

Effectiveness of Interventions to Improve Socioeconomic Participation, Access to Services, Quality of Life, and Social Inclusion Among People with Disabilities: A Systematic Review and Meta-analysis

Abdul Malik¹, Sunardi Sunardi², Suminah Suminah³, Haryani Saptaningtyas⁴,
Ghanis Putra Widhanarto⁵

^{1,2,3,4} Universitas Sebelas Maret, Surakarta, Indonesia

⁵ Universitas Negeri Semarang, Indonesia

*Corresponding author: sunardi.ipuns@staff.uns.ac.id

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Abstract

Background – The persistent exclusion of people with disabilities from social, economic, and health systems remains a critical global issue, driven by structural barriers, stigma, and unequal access to resources. Despite a growing number of intervention studies, evidence on their comparative effectiveness across contexts remains fragmented.

Research Urgency – Existing disability interventions vary widely in design, implementation, and contextual adaptability, while systematic evidence on which models are most effective in improving inclusion outcomes is limited, particularly regarding how intervention types explain effect variability across studies.

Research Objectives – This study systematically synthesizes the effectiveness of disability-related interventions in improving social participation, access to services, and inclusion outcomes, and examines the moderating role of intervention type in explaining between-study heterogeneity.

Research Method – A systematic review and meta-analysis were conducted on 23 empirical studies. Random-effects and mixed-effects meta-regression models were applied to estimate pooled effect sizes and assess intervention type as a moderator of heterogeneity.

Research Findings – The results indicate a significant overall positive effect of interventions on inclusion outcomes (estimate = 0.480; $p < 0.001$; 95% CI: 0.229–0.732). Heterogeneity was low to moderate ($I^2 = 28.11\%$, $Q = 39.221$, $p = 0.013$). Moderator analysis revealed that intervention type significantly influenced effect size ($QM = 19.817$, $p = 0.0002$), with certain intervention categories demonstrating stronger effects. Evidence of potential publication bias was observed (Egger's test $p < 0.001$), although results remained stable under sensitivity analysis.

Research Conclusion – Disability-related interventions are generally effective in improving inclusion outcomes; however, their effectiveness depends significantly on the type of intervention implemented and contextual conditions.

Research Novelty/Contribution – This study provides a comprehensive quantitative synthesis of disability inclusion interventions and advances the literature by identifying intervention type as a significant moderator of effectiveness, offering evidence-based guidance for policy design and inclusive development strategies.

Keywords: disability inclusion; meta-analysis; social participation; intervention effectiveness; mixed-effects model; systematic review

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INTRODUCTION

Vulnerability and disparity remain critical issues in public health and social development, particularly for people with disabilities from minority or marginalized groups (Baek et al., 2022). Globally, more than one billion people live with a disability, and the association between disability and poverty is well documented across low- and middle-income countries, where each condition reinforces the other (Banks, Kuper, et al., 2017; Mitra et al., 2023). Historically, people with disabilities have experienced disproportionate disparities in access to health care, education, employment, and social participation (Kuper et al., 2024; Lindsay et al., 2025). Individuals with physical disabilities, for example, tend to have lower levels of physical activity than non-disabled individuals due to limited accessibility and environmental barriers (Abera et al., 2025; Oña et al., 2026), while systemic discrimination, structural poverty, and weak social support further exacerbate their vulnerability (Srinivasan, 2026). These conditions demonstrate that people with disabilities continue to face multidimensional exclusion that affects their quality of life and socioeconomic well-being, so more inclusive and comprehensive approaches to public health and social policy are needed.

The challenges faced by people with disabilities are complex and multidimensional (de Lima et al., 2026). Barriers relate not only to physical limitations and information accessibility but also to social stigma, cultural discrimination, and insensitivity of public services (Martínez-Jothar et al., 2025; McCulloch & Scrivano, 2023). Inaccessible infrastructure, non-inclusive communication, and negative attitudes among health workers, families, and communities restrict social participation, and these barriers persist across both rural and urban service systems (Mesmar et al., 2025). Socioeconomic factors such as unemployment and systemic poverty reinforce marginalization; in low- and middle-income countries, low education, restricted labour-market participation, and poverty are consistently intertwined with disability (Morwane et al., 2021). These conditions underscore the importance of intervention approaches that are not solely medically oriented but integrate social, cultural, economic, and environmental dimensions.

In intervention development, strengths-based approaches and the active participation of people with disabilities are increasingly important (Carneiro et al., 2025; Oña et al., 2026). Such approaches place individuals' experiences, capacities, and perspectives at the center of the intervention process, and stakeholder involvement in program design has been shown to enhance relevance, effectiveness, and sustainability. Social and physical participation play a crucial role in improving quality of life for individuals with mobility limitations (Afandi et al., 2026); adaptive physical activities enhance self-esteem, self-efficacy, belonging, and psychological well-being (de Lima et al., 2026; Isidoro-Cabañas et al., 2023). Engagement in meaningful work likewise contributes to social identity, community integration, and economic independence, with supported employment models such as Individual Placement and Support showing robust effects on competitive employment outcomes (Frederick & VanderWeele, 2019; Patmisari et al., 2024), provided that appropriate workplace accommodation is available (Nevala et al., 2015).

