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Article

Impact of Community-Based Rehabilitation on School Enrollment and Retention of Children with Disabilities

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Abstract:

Children with disabilities remain among the most educationally excluded groups in low- and middle-income countries, with global estimates suggesting they are several times less likely to attend school than their peers without disabilities. Community-based rehabilitation (CBR), endorsed by the World Health Organization as a strategy for disability-inclusive development, positions education as one of five core components alongside health, livelihood, social, and empowerment domains. This paper reviews evidence on the relationship between CBR and two specific educational outcomes: initial school enrollment and sustained retention. Drawing on systematic reviews, household surveys, and programme evaluations from India, Bangladesh, Pakistan, and Malaysia, the paper finds that CBR interventions are associated with improved family awareness, referral into mainstream or special schools, and, in some settings, measurable gains in educational attainment among programme participants relative to non-participants. Retention gains appear less consistent than enrollment gains and depend heavily on complementary school-level accommodations. The paper concludes that CBR functions best as one component of a twin-track approach that combines community-level support with system-level inclusive education reform, rather than as a stand-alone solution.

Keywords: Community-Based Rehabilitation, Children With Disabilities, School Enrollment, School Retention, Inclusive Education, Low-And Middle-Income Countries

1. INTRODUCTION

Roughly 240 million children worldwide live with some form of disability, and in most low- and middle-income countries (LMICs) they remain far less likely to ever set foot in a classroom than their non-disabled peers (Kuper et al., 2014). Education for children with disabilities is not simply a service to be delivered; it is a right established under Article 24 of the United Nations Convention on the Rights of Persons with Disabilities, which obliges states to ensure an inclusive education system at all levels (United Nations, 2006). Yet the gap between the right and its realization is wide and well documented. Mizunoya et al. (2018), analyzing nationally representative data from 15 developing countries, found that disability reduced the probability of school attendance by a median of 30.9 percentage points, a figure that held after controlling for household wealth, parental education, and other socio-economic factors.

Community-based rehabilitation emerged in the late 1970s as a response to the limited reach of institution-based rehabilitation services in resource-constrained settings. Rather than concentrating specialist care in urban hospitals or residential centres, CBR trains community-level workers, often local women, to deliver basic rehabilitation, referral, and advocacy services within villages and neighbourhoods (World Health Organization, 2010). Education is one of five components in the CBR matrix set out by the WHO, alongside health, livelihood, social, and empowerment,

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and the guidelines explicitly identify increased enrollment, retention, and completion in education as the intended outcome of the education component (World Health Organization, 2010). This paper examines what the empirical literature says about whether CBR delivers on that intention, focusing specifically on enrollment, the act of a child entering a school for the first time, and retention, a child's continued attendance once enrolled, rather than on the broader and more frequently studied outcome of learning achievement.

2. DISABILITY AND EDUCATIONAL EXCLUSION: THE SCALE OF THE PROBLEM

Before assessing what CBR contributes, it helps to establish the baseline it is trying to shift. Kuper et al. (2014) surveyed more than 900,000 children across 30 countries participating in Plan International's sponsorship programme and found that children with disabilities were consistently less likely to be enrolled in school than children without disabilities, with the gap widening for children with intellectual and communication impairments. Singal et al. (2020), using household survey data from rural Punjab, reported that children identified with moderate to severe disabilities were both less likely to attend school and, when enrolled, scored lower on basic reading and mathematics tasks than their peers. Notably, the same study found that siblings of children with moderate to severe disabilities also showed lower literacy and numeracy outcomes than children in households without a disabled member, suggesting that the burden of care and stigma can extend outward to affect an entire household's educational trajectory.

The exclusion is not evenly distributed. Banks et al. (2017), in a systematic review of the relationship between poverty and disability across LMICs, found consistent evidence of a bidirectional cycle: poverty increases the likelihood of impairment through malnutrition, unsafe living conditions, and limited access to healthcare, while disability in turn increases household poverty through the costs of care and the exclusion of disabled family members, and often their caregivers, from paid work. Children with disabilities growing up in poor rural households, precisely the demographic CBR programmes typically target, face compounding disadvantages that a single intervention is unlikely to resolve on its own. Singal's (2016) comparative analysis of policy developments in India and Pakistan over fifteen years illustrates the point: legislative commitments to inclusive education expanded substantially in both countries, yet implementation lagged because schools lacked accessible infrastructure, trained teachers, and referral pathways connecting disabled children to the services that might get them into a classroom in the first place. That gap between policy and practice is where CBR positions itself, as a bridge between household-level need and system-level provision.

