

The Effectiveness of Early Intervention Programs for Children with Disabilities from 0 to 8 years: A Systematic Review

Dr. Nabil Almalki

Department of special education
College of education - King Saud University
nalmalki@ksu.edu.sa

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Department of Special Education
College of Education - King Saud University

Abstract

A systematic literature review of studies published in the 2000–2020 period on the efficacy of programs for early intervention in young children with disabilities aged between 0 and 8 years in assisting their development was presented. This review employed 25 empirical studies to evaluate different early intervention programs employed to assist young children with disabilities in their development. The findings were based on the academic results at the end of early childhood, whereby various programs showed a strong evidence of efficacy. Conclusion and limitations were also presented.

Keywords: Early childhood special education, young children, early intervention, disabilities.

فاعلية برامج التدخل المبكر للأطفال ذوي الإعاقات من ٠ إلى ٨ سنوات: مراجعة منهجية

د. نبيل بن شرف المالكي
قسم التربية الخاصة - كلية التربية
جامعة الملك سعود

الملخص

قُدِّمَتْ مراجعة منهجية للدراسات المنشورة في الفترة من ٢٠٠٠-٢٠٢٠ حول فعالية برامج التدخل المبكر في الأطفال الصغار ذوي الإعاقات الذين تتراوح أعمارهم بين ٠ و ٨ سنوات في المساعدة على نموهم. لُ استُخدمَتْ ٢٥ دراسة تجريبية في هذه المراجعة المنهجية لتقييم برامج التدخل المبكر المختلفة المستخدمة لمساعدة الأطفال الصغار ذوي الإعاقات على نموهم بشكل سليم. تستند نتائج هذه الدراسة إلى النتائج الأكاديمية في نهاية مرحلة الطفولة المبكرة، حيث أظهرت البرامج المتنوعة دليلاً قوياً على فعالية برامج التدخل المبكر. كما تم عرض الخلاصة وقيود هذه الدراسة.

الكلمات المفتاحية: التربية الخاصة في مرحلة الطفولة المبكرة، الأطفال الصغار، التدخل المبكر، الإعاقات.

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Introduction

The ability of people to participate in various life roles is predicted, in part, by their childhood development and childhood cognitive and physical abilities. Many programs exist, therefore, to maximize the later life opportunities of children who suffer from assorted forms of disability. Blann (2005) asserts that in terms of children with disabilities, early intervention programs are intended to encourage growth, while offering families the required assistance. With such services being chiefly provided until, at least, the child reaches the age of 8 years (Blann, 2005; Ueda & Yonemoto, 2020), hence the focus is placed on this period in the current study. However, Ziviani et al. (2010) argue that this support entails building capacity for the families and developing a detailed plan for meeting their goals, as well as providing therapy-based services (Raghavendra et al., 2007).

Previous reviews of programs for children between the age of 3 to 4 years entering kindergarten show that early childhood education is a crucial investment (e.g. Blann, 2005; Curtin et al., 2013). Moreover, each dollar spent in preschool education saves social services four to eight dollars in terms of what they might have had to spend later if this early investment had not been made (Clark & Gerrard, 2008). Further Bailey et al. (2006) point out that early intervention programs' long-term effects include fewer teenage pregnancies, lower teenage crime rates, and increased employment opportunities. Owing to this, new programs have been developed for children with disabilities by local and national

policymakers in an attempt to improve the existing policies through early intervention (e.g. Blann, 2005; Campbell & Ramsey, 1995; Rogers et al., 1996; Campbell et al., 2002; Shire et al., 2017). Undoubtedly, children with disabilities' development from an intellectual perspective is important in terms of late positive outcomes (see Frances et al., 1994; Jensen, 1998; Ueda & Yonemoto, 2020; Zhou et al., 2018; Strain & Bovey, 2011), but their development can also be severely negatively impacted by being disabled, leading to social isolation and exclusion later in life (e.g. Bynner, 2001; Campbell et al., 2002; England, 2003; Hwang et al., 2013; Huxley & Thornicroft, 2003).

