The usability of Emotional Availability Scales in analysing interaction between mothers and their 0-2-year-old children with visual impairment and additional disabilities

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My background

Education

- Speech-language pathologist, MA, (University of Oulu, Finland)
- Master studies, MSc, on ”Communication and congenital deafblindness” (University of Groninen, 2010-2011)

At the moment

- Phd student at the University of Turku, Finland
- Speech-language pathologist in the Pediatric Neuropsychiatric Unit at the Helsinki University Hospital
- Occasionnally working in The Finnish Deafblind Association

Presentation outline

- Background
- Purpose of the study
- Data collection
- Video analysis
- Emotional Availability Scales (EAS)
- Preliminary results
- Discussion

Background

- Visual impairment (VI) and additional disabilities hamper early interaction between children and their parents.
- It may be difficult for parents to detect their children's hand and body gestures (Fraiberg, 1979; van den Broek et al., 2017).
- Children don't receive the visual information in interaction with their parents.
- Children's need for experiences in the *bodily-tactile modality* may not be realised (Forsgren, 2019; Nicholas, 2010). In this presentation the term bodily-tactile modality refers to a way to receive, give and store information by touches, movements and body postures.
- As a result, both the development of children's communication skills as well as the quality of overall emotional availability (EA) may be compromised.
- EA means a good emotional connection between children and their parents.

Interventions for 0-2-year-old children with VI and additional disabilities

- Music therapy (Metell, 2015)
- Nursery rhymes (Rogow, 1982)
- Video-feedback intervention (VIPP-V) to promote positive parenting (Platje et al., 2018)
- The PLAI Curriculum for promoting learning through active interaction (Chen et al., 2007)

Purpose of the study

To study the effects of the bodily-tactile intervention for 0-2-year-old children with visual impairment (VI) and additional disabilities and their parents

The plan is to publish three articles:

Article No.1 is based on different data:

> Peltokorpi, S., Daelman, M., Salo, S., & Laakso, M. (2020). Effect of tactile imitation guidance on imitation and emotional availability. A case report of a mother and her child with congenital deafblindness. *Frontiers in Psychology, 11:540355,* 1-8.

Articles No. 2-3 are based on the data gathered for the doctoral thesis:

> **2. A pilot study, in which the results of the first mother-child dyad are reported.**
>
> 3. Another study in which the results of the other families are reported.

Research questions (the pilot study)

1) How does the mother use bodily-tactile modality in interaction before and after the intervention?
2) How does the child's express himself gesturally and vocally before and after the intervention?
3) Does the child develop new gestures during intervention and if so, how do the gestures relate to his bodily-tactile experiences in interaction?
4) **What is the quality of emotional relationship between the mother and her child before and after the intervention?**

Data collection

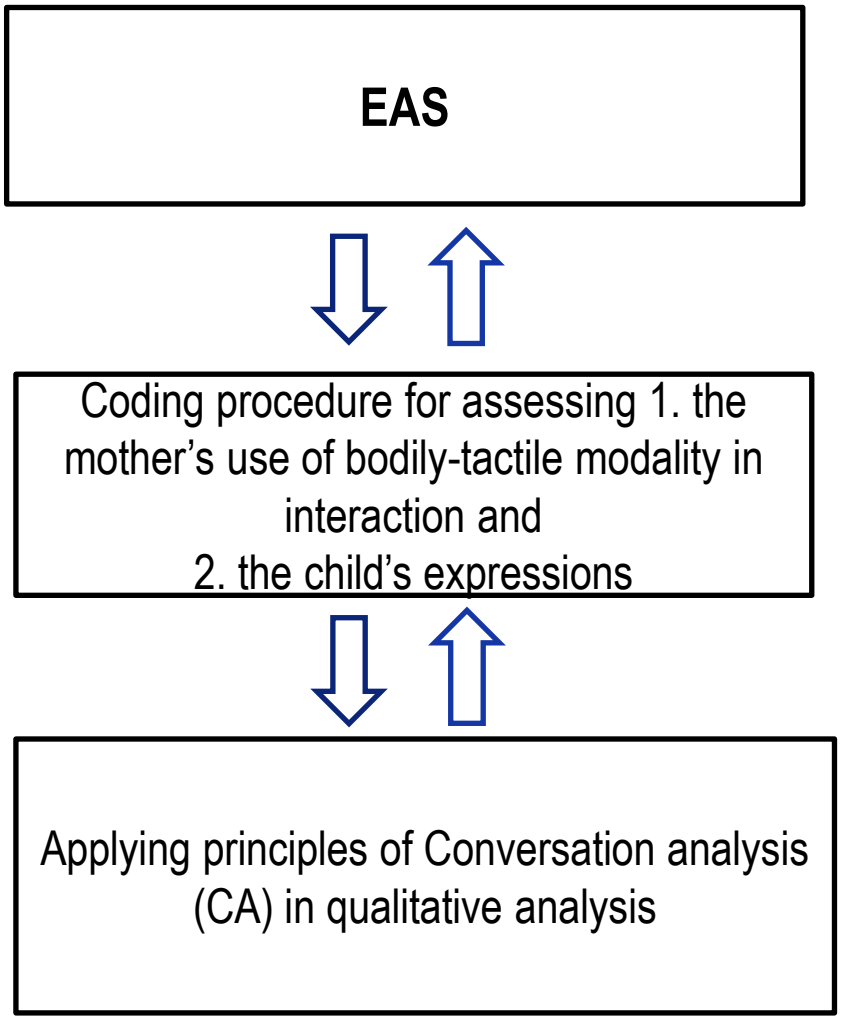
- Participants: 0-2-year-old children with VI and additional disabilities and their mothers (N=5)
- Data: Video recordings at home (baseline, intervention, follow up); questionnaires
- Bodily-tactile intervention (8 sessions). The aim was:

