

Case Study 1: Evidence Based Practice Report

Theme: Interventions implemented by parents.

*How Effective are Video-Feedback Interventions with Parents at Improving the
Social Communication of Autistic Children?*

Summary

There is an interest in improving autistic children's social communication due to the relationship with improved life satisfaction for these individuals (Kim & Bottema-Beutel, 2019). Recently, video-feedback interventions with parents have been adapted to promote improved outcomes specifically with autistic children (Aldred et al., 2018). Video-feedback interventions promote parents attuned interactions to enable them to me170(Kennedy et al., 2017) promote the social

communication of autistic children h

Therefore, this review sought to ad

Systematic searching of Web of Sc

identified six studies that met the in

The research was then reviewed fo

methodological relevance (WoE B) and topical relevance (WoE C) (Gough, 2007). This review did not identify evidence that video-feedback interventions with parents are effective in improving the social communication skills of autistic children. The implications of these findings for practice and recommendations for future research are discussed.

Introduction

Based on this evidence, there is an interest in developing interventions to support parents of autistic children. Parent interventions to support autistic children have demonstrated effectiveness in improving their social skills (Cheng et al., 2022). Parent interventions also have benefits for parental mental health and wellbeing (Merriman et al., 2020). Additionally, parent intervention may reduce autistic individuals negative experience of direct intervention during childhood (Anderson, 2022). Therefore, there is promising evidence for the value and importance of parent interventions with autistic children.

Video-feedback is a parent intervention that has been shown to be effective in improving parental sensitivity (O'Hara et al., 2019), parenting behaviour (van IJzendoorn et al., 2022) and child outcomes (Fukkink, 2008). The intervention aim is to support parents to develop an attuned relationship, whereby they are responsive to their child, so they can engage with them effectively and then build their skills through mediating their learning (Kennedy et al., 2017). For example, an attuned interaction can be developed through being playful and receiving the child's actions through words. Therefore, the key theoretical basis is in attachment theory, whereby social development of children is dependent on a secure, responsive relationship with an attachment figure (Bowlby, 1999). Another contributing theory is sociocultural learning theory (Vygotsky, 1980). Accordingly, through video-feedback adults develop attentiveness to recognise the skills that the child is capable of developing with adult support. Another contributing theory is Social Learning Theory (Bandura, 1977), whereby the importance of the

Critical Review of Evidence

A systematic search of the literature was completed on the 13th December 2022. The Web of Science, PsycInfo and Medline databases were searched,

Table 1

*Search Terms Applied on the Web of Science, PsycInfo and Medline
Databases*

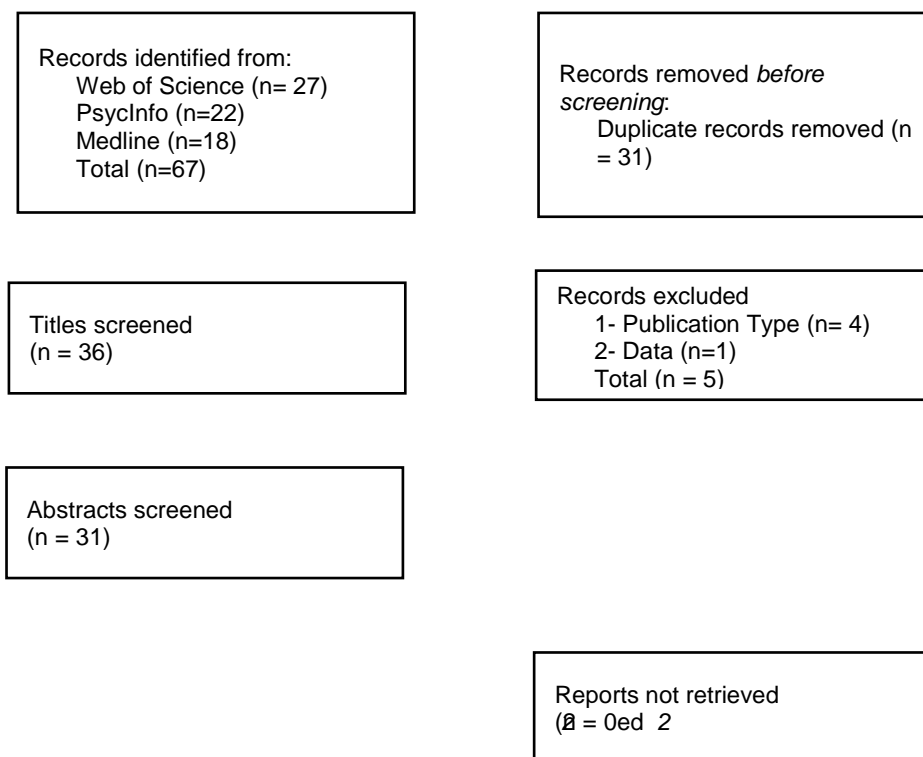
These searches produced a combined total of 67 records. Once these records had been screened for duplicates, 36 records remained. The studies