Objectives

There have been many studies in this area, but to date there has been no systematic literature review specifically on the utility of intervention programs among children with disabilities and these programs' subsequent effect on development in the social domain. Therefore, it is highly germane to conduct a systematic literature review in order to discern what the body of research as a whole reveals about the importance of early childhood intervention apropos the extent of subsequent positive or negative outcomes with regard to the development of children who suffer from disability.

This study is confined to those programs that care providers for children with disabilities may use to improve the education and general wellbeing of such children up to the age of 8 years. Despite various researchers examining particular early intervention programs like family counseling, occupational therapy, and physiotherapy (e.g. Frances et al., 1994; Majnemer, 1998; Moeller, 2000), it is significant to look at the broader early intervention approaches that are suitable for those children aged 8 years and under. Consequently, this study systematically reviews those programs targeted towards intervention for children with disabilities to establish the nature of those interventions with the most auspicious results.

Method

Protocol and registration

In order conduct this systematic literature review, the (Preferred

Reporting Items for Systematic Reviews and Meta-Analyses, PRISMA) guidelines were followed (Liberati et al., 2009).

Eligibility criteria

The criteria for inclusion were as follows: (1) A controlled trial, randomized control trial, non-randomized control trial, quasi-randomized control trial, cohort or cross-sectional study design were used in this study. (2) Most of the study participants were aged 0–8 years and children with disabilities, with the age range reflecting the potential for children to still be accessing services beyond the school context. (3) The studies used had analyzed the effects on the children's social involvement, as well as their families. (4) The study had been published between 2000 and 2020. This period was chosen because such interventions are a constantly developing area, and thus it was felt that it would be most useful to concentrate on the results of relatively recent studies. (5) The study was not a duplicate. The researcher did, however, include systematic literature reviews, insofar as these could be employed to obtain prior analyses pertinent to the study's aims.

Information sources

To obtain the research materials, Google Scholar was employed (due to its broad range of materials, including theses), as well as an available databases EBSCO, EduSearch, ProQuest and Medline, Educational Resource Information Center (ERIC).

Search

The search terms that were used to search all the databases were: early intervention and disability, early intervention and social, early intervention and young children, early intervention and early childhood, social intervention and preschools and disability.

Study selection

Articles were reviewed for eligibility independently by two reviewers. Based on the discussion, any disagreements about the eligibility criteria

were resolved with the help of a third reviewer.

The subsequent stage of the Prisma procedure is Data Management, whereby each title was copied into a Microsoft Word document, assigned a number, and then marked in terms of whether the study was accepted or rejected, and the grounds for this decision. Finally, the Prisma Selection Process was conducted and, based on the aforementioned inclusion criteria, as well as a further review of the article content such as the title, abstract and text, it was decided which articles would be included. That step concluded the literature search procedure. The precise system by which the review occurred is set out below:

