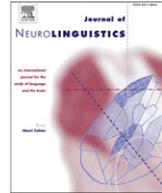




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## Fluent language with impaired pragmatics in children with Williams syndrome

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### ABSTRACT

We investigated the pragmatic language abilities of children with Williams syndrome (WS) and typically developing (TD) controls in an object-choice situation. After the children chose the object, the experimenter verbally expressed his understanding or misunderstanding of the choice and then gave the children the desired or undesired object. Children with WS produced fewer verbalizations for clarification than did TD children, particularly when they were verbally misunderstood, although children with WS generally talked almost as much as the TD children. This implies that children with WS may show impairment in communication repair skills for sharing what they meant with others. Such impairment might be related to the difficulties with relevant communication (i.e., influencing others' mental states with as little effort as possible) that are found in children with WS.

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## 1. Introduction

### 1.1. Communicative characteristics of Williams syndrome

Williams syndrome (WS) is a rare genetic neurodevelopmental disorder caused by the micro-deletion of chromosome 7q11.23 (Ewart et al., 1993). WS has been characterized by an uneven cognitive profile, with relatively strong language abilities but weak visuo-spatial cognition (Bellugi, Lichtenberger, Jones, Lai, & St. George, 2000; Mervis, Morris, Bertrand, & Robinson, 1999; Udwin,

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Yule, & Martin, 1987). However, recent studies indicate that the language abilities of children with WS are not as strong as previously claimed, and that their language abilities are also characterized by a profile of strengths and weaknesses (e.g., Karmiloff-Smith, Brown, Grice, & Paterson, 2003; Karmiloff-Smith et al., 1997; Volterra, Capirci, Pezzini, Sabbadini, & Vicari, 1996).

Although a number of studies have investigated the structural aspects of the language abilities of children with WS, to date there have been comparatively few studies of the pragmatic aspects (see Brock, 2007; Mervis & Becerra, 2007, for reviews). There have been some experimental studies and examinations of semi-structured conversations. Udwin and Yule (1990) analyzed speech production during conversations with an experimenter and showed that school-age children with WS used more adult vocabulary and social phrases than did verbal IQ-matched children with cognitive deficits. However, they did not find differences in the quantity of language production, in its grammatical complexity, or in the range and frequency of the communicative functions that were used. Reilly, Losh, Bellugi, and Wulfeck (2004) investigated narratives in children with WS. Children were asked to tell the story to the experimenter while looking at a wordless picture book. These researchers found that, as compared to children with specific language impairment, children with WS produced a greater proportion of social engagement devices such as sound effects and audience hookers, while these children produced fewer cognitive inferences such as reasoning about character motivation and mental states. Recently, Stojanovik (2006) investigated the social interaction abilities of children with WS using semi-structured conversations. Children were shown photographs depicting everyday scenes and were encouraged to talk about their own experiences in relation to the topic. The adult partner sometimes asked prepared questions when it was felt that the conversation was not progressing. Stojanovik found that, as compared to children with specific language impairment, children with WS were more likely to produce extended responses that consisted of more information than a minimal yes or no, but that they were also less likely to add new information to their replies. Lacroix, Bernicot, and Reilly (2007) investigated narrative production as well as collaborative conversation, during which the children had to negotiate with or adapt to the communication partner in order to fulfill a common goal. Lacroix et al. (2007) found that children and adolescents with WS showed good performance during narrative production (i.e., telling story while looking at pictures), but produced fewer utterances, played a weaker role, and less often satisfied other's requests during collaborative conversation, relative to mental age (MA)-matched typically developing (TD) children.

Although the studies reviewed above have provided somewhat mixed findings, studies that focus on parent or teacher reports have consistently demonstrated deficits in the pragmatic aspects of the language abilities of children with WS. Udwin et al. (1987) asked parents and/or teachers of children with WS about the problems that the children encountered. Children with WS exhibited various problems in communication, such as chattering incessantly at a superficial level (48% of the children) and speaking in an "old-fashioned" manner (46% of the children). Moreover, several researchers have assessed the pragmatic language abilities of children with WS by asking their parents to complete communication checklists, and have found that children with WS show deficits in pragmatic language abilities (Laws & Bishop, 2004; Philofsky, Fidler, & Hepburn, 2007). For example, Laws and Bishop (2004) found that children with WS demonstrate significant levels of pragmatic language impairment and show various specific deficits, particularly in the inappropriate initiation of conversation and in the use of stereotyped conversation.

As pragmatic theories suggest, in daily life speakers are often required to talk while taking the interlocutor's state into account (Grice, 1975; Sperber & Wilson, 1995). Efficient and successful conversations require the ability to take others' states into account and adapt utterances according to them. Communication repair is one such skill, and is defined as the ability to persist in communication and to modify or revise a signal when a communicative message is not responded to or understood by a partner (Alexander, Wetherby, & Prizant, 1997). Previous studies, that revealed relatively good communication abilities in individuals with WS, investigated the abilities in situations where children were asked to produce speech freely (e.g., during narratives). Such situations do not require children to take others' states into account or to adapt their utterances to the states of others. A case study of one 12-year-old boy with WS reported that he could repair breakdowns when his interlocutor was able to infer what he meant and therefore assist him (Tarling, Perkins, & Stojanovik, 2006). However, the communication repair skills of children with WS have not been examined in younger age groups or in

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