  1) to empower the mothers by introducing them how to use bodily-tactile modality in different functions in interaction (e.g., tactile signs, touches and movements connected to play)

  2) to foster the mothers ability to detect and respond to their children's gestures

  3) to give the children more chances for participation

Video analysis



TOP-DOWN

BOTTOM-UP

Emotional Availability Scales

- *Emotional Availability* (EA) is a construct that refers to emotional relationship between a child and his/her caregivers (Biringen, 2008).
- The concept of emotional availability is influenced by attachment theory, psychodynamic theory, emotions theory, systems theory, and the transactional model.
- The *Emotional Availability Scales* (EAS) assess the construct of emotional availability. It is a tool for analysing the affective quality in relationships between 0-14-year-old children and their parents/caregivers.
- The reliability and validity (relation between EAS and attachment) of the EAS have been found acceptable (Biringen et al., 2014).

EAS is a dyadic construct

- EAS is a global judgement (discrete behaviours not counted)
- The adult cannot get high scores without the child and vice versa.
- **The adult dimensions are**
  1) Sensitivity
  2) Structuring
  3) Non-intrusiveness
  4) Non-hostility
- **The child dimensions are**
  1) Responsiveness
  2) Involvement

- The significance of EA in parent-child relationship has been found to be related to children's attachment security, emotion regulation, empathy and social competence (Biringen et. al., 2014).
- In children with hearing loss, maternal EA sensitivity has been found to predict language development (Pressman et al., 1999; Pressman, et al.,1999b).
- EAS has been used in the typical population in various studies. (Biringen et al., 2014), but less in a atypical population.
  Some studies include children with
  Deafness/hard-of-hearing (e.g. Pressman et al., 1999)
  Blindness (Campbell & Johnston, 2009)
  Congenital deafblindness (Peltokorpi, et al., 2020)
  Down syndrome (de Falco et al., 2009)
  Autism spectrum disorders, developmental delay and infant mental health problems (Gul et al., 2016).

The EA Scales guidelines for children with disabilities

- ” The coder must consider the characteristics of the syndrome in question and its implications for behaviour in the current context and in the world more broadly when making the ratings (Biringen, 2008)”.
- The coder evaluates whether the parent employs strategies to compensate for the child’s difficulties.
- Advices for scoring EA in interaction with children with disabilities are given in the EAS manual (Biringen, 2008) and in the article addressing the topic (Biringen et al., 2015).
- The dimensions do not depend on using some specific modality (e.g. eye contact). The observer can be flexible in his/her evaluation.

EAS in intervention studies

EAS has been used to measure the changes in some *intervention studies related to relationship building.*

e.g., EA Child care intervention (Biringen et al., 2012), adoption (e.g., Garvin et al., 2012) and attachment based intervention (Nicholson et al., 2013).

EAS has been used very little to measure changes in *intervention studies related to communication* with children with disabilities.

e.g., a study examining the effect of tactile imitation guidance on imitation and emotional availability in a mother and her child with congenital deafblindness (Peltokorpi et al., 2020).

Why to use EAS in our study?