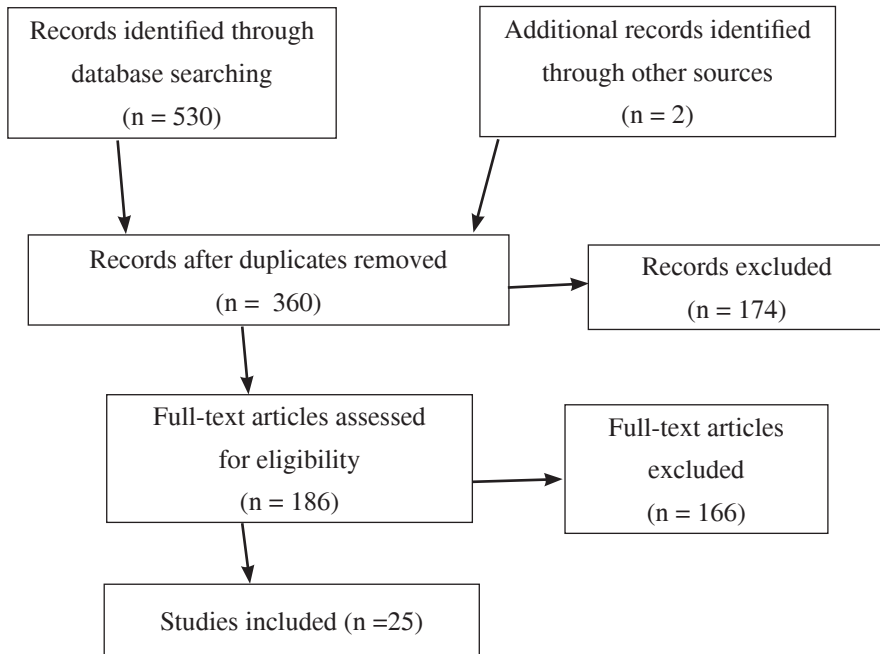


Figure (1)
Prisma Selection Process

The review used scholarly materials by renowned authors, or those articles published in the central journals in the reference list. More than 360 papers were chosen during a search in the electronic databases, which were separately evaluated for eligibility.

Results

Study selection

This review used 25 studies. One of the criteria for inclusion in the study was the research objectives. Several articles looked at specific treatments other than broad programs. Additional exclusions were necessary due to specific characteristics, especially the age of the children and the condition of their disability, because they mainly focused on special education as opposed to intervention at an early stage.

The studies were either cross-sectional, interrupted time series or non-randomized. The non-randomized trials compared the results of matched intrusion as well as control groups, which had no intervention for thirty-two weeks' post-intervention (Thomaidis et al., 2000). In terms of studies based on interrupted time series, no control group were included since such studies involve collecting results measured solely at the baseline and post-intervention (Dyke et al., 2006). Finally, the cross-sectional research applied parent self-administered questionnaires.

The present review incorporates randomized trials and includes studies with high degrees of evidence. The quality of the non-randomized trial providing the highest degree of evidence was moderate to high, while the inclusion criteria for participation was clearly described. Control groups and the treatment were matched for age, type of disability, extent of severity and socioeconomic status, and appeared analogous at the start of the study. Measures were acquired from every participant, who received the control condition or treatment as originally allocated. For every result measured, comparison of the post-intervention results and the longitudinal transformation were reported for every group. There was a report on the point measures because both the group result differences, the results for every group, and the measurements of inconsistency were described in terms of the standard deviation and the variance.

The samples of these studies comprised children with various types of disabilities ranged in age from 0 to 8 years. Interventions varied widely compared to other services provided, their approach or philosophy, and the models for delivery of services, as well as the degree and extent of therapy. However, programs fell into various categories, which included

family support and multidisciplinary therapy (Al-Qahtani, 2018; Stewart et al., 2004; Hwang et al., 2013; Dyke et al., 2006; Raghavendra et al., 2007; Ueda & Yonemoto, 2020), education of family or the intervention used by family (Ayyad & Al-Mutairi, 2020; Nasr, 2011; Hwang et al., 2013; Thomaidis et al., 2000; Strain & Bovey, 2011; Roberts & Kaiser, 2015; Zhou et al., 2018), and education support and medical care (Arkoubi, 2018; Ahmed, 2013 ; Nolan et al., 2007). Other types of prevention were not reported.

Study Characteristics

The study assessed the methodological quality of the enlisted articles, as presented in Table 1 below.

Table (1) d
Study Characteristics

Author	Type of Study	Participants	Research Focus	Intervention and programs
Thomaidis et al., 2000	Non-randomized control trial	24 children with disabilities with delays in development. Their age is from 5 months -5 years.	Programs that the tutors gave included consultations with family to implement the intervention. Family got the support and learning a week for one hour. The programs goals at improving skills across several growth domains.	Educational visit for early intervention program and four assessments using Griffith's developmental checklists were implemented in control and treatment groups.
Simeonsson et al., 2001	Cross-sectional	A national survey was completed by 1,180 educators of children with disabilities within the US, describing their child participation in activities such as social activities, academic, sports, and artistic endeavors.	The policies of incorporation and full inclusion in school activities to assert the sovereignty and social contribution of children with disabilities in the milieu of the social, physical, and psychological features of the school setting.	A national survey of school environments was used, which consist of four page measures. Twenty seven school activities were included in this study.
Blackman, 2002	Cross-sectional	National and state surveys of children aged 0 to 8 years.	Programs that required participating states to phase in a system of early intervention services. By understanding the significance of good health in infants and toddlers' development, Congress acknowledged the key responsibility of medical care providers in an inclusive program for children at risk of dysfunction or delays in development.	Inclusive programs for children with developmental delays were indicated. Efficacy, effectiveness, and cost justification were considered

