Shot through with voices: Dissociation mediates the relationship between varieties of inner speech and auditory hallucination proneness

Ben Alderson-Day [a,*], Simon McCarthy-Jones [b], Sarah Bedford [a], Hannah Collins [a], Holly Dunne [a], Chloe Rooke [a], Charles Fernyhough [a]

[a] Psychology Department, Science Laboratories, Durham University, South Road, Durham DH1 3LE, United Kingdom
[b] Department of Cognitive Science, Macquarie University, Australian Hearing Hub, 16 University Avenue, NSW 2109, Australia

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ABSTRACT

Inner speech is a commonly experienced but poorly understood phenomenon. The Varieties of Inner Speech Questionnaire (VISQ; McCarthy-Jones & Fernyhough, 2011) assesses four characteristics of inner speech: *dialogicality*, *evaluative/motivational* content, *condensation*, and the presence of *other people*. Prior findings have linked anxiety and proneness to auditory hallucinations (AH) to these types of inner speech. This study extends that work by examining how inner speech relates to self-esteem and dissociation, and their combined impact upon AH-proneness. 156 students completed the VISQ and measures of self-esteem, dissociation and AH-proneness. Correlational analyses indicated that evaluative inner speech and other people in inner speech were associated with lower self-esteem and greater frequency of dissociative experiences. Dissociation and VISQ scores, but not self-esteem, predicted AH-proneness. Structural equation modelling supported a mediating role for dissociation between specific components of inner speech (evaluative and other people) and AH-proneness. Implications for the development of "hearing voices" are discussed.

1. Introduction

Inner speech – the internal monologue that appears to accompany our daily lives – is an experience that will be familiar to many. Often, inner speech is simply defined as a silent form of speech; for example, Levine, Calvanio, and Popovics (1982) call it the "subjective phenomenon of talking to oneself, of developing an auditory–articulatory image of speech without uttering a sound" (p. 391). But the everyday nature of inner speech hides a wealth of complexity (Hurlburt, Heavey, & Kelsey, 2013). Developmentally, inner speech has been proposed to reflect the internalisation of external dialogue and self-directed private speech, facilitating higher order cognitive skills (Vygotsky, 1987). In adulthood, inner speech supports executive functions (Miyake, Emerson, Padilla, & Ahn, 2004) and facilitates self-evaluation and reflection (Morin & Michaud, 2007). It has also been argued that the form of inner speech in adulthood is shaped by its developmental origins. For example, Fernyhough (2004) has argued that inner speech is inherently dialogic, reflecting the external interpersonal discourse from which it came. Inner speech may also change its form as it develops, becoming syntactically and semantically

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abbreviated or "condensed". In this sense, inner speech is likely to be more than simply silent, covert speech. Rather, it is a complex and dynamic activity, and one that needs to be examined in more depth.

Various methods of investigating inner speech exist, including questionnaires (Duncan & Cheyne, 1999; Morin, Uttl, & Hamper, 2011), experience sampling (Hurlburt et al., 2013) and task-based methods (Murray, 1967). However, few have included the various developmental characteristics of inner speech, such as dialogicality and condensation, as well as the functions of inner speech, such as action control (Luria, 1961), in a comprehensive measure of everyday experience. One exception is the Varieties of Inner Speech Questionnaire (VISQ; McCarthy-Jones & Fernyhough, 2011), a scale that measures self-reported inner speech along four distinct dimensions: (i) *dialogicality*, the communicative and conversational quality of inner speech; (ii) *condensation*, or the extent to which inner speech is syntactically and semantically abbreviated, (iii) *evaluative/motivational* inner speech, such as saying "I should do this" to oneself, and (iv) the presence of *other people's* voices in inner speech.