Various theoretical frameworks support the development of effective interventions. The Socio-Ecological Framework emphasizes that socioeconomic participation is shaped by interactions among individual, community, environmental, and policy factors (Chiu, 2020), while the Human Development Model–Disability Creation Process explains how personal and environmental factors jointly shape social participation (Monamo et al., 2025). The Community-Based Rehabilitation (CBR) framework offers a multisectoral approach to improving inclusion and equal opportunity (Chung, 2019), the International Classification of Functioning, Disability, and Health views disability as the interaction between health conditions and contextual factors, and intersectionality highlights how disability interacts with ethnicity, gender, socioeconomic status, and citizenship to produce unique experiences of marginalization (Elraz & Remnant, 2025). Evidence from inclusive education and community participation research further shows that outcomes depend on environments that enable participation across multiple systems (Dell'Anna et al., 2022; Giummarra et al., 2022).

Despite the expansion of disability research, several significant gaps remain. First, studies often fail to capture the subjective lived experiences, sociocultural strengths, and perspectives of people with disabilities, particularly those from minority or indigenous communities. Second, many studies are limited in sample size, cultural context, and population representation, restricting generalizability. Third, comprehensive evaluations of intervention effectiveness remain scarce, particularly in low- and middle-income countries, where rigorous evidence on “what actually works” is limited for education, livelihood, and rehabilitation programs (Hunt et al., 2025; Iemmi et al., 2016). Furthermore, research on intersectionality, the influence of local context on intervention effectiveness, and the design features that make participation-promotion interventions successful remains limited (Aparicio et al., 2021). The gap between research findings and policy implementation also highlights the need for applied, context-grounded synthesis integrating strengths-based approaches, active participation, and comprehensive intervention evaluation.

The objective of this study is to identify and synthesize intervention models used to improve the socioeconomic participation, access to services, quality of life, and inclusion of people with disabilities, and to evaluate their effectiveness through a systematic review and meta-analysis. This study also analyzes the influence of moderator factors particularly intervention type on variation in effectiveness across studies, while identifying accessibility barriers, social stigma, and community assets that influence intervention success across diverse geographic and socioeconomic contexts.

METHODS

Study Design, Data Sources, and Search Strategy

This study is a systematic review and meta-analysis designed to quantify the effectiveness of interventions on socioeconomic participation, access to services, quality of life, and inclusion of people with disabilities (Almeqdad, 2023). The protocol follows PRISMA 2020 guidelines to ensure transparency, replicability, and international reporting standards (Samala, 2023). Literature was searched in the Scopus database from inception through July 15, 2025, selected for its multidisciplinary coverage and quality indexing of reputable international journals. The search combined keywords across the domains of disability, social inclusion, and quantitative intervention using Boolean operators: (TITLE-ABS-KEY (“disabled persons” OR disability OR “persons with disabilities”)) AND (TITLE-ABS-KEY (empowerment OR inclusion OR participation)) AND (TITLE-ABS-KEY (economic OR employment OR education)) AND (TITLE-ABS-KEY (intervention OR rehabilitation OR quantitative)). All results were exported in RIS/CSV format for deduplication and systematic screening.

Eligibility Criteria, Study Selection, and Data Extraction

Inclusion was determined using the PICOS framework. Eligible studies (i) involved people with disabilities; (ii) used a quantitative or mixed-methods design; (iii) evaluated interventions related to socioeconomic participation, access to services, or inclusion; (iv) reported sufficient statistical data for effect size calculation; (v) were published in English or Indonesian; and (vi) were published between 2014 and 2025. Eligible interventions included community-based rehabilitation (CBR), employment programs, health service access interventions, adaptive physical activities, inclusive education, and anti-stigma interventions. Non-empirical papers, studies without relevant outcomes or full text, and studies with insufficient statistics were excluded. Selection followed the PRISMA flow (identification–screening–eligibility–inclusion): duplicates were removed with a reference manager, two reviewers independently screened titles/abstracts and full texts, and disagreements were resolved by consensus with third-party arbitration when necessary. Data extraction was performed independently by two reviewers using a standardized sheet covering study characteristics, participants, disability type, intervention model and duration, socioeconomic and health outcomes, and

statistical data (mean, SD, OR, CI, correlations); contextual information on sociocultural factors, employment conditions, and community assets was also coded. The full process was documented to ensure an audit trail.

