	Accessibility (community)	■ Built environment interventions; web accessibility; universal design interventions in the community.
	Access to WASH, housing and food	■ Housing assistance programmes; nutrition assistance programmes; disability-inclusive WASH access interventions.
Family and community life	Policies/ legislation to prevent family separation	■ National or subnational legislative bans against involuntary separation from family.
	Ending institutional and segregated settings	■ National or subnational legislative bans against institutionalization and segregated settings; deinstitutionalization programmes.
	Community support services	■ Support for individual and family relationships; personal assistance services; communication support; respite services for parents/carers.
	Inclusion in sports, arts, recreational and cultural activities	■ Community-based inclusive sports clubs; community social activities.

Intervention domain	Intervention types	Example(s)
Empowerment	Advocacy and community mobilization	■ Multiple community-based strategies such as advocating for children with disabilities and their families, local leader engagement and forming community collaborations.
	Enabling children with disabilities to express views	■ Providing support and creating platforms for children with disabilities to share their life experiences and engage with community leaders; disability-inclusive voting arrangements; supported decision-making; education on human rights.
	Self-help groups/OPDs	■ Establishing self-help groups/OPDs in the community; providing ongoing support for existing OPDs and self-advocates.

TABLE 2: Outcome domains and types

Children with disabilities (special needs) play as a part of their physical therapy at the LEC Centre of Boulaos in Djibouti.

Outcome domains	Outcome types
Health and well-being outcomes	Child development
	Behavioural, mental health and well-being
	Physical health
	Quality of life and functional status
	Morbidity and mortality
	Parent/caregiver/family member mental health and well-being
Access to health outcomes	Health-seeking behaviours
	Healthcare utilization/coverage
	Assistive device and technology utilization
	Healthcare quality (including satisfaction with care) and affordability
Education outcomes	Inclusive educational policies and systems implemented
	School readiness
	School enrolment and attendance
	Child learning outcomes
	Academic achievement
	School completion/graduation
	Quality of educational services (including child and parent satisfaction)

Outcome domains	Outcome types
Adequate standard of living outcomes	Financial protection
	Use of social services and programmes
	Access to food, housing and WASH
	Access to justice/redressal mechanisms
	Access to jobs/employment
	Social skills: communication, interpersonal relationships
	Life skills
	Use of formal/informal personal assistance
	Participation in social and community activities
	Living independently in the community
Violence prevention outcomes	Physical violence
	Sexual violence
	Emotional violence
	Neglect
Empowerment outcomes	Participation in decision-making (for policies/legislation/bylaws)
	Agency and self-efficacy of children
	Norms, values and stigma (in the community)
	Knowledge and attitudes (in the community)
Intervention cost outcomes	Programme costs
	Cost-effectiveness/cost utility
	Cost–benefit ratios

A young girl plays with creative toys which help to develop her motor skills in a special classroom for children with disabilities at the LEC Centre of Ali-Sabieh in Djibouti.

EGM ANALYSIS

Full details on our methods are in our protocol.[34] A brief overview is available in Appendix 1. Details of the results from our broad literature search and the screening process are in Appendix 2.

STUDY CHARACTERISTICS

Study design

The EGM included 155 studies including 29 systematic reviews and 126 primary studies.[i]
The primary studies included 35 randomized controlled trials (RCTs), 22 quasi-experimental ones and the remaining 69 were either an observational design – mostly before-after studies without a comparison group – or an economic modelling study.

Country

One in ten studies came from low-income countries with middle-income ones representing the preponderance of study countries. However, the studies were not evenly distributed across middle-income countries. In fact, most middle-income countries had no or very few studies in the EGM. India was the most represented country in the EGM (25 per cent), followed

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i   In this report unless otherwise specified we use 'study/studies' to collectively refer to both systematic reviews and individual evaluations.

by Brazil (10 per cent), Bangladesh (9 per cent), Turkey (8 per cent), and Kenya, Nigeria and China (7 per cent each). Only 30 per cent of countries were tagged in two or more studies in the EGM and the remaining 70 per cent were tagged in only one or no studies.

Population characteristics

Age[ii] – Early childhood participants (0–4 years) were included in 58 per cent of studies. More than 90 per cent of intervention studies in this group were aimed

at improving inclusion in health services for this age group. For the middle childhood (5–9 years) age group, we saw 106 studies (68 per cent) with a majority from the health domain and some from inclusive education interventions. Adolescents (10–19 years) were participants in 94 studies (61 per cent). Age information was not reported in 6 per cent of studies.

Sex – Only three studies (2 per cent) focused on girls (>75 per cent girl participants). One was a systematic review[35] on interventions to improve gender equity in eye care. The other

FIGURE 3: Distribution of studies by country[iii]

PROPORTION (%) OF STUDIES IN EGM

| 25% | 5–10% | 2–5% | 1.9% | 1.3% | 0.7% | 0% |
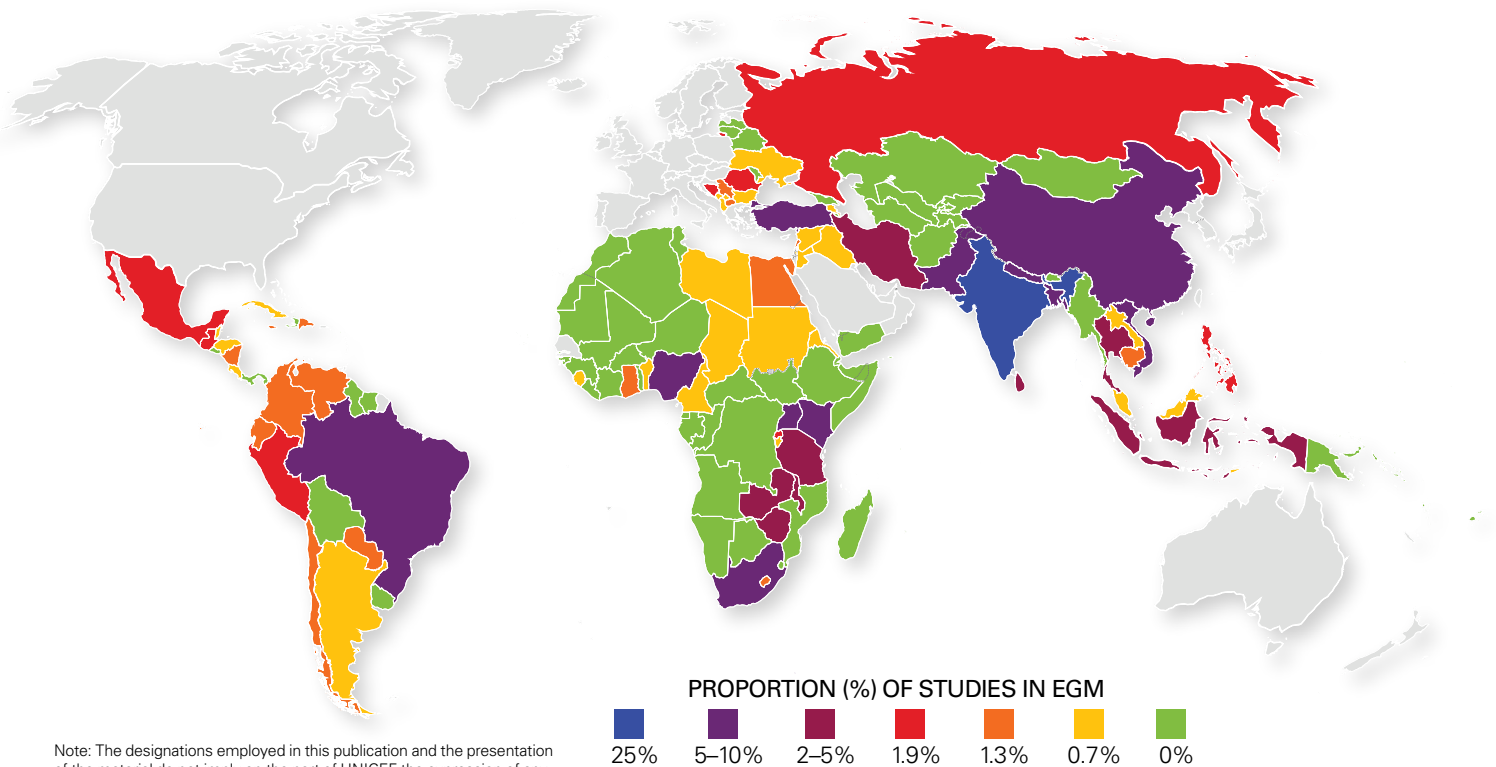
Note: The designations employed in this publication and the presentation of the material do not imply on the part of UNICEF the expression of any opinion whatsoever concerning the legal status of any country or territory, or of its authorities or the delimitations of its frontiers.