An initial validation of the VISQ (McCarthy-Jones & Fernyhough, 2011) demonstrated two advantages of this approach. First, the VISQ can provide a more nuanced picture of the range of ways in which inner speech is used and experienced; in data from a student sample, dialogic and evaluative characteristics of inner speech appeared to be very common, while a substantial minority reported experiences of condensation and other people's voices in their inner speech (McCarthy-Jones & Fernyhough, 2011). Secondly, given that inner speech is proposed to be the raw material of some auditory verbal hallucinations ('hearing voices') (Bentall, 1990; Frith, 1992; Shergill et al., 2003), and may play a causal or maintenance role in anxiety and depression (Harrington & Blankenship, 2002), the VISQ can be used to examine how specific types of inner speech may be related to psychopathological processes. In their original study, McCarthy-Jones and Fernyhough found that self-reported evaluative inner speech and the presence of other people in inner speech were positively related to anxiety. Alongside this, proneness to auditory hallucinations (AH) had bivariate correlations with evaluative, other people and dialogic inner speech, although after controlling for potentially confounding factors, only dialogic characteristics remained a significant predictor of AH-proneness (McCarthy-Jones & Fernyhough, 2011).

The present study sought to extend this work by examining the interrelations between inner speech and two other constructs that have been related to the development and experience of psychosis-like phenomena: self-esteem (Krabbendam et al., 2002) and dissociation (Altman, Collins, & Mundy, 1997).

Self-esteem refers to the set of positive and negative beliefs and feelings that people have about themselves. It has been related to the severity and content of hallucinations in clinical studies (Romm et al., 2011; Smith et al., 2006) and has been proposed to shape the interactions people have with the voices they hear (Paulik, 2012). In work with the general population, self-esteem has been observed to predict later development of psychosis (Krabbendam et al., 2002), and has been associated with increased hallucination-proneness (Gaweda, Holas, & Kokoszka, 2012; Gracie et al., 2007; Pickering, Simpson, & Bentall, 2008).

Dissociation refers to a "lack of normal integration of thoughts, feelings and experiences into the stream of consciousness and memory" (Bernstein & Putnam, 1986, p. 727), and is typified by feelings of depersonalization, derealisation and absorption. Diagnostic overlaps between dissociative and psychotic disorders have often been noted (Allen & Coyne, 1995), and dissociation is strongly related to rates of psychotic experiences, including hallucinations (Altman et al., 1997; Glicksohn & Barrett, 2003; Kilcommons & Morrison, 2005; Merckelbach, Rassin, & Muris, 2000). More recently, specific links between dissociation and voice-hearing have been proposed (Moskowitz & Corstens, 2008), with dissociative experiences potentially playing a predisposing role or acting as a preliminary stage in the development of AHs (Perona-Garcelán et al., 2011; Varese, Barkus, & Bentall, 2012).

In addition to their documented association with hallucinations, there are *prima facie* reasons to think that both self-esteem and dissociation might overlap with specific aspects of inner speech. Given its proposed role in self-assessment and reflection, evaluative aspects of inner speech would appear relevant to an individual's self-concept and social rank. The presence of other voices in inner speech, in contrast, has a phenomenological similarity with dissociative experiences of depersonalization and detachment; a separation of the self and other. This can be seen in example items from the VISQ, such as "I experience the voices of other people asking me questions in my head" (McCarthy-Jones & Fernyhough, 2011). As such, the first aim of this study was to establish what links, if any, there are between varieties of inner speech, self-esteem and dissociative traits. We hypothesised that evaluative inner speech scores in particular would be strongly associated with self-esteem, while other people in inner speech would be closely associated with dissociation scores.

The second aim of this study was to investigate how any potential relations between the varieties of inner speech, dissociation and self-esteem might influence the previously documented association between inner speech and AH-proneness (McCarthy-Jones & Fernyhough, 2011). If self-esteem and dissociation were to be found to be related to both inner speech and AH-proneness, then they could represent potential confounding variables, or act as either mediators or moderators of the link between inner speech and AH-proneness. Dissociation in particular has been proposed to act as a mediator in the development of hallucinations. In patients with schizophrenia spectrum disorders, dissociative traits positively mediate the effects of childhood trauma (Varese et al., 2012), and attentional focus (Perona-Garcelán et al., 2011) on hallucination proneness.

As it is currently unclear how inner speech may become transmuted into AHs, an examination of whether dissociation and/or self-esteem are potential mediators is of considerable potential value. This was accomplished by testing the fit of a number of potential models of the relation between self-esteem, dissociation and the varieties of inner speech using structural equation modelling.