Effectiveness of Interventions Designed to Promote Activity and Participation of School Aged Children with Fetal Alcohol Spectrum Disorder (FASD): A Systematic Review

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Introduction

FASD describes a spectrum of developmental disabilities caused by prenatal alcohol exposure (PAE) (8). The impact of FASD, has been well documented and children with FASD experience complex needs and require support to adapt throughout their life in multiple contexts (8-12). Intervention research for people with FASD has evolved internationally over the past 16 years (10, 13-24). Previous reviews have not investigated participation in everyday life as an outcome.

Aim

To identify types of interventions, effectiveness and outcome measures used that aim to support participation and activity in the home, school, and the community.

Method

Prior to data collection, the review protocol was registered with PROSPERO #CRD42020186370. Nine electronic databases were searched between June and August 2020 for peer-reviewed intervention studies using a PICOS framework (25) (see Table 1 below). Secondary sources were hand searched to identify any additional eligible studies. Included studies were published between 2005-2020, peer-reviewed, completed trials and written in English.

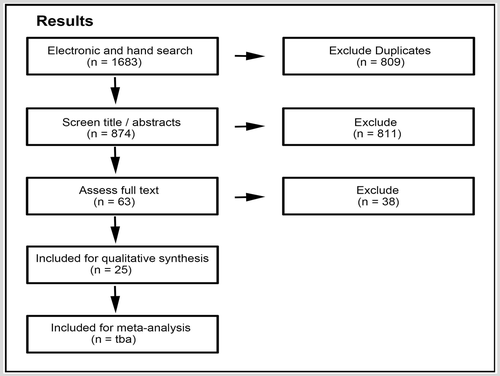
Table 1 : ***Systematic review search strategy***

	Included	Excluded
Population	▪ School aged children (aged 5-18 years) with a diagnosis of Fetal Alcohol Spectrum Disorders (FASD) or equivalent. ▪ Both males and females.	▪ Mean age <5 years of age with FASD. ▪ Adults/school leavers with FASD. ▪ Studies involving animals.
Intervention	▪ Any non-pharmacological interventions that promote the function, activity, or participation of children with FASD.	▪ Studies involving pharmacological, medical, sensory neurophysiological interventions.
Comparison	▪ Any comparator with other forms of non-pharmacological intervention or no intervention. ▪ Studies that do not have a comparison group of children without FASD.	▪ Studies comparing against pharmacological interventions.
Outcome	▪ Any quantitative measures of function, activity or participation that allow comparisons to be made. This may include measures of performance, skills and/or abilities and/or changes to body structures/functions.	▪ No outcomes excluded.
Study Design	▪ Any intervention studies.	▪ Qualitative, cohort & feasibility studies.

Preliminary Results

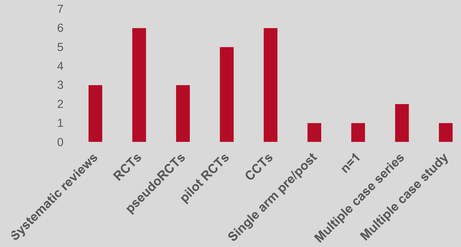
A total of 25 studies were identified for inclusion in the review (see Figure 1).

Figure 1 : ***Flow chart of study selection***



Study designs

Figure 2 : ***Study designs n=25***



Studies were published in 4 continents (Africa, Australia, Europe and North America).

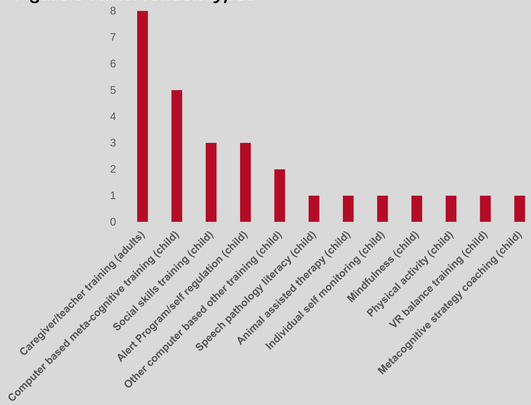
Participants

The total number of participants in the experimental studies was 814. Participants had a range of FASD diagnoses including Fetal Alcohol Syndrome, partial Fetal Alcohol Syndrome and Alcohol-Related Neurodevelopmental Disorder. While all participants had PAE, not all had a confirmed FASD diagnosis. Various diagnostic criteria were used across studies.

Interventions used

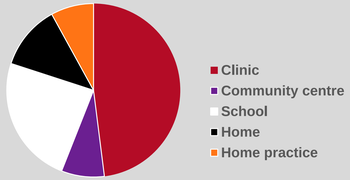
Interventions used were categorised into common types (see Figure 4). Interventions were provided to children and adults (i.e. primary caregivers and teachers) both individually and in groups. Individual therapy was provided more frequently than group therapy to both children and adults. Some studies provided intervention to both children and caregivers (26-30).

Figure 3 : ***Intervention types***



Interventions were commonly conducted in clinics, primarily university clinics (n=12) (26-28, 31-39), home (n=3) (Study 5, 30, 37, 40) or schools where participants were withdrawn from the classroom (n=6) (41-46) (see Figure 4).

Figure 4 : ***Intervention settings***

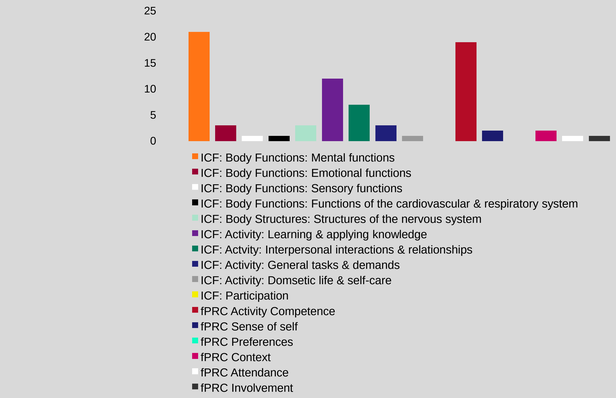


Outcomes assessed

Outcomes measuring child performance change were extracted and classified using the coding system within the ICF: CY (47) available at https://apps.who.int/classifications/icfbrowser/.

Outcomes were also classified by the type of person-centred construct of the Family of Participation Related Constructs (fPRC) model (2): activity competence, sense of self, context, attendance, and involvement. See Figure 5. None of the studies assessed outcomes related to participation in the home, school, or community.

Figure 5 : ***Child performance outcome measures classified by ICF-CY Levels (47) and pPRC constructs (2)***



NB: Each study used multiple outcome measures, and this represents total n of outcome measure codes used across studies.

Discussion & Conclusion

- This review has identified a wider range of intervention studies since previous systematic reviews investigating quality and types of interventions for children with FASD (18-20). It has uncovered 25 studies meeting eligibility criteria (26-30, 35-39, Study 5 40, 41, 43-46, 48, 49). Intervention types supporting school-aged children with FASD has expanded to include animal assisted therapy (36), mindfulness (38) and virtual reality balance training (37).
- Most studies measured child outcomes related to the ICF codes of Body Functions: Mental functions and Activity: Learning and applying knowledge (47) and the fPRC construct of activity competence (2). Only one study addressed performance of home-based occupations (household chores) (30), a single case study using individual self-monitoring behaviour support approaches. A single study measured participation constructs of attendance and involvement in therapy intervention (game play) (28).
- There is a need for further evidence to address the current knowledge gap of occupation and participation focused outcomes for school-aged children with FASD. Evidence of interventions that address children's performance and participation in lived environments of school, home and the community is lacking.

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References

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