Author	Type of Study	Participants	Research Focus	Intervention and programs
Sit et al., 2002	Interrupted time-series	237 children, aged 0 to 7 years, attending 10 schools for children with disabilities in Hong Kong, completed a sports contribution questionnaire and personal interviews.	Programs that supported sports participation, exclusively of physical education of school-aged Chinese children with disabilities who attended Hong Kong-based specialized schools.	Sport participation questionnaire in individual interviews were implemented based on gender, two school levels, and five disability types.
Stewart et al., 2004	Interrupted time-series	13 households of children with disabilities and delays in development (Spina bifida 12.5% and Cerebral Palsy 37.5%), aged between 3 and 6 years.	Extra therapy services and parent education for children moving from pre-school to school. The intervention took 10 months.	Goal Attainment Scaling (GAS), Measure of Processes of Care (MPOC), Client Satisfaction Questionnaire (CSQ) and interviews were used.
Blann, 2005	Cross-sectional	Families and children under the age of 8 years.	A total of 13 studies published in the 1980–2000 period that measured the effectiveness of interventions through home visits conducted by nurses.	Early intervention programs are administered by each state under part C of IDEA. The services may be provided including nursing, physical therapy, occupational therapy, and family counseling.
Bailey et al., 2006	Nonrandomized control trial	Child and family ranging from toddlers to infants and preschoolers.	Programs included a process based on evidence and featuring significant input from stakeholders that resulted in five outcomes through which the efficiency of family services could be assessed.	The national advisory board, which include 23 members under part c and b of IDEA. Review of early childhood programs regarding to the child and family outcomes.
Mannan et al., 2006	Cross-sectional	Families and children.	Programs that provided outcomes for those with disabilities in early childhood, as well as their families.	Outcome measures in early childhood programs were considered.
Raghavendra et al., 2007	Cross-sectional	189 households and 145 staff of 0–8 year old children having multiple physical disabilities.	Services entailing multidisciplinary therapy, support from the family, equipment, and a program for rural outreach. Services were offered at home, in the community and at schools.	The Measures of Processes of Care for parents and service providers were implemented.
Eddy & Engel, 2008	Randomized control trial	Healthcare commissioners in Great Britain.	Several child disability programs in Great Britain, especially for the physical disabilities.	The programs focused on current health; physical health; emotional well-being; health or behavior limited types of family activities; health or behavioral interrupted family activities for children.

Author	Type of Study	Participants	Research Focus	Intervention and programs
Clark & Gerrard, 2008	Cross-sectional	90 children aged 0 to 8 years with physical disability.	Programs that described groups in terms of the age, gender, ethnicity and data according to statistics of New Zealand's Household Disability Survey 2001. With a higher rate than studies where only locomotor disability was included, but comparable to those where other disabilities such as deafness were incorporated.	The Statistics New Zealand's Household Disability Survey 2001 was used. The equipment of mobility disability, the need of occupational therapy, or modifications were considered.
Ziviani et al., 2010	Cross-sectional interrupted time-series and the non-randomized control trial	The examination of 12 electronic databases for journals published in the 1990–2008 period on programs for early intervention in children with physical disabilities.	Programs that focused on the systematic review of the literature on the efficiency of early intervention programs in the context of children with physical disabilities.	Early intervention programs for young children were reviewed rather than special education programs, which include social and developmental domains
Nasr, 2011	Randomized control trial	10 male children with autism spectrum disorders	Focus on the effectiveness of an early intervention program based on the Floortime model to develop some play skills in children with autism	Gwadar scale intelligence, the Autism Symptoms Assessment List, the Play Skills Assessment List, the Everyday Play Behavior Observation Form (the researcher's preparation), and the Early Intervention Program based on Floortime model were used.
Strain & Bovey, 2011	Randomized control trial	8 inclusive preschool classrooms with the participation of classroom children: 177 intervention and 117 comparison.	The fidelity of Learning Experiences - An Alternative Program for Preschoolers and Their Parents (LEAP). The study also examined the effects of this model.	The LEAP model and skill training for families were implemented with considering the dimensions, such as number of days in a week, and length of program as well.
Ahmed, 2013	Non-randomized control trial	20 children from 5–8-years old with Down syndrome.	Focusing on the effectiveness of the early intervention program for developing language communication in a sample of children with Down syndrome.	Gwadar scale intelligence, an early intervention program based on developing language communication and test language communication skills were implemented.
Curtin et al., 2013	Cross-sectional	Teachers completed the EDI measure, with the scores determined for 1,243 children in full-time education for the first time. A parental survey was utilized to gather logical information from a sub-set of 865 children.	Exploration of the possibility of an Early Development Instrument for the indication of early development in the national context of Ireland.	The (EDI) was used in 42 of 47 primary schools that focusing on five developmental domains. The parental questionnaire was implemented as well.

