



## Dysfluencies in the speech of adults with intellectual disabilities and reported speech difficulties



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### ABSTRACT

**Background:** In individuals with an intellectual disability, speech dysfluencies are more common than in the general population. In clinical practice, these fluency disorders are generally diagnosed and treated as stuttering rather than cluttering.

**Purpose:** To characterise the type of dysfluencies in adults with intellectual disabilities and reported speech difficulties with an emphasis on manifestations of stuttering and cluttering, which distinction is to help optimise treatment aimed at improving fluency and intelligibility.

**Method:** The dysfluencies in the spontaneous speech of 28 adults (18–40 years; 16 men) with mild and moderate intellectual disabilities (IQs 40–70), who were characterised as poorly intelligible by their caregivers, were analysed using the speech norms for typically developing adults and children. The speakers were subsequently assigned to different diagnostic categories by relating their resulting dysfluency profiles to mean articulatory rate and articulatory rate variability.

**Results:** Twenty-two (75%) of the participants showed clinically significant dysfluencies, of which 21% were classified as cluttering, 29% as cluttering–stuttering and 25% as clear cluttering at normal articulatory rate. The characteristic pattern of stuttering did not occur.

**Conclusion:** The dysfluencies in the speech of adults with intellectual disabilities and poor intelligibility show patterns that are specific for this population. Together, the results suggest that in this specific group of dysfluent speakers interventions should be aimed at cluttering rather than stuttering.

**Learning outcomes:** The reader will be able to (1) describe patterns of dysfluencies in the speech of adults with intellectual disabilities that are specific for this group of people, (2) explain that a high rate of dysfluencies in speech is potentially a major determiner of poor intelligibility in adults with ID and (3) describe suggestions for intervention focusing on cluttering rather than stuttering in dysfluent speakers with ID.

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## 1. Introduction

### 1.1. Background

In many adults with intellectual disabilities (ID) speech intelligibility is poor,<sup>1</sup> with speech production being diversely affected. Dysfluency of speech is common in this group and in clinical practice the manifestations of disrupted speech are customarily diagnosed and hence treated as stuttering (Van Borsel & Vandermeulen, 2008). However, to date, little research has been published on the differentiation between types of dysfluencies in this population. In a survey Bray (2003) asked 27 speech-language therapists to identify the dysfluencies in the speech of their clients with Down syndrome. They predominantly characterised the dysfluencies as stutter-like in nature. Dysfluencies may be a determinant of poor intelligibility in adults with ID, directly influencing their quality of life, with their poor communication skills leading to social isolation. Treatment aimed at improving intelligibility is therefore highly relevant, but in order to optimise interventions we first need to learn more about the exact nature of the dysfluencies in this vulnerable group.

### 1.2. Dysfluencies and fluency disorders

There are several views on the classification of dysfluencies. Generally, two types are differentiated: stutter-like dysfluencies (SDF) and normal or non-stutter-like dysfluencies (NDF; Ward, 2006), although there is still discussion about their exact definitions and classification. For the purpose of our study, we defined SDFs as blocks or stops, prolongations, tensed word repetitions, and tensed part-word repetitions (Guitar, 2006), while NDFs were defined as multiple unstressed repetitions of words, word parts, and phonemes, interjections and revisions. Table 1 lists the different dysfluency subtypes, along with examples. NDFs are frequent in spontaneous speech (Howell & Au-Yeung, 2002), but when their frequency exceeds a particular threshold, they are considered to contribute to the diagnosis of a fluency disorder.

In *stuttering* recurrent SDFs interrupt speech, but when speech contains an exceptionally high frequency of NDFs, this is denoted as *cluttering* (ASHA, 1999). Two broad subtypes are distinguished in stuttering. *Primary stuttering* is seen in young children prior to their being aware of their speech, while stuttering in adolescents and adults that have full awareness of speech is referred to as *secondary stuttering* (Bloodstein, 1995). However, this differentiation is theoretical and not universally accepted as there are also very young children that are aware of their dysfluent speech, exhibiting concomitant stuttering behaviour (Bloodstein, 1995). In general, adolescents and adults who stutter are aware of their interruptions, perceive their speech problems as a serious obstacle for normal communication, and often exert extraordinary physical and mental effort to achieve fluent speech (Guitar, 2006).

From the speaker's perspective, stuttering can manifest itself as “the involuntary disruption of a continuing attempt to produce a spoken utterance” (Perkins, 1990, p. 376) causing “the forward flow of speech to be interrupted by a motorically disrupted sound, syllable, or word, or by the speaker's reactions thereto” (Van Riper, 1982, p. 5). People who stutter often show frustration, embarrassment and a fear of speaking (Guitar, 2006).

*Cluttering* can be defined as “a disorder of both speech and language processing that frequently results in rapid, dysrhythmic, sporadic, unorganised, often unintelligible speech” (see St. Louis & Schulte, 2011; Daly, 1993, p. 7). In addition, speech may be poorly articulated and contain an excessive number of normal (or non-stammered) dysfluencies (such as ums, ers and restarts) and unusually placed pauses (St. Louis & Schulte, 2011). Cluttering is characterised by three main features: (1) a rapid and/or irregular articulatory rate (Daly, 1993; St. Louis, 1992; Louis, Raphael, Myers, & Bakker, 2003); (2) a higher than average dysfluency rate that is dissimilar to that seen in stuttering, and (3) reduced speech intelligibility due to bursts of fast speech and indistinct articulation (Daly & Burnett, 1999; St. Louis, Raphael, Myers, & Bakker, 2003; Louis, Myers, Bakker, & Raphael, 2007; Ward, 2006). A fourth, typical symptom of cluttering is *telescoping*, which is the merging of syllables and deletion of word parts within a word (e.g. ‘horrific’ becomes ‘horfic’ and ‘television’ becomes ‘tevision’; St. Louis, Myers, Bakker, & Raphael, 2007; Ward, 2006). People who clutter are mostly unaware of their problem, but do know their speech is poorly intelligible (Guitar, 2006).

### 1.3. Diagnosing stuttering and cluttering

Speech-language pathologists generally agree that stuttering and cluttering represent two different fluency disorders that should be treated differently. However, a differential diagnosis is difficult because the two disorders have similar characteristics and often occur in conjunction with each other, with other speech/language-based disorders, and with more general conditions such as mental retardation and learning disabilities (e.g. Van Borsel & Tetnowski, 2007; Ward, 2006). Diagnostic assessment typically looks at the frequency, duration, type and severity of dysfluencies in spontaneous speech and generally involves counting the fluent and dysfluent components in a speech sample (either on video or audio tape or in vivo). Since criteria for categorising dysfluencies are not systematically applied across studies (Stansfield, 1988; Van Borsel &

<sup>1</sup> Speech intelligibility is usually defined as word or utterance recognition in natural communication situations (Smith & Nelson, 1985). Intelligibility depends on the quality of the speech output and the number of correctly produced phonemes in the relevant language. Intelligibility varies with the nature of the spoken material (e.g. linguistic structure, familiarity, length of utterance) and the context of communication (contextual support, quality of the acoustic transmission, quality of the auditory signal, and availability of visual cues from the speaker; Kent, 1992).

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