ii   A study in the EGM could be tagged across multiple age categories because systematic reviews could have multiple studies with different age categories and individual evaluations could also include participants across multiple age categories.

iii A single systematic review would be tagged across multiple countries and an individual evaluation appearing in multiple systematic reviews would be tagged multiple times. Greyed-out areas are high-income countries which were excluded from the EGM.

two were primary studies: a menstrual skills teaching programme for high school girls with intellectual disabilities in Turkey[36] and a study from Kenya assessing the impact of an inclusive educational intervention on educational attainment for girls with disabilities.[37]

Minority and ethnic populations – Six studies (4 per cent) reported on interventions in minority and ethnic populations. Two were broad systematic reviews[38,39] assessing mental health interventions for children and adolescents. The four primary studies included a school-based psychotherapy programme for war-exposed ethnic Muslim children in Bosnia,[40] a vision impairment screening and detection programme for tribal children in India,[41] a peer-mediated support programme for Muslim children with attention deficit hyperactivity disorder (ADHD) also from India[42] and a study comparing foster care with institutional care for Roma children in Romania.[43]

Children living in poverty – Twenty-one studies (14 per cent) had children living in poverty as participants, with four systematic reviews and the remaining primary
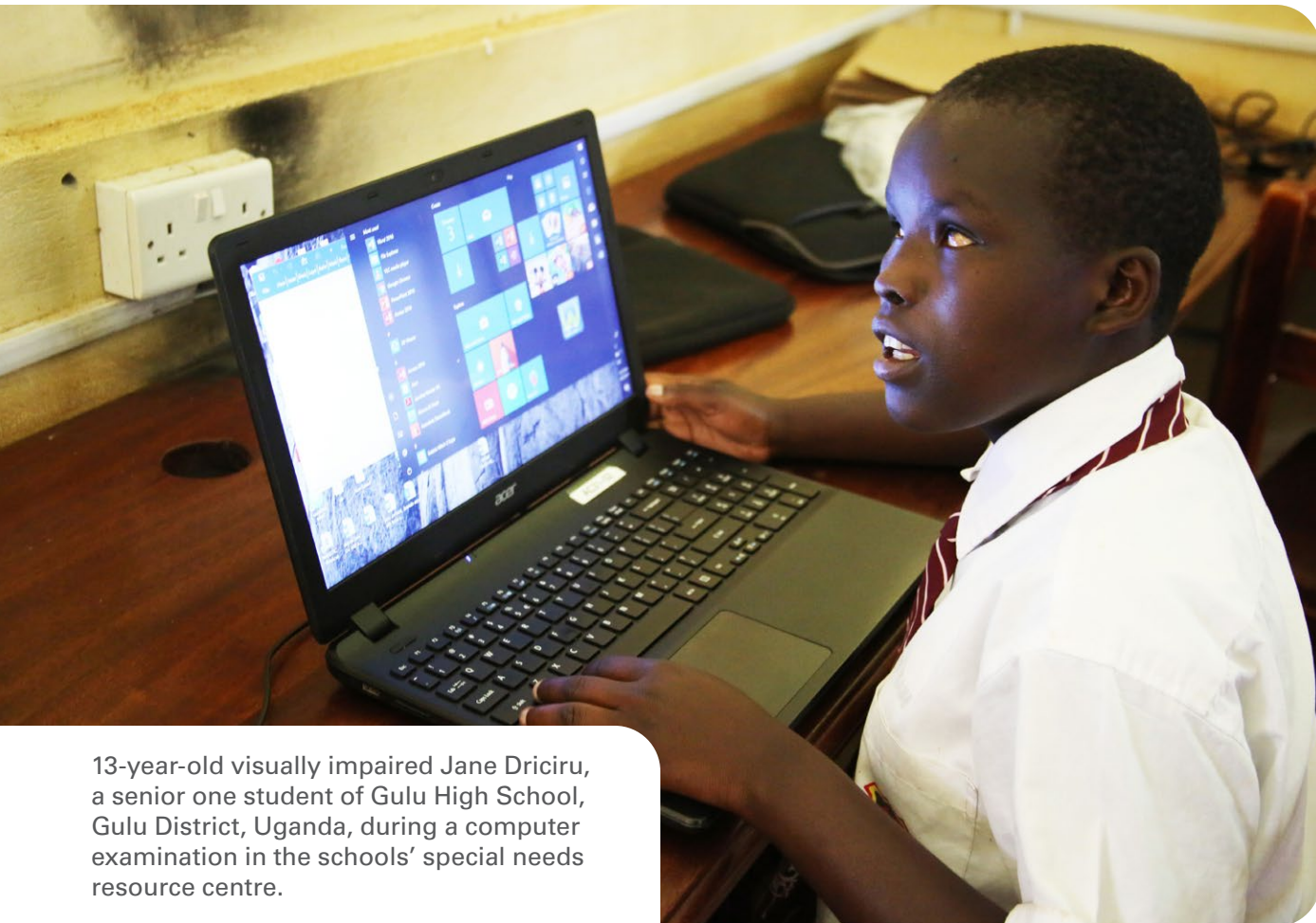
13-year-old visually impaired Jane Driciru, a senior one student of Gulu High School, Gulu District, Uganda, during a computer examination in the schools' special needs resource centre.

studies. Seventeen (11 per cent) of these were studies of interventions in the health services domain such as access to screening and early intervention, access to specialist services and assistive devices, and health system strengthening. Eight studies (5 per cent) included interventions to improve enrolment in education, improve learning outcomes or provide training for teachers. Almost all studies from the education group also included health services interventions such as vision screening at school by teachers and provision of assistive devices via school-based inclusive education programmes.

LGBTQI+ – There were no studies on inclusive interventions for LGBTQI+ children with disabilities.

Type of disability[iv]

Intellectual and development disabilities–including autism spectrum disorder (32 per cent), hearing impairment (32 per cent), visual impairment (28 per cent) and physical impairments including cerebral palsy (28 per cent)–were the commonly reported types of disability among study participants. Learning disabilities were reported in approximately 11 per cent of studies and psychosocial disability in 9 per cent. Thirty-nine studies

TWENTY-ONE STUDIES (14 PER CENT) HAD CHILDREN LIVING IN POVERTY AS PARTICIPANTS, WITH FOUR SYSTEMATIC REVIEWS AND THE REMAINING PRIMARY STUDIES.

(25 per cent) included participants with multiple disabilities while 10 studies (6 per cent) did not specify the type of disability. The distribution of study designs by type of disability is shown in Figure 4. Figure 5 shows the distribution of studies by disability and age group. Visual impairment intervention studies for early childhood participants were relatively fewer in number than those for the other age categories, while intervention studies for hearing and physical impairment and intellectual/development disorders were less prevalent in older adolescents than the younger age groups.

Setting

The home setting accounted for 23 per cent of studies. Three out of four home-based studies came from access to early childhood interventions. This usually included home visits by trained community health workers (CHWs) or specialist healthcare workers to engage with young children

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iv   A study in the EGM could be tagged across multiple disability types because systematic reviews could have multiple studies with different disability types and individual evaluations could also include participants with multiple disabilities.