Author	Type of Study	Participants	Research Focus	Intervention and programs
Hwang et al., 2013	Randomized control trial	The random assignation of 31 families with young children in the 5–30 month age group, with either existing or at risk of developmental delay, to a routine-based early intervention (n=15) or a traditional home visiting group (n=16).	Early intervention based on routines for children with disabilities or at risk of developmental delay, empowering cooperation among experts and family members to improve children's support in family schedules with family-selected objectives.	The program focused on routines-based early intervention (RBEI) with using Chinese version of Pediatric Evaluation of Disability Inventory (PEDI-C) and the Comprehensive Development Inventory for Infants and Toddlers (CDIIT)
Roberts & Kaiser, 2015	Randomized control trial	Participants comprised of the caregivers and 97 toddlers whose language fell under the normative mean but lacked additional developmental delays.	To determine the consequences for language results of a parental figure actualizing communication intervention, focusing on babies in danger of diligent language delays.	The caregiver-implemented intervention was implemented regarding the child language outcomes.
Shire et al., 2017	Randomized control trial	The randomization of 113 children with autism registered in early intervention classrooms in districts with low resources into the Joint Attention, Symbolic Play, Engagement, and Regulation (JASPER) intervention.	To examine the adequacy of interventions on child results in community-based settings utilizing randomized control plans.	The program focused on Public early intervention that implemented in community settings with using the JASPER.
Al-Qahtani, 2018	Non-randomized control trial	10 children (female) with multiple disabilities and cerebral palsy, whose ages ranged between (4–6) years.	Focus on the effect of an early intervention program on both joint attention and some language skills of people with multiple disabilities.	Early intervention program and joint Attention Scale (prepared by: the researcher) were used. A measure of the language skills of children with mental disabilities was also implemented.
Arkoubi, 2018	Non-randomized control trial	10 children from 3–6 years old with disabilities (developmental disorders).	Focusing on the effectiveness of an early intervention program: preparing children with disabilities (developmental disorders) for kindergartens from 3 to 6 years old (in a kindergarten center in Jeddah - Saudi Arabia.	A measurement and programs related to social maturity skills, pre-learning skills, coordination skills, language and communication skills were implemented based on international childhood programs.