3. COMMUNITY-BASED REHABILITATION: CONCEPT AND EDUCATIONAL MANDATE

CBR is best understood not as a single programme model but as a strategy adapted to context. The WHO's CBR guidelines describe a matrix of five components, and within the education component, the stated long-term outcome is increased enrolment, retention, and completion in primary, secondary, and higher education by children and youth with disabilities (World Health Organization, 2010). In practice, CBR workers carry out this mandate through household visits to identify children with disabilities who are out of school, awareness-raising with parents and community leaders about the value of education, liaison with school committees and teachers to prepare for a child's admission, and, where needed, provision of assistive devices, such as mobility aids, that remove a physical barrier to attending.

This model has been implemented with considerable variation across countries. In Bangladesh, Mannan and Turnbull (2007) documented how CBR programmes engaged parents directly in decisions about their children's rehabilitation and education, finding that parental involvement in programme design correlated with stronger follow-through on referrals, including school placement. In Malaysia, Hasan and Syed Junid (2019) interviewed parents and caregivers receiving CBR services and found that satisfaction with the programme was closely tied to whether workers helped families navigate school enrollment procedures, not merely deliver therapy at home. These qualitative accounts point to a consistent theme: CBR's educational effect, where it occurs, tends to run through the relationship between the CBR worker and the family rather than through any single standardized intervention.

4. EVIDENCE ON CBR AND SCHOOL ENROLLMENT

The most direct quantitative evidence on CBR and enrollment comes from Karnataka, India. Biggeri et al. (2014) conducted a case-control study in Mandya district, comparing outcomes for persons with disabilities who had participated in a CBR programme against a matched comparison group who had not, using propensity score methods to estimate effect. The study found that CBR participants showed significantly higher educational attainment than non-participants, with the effect strongest among people with visual and physical impairments. Persons with disabilities in the CBR area were also more likely to access pensions and other services, which the authors interpret as evidence that CBR functions through multiple, mutually reinforcing channels rather than through education support alone.

Evidence from Bangladesh points in a similar direction for a specific impairment group. Karim et al. (2021) ran a quasi-experimental study comparing children with cerebral palsy who received a structured six-month community-based early intervention programme against children receiving standard care. Children in the intervention group showed significant improvements in motor function and

communication compared with the standard-care group, gains that plausibly lower a key barrier to school enrollment for children whose impairments would otherwise make classroom participation difficult. The study did not track school enrollment directly, but its focus on functional gains that precede school readiness is consistent with the logic underlying CBR's education component: rehabilitation first, so that enrollment becomes feasible.

At a broader evidence-synthesis level, Iemmi et al.'s (2015) Campbell systematic review of CBR for people with disabilities in LMICs found moderate to high quality evidence of positive impact across the fifteen included studies, but noted that only one of those studies concerned children specifically, and the primary focus across the review was health rather than education. This is an important qualification. Much of what is known about CBR's effectiveness comes from adult mental health and physical rehabilitation studies, and the evidence base specific to children's education outcomes is considerably thinner. Hunt et al.'s (2025) more recent Campbell review, which focused specifically on interventions to improve educational outcomes for people with disabilities in LMICs, examined 28 studies but drew relatively few of them from CBR programmes as such; most concerned school-based or specialist interventions delivered directly through education systems rather than through community health or rehabilitation channels. The review's conclusion, that no single intervention functions as a sufficient fix and that a twin-track approach combining individual-level support with system-level accessibility improvements is required, applies directly to how CBR's contribution to enrollment should be interpreted: as one input among several, not a sufficient condition on its own.

5. EVIDENCE ON CBR AND SCHOOL RETENTION

Retention, sustained attendance once a child is enrolled, has received less direct attention in the CBR literature than the initial act of enrollment. Where retention is discussed, it tends to surface as a secondary finding within broader participation studies rather than as a primary outcome. Biggeri et al.'s (2014) Mandya study measured educational attainment rather than year-on-year attendance, which captures cumulative schooling rather than dropout risk specifically. The distinction matters: a child could be counted as having higher attainment because they enrolled earlier, not because they stayed in school any longer than a comparable child who enrolled without CBR support.