FIGURE 4: Distribution of study designs by type of disability[v]

Visual
- SYSTEMATIC REVIEWS: 11
- RCTS: 10
- QUASI-EXPERIMENTAL: 6
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 17

Hearing
- SYSTEMATIC REVIEWS: 9
- RCTS: 6
- QUASI-EXPERIMENTAL: 7
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 27

Physical
- SYSTEMATIC REVIEWS: 13
- RCTS: 9
- QUASI-EXPERIMENTAL: 8
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 14

Intellectual/developmental
- SYSTEMATIC REVIEWS: 13
- RCTS: 13
- QUASI-EXPERIMENTAL: 8
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 15

Learning
- SYSTEMATIC REVIEWS: 7
- RCTS: 2
- QUASI-EXPERIMENTAL: 5
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 3

Psychosocial
- SYSTEMATIC REVIEWS: 7
- RCTS: 3
- QUASI-EXPERIMENTAL: 2
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 2

Multiple
- SYSTEMATIC REVIEWS: 15
- RCTS: 5
- QUASI-EXPERIMENTAL: 7
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 12

Unspecified
- SYSTEMATIC REVIEWS: 2
- RCTS: 1
- QUASI-EXPERIMENTAL: 0
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 7

Total in EGM
- SYSTEMATIC REVIEWS: 29
- RCTS: 35
- QUASI-EXPERIMENTAL: 22
- OBSERVATIONAL STUDY OR ECONOMIC MODEL: 69

Legend:
- SYSTEMATIC REVIEWS
- RCTS
- QUASI-EXPERIMENTAL
- OBSERVATIONAL STUDY OR ECONOMIC MODEL

v   Studies could be coded against more than one type of disability. Only 'severe' psychosocial disability – defined as serious mental illness or explicit mention of functional impairment in the study – was included in the EGM.

FIGURE 5: Distribution of studies by disability type and age category[vi]

	EARLY CHILDHOOD (0–4 YRS)	MIDDLE CHILDHOOD (5–9 YRS)	EARLY ADOLESCENCE (10–14 YRS)	LATE ADOLESCENCE (15–19 YRS)
Visual	21	35	36	28
Hearing	33	29	28	21
Physical	27	33	23	14
Intellectual/developmental	30	36	27	19
Learning	6	12	12	9
Psychosocial	5	9	13	9
Multiple	23	33	26	19
Unspecified	5	8	7	7
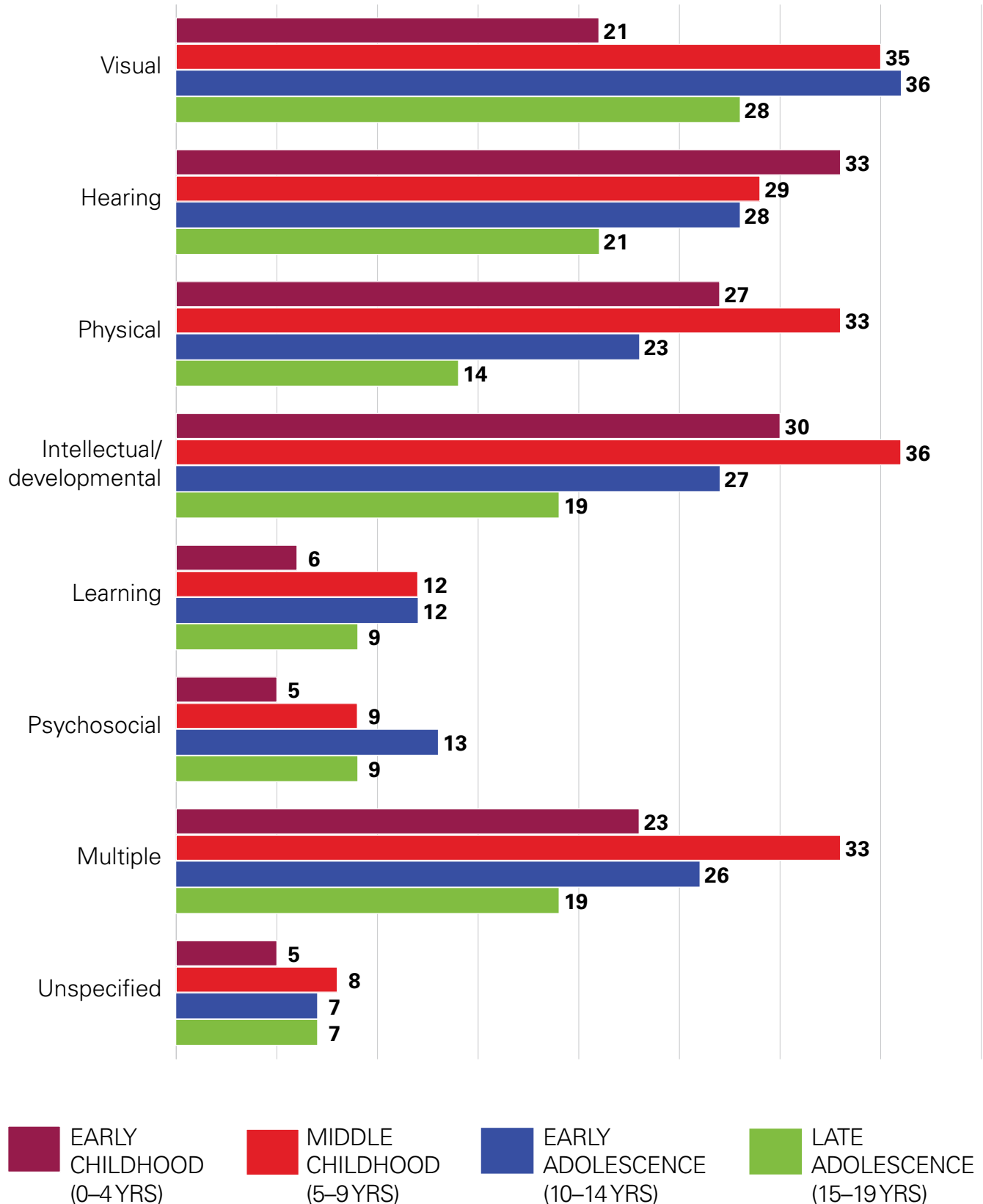
vi   The same study could be tagged in multiple age categories. Studies having participants with multiple disabilities were also tagged for each individual disability.

and their caregivers. The types of disability most often studied were intellectual/developmental and physical impairments, especially cerebral palsy.

Half the studies took place in school settings. Schools were settings for interventions aimed at improving access to education, making education more inclusive and strengthening the educational system to serve the needs of children with disabilities better. They were also used as sites for screening programmes, especially for visual and hearing impairments.

Community settings accounted for 43 per cent of studies. A vast majority of these studies focused on interventions for inclusion in health services. The interventions assessed were early childhood interventions, access to specialist services in the community, access to assistive devices and health system strengthening to improve services closer to where children live.

Twelve studies (8 per cent) used technology as one intervention component. Examples of

technologies used included SMS/text reminders to participants, telephone follow-up and telehealth services. These were used for a diversity of contexts such as delivering mental health services, following up after paediatric cataract surgery, improving access to eye care and hearing screening, and improving delivery of care for children with developmental and intellectual disabilities, among others. One study[44] from Pakistan used an innovative method to train caregivers of children with developmental disabilities. The researchers developed a tablet-based Android app incorporating WHO's Mental Health Gap Action Programme Intervention Guide (mhGAP-IG) developmental disorders module.[45]

Humanitarian settings

Four studies (3 per cent) were on interventions for children with disabilities in humanitarian settings. Two were individual interventions, one was a study to improve oral health for internally displaced children with severe PTSD in Syria[46] and the other was a school-based mental health intervention for war-exposed ethnic Muslim adolescents.[40] The other two were systematic reviews – Pfefferbaum et al. (2019)[47] was a meta-analysis that looked at interventions for functional impairment for youth exposed to mass trauma and Piper et al. (2017)[48] was a protocol for

SCHOOLS WERE SETTINGS FOR INTERVENTIONS AIMED AT IMPROVING ACCESS TO EDUCATION, MAKING EDUCATION MORE INCLUSIVE AND STRENGTHENING THE EDUCATIONAL SYSTEM TO SERVE THE NEEDS OF CHILDREN WITH DISABILITIES BETTER.

an upcoming systematic review of the impact of WASH interventions on child development. The review planned to include humanitarian settings and children with disabilities in its scope.