Author	Type of Study	Participants	Research Focus	Intervention and programs
Zhou et al., 2018	Randomized control trial	Participants included a group of parent-implemented Early Start Denver Model toddlers (n=23) diagnosed with Autism Spectrum Disorder. A group of 20 community toddlers was enrolled from additional districts.	To assess the impact on the developmental results of a parent-implemented, high-intensity, 26-week Early Start Denver Model intervention.	The (P-ESDM) intervention was used with children with ASD in China to evaluate the developmental outcomes.
Ayyad & Al-Mutairi, 2020	Non-randomized control trial	27 children from 1–5-years old with Down syndrome and psychological problems.	Focusing on the effectiveness of the Portage program in enhancing the down syndrome children's ability in Kuwait across six developmental domains (infant stimulation, cognitive, motor, self-help, language, and socialization).	Portage program was implemented, which consist of 626 items related to the six developmental domains.
Barrable & Booth, 2020	Cross-sectional	251 children aged 1–8 years via a survey conducted online, where 141 were enrolled in nature nurseries, with the remainder attending traditional nurseries located indoors.	To examine the function of nature nurseries in the advancement of association with nature, when contrasted with conventional nurseries.	The Connection to Nature Index for Parents of Preschool Children and the Inclusion of Nature in Self Scale were used to evaluate parental connection to nature in early childhood programs.
Ueda & Yonemoto, 2020	Cross-sectional	A self-controlled survey was given to mothers of pre-school children with disabilities who were accepting prompt intervention through one of twelve advancement uphold focuses across Japan. The Japanese form of the revised Family Outcomes Survey scores were assessed by utilizing multivariable irregular impact models.	Programs based on early intervention having an association with improved outcomes for families and children, and factors associated with achieving outcomes.	The self-administered questionnaire and the Japanese version of the FOS-R were used to evaluate the impact of early intervention on family outcomes.

Synthesis of results

There were various outcome measures, with the design and the outcome measures deemed appropriate in order to respond to the research objectives in all the included studies. Regarding the applied measures, some studies employed instruments with established data on the validity and reliability, with those measures being standardized for the study population. Some studies had only passed validity testing, while others utilized instruments lacking accessible data regarding the validity and the reliability. The

results' measures considered both those outcomes related to the family and to the child outcomes.

Family outcomes. A high degree of parental satisfaction with programs targeted at early intervention was found in several studies. Parents help professionals, and they were rated by over 70% of the participants as being reasonably or very helpful. In measuring the Processes of Care, 20 and 56 versions of items were used to examine the views of parents regarding services being focused on the family (Stewart et al., 2004; Hwang et al., 2013; Dyke et al., 2006; Raghavendra et al., 2007; Ueda & Yonemoto, 2020). A questionnaire was formulated by Nolan et al. (2007) to scrutinize the communication of professionals with households, and the latter's participation in decision-making. The views of parents about the family based services were varied. Stewart et al. (2004) and Dyke et al. (2006) reported that parents considered the care established and information received to be family-centered to a reasonably large degree. (It should be noted that many of the examinations of the studies drawn upon also provided such qualitative evaluations in assessing the success of individual programs). However, Raghavendra et al. (2007) state that parents considered the services to be only moderately family-centered. Then, it was reported by Nolan et al. (2007) and Ueda & Yonemoto (2020) that professionals 'sometimes' or 'mostly' shared information with parents and helped them being involved with decision making.

A number of studies applied the Family Needs Assessment to determine the service and support requirements of the family, as well as the extent of the needs to address. Further, the Perceived Needs Scale was applied in measuring the degree of support that families received for the difficulties identified and to examine their unfulfilled needs. It was revealed that families experienced traumatic events in life, while those families featuring children with intellectual difficulties, and unemployed parent(s) who applied passive optimism as a coping strategy, would typically report a high degree of unmet needs. Despite those studies that examined the needs of families showing different degrees of unmet needs, most of the parents stated the meeting of at least three-quarters of their needs through early intervention (Ayyad & Al-Mutairi, 2020; Nasr, 2011; Mannan et

al., 2006; Strain & Bovey, 2011; Hwang et al., 2013; Zhou et al., 2018; Ueda & Yonemoto, 2020). Therefore, early intervention programs are very important in the stages of child development and interacting with the family (Al-Qahtani, 2018; Shire et al., 2017).

The degree to which programs targeted at early childhood special education boost a parent's child-caring ability while promoting their development was analyzed via semi-structured interviews (Simeonsson et al., 2001; Sit et al., 2002). Every mother reported that programs had offered them new skills that spanned several areas of growth, and particularly the domain of self-help (Ueda & Yonemoto, 2020; Zhou et al., 2018; Mannan et al., 2006).