1. A control measure to address the *emotional quality of parent-child interaction* – highlighting emotional connection as an important part of the quality of interaction with children with VI and additional disabilities.
2. Basing on the EAS literature and training: EAS is likely to be applied succesfully in the group of children with VI and additional disabilities.
3. As it is a known measure for assessing the emotional quality of interaction, the results could be communicated with a larger group of professionals.

The participants of the pilot study

- Child (1 year 5 months) and his mother
- The child had a *L1CAM* gene mutation causing a MASA syndrome (also called CRASH syndrome or L1 syndrome)
- Suspected cortical visual impairment, estimated 50% degree of disability.
- Normal hearing
- Developmental delay
- The child was hypotonic and he could not sit without support. He could use his hands for exploring (e.g., his parents' faces)

The use of EAS in the pilot study

- A coder, who is an especial psychologist in child and adolescent psychology and trained specialist in using EAS. She was familiarized with some part of the non-analyzed data. She was blind to the study hypotheses.
- The EAS guidelines for children with disabilities were followed in coding (Biringen, 2008; Biringen et al., 2005).
- A reliability test was made by a person who is a method trainer in EAS.
- An acceptable level of reliability was reached.

Preliminary results: EA

The scale: 7 - 5.5 = optimal 5 – 4 = inconsistent
3 - 2.5 = non-optimal 1 = problematic

	B1	B2	B3	I1	I5	I8	F1	F2	F3
Sensitivity	5,5	6,5	5,5	6	6	6	6,5	5,5	6
Structuring	5,5	6	5,5	5,5	6,5	6	6,5	5,5	6
Non-intrusiveness	**5**	**5,5**	**5**	**5,5**	**5,5**	**6**	**6**	**5**	**5**
Non-hostility	6,5	6	6	6,5	6,5	6,5	7	6,5	6
Child responsiveness	**5,5**	**5**	**5**	**5,5**	**6**	**6**	**6,5**	**5**	**5,5**
Child involvement	5	6	5	5	5,5	5	5,5	4	3,5

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Preliminary results of the pilot study

The mother started using tactile signs in new contexts

	B1	B2	B3	I1	I5	I8	F1	F2	F3
Tactile signs in total	16	6	12	20	20	17	21	15	18
Tactile signs per minute	1,6	0,5	1,2	1,8	1,7	1,7	1,9	1,4	1,6
Tactile signs during speech	-	-	-	**6**	**8**	**14**	**5**	**7**	**11**
Tactile signs during songs	16	6	12	14	12	3	16	8	7

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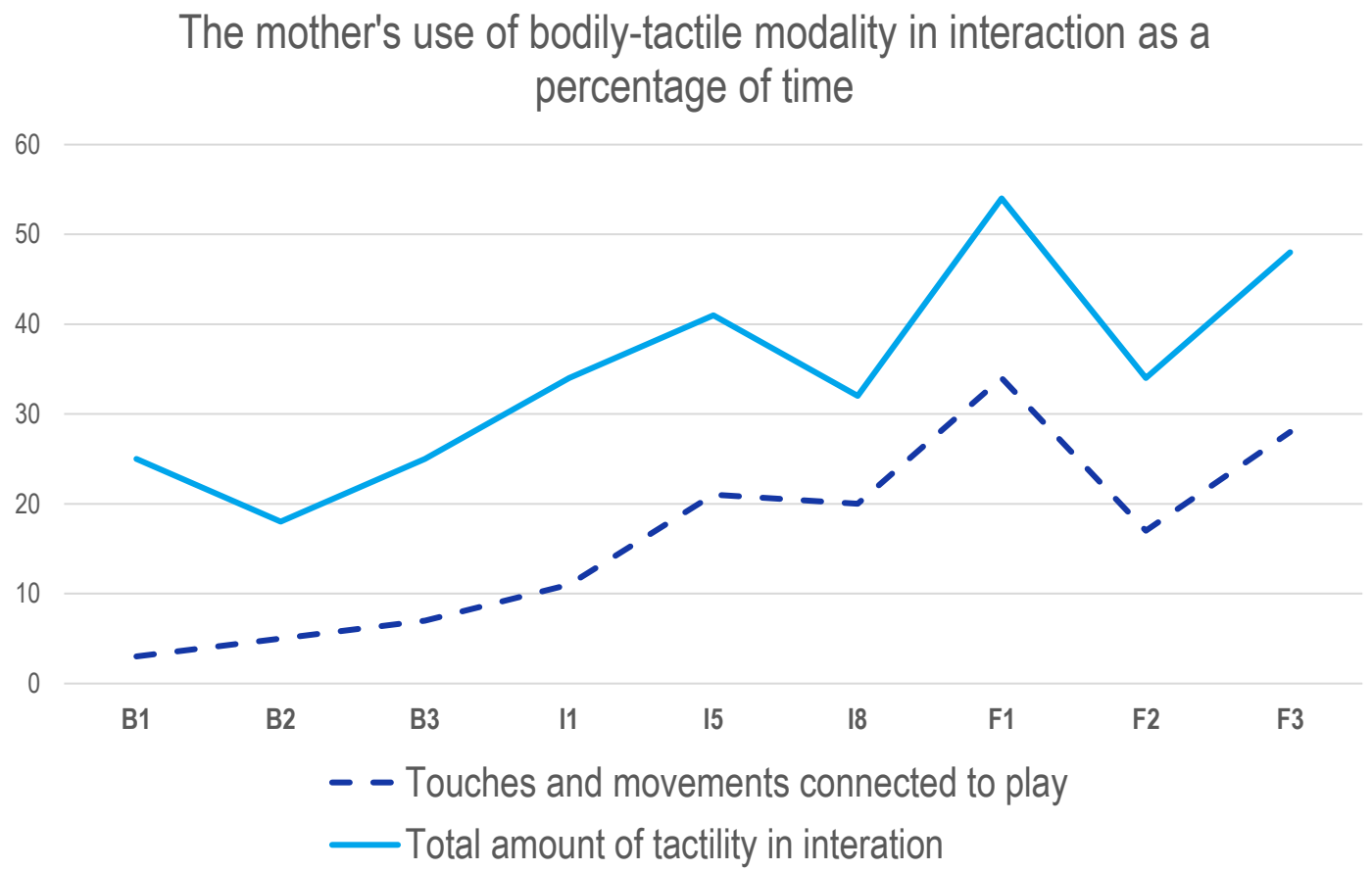
Preliminary results of the pilot study