Table 2*Inclusion and Exclusion Criteria with Rationale*

	Inclusion criteria	Exclusion criteria	Rationale
1. Publication type	Published in a peer reviewed journal	Not published in a peer reviewed journal	To ensure the methodological quality of research
2. Data	Primary, quantitative data	Follow-up studies or studies that only collect qualitative data	Follow-up studies are excluded as longitudinal data is not the focus. Quantitative data is needed to assess the effectiveness of the intervention (Petticrew & Roberts, 2003)
3. Participants	Parents or carers of children at risk of developing autism or with a diagnosis of autism	Any other participants	This is the group of interest to the review
4. Intervention	Video-feedback intervention with parents	Any other intervention	This is the topic of interest to the review
5. Measures	Child social communication related outcomes independent from parent interactions or reports	Any other measures	Children's outcomes are the focus of this review. Parent interactions are assumed to be a mediating variable in these studies, therefore measures involving their interactions or based on their observations would not be appropriate
6. Design	Randomized Control Trial design (RCTs)	Any other design	RCTs are the most appropriate studies for establishing the effectiveness of interventions (Petticrew & Roberts, 2003)

Figure 1

A Flow Diagram Showing the Literature Searching and Screening Process



Note. This is an adapted PRISMA flow diagram (Page et al., 2021).

Table 3

This systematic literature search led to the identification of six studies that adopted a Randomized Control Trial (RCT) design, to establish the effectiveness of video-feedback to improve the social communication of autistic children or those with an increased likelihood of developing autism. The details for each of the six included in the review are presented in Table 4.

Table 4

Information on Study Design, Participants, Intervention and Outcome Measures for the Studies Included in the Review

Author (Date) & Country	Study Design & Sample	Participants	Intervention	Outcomes
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Author (Date) & Country	Study Design & Sample	Participants	Intervention	Outcomes
Green et al. (2015) UK	RCT Sample size: 54 Treatment group: 28	<p>Parent education: 60% of mothers completed a degree</p> <p>SES: not reported</p> <p>Age: 7-10 months</p> <p>Gender: 46% (12) males</p> <p>Children at high risk of autism based on their sibling having autism.</p> <p>Identified as being siblings of an autistic child through a different</p>	<p>Other treatment: All participants received their usual treatments unrelated to the study.</p> <p>Modified Video Interaction for Promoting Positive Parenting (iBASIS- VIPP)- uses video-feedback to support parents to improve their interaction with their children to promote their development.</p> <p>Number of sessions: 6-12 Duration of intervention: 5 months Duration of sessions: unknown Delivered by: Speech and language or psychology graduates that were trained and supervised on delivering the intervention.</p> <p>Setting: Delivered in the family home.</p> <p>Comparison group: No intervention.</p>	<p>Patient Health Questionnaire-9 (PHQ-9) - measures parental mental well-being.</p> <p>Parent perception of their own capacity e.g. their knowledge, using an adapted measurement from another study</p> <p>Manchester Assessment of Caregiver- Infant Interaction (MACI) to assess parent-child interactions based on videotaped play sessions.</p> <p>Autism Observation Scale for Infants (AOSI)- semi-structured observation of risk markers for ASD by an assessor.</p> <p>Gap-overlap task- measures attention disengagement skills of infants.</p> <p>Auditory oddball event-related-potential to speech sounds paradigm- measures ability to detect and respond speech sounds.</p> <p>Mullens Scale of Early Learning (MSEL)- standardised assessment of child development.</p>

Author (Date) & Country	Study Design & Sample	Participants	Intervention	Outcomes
		<p>Children identified through specialist autism centres.</p> <p>Parent education: 74%, one parent with qualifications past 16 years of age</p> <p>SES: 63% high</p> <p>Race: 57% both parents white</p>	Delivered bl[(h)-[(h(es)4 (.)2o6eW 7sao2.)2c	