Child outcomes. Several studies were examined for child development (Arkoubi, 2018; Ahmed, 2013 ; Curtin et al., 2013; Barrable & Booth, 2020; Shire et al., 2017; Ueda & Yonemoto, 2020). Some of the studies that utilized indicators for global development revealed considerable variations across various areas of development. The Arizona Articulation Proficiency Scale, a skill-specific evaluation, was applied to evaluate skills in speech production. Moreover, the British Ability Scales were applied to test IQ, but the results of the study failed to show important changes. Also applied in some studies were the School Function Assessment and the Vineland Adaptive Behavior Scales-Classroom Edition; however, with their lens of focus placed on education, the findings emerging from these assessments fall beyond the present study's scope (Moeller, 2000; Maher et al., 2003; Curtin et al., 2013).

In order to assess child's development on individual goals (Stewart et al., 2004; Dyke et al., 2006) and personal education programs for results in the context of school (Hwang et al., 2013), the goal achievement Scaling (GAS) was applied. In those studies where GAS was utilized (e.g. Stewart et al., 2004), the performance of children was found to be probable or better post-intervention. Progress was preserved for a period of 5 to 6 months (Longmuir & Bar-Or, 2000), with most children achieving at least half of their recognized goals (Ueda & Yonemoto, 2020). Various studies used informal maternal reports of development to measure the progress of a child. Others employed questionnaires developed by authors

to explore the interactions of peers, as well as acceptance in the evaluation of the efficiency of early intervention in the facilitation of the community interaction of children with disabilities (Strain & Bovey, 2011; Shire et al., 2017). These causal measures implied that parents considered prompt intervention to effectively promote their children's growth across a range of skill domains.

Discussion

This systematic literature review conducted an evaluation of the efficiency of early broad-based interventions for children with disabilities, with the results suggesting that such programs can translate into positive results for children and families. Nevertheless, the limitations from a methodological perspective prohibited deeper analysis of the study findings. Even in those cases reporting positive results, various unmet requirements were raised, largely pertaining to the provision of data on the disability of their children, training on childcare and encouraging growth attainments. Families needed more information regarding relevant services to society. Where the Measures of Processes of Care (MPOC) was applied (e.g. Dyke et al., 2006; Stewart et al., 2004; Raghavendra et al., 2007), the provision of general details such as the availability of other important services and regarding children's disabilities was the domain constantly stated the most poorly. Moreover, inadequate accessibility to child-care services was cited as a key obstacle to accessing programs for early intervention by parents (Hwang et al., 2013; Stewart et al., 2007; Shire et al., 2017), with additional barriers including inadequate costs and time linked to the receipt of services and transport difficulties (Eddy & Engel, 2008).

Blackman (2002) asserts that the moral concerns surrounding the preservation of treatment from a control group are usually limited to using randomized control trials in the fieldwork. An additional weakness of the existing studies is the relative paucity of research that includes baseline data, leading to only modest evidence that can be used in supporting assertions of improved results, mainly in the case of biased measures being applied. Some studies, and particularly the control trials, were limited by the small

sample size, although this might be indicative of the challenges of parents of children with disabilities in terms of the time pressures and the burden of care, as well as the additional responsibilities they must fulfil. The available studies under-represent children with disabilities in the selected samples. Research recommends that the influence of disability types on young children in early childhood and parents might vary depending on the nature of the disability, since each disability has particular characteristics (Blann, 2005; Ueda & Yonemoto, 2020). Children with disabilities face more contribution limitations in normal activities (Longmuir & Bar-Or, 2000; Strain & Bovey, 2011; Sit et al., 2002; Curtin et al., 2013; Shire et al., 2017), and other school-related activities (Simeonsson et al., 2001).

Due to the higher care burden resulting from the mental and physical challenges, greater pressure on family life has been reported by families of children with disabilities (Eddy & Engel, 2008; Ueda & Yonemoto, 2020). Many children use additional devices to assist them in daily living tasks, especially those with physical disabilities, which significantly affect their mothers in the workplaces. However, in terms of families' service requirements, although the type of disability does not significantly impact on this, as shown by several studies, housing adaptations and physiotherapy support are more likely to be required by parents of young children with disabilities (Dyke et al., 2006; Eddy & Engel, 2008; Ueda & Yonemoto, 2020). Research shows that those results reported for young children with other kinds of disability categories might not be applicable to young children with physical or sensory disabilities, thus it is important to highlight the need to address this in future studies (Longmuir & Bar-Or, 2000).