Risk of Bias and Statistical Analysis

Methodological quality was assessed using the Cochrane Risk of Bias Tool 2 (RoB2) across five domains, with each study classified as low, unclear, or high risk and subsequently grouped into Level A (low), B (moderate), or C (high); most studies fell into Level B. Meta-analysis was performed in R, with meta-regression, sensitivity, and publication-bias analyses in Jamovi. Effect sizes were computed as Weighted Mean Differences for homogeneous scales and Standardized Mean Differences for heterogeneous scales, with 95% confidence intervals and $\alpha = 0.05$. Heterogeneity was assessed with Cochran's Q and I²; a random-effects model (REML) was applied. Moderator analysis used mixed-effects meta-regression testing intervention type (CBR, CAPABLE, community wealth building, and frailty-based intervention). Robustness was tested with leave-one-out sensitivity analysis; publication bias with funnel plot asymmetry, Egger's regression, Kendall's Tau, and Rosenthal's fail-safe N; and equivalence with Two One-Sided Tests (TOST). This study used secondary data from published research and did not directly involve human subjects, so ethical approval was not required; all procedures adhered to principles of academic integrity and publication ethics.

RESULTS AND DISCUSSION

Study Selection

The selection process followed PRISMA 2020. A systematic Scopus search identified 69,159 records. After removing 1,096 duplicate/ineligible records (230 duplicates, 542 removed by automation tools, 324 for other reasons), 47,060 studies remained for title and abstract screening, from which 22,099 articles were excluded for not meeting eligibility criteria. Full texts of 349 potentially eligible articles were assessed, and 306 were excluded due to absence of relevant intervention outcomes, insufficient statistics, non-empirical designs, or failure to satisfy PICOS criteria. Ultimately, 23 empirical studies met all inclusion criteria and were included in the qualitative synthesis and quantitative meta-analysis (Figure 1). These studies evaluated a broad range of disability-related interventions targeting socioeconomic participation, access to health and support services, quality of life, and social inclusion across diverse geographic and sociocultural contexts.

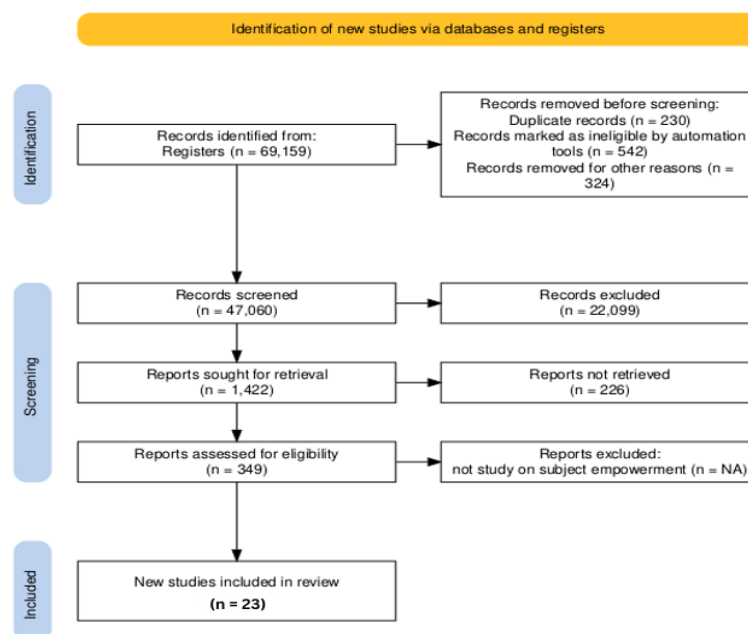


Figure 1. PRISMA flow diagram

Characteristics of Included Studies

The 23 included studies represented diverse geographical settings across Asia, Europe, Africa, North and Latin America, the Pacific Islands, and several low- and middle-income countries (LMICs). Designs ranged from randomized and quasi-experimental studies to mixed-methods, qualitative, participatory action, regression, and case-study research, with samples from fewer than 20 participants to more than 17,000 individuals across physical, sensory, intellectual, and psychosocial disabilities, as well as caregivers, professionals, and policymakers. CBR programmes were among the most frequently reported interventions, alongside vocational training and supported employment, workplace accommodation, adaptive physical activity, sexual and reproductive health education, patient-centred rehabilitation, digital and technology-assisted services, community asset development, anti-stigma initiatives, and integrated health and social support services.

The studies also demonstrated considerable sociocultural variation: Confucian cultural values shaped disability experiences in Chinese communities, while studies in indigenous populations and LMICs emphasized culturally appropriate service delivery, stakeholder engagement, and locally available resources. Community assets that consistently facilitated implementation included family support, stakeholder collaboration, local knowledge, community organizations, vocational support services, adaptive educational resources, digital technologies, peer networks, and government inclusion programmes. Conversely, common barriers included inaccessible environments, limited transportation, inadequate health and rehabilitation services, financial constraints, stigma, discrimination, and insufficient workplace accommodation. Table 1 summarizes the characteristics of the included studies.