Author (Date) & Country	Study Design & Sample	Participants	Intervention	Outcomes
	Treatment group: 40	<p data-bbox="501 464 680 531">Diagnosis of autism.</p> <p data-bbox="501 576 741 715">Identified when newly diagnosed at a department of Psychiatry.</p> <p data-bbox="501 759 741 826">Parent education: not reported</p> <p data-bbox="501 871 741 938">SES: 96% middle to high</p>	<p data-bbox="786 504 1106 531">Number of sessions: 5</p> <p data-bbox="786 539 2237 571">Duration of intervention: 3 months</p>	

Author (Date) & Country	Study Design & Sample	Participants	Intervention	Outcomes
Whitehouse et al. (2019)	RCT Sample size: 103 Treatment group: 50	Age: 1-2-year olds Gender: 68% (70) males Showed behavioural risk markers for autism. Identified through a government service for children with developmental delays. Parent education: 60% of mothers completed a degree		

**Author
(Date) &
Country**

**Study
Design
& Sample**

Participants

Intervention

Sample.

In the six studies reviewed, there were a total of 442 participants. The sample

studies had an intervention and control group, into which participants were randomised.

Different treatment of the comparison group resulted in different WoE ratings. Four of the studies utilised a no-intervention control group, leading to a score of two (promising) for the 'comparison intervention' component of the WoE A rating. The studies with an active control group consisting of a typical intervention, such as parent teaching on behavioural strategies, without video-feedback

Effect sizes.

Cohen's d effect sizes (Cohen, 1988) (see Table 6 for descriptors) related to the post- intervention measures for the participants in the control and treatment group, which accounted for pre-intervention scores to reduce the bias of a difference in pre-test measures (Morris, 2008), were of interest to this review. Studies that conducted this analysis received a higher WoE B score, whilst those that had sufficient data for calculations only received a small penalty and it was calculated using Psychometrica (Lenhard &

Lenhard, 2017). frap (st)id 2, abis @alr gl @B 0 Y w 6.29 liTd[(l)81 (t)-3 (ow26)0 Tcoh-((ur)7

2015; Whitehouse et al., 2019). The significant effects and large effect sizes identified in one study were related to within-subject change, and the similarity of the effect between groups, suggests no additional impact of the video-feedback augmenting the intervention (Klein et al., 2021).

Table 6

Descriptors for Cohen's d (Cohen, 1988)

Effect size	Descriptor
.2	

Table 7

Effect Sizes for the Outcome Measures Relevant to the Review

Study	N	Outcome measure	Findings	Effect size description	Effect size	WoE D rating
Klein et al. (2021)	15	Brief Observation of Social Communication Change (BOSCC) <u>Method:</u> Coded assessor-child interaction <u>Measures:</u> Autism symptoms <u>Score and interpretation:</u> Social communication score, decrease showing improvement in social communication	<p>Control group showed a reduction in difficulty with social interaction</p> <p>Treatment group showed a reduction in difficulty with social interaction</p>	Within-group pre-post difference in control condition	-2.90* Large	2 Low

Study	N	Outcome measure	Findings	Effect size description	Effect size	WoE D rating
		Initiating joint attention score 3-month follow-up	Intervention group showed a larger improvement in initiating joint attention	Between-group follow-up difference (accounting for baseline scores)	0.29 Small	
		Responding joint attention score 3-month follow-up	Control group showed a larger improvement in responding to joint attention	Between-group follow-up difference (accounting for baseline scores)	0.08 Minimal	
Whitehouse et al. (2019)	103	Autism Observation Scale for Infants (AOSI) <u>Method:</u> Coded assessor-child interaction <u>Measures:</u> Risk markers of autism <u>Score and interpretation:</u> Overall score, decrease showing reduced risk markers	Intervention group showed a larger reduction in autism risk markers	Between-group post intervention difference (accounting for baseline scores)	-0.20 Small	2.1 Medium

Note: An * indicates that the effect size is not comparable as it represents a within-group effect.

Conclusions and Recommendations

This review aimed to assess the effectiveness of video-feedback interventions with parents to improve social communication of autistic children, as this outcome is likely to have implications for the life satisfaction of autistic individuals (Kim & Bottema-Beutel, 2019). Inclusion criteria were applied to examine findings of studies with an RCT design for the highest quality of evidence for answering this question (Petticrew & Roberts, 2003). Specifically, this review considered outcomes independent of parent interactions, to demonstrate generalisability outside of these relationships. It also focused on outcome measures independent of parent's ratings to reduce bias, as parents could not be blinded to the condition in these studies, which could lead to placebo effects. A WoE D rating was assigned based on each study's methodological quality, methodological relevance and topical relevance to answering this review question.