The retention challenge is better understood through the broader literature on why children with disabilities leave school once they are in it. Singal et al. (2020) found that even enrolled children with disabilities in Pakistan performed substantially worse on basic reading and mathematics tasks than their peers, a gap that plausibly contributes to disengagement and eventual withdrawal, since children who fall persistently behind face elevated dropout risk regardless of disability status. CBR programmes that focus on getting a child through the school gate but do not extend into ongoing classroom support, teacher training, or curriculum accommodation address only the first half of the problem. Singal's (2016) policy analysis makes a related point at the systems level: inclusive education legislation in India and Pakistan expanded access on paper, but the absence of trained teachers and accessible classrooms meant that admission did not translate reliably into a sustained, supportive schooling experience, and dropout among children with disabilities remained a persistent concern even where enrollment had improved. CBR's household-level advocacy can open the door, but retention appears to depend more on what happens on the other side of it, inside the school, than on anything a CBR worker controls directly.

6. MECHANISMS: HOW CBR INFLUENCES ENROLLMENT AND RETENTION

Drawing the threads together, four mechanisms recur across the reviewed studies. First, identification and referral: CBR workers conducting household surveys locate children with disabilities who are unknown to the education system, a step that matters because, as Kuper et al. (2014) note, many children with disabilities in LMICs have never been registered or formally assessed. Second, functional rehabilitation that lowers the practical barrier to attending, illustrated by Karim et al.'s (2021) findings on motor and communication gains among children with cerebral palsy. Third, parental engagement and demystification of disability, which Mannan and Turnbull (2007) and Hasan and Syed Junid (2019) both identify as central to whether a family follows through on a referral rather than keeping a child at home out of protectiveness or stigma. Fourth, and least consistently delivered, liaison with schools themselves, arranging accessible seating, alerting teachers to a child's needs, or securing accommodations, which appears necessary for retention but is not always built into a CBR worker's role or training.

The relative weight of these mechanisms varies by disability type and setting. Biggeri et al. (2014) found stronger effects for people with visual and physical impairments than for other groups, which may reflect the fact that assistive devices and physical accessibility fixes are more tractable for a CBR programme to deliver than the more sustained support needed by children with intellectual or communication impairments, exactly the group Kuper et al. (2014) identify as facing the steepest exclusion in the first place.

7. LIMITATIONS OF THE CURRENT EVIDENCE BASE

Several gaps constrain how confidently one can generalize from this literature. The evidence is geographically concentrated in South and Southeast Asia, with India, Bangladesh, and Pakistan disproportionately represented and comparatively little published research from sub-Saharan Africa or Latin America specific to CBR's education component. Study designs vary widely, from qualitative parent interviews to case-control comparisons, which makes pooling effect sizes across studies difficult and means that causal claims about CBR's impact on

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enrollment rest on a small number of quasi-experimental studies rather than randomized designs. Outcome measurement is also inconsistent. Some studies report educational attainment, others report enrollment status, and others report functional or developmental gains that are plausible precursors to schooling but were not linked to actual classroom attendance within the study itself. Iemmi et al.'s (2015) observation that only one of fifteen reviewed CBR studies concerned children specifically remains a fair summary of the field a decade later: CBR research as a whole still centres adult outcomes, and children's education sits at the margins of that broader evidence base rather than at its centre.

8. IMPLICATIONS FOR POLICY AND PRACTICE

The evidence, read together, supports a modest but genuine role for CBR in improving enrollment, provided programmes actively build school liaison and referral into their education component rather than treating awareness-raising as sufficient on its own. For retention, the evidence suggests that CBR cannot substitute for investment in accessible schools and trained teachers, a conclusion consistent with Hunt et al.'s (2025) call for a twin-track approach and with the WHO's own framing of CBR as one strand of a broader inclusive development strategy rather than a parallel education system (World Health Organization, 2010). Programme design implications follow from this: CBR workers benefit from training that extends beyond household-level rehabilitation into practical knowledge of local school admission procedures and disability accommodation entitlements, and CBR programmes achieve more when formally linked to district education offices rather than operating as a separate health or social-welfare channel. Where CBR and school systems remain disconnected, as several of the reviewed studies suggest is common, enrollment gains are likely to be harder won and retention gains harder still.

9. CONCLUSION

Community-based rehabilitation was designed, in part, to close the gap between a disabled child's household and the school system that formal policy already entitles them to enter. The available evidence, concentrated in India, Bangladesh, Pakistan, and Malaysia, indicates that CBR programmes are associated with higher educational attainment and improved functional readiness for school among participating children, with effects that appear strongest for physical and sensory impairments and weaker or less well documented for intellectual and communication impairments. Retention, as distinct from initial enrollment, remains the less studied and less consistently achieved outcome, shaped as much by conditions inside the school as by anything a CBR worker can deliver in a household visit. Strengthening CBR's contribution to both outcomes will depend less on scaling the model as currently practised and more on deliberately connecting it to the education system it is meant to feed into.

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Human Ethics and Consent to Participate

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