Table 1. Characteristics of the included studies

Study	Design	Participants	Intervention Model	Setting, Context & Key Assets
Diabetes Among Indigenous Minorities (2021)	Mixed methods	296 survey respondents; 10 focus groups	Culturally adapted community health intervention	Israel; indigenous Arab communities; sociocultural strengths, participant narratives
Physical Activity Among People with Disabilities (2018)	Mixed methods	People with physical disabilities and professionals	Activity Coach+, buddy system, motivational intervention	Netherlands; peer support, activity tracking
Disability and Aging (2017)	Quantitative regression	17,881 adults (50–79 years)	Socioeconomic inequality assessment	China and India; education, household wealth
Disaster Preparedness in Tuvalu (2020)	Grounded theory	31 participants	Community disaster preparedness	Tuvalu; local knowledge, government planning, capacity building
Community Assets for Disability Inclusion (2020)	Participatory mapping	41 participants	Community asset mapping	Colombia; community assets, legal advocacy, stakeholder collaboration
Reproductive Health in LMICs (2020)	Systematic review	18 studies	Sexual and reproductive health programmes	Multiple LMICs; financial support, adaptive educational materials, action groups
Adaptive Sports and Quality of Life (2017)	Mixed methods	44 participants	Adaptive sports programme	Canada; peer support, adaptive sports
Work Participation in Neuromuscular Disorders (2014)	Qualitative	16 adults	Workplace accommodation	Netherlands; flexible work arrangements, employer support

Study	Design	Participants	Intervention Model	Setting, Context & Key Assets
Community-Based Rehabilitation (2019)	Case studies	12 CBR programmes	Community-Based Rehabilitation (CBR)	China; advocacy, family participation, community support
Discrimination During COVID-19 (2025)	Mixed methods	4,326 survey respondents; 271 interviews	Community inclusion and anti-discrimination	England and Ireland; digital technology, community ambassadors, social networks
Mental Health Recovery (2024)	Delphi study	101 participants	Recovery-oriented mental health intervention	International; empowerment, agency, financial security
Oral Health in Korea (2019)	Quantitative	986 people with disabilities; 2,955 controls	Oral health access intervention	South Korea; health insurance, trained professionals
Sexuality and Intellectual Disabilities (2022)	Interpretative phenomenological analysis	5 participants	Sexuality education	Hong Kong; day service centres, sheltered workshops, anti-stigma education
Fall Prevention After Spinal Cord Injury (2020)	Mixed methods	32 wheelchair users	Patient-centred fall prevention	Canada; education, self-management strategies
Sexuality in Ethiopia (2023)	Mixed methods	700 participants	Sexual health intervention	Ethiopia; trained data collectors, health referral systems
Sexuality in Chinese Communities (2024)	Interpretative phenomenological analysis	19 participants	Comprehensive sexuality education	Hong Kong; systematic education, confidence-building, anti-stigma activities
Socioeconomic Inequality in Iran (2025)	Economic analysis	Population-level analysis	Policy and financing intervention	Iran (LMIC); domestic resource mobilisation, access to medicines
Vocational Training in Sri Lanka (2022)	Mixed methods	Adolescents, caregivers, educators	Vocational training and supported employment	Sri Lanka; employment support, interagency collaboration
Workers with Multiple Sclerosis (2015)	Quantitative survey	1,016 workers	Workplace accommodation	Italy; flexible schedules, accessibility, vocational counselling

Narrative Synthesis of Intervention Outcomes

Despite differences in design, populations, and settings, the interventions consistently addressed four interconnected outcome domains: socioeconomic participation, access to health and support services, quality of life, and social inclusion (Table 2). Interventions targeting socioeconomic participation CBR, vocational education, supported employment, and workplace accommodation improved employment participation, vocational skills, and economic independence, with flexible working arrangements, employer support, vocational counselling, and interagency collaboration facilitating labour-market participation; nevertheless, high unemployment, inaccessible workplaces, and socioeconomic inequality constrained outcomes, particularly in LMICs, consistent with evidence that employer-side action and adequate accommodation are decisive for sustained employment (Derbyshire et al., 2024; Wong et al., 2021). Interventions on access to services combined CBR, patient-centred rehabilitation, adaptive educational materials, health promotion, digital health technologies, and coordinated referral systems; culturally appropriate materials, trained professionals, and technology-assisted delivery improved accessibility and utilisation, mirroring international findings on assistive technology provision and telehealth for people with disabilities (Layton et al., 2024; Park et al., 2025).

Quality-of-life outcomes spanned physical, psychological, and social dimensions: adaptive sports, physical activity, mental health recovery, and rehabilitation services were associated with improved functional capacity, self-confidence, psychological well-being, and community participation, echoing meta-analytic and digital-health evidence (Isidoro-Cabañas et al., 2023; Kandeel et al., 2024). Interventions promoting social inclusion addressed stigma reduction, community participation, disability awareness, and social acceptance through anti-stigma programmes, sexuality education, peer support, and advocacy; family involvement, community organisations, and inclusive public services were repeatedly identified as facilitators, and reducing loneliness and isolation emerged as a distinct benefit for people with intellectual and developmental disabilities (Petroutsou et al., 2018). Across all domains, interventions incorporating culturally responsive strategies and active stakeholder engagement reported more favourable implementation than standardised delivery alone.

