



10th Oxford Dysfluency Conference, ODC 2014, 17 - 20 July, 2014, Oxford, United Kingdom

Is it Thinking and not Feeling that influence variability of stuttering in social situations? About stuttering and social cognition

P.A. Alm

Uppsala University, Sweden

Abstract

In many cases of stuttering the severity of the symptoms tend to vary substantially in relation to the social situation, typically with less stuttering when talking all alone and more stuttering in socially demanding contexts. The factors underlying situational variability is of clinical importance. In theories of stuttering it has often been assumed that this variability is related to emotional reactions of anxiety and fear. However, the relation between emotions and stuttering is not clear. For example, observations of effects of strong fear in persons who stutter suggest that fear sometimes may facilitate speech fluency (Bloodstein & Ratner, 2008). Further, studies of effects of treatment in adults who stutter indicate that the anxiety for social situations may be successfully reduced without significant effect on the severity of the observable stuttering. It is here hypothesized that it is *social cognition* (thinking) and not *social anxiety* (emotion) that has the main interfering situational effect on stuttering. Social cognition involves thoughts about what one thinks of oneself, and what others may think or expect. For persons who are concerned about stuttering it is likely that social situations often involve thoughts about possible scenarios, including what other may think if they stutter and alternative plans how to act. Social cognition is a normal process, which does not need to be associated with social anxiety. Neuroscience research has shown that social cognition is especially related to processing in the *medial prefrontal cortex* (mPFC), which means the cortex region in the medial wall hidden

Keywords: Stuttering; Social cognition; Social anxiety; Neurophysiology

© 2015 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).
Peer-review under responsibility of the Scientific Committee of ODC 2014.

between the two cerebral hemispheres in the most anterior part of the brain. This region is adjacent to regions which are crucial for the initiation of propositional speech, such as the *anterior cingulate cortex* and the *supplementary motor area* (SMA). Cortical regions in the brain may be roughly divided into two partly opposing networks: *goal directed* versus *"reflecting"*. It seems that activities which activate the goal-directed network, such as focused attention, tend to reduce the momentary severity of stuttering. One hypothesis about the cause of stuttering is that persons who stutter tend to have *bilateral speech motor control*. A consequence would be the need to synchronize both sides, via long pathways between the hemispheres. It is conceivable that such organization would be sensitive for interference, for example from processes related to social cognition in the medial frontal lobes. It is suggested that stuttering is a *threshold phenomenon*, meaning that fluent speech may be close to the neurophysiological threshold for disruption, but as long as the threshold is not passed, no obvious symptoms are shown. Thresholds create non-linear effects, which imply the possibility that significant interfering effect of social cognition may be shown also for normal social cognition, without strong social anxiety. It is important to emphasize that it is not suggested that social cognition is a factor underlying onset of stuttering, because data from preschool children who stutter do not provide support for elevated shyness or social anxiety at the time around onset.