



Theory and therapy in stuttering: A complex relationship

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ABSTRACT

There are many treatments currently available for stuttering, for both children and adults. These range from direct interventions intended to reduce the severity and/or frequency of the speech behaviors of stuttering, to those intended to alleviate the anxiety and other mental health issues that can accompany the disorder. However, as there are little supporting data for many of these treatments, there is little consensus about which to use. Another way to evaluate stuttering treatments is to explore the extent to which they address the cause of the disorder. However, the cause of stuttering is not yet known. In this theoretical paper, a 3-factor causal model is presented, to which the mechanisms thought to be driving different treatments are then aligned. The model is innovative, in that it attempts to explain moments of stuttering. It is argued that all causal factors must be operating at each moment of stuttering. The model is intended as a new way of looking at cause, and how treatments may address cause. It is hoped this will stimulate discussion and lead to further lines of inquiry.

Educational objectives: The reader will be able to: (a) describe the P&A 3-factor causal model of moments of stuttering; (b) state how indirect direct stuttering treatments relate to cause, according to the P&A model; (c) describe how direct stuttering treatments relate to cause, according to the P&A model; (d) state the purpose of cognitive behavior therapy; and (e) describe at least one suggestion for further research arising from the P&A model.

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1. Introduction

There are currently many treatments available for people who stutter, across the life span (Bloodstein & Bernstein Ratner, 2008). However, most of these treatments have not yet been shown to be effective and there is currently little consensus about the best way to treat stuttering (Bloodstein & Bernstein Ratner, 2008). It is of interest, then, to ponder on the extent to which current treatments, at least those that are intended to improve fluency, address the cause of stuttering. However, as yet the cause of stuttering is poorly understood.

In this theoretical paper, the complex relationship between theory and therapy for stuttering is explored. When talking about stuttering, theory is typically taken to mean causal theory, in the scientific sense. This will be the focus of the discussion here. The paper covers the following: (1) a brief overview of stuttering treatments and causal theories of stuttering, and (2) the presentation of a new causal model of stuttering which is intended to increase understanding of how treatments relate to cause.

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2. Overview of treatments for stuttering

There is a long history of treatments for stuttering, dating back to the use of rhythmic speech in the 3rd century BC by the Greek philosopher Demosthenes (Packman, Onslow, & Menzies, 2000). Over the last 60 or so years, the approach to treatments for stuttering has become more professional than in previous times, in that treatment methods have been published in reputable journals and books and outcomes of some treatments have been measured and reported (for some overviews of treatments for stuttering, past and present, see Bloodstein & Bernstein Ratner, 2008; Guitar & McCauley, 2010; Ingham, 1984; Packman et al., 2000; Shapiro, 1999; Van Riper, 1973). These treatments cover a broad spectrum, from those intended to enhance fluency to those that address the psychological (including cognitive) and/or social concomitants of stuttering. Many treatments include procedures for both. Further, the approach to treatments for stuttering varies across the life span, with treatments for preschoolers being quite different from those for adolescents and adults.

For the purposes of this paper, fluency treatments have been categorized as direct and indirect. Direct treatments are those where procedures focus on changing spoken language, while indirect treatments are those that aim to enhance fluency by changing features of the environment thought to be impacting fluency. A number of treatment approaches include both. This categorization is typically used with interventions for children who stutter (for example, see Guitar & McCauley, 2010), but has wider applications. Treatment procedures that address the psychological and/or social concomitants of stuttering, such as social anxiety and avoidance, may be incorporated into fluency approaches or may stand alone, such as cognitive behavior therapy. Interestingly, drugs have been trialed for the treatment of stuttering in both adults and children and fall into both camps, with some targeting speech production and others targeting anxiety (for reviews see Bothe, Davidow, Bramlett, Franic, & Ingham, 2006; Boyd, Dworzynski, & Howell, 2011). The aims of various treatments will be discussed further later in this paper.

3. Overview of causal theories of stuttering

The cause of stuttering is as yet not fully understood. In order to fill this gap in understanding, many causal theories have been proposed (for reviews and discussion of causal theories, see Bloodstein & Bernstein Ratner, 2008; Packman & Attanasio, 2004; Yairi & Seery, 2011). As with treatments for the disorder, theories on the cause of stuttering date back centuries. However, in the main these theories are not testable in the sense that a scientific theory can be tested, which goes some way to explaining why so many are currently still considered viable. In other words, if a theory or model is not couched in operational terms and so cannot be tested, it can never be shown to be wrong (Packman & Attanasio, 2004).

There are many ways of categorizing causal theories. For example, Packman and Attanasio (2004) discussed them under the categories of speech motor control, systems control modeling, cognitive and linguistic processing, multifactorial and anticipatory struggle, while Bloodstein and Bernstein Ratner (2008) talked about “theories of etiology versus concepts of the moment of stuttering” (p. 39). As suggested by Bloodstein and Bernstein Ratner’s classification, it has long been suggested that causal theories be categorized according to whether they explain the underlying cause of stuttering or the cause of individual moments of stuttering. These are sometimes referred to as the distal and proximal causes. According to Bloodstein and Bernstein Ratner, some causal theories address both.

Most causal thinking at the present time is multifactorial. Two influential multifactorial models theories are the Demands and Capacities model (e.g. Starkweather, 1987; Starkweather & Givens-Ackerman, 1997; Starkweather & Gottwald, 2000) and the Dynamic Multifactorial model (Smith & Kelly, 1997). According to the Demands and Capacities model, stuttering is the result of the interaction of intrinsic and environmental factors and occurs when the demands for fluency are greater than the capacity to produce it. None of these factors are necessarily abnormal and, “there is no single etiology, but as many etiologies as there are stories of stuttering development” (Starkweather & Givens-Ackerman, 1997, p. 24). Similarly, according to the Dynamic Multifactorial model, “stuttering emerges from the complex, nonlinear interaction of many factors. No single factor can be identified as ‘the cause’ of stuttering” (Smith & Kelly, 1997, p. 209).

There can be little doubt that stuttering is multifactorial and highlighting this, as these two models do, has done much to aid thinking about the cause of the disorder. However, the way these two models have been presented means that they cannot be falsified. It is also the case, as will be discussed below, that the findings of brain imaging research that have emerged since the models were formulated, are suggesting that there are structural differences in the brains of people who stutter and that these may be a necessary condition for stuttering to occur. Clearly, however, even if further research establishes unequivocally that such brain anomalies are present in people who stutter, such anomalies are not sufficient to cause stuttering. They do not explain why some syllables are said with struggle and tension while others are said fluently.

A causal model is now presented that is multifactorial in nature but that describes the factors operationally. It is based on the reasoning that the question to be addressed by any causal model is not the general one, what causes stuttering, but rather the specific one, what causes individual moments of stuttering. It is argued here that distinguishing between what are termed “distal cause” and “proximal cause” is misleading, because it is the case that all causal factors must be operating at every moment of stuttering. The Packman and Attanasio 3-factor causal model of moments of stuttering (P&A model) is the first multifactorial explanation of stuttering that attempts to model the necessary and sufficient conditions for a moment of stuttering to occur.

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