Table 2. Summary of intervention outcomes across included studies

Outcome Domain	Main Intervention Models	Frequently Reported Outcomes	Common Barriers	Key Facilitators
Socioeconomic participation	Vocational training, supported employment, CBR, workplace accommodation	Improved employment participation, vocational skills, economic independence	Unemployment, inaccessible workplaces, poverty	Family support, employer engagement, vocational counselling
Access to services	Rehabilitation, health promotion, digital health, patient-centred care	Increased access to healthcare and rehabilitation services	Transportation, inaccessible facilities, communication barriers	Trained professionals, adaptive materials, digital technology
Quality of life	Adaptive sports, rehabilitation, mental health recovery	Improved physical functioning, psychological well-being, self-confidence	Functional limitations, resource constraints	Peer support, community participation, empowerment
Social inclusion	Anti-stigma programmes, sexuality education, community engagement, advocacy	Greater social participation, reduced discrimination, increased awareness	Social stigma, discrimination, cultural barriers	Community organisations, family involvement, stakeholder collaboration

Meta-analysis Results

A random-effects meta-analysis across the 23 included studies demonstrated a statistically significant positive overall effect (estimate = 0.480, SE = 0.128, $Z = 3.74$, $p < 0.001$; 95% CI: 0.229–0.732; Table 3), indicating that disability-related interventions were, overall, associated with improvements in socioeconomic participation, access to services, quality of life, and social inclusion. Heterogeneity analysis indicated significant variability across studies ($Q = 39.221$, $df = 22$, $p = 0.013$), with $\tau^2 = 0.0734$ (SE = 0.0877; $\tau = 0.271$), $I^2 = 28.11\%$, and $H^2 = 1.391$, reflecting low to moderate between-study heterogeneity (Table 4). Figure 2 presents the forest plot of individual effect sizes with 95% confidence intervals and the pooled estimate; although effect sizes varied, the pooled estimate remained positive.

Table 3. Random-effects meta-analysis of overall intervention effectiveness

Parameter	Value
Number of studies (k)	23
Effect size (Estimate)	0.480
Standard error	0.128
Z-value	3.74

Parameter	Value
p-value	<0.001
95% CI	0.229–0.732
Tau ² estimator	REML

Table 4. Heterogeneity statistics

Statistic	Value
Tau	0.271
Tau ² (SE)	0.0734 (0.0877)
I ²	28.11%
H ²	1.391
Cochran's Q (df = 22)	39.221
p-value	0.013

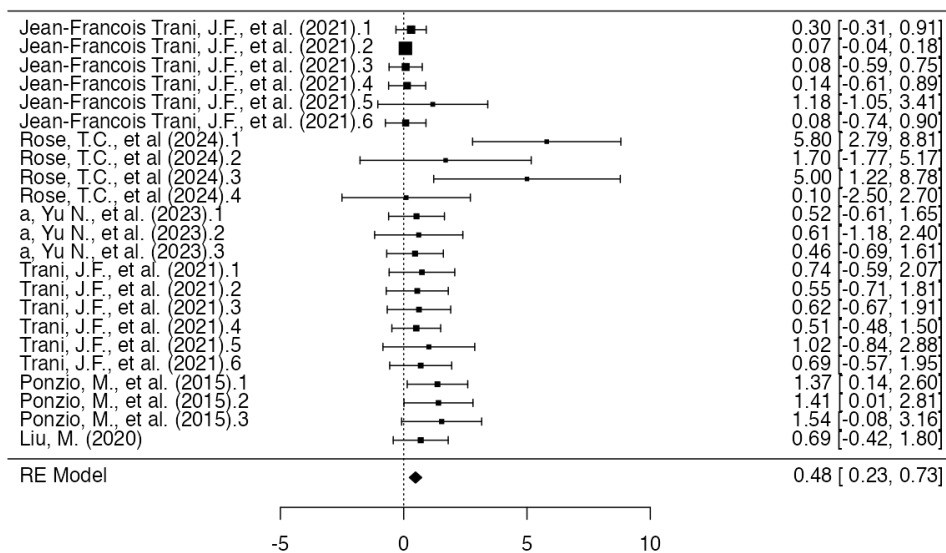


Figure 2. Forest plot of the random-effects meta-analysis

Publication Bias

Publication bias was evaluated using funnel plot inspection, Rosenthal's fail-safe N, Kendall's rank correlation, and Egger's regression (Table 5; Figure 3). The funnel plot showed a generally symmetrical distribution with slight asymmetry among smaller studies located outside the expected funnel region, suggesting possible small-study effects; this asymmetry may also reflect methodological heterogeneity. Both Kendall's test ($\tau = 0.451$, $p = 0.003$) and Egger's regression (intercept = 4.879, $p < 0.001$) were statistically significant, indicating evidence of potential publication bias. Nevertheless, Rosenthal's fail-safe N indicated that 249,000 additional unpublished null studies would be required to render the pooled effect non-significant, demonstrating that the overall findings remain highly robust.