Intervention characteristics

We extracted data for three specific intervention characteristics. The first one was on whether a mainstreaming approach was used in the study. This concept mainly applies to inclusive interventions in education. Nearly 20 per cent of studies in the EGM used mainstreaming. Most studies looked at schools and classrooms enrolling children with disabilities in the aftermath of legislation or policies to open education up for everyone. Intersectoral approaches were reported in one study from Chile analysing the scaling-up of a large national early childhood development programme which included services for children with developmental delays.[49] The third intervention characteristic, participatory research approaches, was reported in two studies: one a systematic review[50] that assessed participatory approaches in rural areas using key informants to reliably identify persons with disabilities, and the other a protocol of an upcoming RCT of any early intervention programmes for infants with neurodevelopmental impairments in Uganda.[51]

WHERE THE EVIDENCE IS AND WHERE THE GAPS ARE

Overall

'Inclusion in health services' had the most studies in the EGM (77 per cent) compared with the other domains. This domain comprises multiple intervention types that also feature frequently in the EGM such as 'access to early childhood screening and intervention', 'health system strengthening' and 'access to specialist or rehabilitation services'. The next most-featured intervention domain was 'inclusion in education' (33 per cent). The remaining five intervention domains from our framework – 'awareness and non-discrimination', 'protection', 'adequate standard of living', 'family and community life' and 'empowerment' – were sparsely populated in the EGM and were included in 27 per cent of studies combined. Figures 6 and 7 show the distribution of study designs by intervention domain and outcome domain respectively.

Further analysis on the distribution of evidence by domain, the types of study designs and the types of outcomes reported is provided below.

FIGURE 6: Distribution of study designs by intervention domain[vii]

	SYSTEMATIC REVIEWS	RCTS	QUASI-EXPERIMENTAL	OBSERVATIONAL STUDY OR ECONOMIC MODEL
Inclusion in health services	24	25	13	58
Inclusion in education	10	6	13	22
Awareness and non-discrimination	5	3	4	5
Protection	2	1	0	0
Adequate standard of living	3	1	1	3
Family and community life	3	4	3	5
Empowerment	6	3	2	7
Total in EGM	29	35	22	69
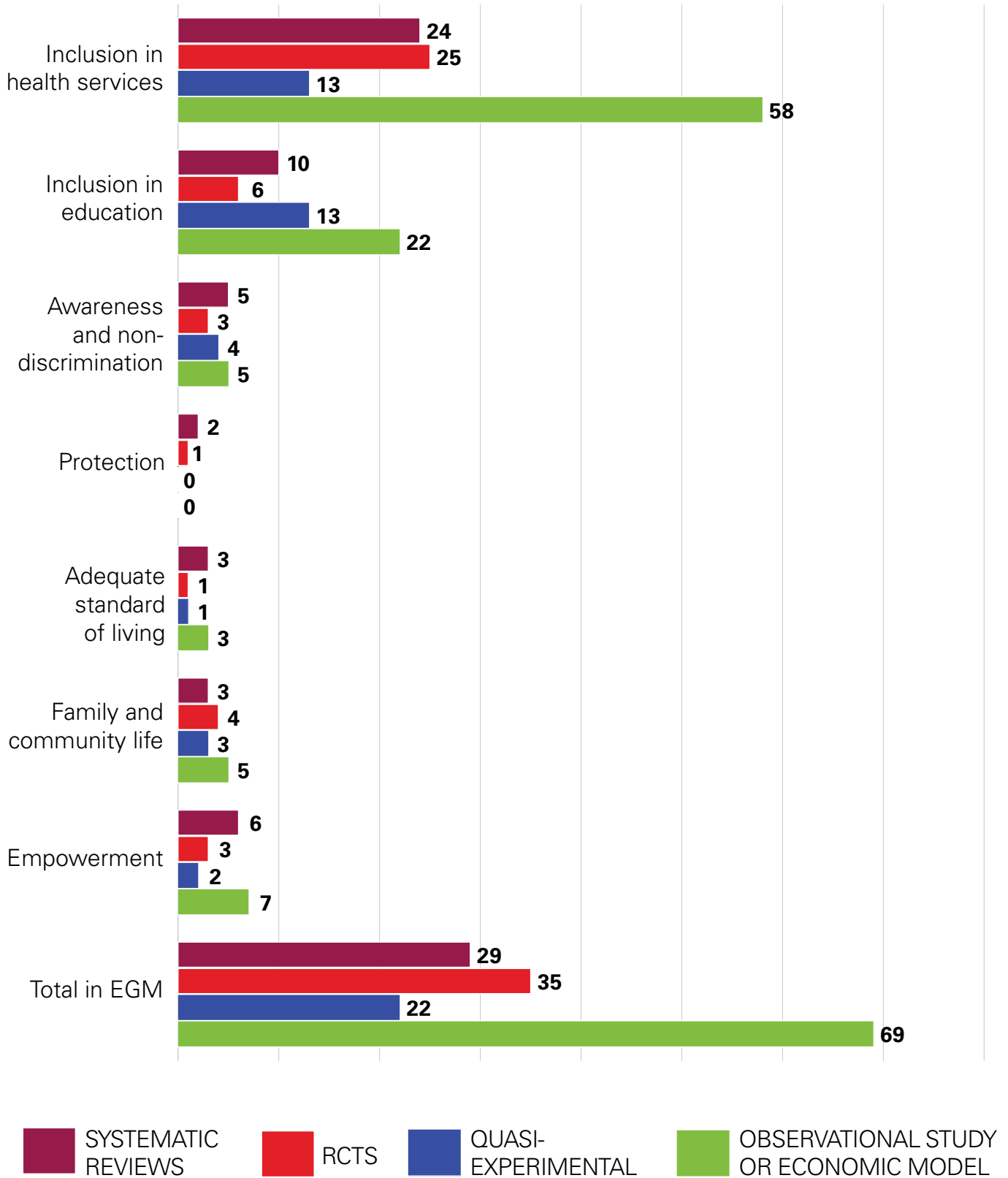
vii Studies could be coded against more than one intervention domain.

FIGURE 7: Distribution of study designs by outcome domain[viii]