Velderman et al., 2006). One of the studies reported follow-up data after 3 months (Table 7) and the treatment effects were non-significant (Poslawsky et al., 2015). A follow-up which was reported separately from the Green et al., (2015) study identified a non-significant treatment effect for reducing autism risk markers at 27 and 39 months (Green et al., 2017). However, there was an overall significant effect of the intervention on reducing autism risk markers when combining information from baseline and follow-up, with a Cohen's d effect size of 0.32 (small). Additionally, another separately reported follow-up of Green et al., (2010) around five years later identified a non-significant i

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Appendix A

Excluded studies

Table A1

Studies excluded at full-text level and reason for exclusion

Study	Exclusion criteria
Rahman, A., Divan, G., Hamdani, S. U., Vajaratkar, V., Taylor, C., Leadbitter, K., Aldred, C., Minhas, A., Cardozo, P., Emsley, R., Patel, V., & Green, J. (2016). Effectiveness of the parent-mediated intervention for children with autism spectrum disorder in south Asia in India and Pakistan (PASS): A ran	

Appendix B

Weight of Evidence A

WoE A is a calculation of the methodological quality of the studies (Gough, 2007). An established group-design coding protocol (Kratochwill & Stoiber, 2002) was adapted, with the changes and rationale presented in Table B1. The scores for each of the studies are presented in Table B2. An example coding protocol can be found in Appendix C.

Table B1

Changes to the Group-Design Coding Protocol

Section removed	Rationale
I. A: General Study Characteristics	Addressed in the review.
I. B: General Design Characteristics: B2: Non-randomized designs	Not relevant to the review.
I. C: Data analysis, C7 and C8 for qualitative data analysis methods	Only quantitative methodology included for review.
II. A: Research Methodology	Not relevant to the review.

Section removed	Rationale
with group. G6 participant perceptions of intervention.	
II. H: Durability/ Generalization of Intervention and Outcomes	Not relevant to the review.
II. I: Identifiable Intervention Components	Not relevant to the review.
II. J: Implementation Fidelity: J4.1 Implementer characteristics J4.4 Participant-implementer relationship. J4.7 Dosage response. J4.10 Cost analysis. J4.11 Training and support resources. J4.12 Feasibility.	Not relevant to the review.
II. K: Replication	Not relevant to the review.
II. L: Site of Implementation	Not relevant to the review.
Section added	Rationale
Measurement: one source of measurement conducted by assessors blind to participant condition	In RCTs, changes between groups based on measurements conducted by researchers, may be observed due to researcher bias on their expectation for individual's improvement. Having a measurement conducted by researchers that are blind to condition reduces bias

Table B2

WoE A Ratings for Each Study

Study	Measurement	Comparison Group	External Validity	Implementation Fidelity	WoE A Score
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Appendix C

Example Coding Protocol for WoE A

Name of Coder: xxx

Date: 7/1/2022

Full Study Reference in proper format: Divan, G., Vajaratkar, V., Cardozo, P., Huzurbazar, S., Verma, M., Howarth, E., Emsley, R., Taylor, C., Patel, V., & Green, J. (2019). The Feasibility and Effectiveness of PASS Plus, A Lay

Health Worker Delivered Comprehensive Intervention for Autism (a) P10 (e)9.9 (m 1 (utn (

- Very low (little basis)
- Low (guess)
- Moderate (weak inference)
- High (strong inference)
- Very high (explicitly stated)
- N/A
- Unknown/unable to code

B. Participants

Total size of sample (start of study): 40

Intervention group sample size: 19

Control group sample size: 21

C. Type of Program

- Universal prevention program
- Selective prevention program
- Targeted prevention program
- Intervention/Treatment
- Unknown

D. Stage of Program

- Model/demonstration programs
- Early stage programs
- Established/institutionalized programs
- Unknown

E. Concurrent or Historical Intervention Exposure

- Current exposure
- Prior exposure
- Unknown

F. Appropriate Statistical Analysis

Analysis 1: ANCOVA

- Appropriate unit of analysis
- Familywise/experimenter wise error rate controlled when applicable
- Sufficiently large N

2. Key Features for Coding Studies and Rating Level of Evidence/Support

(Rating Scale: 3= Strong Evidence, 2=Promising Evidence, 1=Weak Evidence, 0=No Evidence)

A. Measurement (Estimating the quality of the measures used to establish effects)

A1 The use of the outcome measures produce reliable scores for the majority of the primary outcomes

- Yes
- No
- Unknown/unable to code

A2 Multi-method (at least two assessment methods used)

- Yes
- No
- N/A
- Unknown/unable to code

A3 Multi-source (at least two sources used self-reports, teachers etc.)