Table 5. Publication bias assessment

Method	Statistic	Value	p-value	Interpretation
Rosenthal's fail-safe N	Fail-safe N	249,000	<0.001	A very large number of unpublished null studies would be required to nullify the pooled effect; results are robust
Kendall's rank correlation	τ	0.451	0.003	Significant correlation suggests potential funnel plot asymmetry

Method	Statistic	Value	p-value	Interpretation
Egger's regression	Intercept	4.879	<0.001	Significant intercept indicates small-study effects and potential publication bias

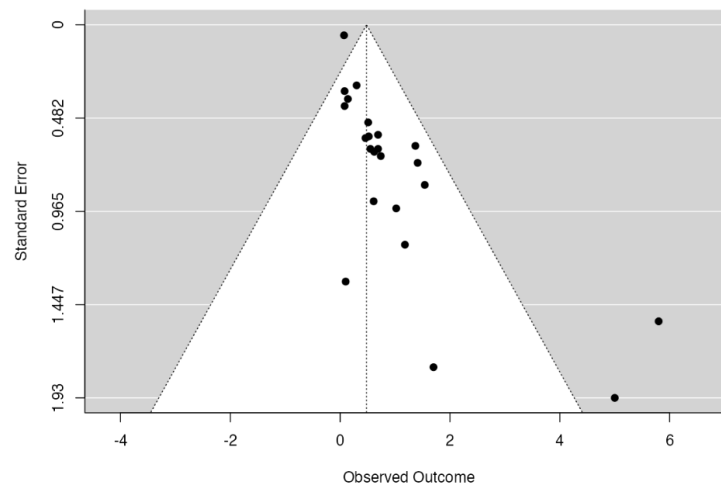


Figure 3. Funnel plot for assessment of publication bias

Sensitivity and Equivalence Analysis

Robustness was further evaluated using the Two One-Sided Tests (TOST) procedure (Table 6). The lower one-sided test was significant ($Z = 7.637$, $p < 0.001$) whereas the upper one-sided test was not ($Z = -0.153$, $p = 0.439$); the 90% CI for TOST ranged from 0.269 to 0.692 and the conventional 95% CI from 0.229 to 0.732. Because only one of the two one-sided tests reached significance, the null hypothesis of non-equivalence could not be rejected, and the pooled effect did not demonstrate statistical equivalence within the predefined bounds.

Table 6. Two One-Sided Tests (TOST) equivalence analysis

Parameter	Value
Lower-bound Z (p-value)	7.637 (<0.001)
Upper-bound Z (p-value)	-0.153 (0.439)
90% CI (TOST)	0.269–0.692
95% CI (conventional)	0.229–0.732
Equivalence conclusion	Statistical equivalence not established

Moderator Analysis

A mixed-effects meta-regression (REML) examined whether intervention type moderated effectiveness across the 23 studies (Table 7). The moderator model substantially reduced residual heterogeneity ($\text{Tau}^2 = 0.0112$, $\text{SE} = 0.0145$; residual $I^2 = 26.47\%$), with intervention type explaining 85.45% of between-study heterogeneity ($R^2 = 85.45\%$); the residual heterogeneity test was not significant ($\text{QE} = 25.15$, $\text{df} = 19$, $p = 0.156$). The omnibus test demonstrated that intervention type significantly influenced the pooled effect ($\text{QM} = 19.82$, $\text{df} = 3$, $p < 0.001$). Among the categories (Table 8), the CAPABLE (Community Aging in Place Advancing Better Living for Elders) and Attitudes toward Work intervention showed a significant positive association with effectiveness ($\beta = 0.913$, $\text{SE} = 0.229$, $p < 0.001$, 95% CI: 0.464–1.362), whereas Community Wealth Building ($\beta = 2.195$, $p = 0.072$) and Community-Based Rehabilitation ($\beta = 0.306$, $p = 0.217$) were not statistically significant moderators. These findings indicate that intervention effectiveness varies by intervention type, with multidimensional models demonstrating the strongest effects.

Table 7. Mixed-effects meta-regression examining intervention type as a moderator

Parameter	Value
Number of studies (k)	23
Tau ² residual (SE)	0.0112 (0.0145)
Residual I ² / H ²	26.47% / 1.36
R ² (explained heterogeneity)	85.45%
QE (df = 19), p	25.15, p = 0.156
QM (df = 3), p	19.82, p < 0.001

Table 8. Meta-regression coefficients by intervention type

Intervention Category	β	SE	p-value	95% CI
Intercept	0.195	0.061	0.002	0.075–0.314
Community Wealth Building	2.195	1.219	0.072	–0.195–4.585
Community-Based Rehabilitation	0.306	0.248	0.217	–0.179–0.791
CAPABLE and Attitudes toward Work	0.913	0.229	<0.001	0.464–1.362

Overall, the qualitative synthesis identified three broad categories of effective intervention models: (i) interventions promoting socioeconomic participation (CBR, supported employment, vocational training, workplace accommodation, community asset development), whose success was associated with flexible workplace arrangements, vocational counselling, stakeholder collaboration, and family involvement; (ii) interventions improving access to health and support services (patient-centred rehabilitation, adaptive education, digital health, oral and reproductive health programmes, referral systems), which reduced physical, communication, informational, and service-related barriers through multidisciplinary collaboration and technology-assisted delivery; and (iii) interventions promoting social inclusion and stigma reduction (anti-stigma campaigns, sexuality education, adaptive sports, peer support, advocacy), which relied on culturally responsive implementation and public awareness. Community participation, stakeholder collaboration, accessibility, and person-centred delivery were consistently reported as key components of effective interventions, providing the basis for interpreting the quantitative findings.