	SYSTEMATIC REVIEWS	RCTS	QUASI-EXPERIMENTAL	OBSERVATIONAL STUDY OR ECONOMIC MODEL
Health and well-being	17	25	9	20
Access to health	11	14	6	28
Education	9	4	9	8
Adequate standard of living	12	9	4	8
Violence prevention	3	1	0	0
Empowerment	2	2	1	3
Intervention cost	4	3	2	20
Total in EGM	29	35	22	69
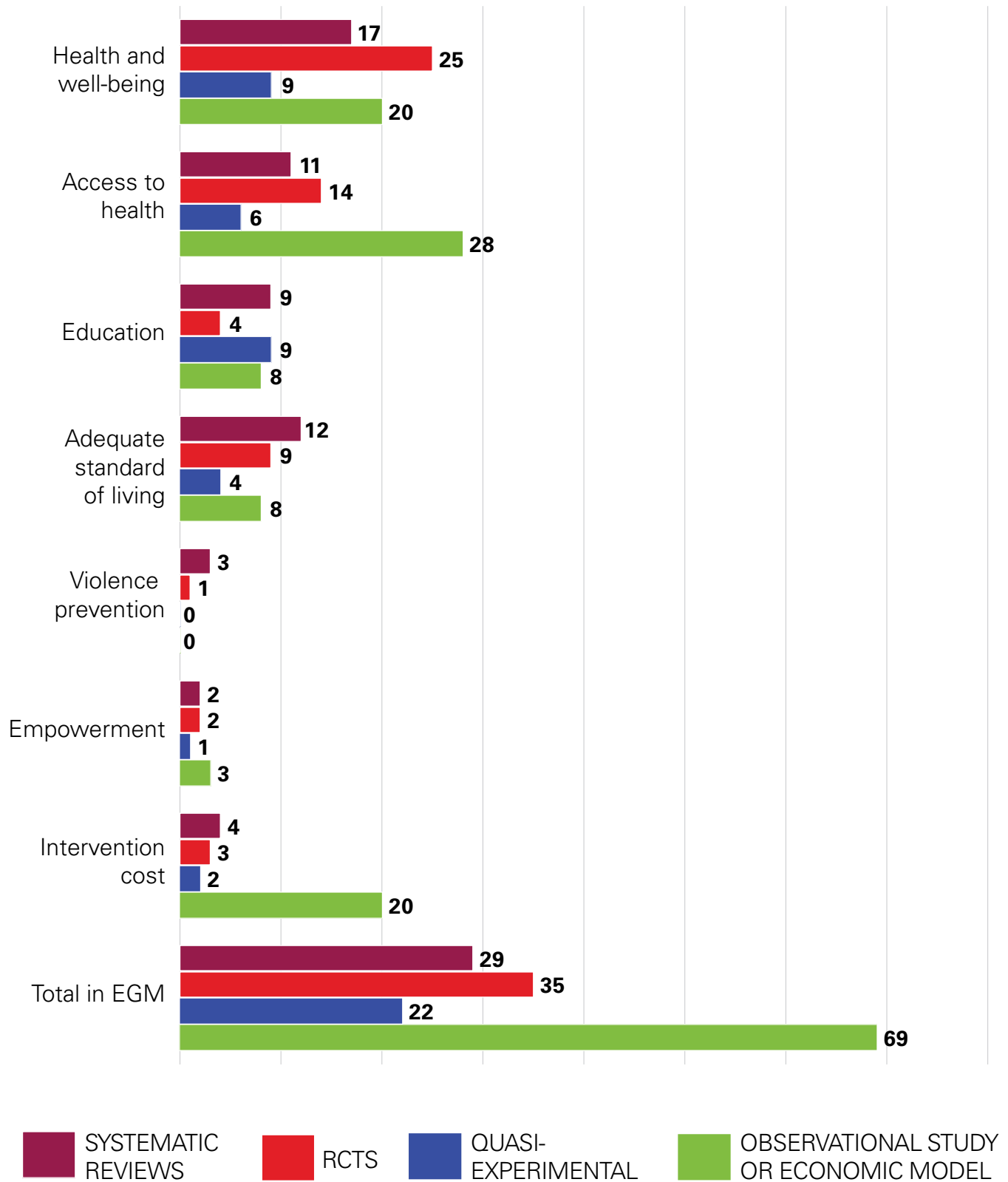
viii Studies could be coded against more than one outcome domain

Inclusion in health services

In the EGM, 77 per cent of studies were in the health domain. They included 24 systematic reviews, 25 RCTs, 13 quasi-experimental studies and 58 observational or economic modelling studies. The observational studies were mostly before-after ones without a comparison group and the 15 economic modelling studies largely focused on the costs and cost-effectiveness of screening programmes.

The studies were not evenly distributed across all the intervention types within the health domain. The most frequently assessed intervention was 'access to screening and early interventions', accounting for 72 studies (47 per cent). The studies included universal screening interventions mainly for hearing disabilities and school- or community-based screening to identify children with visual or hearing impairments. In the school-based interventions, teachers were trained to conduct visual acuity testing for their students and referred students were subsequently assessed by optometrists or ophthalmologists. These studies mostly measured access to health services such as the coverage of screening for eligible children, the number who followed up on referrals or the quality of the screening programmes measured in terms of earlier age at diagnosis. For the universal screening interventions,

there were several economic modelling studies that assessed the costs and cost-effectiveness of these programmes at the national and subnational levels. Early childhood interventions frequently included outreach to children with developmental or physical disabilities (particularly cerebral palsy) in their homes or in community sites via trained CHWs. CHWs typically helped caregivers to navigate various developmental tasks with their children and provided them with information on best practices. The outcomes commonly reported were child developmental ones, behavioural and mental health, quality of life and functional status and, in some cases, mental health and well-being of the primary caregivers. Outcomes on healthcare utilization, healthcare quality, and intervention cost and cost-effectiveness were also reported in multiple studies.

The next most frequent intervention categories were 'health system strengthening' interventions (41 per cent of all studies) and 'access to specialist or rehabilitation services' (36 per cent). Those comprised interventions aiming

to improve access to CHWs and specialist/rehabilitation services through community service delivery models. Service delivery models included home visits and access to community sites alongside the training of healthcare workers and CHWs to engage better with children and their families. There were no intervention studies on strategies such as accountability mechanisms in the healthcare system, child/youth-friendly health services or support for transitions from paediatric to adult health services. The outcomes reported here were focused on child development, health, quality of life and healthcare access as well as programme costs and cost-effectiveness.

'Access to assistive devices and technology' (20 per cent) typically included providing spectacles and other visual devices and cochlear implants. Evidence assessing the use of new technologies being employed for assistive devices was limited. 'Inclusion in health promotion and prevention interventions' was assessed in 15 studies (10 per cent). We saw multiple studies of oral health promotion interventions which included guidance on tooth brushing and health education for children with different disabilities.

Evidence on 'access to general health services' that targeted removing barriers to health services for health conditions outside of

disability-focused habilitation or rehabilitation was very limited (4 per cent). No studies on making healthcare facilities more accessible by building access ramps or having accessible signage were identified in the EGM.

Inclusion in education

Fifty-one studies (33 per cent) were coded against this domain. They included 10 systematic reviews, 6 RCTs, 13 quasi-experimental studies and 22 observational or modelling studies.

Seventeen studies (11 per cent) included enrolment of children with disabilities into elementary and secondary education. The most reported outcomes were school enrolment, attendance and cost-effectiveness estimates of those programmes.

Thirty-one studies (20 per cent) focused on 'inclusive education and accessibility' interventions, with most studies specifically assessing the impact of implementing an inclusive education approach. The most frequent outcomes in these studies were school enrolment and attendance, learning outcomes and cost-effectiveness estimates for the implemented programmes. Evidence was limited on interventions to provide reasonable accommodation, individualized support, universal design for learning and assessment,

accessibility of educational facilities, universal design interventions or inclusive information technology infrastructure.

Thirty-two studies (21 per cent) focused on 'education system strengthening' interventions. Those mostly included in-service and pre-service training for teachers and school staff on working with children with disabilities in their classrooms and for screening children for hearing or vision impairments during regular school hours. There was limited evidence on lifelong learning interventions for children with disabilities.

Remaining intervention domains

There was limited evidence on the other intervention domains, i.e., 'awareness and non-discrimination', 'protection', 'adequate standard of living', 'family and community life' and 'empowerment'.

- ■ **Awareness and non-discrimination:** Seventeen studies (11 per cent) were coded against this domain – five systematic reviews including two protocols, three RCTs, four quasi-experimental studies, four observational studies and one economic modelling study to estimate cost-effectiveness. Out of the 17 studies, 13 included community awareness campaigns as

THIRTEEN STUDIES INCLUDED **COMMUNITY AWARENESS CAMPAIGNS** AS AN INTERVENTION COMPONENT TYPICALLY COMBINED WITH OTHER INTERVENTION STRATEGIES FROM OTHER INTERVENTION DOMAINS.

an intervention component typically combined with other intervention strategies from other intervention domains. Stigma-reduction interventions were assessed in seven studies, which included a systematic review[52] on interventions for reducing stigma experienced by children with disabilities living in LMICs and two individual evaluations[53,54] assessing interventions specifically focused on reducing stigma and increasing social acceptance. There were three evaluations[49,55,56] of policies/legislation to promote accessibility and inclusion, but no completed studies on policies/legislation to prevent discrimination against children with disabilities.

- ■ **Protection:** Only three studies (2 per cent) were included in this domain. One was a systematic review[57] on interventions to promote sexual and reproductive health among persons with disabilities that included sexual violence prevention interventions. The second study was a protocol

Members of the disabled community play a game of football before the arrival of their President, Yoweri Museveni, at an event marking the International Day of Persons with Disabilities 2014 held in Kayunga District, Central Uganda.

for an upcoming systematic review[58] on social inclusion interventions for persons with disabilities and the third was an RCT[59] in Ugandan primary schools that implemented the Good School Toolkit to reduce physical violence and corporal punishment against children with disabilities perpetrated by their peers or school staff. The evidence on access to justice/redressal mechanisms, access to birth registration and protection in online environments was extremely limited.

