



## Happy faces, sad faces: Emotion understanding in toddlers and preschoolers with language impairments



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### ABSTRACT

**Background:** The capacity for emotion recognition and understanding is crucial for daily social functioning. We examined to what extent this capacity is impaired in young children with a Language Impairment (LI). In typical development, children learn to recognize emotions in faces and situations through social experiences and social learning. Children with LI have less access to these experiences and are therefore expected to fall behind their peers without LI.

**Method:** In this study, 89 preschool children with LI and 202 children without LI (mean age 3 years and 10 months in both groups) were tested on three indices for facial emotion recognition (discrimination, identification, and attribution in emotion evoking situations). Parents reported on their children's emotion vocabulary and ability to talk about their own emotions.

**Results:** Preschoolers with and without LI performed similarly on the non-verbal task for emotion discrimination. Children with LI fell behind their peers without LI on both other tasks for emotion recognition that involved labelling the four basic emotions (happy, sad, angry, fear). The outcomes of these two tasks were also related to children's level of emotion language.

**Implications:** These outcomes emphasize the importance of 'emotion talk' at the youngest age possible for children with LI.

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### What this paper adds

The outcomes of this study show that toddlers and preschoolers with a language impairment (LI) fall behind their peers in the basic skills of emotion recognition (facial and situational). Given the importance of emotion recognition for social functioning, this emphasizes that even at this young age, the social development of children with LI is already at risk.

In the absence of another diagnosis that explains this delay, only limited access to social learning explains this difference in emotion recognition between preschoolers with and without LI. Parents also note more difficulties talking with their child with LI about their daily emotion evoking episodes, compared to parents of children without LI. These outcomes stress

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the importance of parent-child emotion talk for children with LI, even during their early years, which can scaffold the development of children's emotion understanding at the earliest possible age.

## 1. Introduction

The ability to 'read' others' emotions is an important skill for positive daily social interactions (Cutting & Dunn, 1999). Relationships rely largely on this ability to understand how the interaction partner feels towards specific situations. For example, this skill forms the basis for adaptive empathic reactions. Albeit the capability may be innate, its development requires social input to come to its full potential (Catmur, Walsh, & Heyes, 2007). A previous study showed that even a nonverbal task on facial emotion recognition can be more difficult for toddlers and preschoolers who have less access to their social world (i.e. due to hearing impairments), and thus less opportunity for social learning (Wiefferink, Rieffe, Ketelaar, De Raeve, & Frijns, 2013). To the best of our knowledge, it is yet unknown to what extent a language impairment can also hamper the early steps in the development of emotion recognition. Children diagnosed with language impairments (LI) are also limited in their social learning (Vissers & Koolen, 2016), which in turn could affect their capacity for emotion recognition. In this study we will examine the capacity for emotion recognition in toddlers and preschoolers with and without LI on three different indices for emotion recognition: recognizing facial expressions, labelling facial emotion expressions, and recognizing emotions in a social context.

### 1.1. *Psycho-social development in children with language impairments*

The diagnosis of a language impairment refers to persistent deficits in either children's language comprehension, production, or both, in the absence of other diagnoses that can explain these impairments. According to the DSM-V, the language impairment involves a reduced vocabulary, a limited sentence structure, and difficulties with discourse (DSM-V, American Psychiatric Association, 2013). It is the most common developmental disorder in children: it is prevalent in 5–7% in children aged 0–7 years (Shriberg, Tomblin, & McSeeny, 1999; Tomblin et al., 1997).

Children with LI experience more difficulties in daily functioning than typically developing children. They have an increased risk for social and behavioral problems (Lindsay, Dockrell, & Strand, 2007; Maggio et al., 2014; Schoon, Parsons, Rush, & Law, 2010; Van Daal, Verhoeven, & Van Balkom, 2007). Their position within the peer group is also at risk. Children with LI experience lower levels of peer acceptance, have fewer friends, and they are more often bullied by their peers (Lindsay et al., 2007).

These problems start early in life. Typically developing preschool children already avoid verbal interaction with children with LI (Hadley & Rice, 1991), and elementary school children consider children with LI less likeable (Andrés-Roqueta, Adrian, Clemente, & Villanueva, 2016; Gertner, Rice, & Hadley, 1994). These psycho-social problems persist when LI children grow older: children, adolescents, and adults with LI are at greater risk for depression and anxiety disorders, but also social problems, social isolation, or social phobia (Beitchman et al., 2001; Brownlie et al., 2004; Clegg, Hollis, Mawhood, & Rutter, 2005; Durkin & Conti-Ramsden, 2010; Lewis et al., 2016; Schoon et al., 2010; St Clair, Pickles, Durkin, & Conti-Ramsden, 2011; Wadman, Kevin Durkin, & Conti-Ramsden, 2011). Therefore, it is important to find the early roots of these psycho-social problems in children with LI in order to start preventive treatment as young as possible.

A striking outcome in various studies is that the social problems in the LI population are not directly related to their language levels (Marton et al., 2005; St Clair et al., 2011; Wadman et al., 2011). Or, as Marton et al. (2005) phrased it "the two problems are co-occurring" (p. 143). Rather, the relation between language skills and social problems is indirect. Impaired language skills cause communication difficulties, i.e. problems overhearing and understanding conversations by others; participating in group conversations where people often take turns at unexpected moments; being able to follow discussions that go fast or where people start talking simultaneously. Due to their communication difficulties, children with LI miss out on full participation in many social situations and therefore, have fewer opportunities for social learning. Limited access to the social world is not only a problem for children with LI, but also for other children with communication impairments, such as children with autism and children with hearing loss, albeit for different reasons, from very early on (Rieffe, Dirks, van Vlerken, & Veiga, 2016). Studies in these groups confirm that not language levels but communication skills are related to children's psycho-social functioning (e.g. Netten et al., 2015).

### 1.2. *Emotion recognition in children with LI*

In typical development, children's ability to understand, predict and explain emotions in others is strongly related to their social functioning (Denham et al., 2003). For instance, social competence and peer-rated popularity in children are predicted by children's ability to recognize the facial expression of emotions in other people, and to understand their causes (Denham, McKinley, Couchoud, & Holt, 1990). The question is to what extent the noted social impairments in children with LI are also related to possible difficulties with emotion recognition. We divided emotion recognition in the nonverbal capacity for facial emotion recognition, and the verbal capacity of labelling emotions.

First, an important aspect of emotion recognition is the ability to accurately read facial expressions in others. Babies already use this capacity to infer from their caregiver's face if a situation is safe or not (Soken & Pick, 1999); and from very early on, reciprocal positive facial expressions strengthen the relationship between caregiver and child (Messinger, 2008).

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