Principal Findings

This systematic review and meta-analysis synthesized evidence from 23 studies evaluating interventions to improve the socioeconomic participation, access to services, quality of life, and social inclusion of people with disabilities across diverse geographic and sociocultural contexts. The findings indicate that disability-related interventions produce a positive overall effect across multiple outcome domains, although the magnitude of effectiveness varies according to intervention characteristics and implementation contexts. The review identified a broad spectrum of models CBR, supported employment, vocational education, workplace accommodation, adaptive physical activity, digital health, sexuality education, and community advocacy (Chung, 2019) that consistently emphasized person-centred care, stakeholder collaboration, community participation, and the reduction of environmental and social barriers. The moderator analysis identified intervention type as a significant source of between-study variation, with the multidimensional CAPABLE and Attitudes toward Work intervention showing the strongest positive association (Baldwin et al., 2025), suggesting that interventions integrating functional support with social and environmental components outperform those targeting a single aspect of disability. Successful interventions were repeatedly supported by family involvement, interdisciplinary collaboration, culturally responsive strategies, and accessible services, whereas inaccessible environments, limited employment opportunities, inadequate rehabilitation services, financial constraints, and stigma remained persistent barriers.

Intervention Models and Socioeconomic Participation

Interventions targeting socioeconomic participation consistently emphasized employment support, vocational training, workplace accommodation, CBR, and community asset mobilization (Chung, 2019). This

is consistent with international evidence that employment outcomes improve when vocational rehabilitation is combined with individualized support, employer engagement, and community collaboration rather than medical rehabilitation alone (De Alfieri et al., 2026; Mavindidze et al., 2023), and that sustainable employment depends on inclusive workplace practices across recruitment, accommodation, and retention (Aksnes & Ulstein, 2024; Teborg et al., 2024). Workplace accommodation plays a pivotal role: adequate accommodation substantially narrows the disability employment gap (Chandola & Rouxel, 2021), supports return to work and job retention (Darries et al., 2025; Wong et al., 2021), and extends to specific groups such as employees with autism or those using augmentative and alternative communication (Heinze, 2025; Lackey et al., 2023). Flexible arrangements normalized during the COVID-19 pandemic further demonstrate the feasibility of accommodations long requested by workers with disabilities (Fuentes & Lindsay, 2023).

These findings can be interpreted through the Social Model of Disability, which locates disadvantage primarily in environmental, institutional, and attitudinal barriers (Elraz & Remnant, 2025): many synthesized interventions modified external barriers through accommodation, community participation, policy support, and stakeholder collaboration, and legal guarantees of employment rights remain uneven across countries (Pinilla-Roncancio & Rodríguez Caicedo, 2022). The findings also support CBR principles promoting inclusive development across health, education, livelihood, social, and empowerment sectors, and align with Asset-Based Community Development, in which local resources, peer networks, and partnerships strengthen ownership and sustainability. Nevertheless, persistent structural challenges high unemployment, inaccessible workplaces, financial constraints, and inadequate institutional support were reported across settings, especially LMICs (Morwane et al., 2021), where access to assistive technology also conditions labour-force participation (Rajasulochana & Khan, 2024). Improving employment outcomes therefore requires coordinated policy action, including inclusive labour-market policies, employer-focused measures and incentives (Derbyshire et al., 2024), targeted recruitment practices (Maclean et al., 2024), workplace social support (Chumo et al., 2023), and sustained investment in vocational and community-based services, embedded in wider social protection systems (Banks, Mearkle, et al., 2017).

Improving Access to Health and Support Services

Effective interventions to improve access extended beyond clinical care (Vogt, 2025), combining patient-centred rehabilitation, CBR, digital health, adaptive educational resources, coordinated referral systems, and multidisciplinary delivery. The persistent barriers identified inaccessible environments, transportation difficulties, communication barriers, limited rehabilitation services, and inadequate disability-friendly information indicate that availability alone is insufficient; accessibility depends on health systems being responsive to diverse functional, communication, and social needs, in line with calls to build disability-inclusive health systems (Kuper et al., 2024) and with evidence of pronounced rural–urban disparities in access (Mesmar et al., 2025). These findings are consistent with the Biopsychosocial Model, as many interventions combined rehabilitation with psychosocial support, community engagement, education, and environmental modification, and with Universal Design principles emphasizing services accessible to all without specialized adaptation (Bong, 2024; Fong, 2020).