■ **Adequate standard of living:** Eight studies (5 per cent) were coded against this domain:

three systematic reviews, one RCT, one quasi-experimental study and three observational studies. Seven of the eight studies were coded against social protection programmes such as child grants and fee waivers. The available evidence for skills development for work, accessibility initiatives in the community or access to WASH, food and housing interventions was limited.

■ **Family and community life:** Fifteen studies (10 per cent) were included in this domain. The studies consisted of three systematic reviews, four RCTs, three quasi-experimental studies and five observational

studies. Community support services were part of six studies. Support was provided by community caregivers, women's groups and other volunteers in the community for children with varied disabilities. Those services were usually one part of a multicomponent intervention. Inclusion in sports, recreational and cultural activities was implemented as an intervention approach in nine studies. Most of those studies created inclusive sports activities such as gymnastics, soccer and general sports activities that combined children with conditions such as autism spectrum disorder, cerebral palsy or intellectual disabilities with their peers without functional impairments. Studies of both these types of interventions commonly reported health, health-related quality of life and social skills development as outcomes. The evidence for policies/legislation to prevent family segregation and ending institutional segregation was sparse.

- **Empowerment:** Eighteen studies (12 per cent) including six systematic reviews, three RCTs, two quasi-experimental studies

and seven observational studies were coded against this domain. Advocacy and community mobilization were included in 16 studies which mostly comprised community outreach to various neighbourhoods, organizing meetings, engaging village leaders, advocating for the rights of children with disabilities, and engaging with self-help groups. These activities were usually implemented in concert with other intervention strategies such as access to rehabilitation services or access to assistive devices. Behavioural and mental health, health-related quality of life, healthcare utilization and quality, caregiver mental health and social skills development of children were the commonly reported outcomes. Self-help groups and organizations of persons with disabilities were included in 10 studies. This involved establishing women's groups or caregiver groups and providing support for these networks. The outcomes reported in these studies were similar to those for advocacy and community mobilization. Enabling children with disabilities to express their views as an intervention strategy was not reported in any study.

Dalton Daniel is 9 years old and was born without part of his upper and lower limbs.

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CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Our EGM identified 155 studies– 29 systematic reviews and 126 individual evaluations – that assess the effectiveness of inclusive interventions for children with disabilities in LMICs. Many systematic reviews were broad in scope and included a range of intervention types, only some of which fulfilled our EGM's eligibility criteria. Children from different age groups with various disabilities such as visual, hearing, physical, developmental/intellectual and learning impairments were represented in the evidence. Evidence on interventions focused on girls, children living in poverty, racial/ethnic minorities and indigenous, migrant, internally displaced and refugee groups was lacking as were studies for humanitarian settings. Less than 10 per cent of the studies came from low-income countries and evidence was lacking even among many middle-income countries. Due to project timeline constraints, we did not conduct a critical appraisal of the included studies in the EGM. Knowing the risk of bias of each study would have provided an

important additional perspective on the nature of the available evidence.

Our EGM was developed with the specific purpose of identifying and mapping interventions that explicitly focused on inclusion of children with disabilities living in LMICs in various aspects of life. To this end, deriving from the principles of the CRPD[2] and the CRC,[4] we created a framework comprising intervention and outcomes domains that we conceptualized to represent the best landscape of interventions for disability inclusion. To gain an overview of the evidence landscape on effectiveness studies of those interventions, we restricted our EGM's criteria to quantitative studies that included at least one intervention and at least one outcome from our framework. This means that certain types of studies were excluded. Qualitative studies that can provide evidence on the lived experience and perspectives and on 'how interventions work' were not eligible for inclusion in our EGM. Studies of training interventions for teachers and school staff that did not report any child-focused outcomes were excluded.

In the EGM, 77 per cent of studies were from the health domain with interventions aiming to increase the uptake and delivery of early detection, intervention and rehabilitation services for children with disabilities. Training of healthcare staff and

OUR EGM WAS DEVELOPED WITH THE SPECIFIC PURPOSE OF IDENTIFYING AND MAPPING INTERVENTIONS THAT EXPLICITLY FOCUSED ON INCLUSION OF **CHILDREN WITH DISABILITIES** LIVING IN LMICS IN VARIOUS ASPECTS OF LIFE.

employing CHWs were commonly implemented intervention strategies to make health services more accessible. There were multiple evidence syntheses and primary studies that explored the effectiveness of various models to deliver disability-related health services to children. However, there are gaps even within this domain: there is little evidence of studies assessing what works to improve access to general health services for children with disabilities, or on improving the accessibility of healthcare facilities or the deployment of newer technologies and assistive devices. More primary studies and evidence syntheses are needed in those areas.

In the education domain, we identified multiple studies exploring various methods to implement inclusive education for children with disabilities. However, those studies lacked the necessary detail of how they were implemented and did not mention all the components that went into making those efforts effective. Not least, the definition of 'inclusive education' varied across studies. Most studies looked at schools and classrooms enrolling children with disabilities in the

aftermath of legislation or policies to open education up for everyone. Many studies seemed to take a mainstreaming approach, i.e., enrolling children with disabilities to regular classrooms, rather than studying inclusive education models.

Studies on important aspects of inclusive education–such as providing reasonable accommodation, individualized support, universal design for learning and assessment, accessibility of educational facilities, universal design interventions or inclusive information technology infrastructure–were also lacking. A particularly important gap is in primary studies of comprehensive inclusive education models. There were also many primary studies of interventions that comprised in-service or pre-service training for teachers on working with children with disabilities and reporting the change in knowledge, attitudes and, in some cases, practices in the classroom. However, in most cases these primary studies did not report any measure of child outcomes either on learning or on academic performance and so were excluded from this EGM. The limited number of primary studies reporting academic outcomes, school readiness, graduation rates and on the quality of educational services to be able to assess the effectiveness of inclusive education efforts indicates important gaps to be filled.

There is a critical need to prioritize research areas in the social domains. Studies from our remaining EGM intervention domains were sparse: 'awareness and non-discrimination', 'protection', 'adequate standard of living', 'family and community life' and 'empowerment'. More evidence is needed for stigma-reduction interventions, for media/information campaigns that raise awareness and for understanding the impact of international and national legal frameworks on the inclusion of children with disabilities and the prevention of discrimination against them.

There are major gaps in studies assessing interventions related to protection from harmful stereotypes of children with disabilities; or from abuse and violence, such as corporal punishment and cruel, inhuman and degrading treatment of children; and on facilitating access to judicial and redressal mechanisms. Furthermore, efforts to establish and strengthen disability-inclusive social protection systems across the life cycle need to be informed by new evidence on the most effective approaches for disability identification/assessment; similarly for methods that measure disability-related extra costs including support services that consider the diversity of persons with disabilities, the diversity of barriers they face and the diversity of support they require.

Improving accessibility in the community and access to WASH, housing and food also represents a major gap. More research is needed that studies deinstitutionalization approaches for children with disabilities and independent living arrangements. There is no evidence on measures taken to ensure that children with disabilities enjoy their right to be heard and to have their views considered in all matters affecting them.

RECOMMENDATIONS FOR THE GLOBAL RESEARCH AGENDA

Based on the findings from the EGM and in consultation with subject matter experts, we determined the following recommendations to inform the development of the global research agenda on interventions for children with disabilities living in LMICs.

6th Grader Saidu Sule, 12 sits with his brothers outside Kafin Liman Primary School , Nigeria.

- **Primary studies and evidence syntheses:** Most studies in the EGM came from the health domain and, somewhat less so, from interventions focused on improving access to education.