- Yes
- No
- N/A
- Unknown/unable to code

A4 One source of measurement conducted by assessor's blind to participant condition

- Yes
- No
- N/A
- Unknown/unable to code

A5 Validity of measures reported (well-known or standardized or norm-referenced are considered good, consider any cultural considerations)

- Yes validated with specific target group
- In part, validated for general population only

- No
- Unknown/unable to code

2

B. Comparison Group

B1 Type of Comparison Group (Select one of the following)

- Typical intervention (typical intervention for that setting, without additions that make up the intervention being evaluated)
- Attention placebo
- Intervention element placebo
- Alternative intervention
- Pharmacotherapy
- No intervention
- Wait list/delayed intervention
- Minimal contact
- Unable to identify type of comparison

B2 Overall confidence of judgment on type of comparison group

- Posthoc matched set
- Statistical matching
- Post hoc test for group equivalence

B5 Equivalent mortality

- Low attrition (less than 20 % for post)
- Low attrition (less than 30% for follow-up)
- Intent to intervene analysis carried out?

: 2

C. External Validity Indicators.

C1. Sampling Procedures

C1.1 Sampling procedures described in detail.

- Yes
- No (incomplete or no evidence)

C1.2 Rationale for sample selection specified

- Yes
- No (incomplete or no evidence)

C1.3 Rationale for sample size specified

- Yes
- No (incomplete or no evidence)

C1.4 Evidence provided that sample represents target population

- Yes
- No (incomplete or no evidence)

C1.5 Inclusion/exclusion criteria specified

- Yes
- No

C1.6 Inclusion/exclusion criteria similar to school practice

- Yes
- No

C1.7 Specified criteria related to concern

Please specify frequency of intervention session: Fortnightly (12 sessions total)

D4.5 Programme Implementer (check all that apply)

- Research staff
- School specialty staff
- Teachers
- Educational Assistants
- Parents
- College Students
- Peers

- Other: Health workers (college graduates)
- Unknown/insufficient information provided

D4.6 Intervention Style or Orientation (check all that apply)

Appendix D

Weight of Evidence B

WoE B is an assessment of the methodological relevance of the studies to the review question (Gough, 2007). The criteria, therefore, assessed the methodological relevance of each study for determining the effectiveness of video-feedback interventions with parents to improve the social communication of autistic children. The criteria were established by the author in relation to the specific review question as presented in Table D1. The scores for each of the studies for WoE is presented in Table D2.

Table D1

Weight of Evidence B Criteria

Criteria	Weight and descriptor	Rationale
Statistical analysis	3 Effect size for between-group differences has been calculated, accounting for baseline differences	Effect size is needed for comparison of studies and it is important to reduce the bias of baseline differences in calculations (Morris, 2008)
	2 Effect size for between-group differences has not been calculated, accounting for baseline differences, but there is sufficient data for completing this analysis	
	1 Does not provide sufficient data for completing this analysis	
Outcome measure	3 Adapted social communication measure (independent of parents) to be sensitive to small changes over time	Studies look at changes over a short time, measures need to detect changes
	2 Rationale given for the social communication measure (independent of parents) based on previous research showing it to be adaptive to small changes over time	

Criteria	Weight and descriptor	Rationale
	1 Social communication measure (independent of parents) not adapted or this is not specified	
Power analysis	3 A-priori power analysis is reported and sample size is adequate to detect an effect based on previous studies	Studies should be adequately powered to detect effects
	2 Power analysis is reported and sample size is adequate to detect a stated effect size, although origin of this effect size is unclear	
	1 Sample size is inadequate for any analyses or insufficient data for calculation is provided	

Criteria	Weight and descriptor	Rationale
2	Social communication as part of autism symptomology/ risk score but reported separately	communication, as this has relevance to life satisfaction for autistic people (Kim & Bottema-Beutel, 2019)
1	Social communication part of an overall autism symptomology /risk score and not reported separately	communication, as this has relevance to life satisfaction for autistic people (Kim & Bottema-Beutel, 2019)

Table E2*Summary of Scores for Weight of Evidence C for Each Study*

Study	Participants	Intervention	Outcome	WoE C score (Descriptor)
Divan et al. (2019)	3	2	1	2 (Low)
Green et al. (2015)	1	3	1	1.6 (Low)
Green et al. (2010)	3	2	2	2.3 (Medium)
Klein et al. (2021)	3	1	2	2 (Low)
Poslawsky et al. (2014)	3			