The role of technology emerged as particularly salient. Assistive products remain a precondition for participation, yet coverage is constrained by weaknesses across policy, products, personnel, and provision systems (Borg et al., 2023; Mishra et al., 2024), underscoring the need for quality provision guidelines (Layton et al., 2024). Digital and telehealth interventions can reach people with disabilities in underserved areas and improve functioning, knowledge, and well-being (Park et al., 2025; Zhou & Parmanto, 2019), including telehealth-delivered exercise for older adults with mobility disability (Dawson et al., 2024) and community-based frailty interventions in LMICs (Kongngern et al., 2025). Coordinated, specialist vocational-rehabilitation pathways such as early stroke-specialist support similarly demonstrate the value of integrated service delivery (Clarke et al., 2024). Nonetheless, inequalities in rehabilitation access, workforce shortages, financial barriers, and urban–rural disparities persist, so accessibility considerations must be embedded throughout programme

planning, implementation, and evaluation, supported by sustained policy commitment and cross-sectoral coordination.

Social Inclusion, Stigma Reduction, and Moderator Effects

Improving social inclusion requires more than expanding access to services. Interventions promoting community engagement, peer support, disability awareness, sexuality education, adaptive sports, and advocacy consistently contributed to greater participation and reduced exclusion, while stigma and discrimination continued to restrict access to education, employment, healthcare, and community life (Braude et al., 2025; Lindsay et al., 2025). This aligns with meta-analytic evidence that education- and contact-based interventions can reduce stigma among the public, young people, and professionals (Crockett et al., 2025; McCulloch & Scrivano, 2023; Wong et al., 2024), including self-stigma (Bannatyne et al., 2023). The benefits of peer support, adaptive sports, and community engagement are consistent with the Contact Hypothesis, whereby meaningful intergroup interaction reduces prejudice, and with umbrella-review evidence that participation interventions succeed when they address individual capacity and environmental fit simultaneously (Giummarra et al., 2022); digital participation is an increasingly important complementary channel (Alfredsson-Ågren et al., 2023). Ecological Systems Theory further explains why interventions engaging multiple stakeholders families, community organisations, schools, employers, and local governments were better positioned to address the social, cultural, and institutional factors affecting inclusion (Chiu, 2020).

The moderator analysis showed that the CAPABLE and Attitudes toward Work intervention had the strongest positive association with effectiveness, plausibly because it integrates environmental modification, person-centred goal setting, and interdisciplinary collaboration (Obi, 2015), addressing functional, psychological, and environmental determinants simultaneously. That intervention type explained 85.45% of between-study heterogeneity underscores that design characteristics, rather than context alone, drive much of the variability in outcomes. Interventions relying on a single mechanism such as stand-alone CBR or community wealth building did not reach significance as moderators, which should be read not as evidence of ineffectiveness but as evidence that their effects are more context-dependent and implementation-sensitive, consistent with heterogeneous CBR findings in LMICs (Iemmi et al., 2016). Cultural norms, gender expectations, financial disadvantage, and limited public awareness also conditioned effectiveness, underscoring the importance of culturally responsive implementation that actively involves people with disabilities, their families, and community stakeholders throughout design and delivery.

Implications, Strengths and Limitations, and Future Research

For policy and practice, the findings indicate that disability inclusion is best advanced through multidimensional, multisectoral intervention packages that combine functional support, environmental modification, employment measures, accessible services, and stigma reduction, monitored through disability-disaggregated indicators (Mitra et al., 2023) and attentive to intersecting inequalities in basic services (Oteng & Gamette, 2025). The strengths of this study include adherence to PRISMA 2020, a comprehensive Scopus-based search, dual independent screening and extraction, RoB2 quality appraisal, and the combination of narrative synthesis with random-effects meta-analysis, meta-regression, sensitivity, equivalence, and publication-bias analyses. Limitations include reliance on a single database, heterogeneity of intervention designs and outcome measures, the modest number of studies per moderator category, evidence of small-study effects, and the predominance of moderate risk-of-bias studies; effect estimates should therefore be interpreted with appropriate caution. Future research should prioritize rigorous impact evaluations in LMICs (Hunt et al., 2025), report standardized outcomes to enable cumulative meta-analysis (Frederick & VanderWeele, 2019), examine intersectional subgroups, and test the transferability of multidimensional models such as CAPABLE across cultural and resource settings.

CONCLUSION

This systematic review and meta-analysis demonstrates that disability-related interventions are generally effective in improving socioeconomic participation, access to services, quality of life, and social inclusion, with a significant pooled effect (0.480; 95% CI: 0.229–0.732) and low to moderate heterogeneity. Effectiveness, however, depends significantly on intervention type: multidimensional interventions that integrate functional, environmental, and social components exemplified by the CAPABLE and Attitudes toward Work model outperform single-mechanism approaches, and intervention type explained the large majority of between-study heterogeneity. Community participation, stakeholder collaboration, accessibility, workplace accommodation, and culturally responsive implementation emerged as consistent ingredients of success, while structural barriers and stigma remain persistent constraints. These findings provide evidence-based guidance for designing inclusive development policies and programmes and identify intervention design not merely intervention presence as the decisive lever for improving the lives of people with disabilities.

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