- **Inclusion in education:** While our EGM includes multiple studies on inclusive education interventions, they lacked sufficient detail on the types of strategies included and how interventions were implemented. Further, there was a lack of consistency on what inclusive education meant across studies. More studies are needed to explore the efforts of transforming education systems to be inclusive rather than solely focusing on providing access to mainstreaming. We also need better reporting of academic outcomes to assess the effectiveness of inclusive education approaches. There are multiple primary studies that included workshops or training for teachers on working with children with disabilities and reported change in knowledge, attitudes and, in some cases, practices in the classroom. However, in many cases those studies did not report any measure of child outcomes either on learning or on academic performance. If interventions that train teachers on teaching children

with disabilities report on child learning, academic achievement and engagement outcomes then that will be a valuable contribution to the field.

- **Inclusion in health:** Even within the health domain evidence gaps remain. Primary studies of interventions to improve access to general health services and making healthcare facilities more accessible are sparse. While there were multiple studies that included providing assistive devices to children as an intervention component, there is a lack of focused evidence syntheses in this area. Further, the available evidence of primary studies assessing newer assistive technologies is limited. Inclusion in health promotion and prevention interventions had several studies in the EGM but there is a lack of evidence syntheses that can provide a comprehensive picture on these types of interventions for children with disabilities. While systematic reviews and primary studies of health system strengthening interventions appeared frequently in the EGM (40 per cent) this mostly included training of healthcare workers and deploying CHWs to engage with families. Other types of healthcare strengthening interventions– such as accountability mechanisms, child/youth-friendly health services, support for transition from paediatric to adult healthcare services and informed consent policies in healthcare–need primary evaluation studies.

- **Remaining intervention domains:** More evidence is needed from the other intervention domains that aims to address the social aspects of living with disabilities:
  - → awareness and non-discrimination (stigma-reduction interventions, media/information campaigns, policies/legislation to promote inclusion and prevent discrimination)

  - → protection (birth registration and disability recognition/registration, access to justice/redressal mechanisms, violence/abuse prevention interventions and protection in online environments)

  - → adequate standard of living (social protection, skills training for work, accessibility in the community and access to WASH, housing and food/nutrition)

→ family and community life (preventing family separation, ending institutional and segregated settings, community support services and inclusion in sports, arts, cultural and recreational activities)

→ empowerment (advocacy and community mobilization, enabling children with disabilities to express their views, self-help groups and OPDs).

Appropriate outcomes for these intervention domains need to be reported in individual impact evaluations and assessed in evidence syntheses such as for adequate standard of living (financial protection, use of social services and programmes, access to WASH, food (nutrition) and housing, access to judicial/redressal mechanisms, access to jobs/employment, life skills, use of formal/informal assistance, participation in community/social activities, and living independently in the community), violence prevention and empowerment (participation in decision-making, agency and self-efficacy of children, norms, values, stigma in the community, and knowledge and attitudes in the community).

■ **A rights-based approach to disability:** The lack of studies
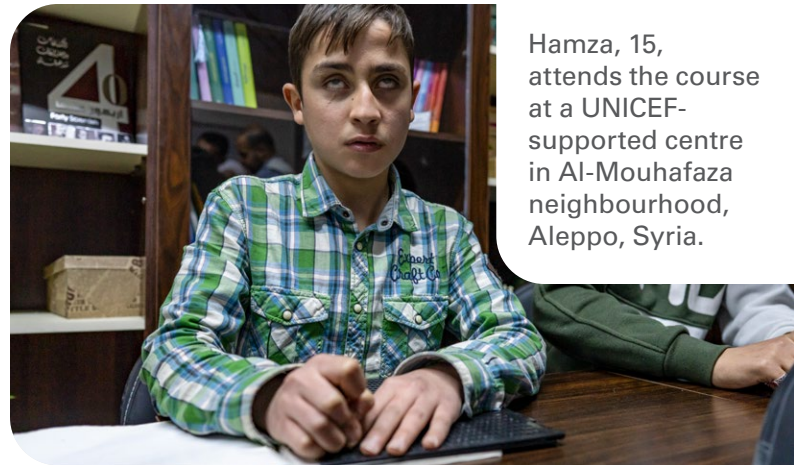
Hamza, 15, attends the course at a UNICEF-supported centre in Al-Mouhafaza neighbourhood, Aleppo, Syria.

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on institutional or systemic interventions, to understand better how disability inclusion and overcoming institutional and environmental barriers can result in more inclusive practice for children with disabilities, is a significant evidence gap. Future research should evaluate the impact of a rights-based approach in realizing the full participation and inclusion of children with disabilities in society.

■ **Better availability of data on children with disabilities:** This is a common refrain in studies for children with disabilities. Including children with disabilities in data collection to ensure appropriate sampling will improve our knowledge on how programmes can work better. Using the example of social programmes for children, we came across multiple studies that evaluated the impact of a social programme that aimed to benefit children usually from poor households. Many of

these programmes provided cash transfers or vouchers to households, or a disability grant, and measured a variety of outcomes such as healthcare utilization, being vaccinated, attending school and accessing food. However, while children with disabilities might have been the targeted beneficiaries of these programmes, the study data were not disaggregated by disability; therefore, we cannot know from these studies if any of the benefits were applicable to children with disabilities or, conversely, whether they were disadvantaged and left behind on important health, education and well-being matters.

■ **Meaningful participation of children with disabilities in research:** There is limited evidence on involving children with disabilities in the design and implementation of an intervention. Ideally, they should be involved in all stages of generating data on disability-inclusive interventions using a peer research approach, but at a minimum they should have the opportunity to contribute appropriately to the validation and interpretation of the research findings. Funding to support accommodations and universal design (i.e., accessibility for all people) for research studies is needed; support for the development of new methods and testing

protocols that enhance research inclusion is also needed.

■ **Understanding and addressing intersectionality:** There is no evidence that directly addresses how disability intersects with age, gender, ethnicity and other identity characteristics, which can create multiple layers of discrimination and exclusion. More studies are needed on how children's experiences, specific needs and barriers to inclusion may change across intersectional identities and how those affect intervention outcomes.

■ **Collaboration between research institutes and OPDs:** Partnerships with persons with disabilities and OPDs must underpin efforts to enhance the meaningful participation of persons with disabilities in research. Working in partnership will ensure knowledge exchange, capacity building and increased access for persons with disabilities. The collaboration between research institutes and OPDs could help address the evidence gaps on disability-inclusive interventions.

■ **Cost and cost-effectiveness studies:** There is limited evidence on the cost and cost-effectiveness of different inclusion interventions beyond certain intervention types that come from the health

domain. More cost and cost-effectiveness evaluations are needed to help implementers, funders and decision-makers plan for implementation of those interventions.

- **Diverse contexts and applicability:** Less than 10 per cent of studies in the EGM came from low-income countries and many middle-income countries were not represented in the evidence. More studies from those countries can help us understand if findings from the EGM are applicable to diverse geographical settings. We saw limited evidence from humanitarian settings, which is a critical gap, especially given that 1 in 29 people worldwide need humanitarian assistance and protection.[60] No studies in the EGM looked to address the disruptions to services for children with disabilities from the COVID-19 pandemic. More

evidence on interventions focused on girls with disabilities, children living in poverty, children from racial/ethnic minorities and indigenous, migrant, internally displaced and refugee groups is needed.

- **EGM on 'how interventions work':** The current EGM included quantitative studies with the goal of identifying those that show "what works" for inclusive interventions. Qualitative studies and evidence syntheses can provide "a greater understanding of individuals' experiences, views, beliefs and priorities"[61] and can assist implementers, funders and decision-makers in planning and designing implementation of interventions for children with disabilities. Along these lines an EGM of the qualitative literature, i.e., 'how interventions work' will be valuable in taking forward the research agenda for children with disabilities.

ACKNOWLEDGEMENTS

Norad

APPENDICES

Appendix 1: Methods

ELIGIBILITY CRITERIA

To be included in the EGM a study had to:

- be published in 2000 or later

- be a systematic review or a quantitative primary study or evaluation,[ix] that is, an RCT, quasi-experimental, cohort, case-control, interrupted time series, pre-post study without a comparison group or a modelling study with empirically sourced parameters with at least 20 participants

- be focused on children with disabilities (age 0–19 years)

- be from an LMIC as defined by the World Bank[62]

- assess the impact of an inclusive intervention for disability (Table 1) and report at least one outcome (Table 2) from our framework.