Finally, there are comparatively limited formal standard measures in the early intervention domain, probably due to the lack of agreement on the most pertinent outcomes. This systematic review shows various common outcomes. Results related to the families were identified with greater frequently than those related to the children (Ueda & Yonemoto, 2020). Concerning the former, frequently utilized were the perceived views of how family-focused the services were, as well as the parent satisfaction measures. Meanwhile, outcomes related to the child considered the gains

from a developmental perspective, as well as their progression toward personal objectives (Hwang et al., 2013; Frances et al., 1994). In terms of timely intervention for young children with disabilities and development delays, the measured results in the incorporated studies were amongst those extensively assessed in the wider literature (Hwang et al., 2013; Stewart et al., 2004; Bailey et al., 2006; Mannan et al., 2006; Zhou et al., 2018; Sit et al., 2002). Nevertheless, there were other widely measured family-related results that were not included in the above-mentioned studies, such as advocacy skills, the growth of family and social support, empowerment, the quality of life of the family, and the stresses of the parent, as well as information regarding and accessibility to other resources and services in the community. One of the prevailing criticisms in the context of trials involving families (e.g. the satisfaction of the parent) is the subjectivity of the perceptions, although the measures' subjectivity also reflects their intrinsic benefit since such tools facilitate the assessment of services from a personal viewpoint, thereby offering alternative and complementary perspectives to the assessment of services. Finally, various studies have gathered data from parents as well as service providers, giving room for programs to be evaluated from diverse perspectives.

Present studies regarding timely intervention programs for young children with disabilities and their families highlighted the favorable results that emerge for the children and parents. From the studies, the best outcomes included the development of family and social support, advocacy skills, lowering the stress levels of parents, empowerment, and the family's quality of lifetime, along with valuable information regarding accessibility to other social and community-based resources (Stewart et al., 2004; Sit et al., 2002). However, weaknesses in the methodology of these studies meant that they offer indecisive proof of the efficiency of these programs. This systematic review shows the need for further work in this research domain, chiefly in terms of well-designed studies with baseline data, standardized measures, and the participants being followed-up over the longer term, as well as the use of data from both service providers and families to enable the evaluation of the programs' effectiveness.

5. Limitations

This systematic review has a number of limitations. The limited range of participants led to challenges in drawing conclusions, particularly regarding children with disabilities. The wide review focus was a limiting factor. Also, various studies had limitations in terms of the quality and size. Considering the paucity of conventionality amongst the studies regarding the samples, the interventions offered and the measures utilized, performing a meta-analysis was challenging. Even though of this, the selected method was reasonable, since the wide assessment of timely intervention identified the different services presently available. Nevertheless, it is likely that some pertinent unpublished literature may have been overlooked.

Conclusions

To increase the evidential strength that supports or refutes utilizing prompt intervention for children with disabilities and their households, additional study is needed. In research involving children with diverse types of disability (e.g. intellectual vs. physical), challenges are present in measuring dissimilarities across the groups. Therefore, samples need to comprise exclusively of children in a similar disability domain, if possible. In studies where control groups are absent, random as opposed to convenience samples are recommended in order to lessen the possibility of bias in selection; in the case of convenience sampling being utilized, the characteristics of the participants should be evaluated against the non-participants in order to decide the sample's representativeness. Further investigation into the psychometric responses to a range of existing measures is needed, primarily for measures that evaluate results associated with the family.

To add to the literature supporting the appropriateness of accessible measures, intervention research should involve appraisals of the psychometric possession measures. Additional growth and utilization of measures using the providers of services' viewpoint are also needed to facilitate the appraisal of programs from the viewpoint of the numerous stakeholders. Moreover, a number of research questions remain in the context of timely intervention that have not been fully investigated

to date. Strong proof of the efficacy of early intervention programs for children with disabilities is reliant upon studies that are well designed. Investigations determining the most effective programs to use for children and families, as well as their components and features, are required due to the significant benefits they offer. Also worthy of future investigation are the long-standing outcomes, as well as the opportunities and challenges regarding early intervention programs for children with disabilities.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this paper.

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