The mother's sign vocabulary doubled.

	Baseline sessions	Intervention sessions	Follow up sessions
Tactile signs	**SUN, JUMP, SPIDER, ANTHILL, ANT, SLEEP, RAIN, TAKE AWAY, VIOLIN, DILIGENT**	**SUN, JUMP, SPIDER, VIOLIN** **SLEEP, RAIN, TAKE AWAY** CAT, DOG, COW, PIGGY, BLOWING ON THE SKIN GAME, MAGPIE, THE END, EAT, ROBIN'S NAME SIGN, LAMP, MOTHER	**DILIGENT, JUMP, SLEEP, ANTHILL, SPIDER, ANT, VIOLIN** MAGPIE, CAT, DOG, COW, PIGGY, THE END, RUB EYES, GO ON

Note. The bolded words are signs belonging to the song "Eensy Weensy Spider".

Preliminary results of the pilot study



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Other preliminary results of the pilot study

- We are still analysing the child's expressions.
- It was found that the child developed new gestures during intervention.
- Conversation analysis (CA) is used in analyzing in finding out how the child's new gestures relate to his bodily-tactile experiences in interaction, especially one rhyme.
- The preliminary results indicate that the new gestures were *based on the child's bodily-tactile experiences of the rhyme.*

The mother's feedback

After the intervention a feedback form was given to the mother. She rated the intervention very useful (5) in using scale from 1 to 5 (1=not useful at all, 5=very useful)

Do you notice any changes in communication or play with you child after the intervention (if yes, please describe how)?
"Yes. My ability to detect and notice gestures has improved and now we can play many different games together. Both nursery rhymes and exploring toys together."

Discussion

What do the results tell?

- The results of EA did not change that much. That might be because the scores were high already during baseline sessions.
- The optimal level of parental EA in typical terms may be not enough for creating the optimal basis for communication and language development in children with VI and additional disabilities.
- If working only with strategies and modalities in interaction, emotonal aspect of interaction may be neglected. It is important to consider EA in interaction, especially when the communication partners are not parents.
- As the results of the pilot study are not generalisable, we cannot assum that EA is high in all the mothers and their children with VI and additional disabilities. More studies are needed.

EAS: Instrument's sensitivity to change in this data.

- EAS may not detect micro-level changes in interaction
- The "therapeutic style" (adapting to children's disability-related needs) may be not known/detected by the coder.
- Ideally, a coder is a EAS specialist who knows the characteristics of the population studied.

It appears to be an advantage if several methods are used.

- A challenge is a possibility.
  Showing what EAS does not catch and discussing the findings.

In the future

- More studies are needed
- Special EAS guidelines for assessing the group of children with VI and additional disabilities and their caretakers?

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