Our literature search was developed by an information specialist with expertise in designing and conducting electronic searches.

It was conducted with English search terms in a broad range of databases and relevant websites. However, we did not restrict inclusion in the EGM by language, i.e., if a non-English study was identified through the search, we used language translation tools to be able to screen it for inclusion and for extracting data. Both peer-reviewed publications from academic journals as well as grey literature such as governmental and non-governmental reports were considered.

SCREENING

We conducted a broad literature search across various academic and non-academic websites in December 2021. We screened the records from the search using a multi-step process:

- screening titles

- screening abstracts

- screening full-text articles.

Title screening was done by a single reviewer. At the abstract screening stage, two reviewers

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ix   A primer on study designs from the Centre of Evidence-Based Medicine at the University of Oxford is at: <www.cebm.net/wp-content/uploads/2014/06/CEBM-study-design-april-20131.pdf>.

screened 6 per cent of the abstracts independently and reconciled differences. Following this, we used a machine-learning tool to complete the process of screening abstracts. For full-text articles, 10 per cent were screened by two reviewers and the remaining were single-screened.

DATA EXTRACTION

For each study that qualified for the EGM we extracted the following data:

- inclusive intervention domains and types assessed

- outcome domains and types reported

- study design

- disability classification: visual, hearing, physical, intellectual/developmental; learning/speech; psychosocial;[x] multiple; unspecified

- age of participants

- selected population characteristics: children in poverty; >75 per cent girl participation; minority and ethnic groups; migrant groups; LGBTQI+ populations

- setting: home; school; community; online/telephone/mobile phone; humanitarian

- selected intervention characteristics: mainstreaming; intersectoral approach; participatory research approach

- study status: completed or protocol

- year of publication

- country and geographic region.

Each entry in the EGM was coded by a single reviewer. A second reviewer independently verified 13 per cent of the data extractions.

EGM MATRIX

For the EGM matrix we organized the various intervention domains as rows and the outcomes domains as columns. Further, we used the type of study design (systematic reviews, RCTs, quasi-experimental design studies, and observational and modelling studies) to categorize studies included in the EGM. The remaining data parameters abstracted were employed as filters to enable users to sort through the EGM based on their priority areas. The matrix is explained in detail in Appendix 2.

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x   For psychosocial disability, we included studies of children with 'severe' mental illness and studies that explicitly noted 'severe' psychosocial impairment in participants.
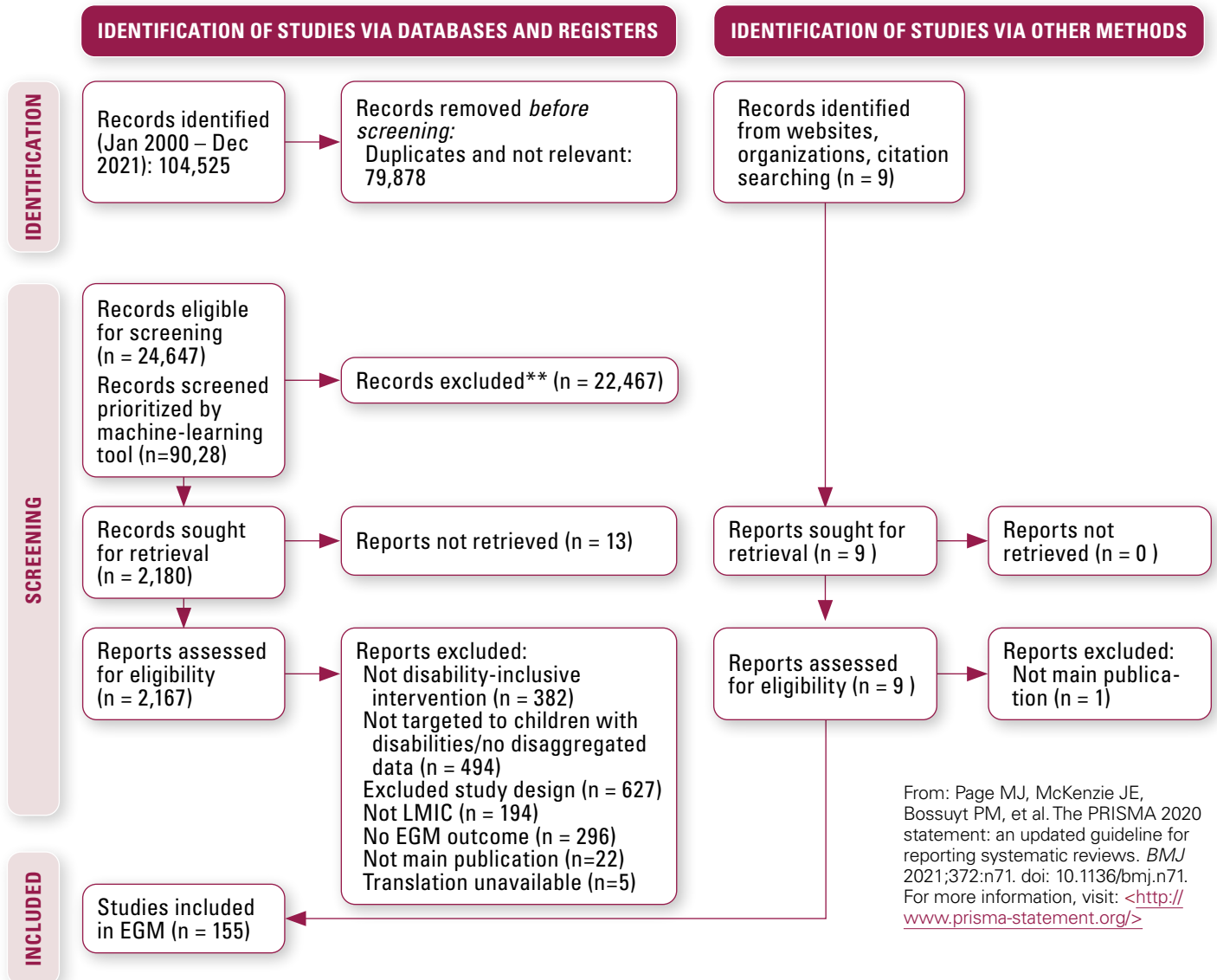
Appendix 2: Search and screening results

Our wide-ranging search of 18 academic databases and multiple relevant websites brought up more than 100,000 hits. After eliminating duplicates, we screened the records in three stages: title-only; title and abstract; and full-text.

For the title and abstracts phase we used EPPI-Reviewer's priority screening tool[63] which uses machine learning to push the most relevant studies for inclusion to the front of the screening queue. Using this tool, we limited our screening to 30 per cent of abstracts since the remaining records were likely to be excluded. We determined our cut-off by creating probability deciles and assessing a random selection of records in each decile to determine the accuracy of the machine-learning tool. The screening flow diagram is available below.

PRISMA FLOW DIAGRAM

IDENTIFICATION OF STUDIES VIA DATABASES AND REGISTERS

IDENTIFICATION OF STUDIES VIA OTHER METHODS

IDENTIFICATION

Records identified (Jan 2000 – Dec 2021): 104,525 → Records removed *before screening:* Duplicates and not relevant: 79,878

Records identified from websites, organizations, citation searching (n = 9)

SCREENING

Records eligible for screening (n = 24,647) Records screened prioritized by machine-learning tool (n=90,28) → Records excluded** (n = 22,467)

Records sought for retrieval (n = 2,180) → Reports not retrieved (n = 13)

Reports sought for retrieval (n = 9) → Reports not retrieved (n = 0)

Reports assessed for eligibility (n = 2,167) → Reports excluded:
  Not disability-inclusive intervention (n = 382)
  Not targeted to children with disabilities/no disaggregated data (n = 494)
  Excluded study design (n = 627)
  Not LMIC (n = 194)
  No EGM outcome (n = 296)
  Not main publication (n=22)
  Translation unavailable (n=5)

Reports assessed for eligibility (n = 9) → Reports excluded:
  Not main publication (n = 1)

INCLUDED

Studies included in EGM (n = 155)

From: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: <http://www.prisma-statement.org/>

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