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What are the neurocognitive correlates of basic self-disturbance in schizophrenia?: Integrating phenomenology and neurocognition. Part 1 (Source monitoring deficits)

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ABSTRACT

Phenomenological research indicates that disturbance of the basic sense of self may be a core phenotypic marker of schizophrenia spectrum disorders. Basic self-disturbance refers to disruption of the sense of ownership of experience and agency of action and is associated with a variety of anomalous subjective experiences. Little is known about the neurocognitive underpinnings of basic self-disturbance. In these two theoretical papers (of which this is Part 1), we review some recent phenomenological and neurocognitive research and point to a convergence of these approaches around the concept of self-disturbance. Specifically, we propose that subjective anomalies associated with basic self-disturbance may be associated with: 1. source monitoring deficits, which may contribute particularly to disturbances of "ownership" and "mineness" (the phenomenological notion of *presence or self-affection*) and 2. aberrant salience, and associated disturbances of memory, prediction and attention processes, which may contribute to hyper-reflexivity, disturbed "grip" or "hold" on the perceptual and conceptual field, and disturbances of intuitive social understanding ("common sense"). In this paper (Part 1) we focus on source monitoring deficits. Part 2 (this issue) addresses aberrant salience. Empirical studies are required in a variety of populations in order to test these proposed associations between phenomenological and neurocognitive aspects of self-disturbance in schizophrenia. An integration of findings across the phenomenological and neurocognitive "levels" would represent a significant advance in the understanding of schizophrenia and possibly enhance early identification and intervention strategies.

1. Introduction

Although schizophrenia research can at times seem to be characterised by a veritable explosion of empirical findings, the diagnostic boundaries and pathogenetic mechanisms of the disorder remain obscure. The lack of integration across "levels" of enquiry (phenomenological, psychological, neurocognitive, neurobiological, genetic) may contribute to this situation. As in the fable of the blind men and the elephant, touching different parts of the same beast without awareness of the other parts inevitably yields a partial and distorted image of the whole.[1] Integration across these levels may help researchers move towards unifying principles and themes in the study of schizophrenia, which will ultimately guide diagnosis, intervention and early identification practices. In this vein, these twin papers (see Nelson et al., Part 2, this issue) are an attempt at a theoretical integration of recent phenomenological and neurocognitive research in schizophrenia. We argue that there is a convergence of findings from these different "levels" of enquiry around the concept of disturbance of the basic (a.k.a. "minimal" or "core") sense of self, and that this may therefore function as a key unifying or integrative construct. The proposed model leads to a number of hypotheses that can form the basis of future empirical work.

2. The phenomenology of basic self-disturbance in schizophrenia

Phenomenologically-oriented researchers propose that a disturbance of the basic sense of self is at the clinical core and is therefore a phenotypic trait marker of the schizophrenia spectrum (Sass, 1992; Parnas, 2003; Sass and Parnas, 2003; Parnas et al., 2005a; Nelson et al., 2008; Parnas, 2012). This model emerges from a combination of empirical research, clinical exploration and philosophical considerations (Parnas et al., 1998; Møller and Husby, 2000; Parnas, 2000, 2003; Sass and Parnas, 2003; Parnas et al., 2005a,b; Sass and Parnas, 2007; Sass et al., 2011). The type of self-disturbance posited as a core abnormality in schizophrenia is the *tacit, pre-reflective* level of selfhood. This refers to the "given" fact that all experience has a first-person quality, that there is an implicit "ownership" of experience or tacit awareness that this is

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[1] This is of course a problem in many areas of research—for example, see Wehner et al. (1991) regarding creativity research.

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"my" experience (Zahavi, 2003; Gallagher, 2011). This is sometimes referred to as the "minimal" self or as "ipseity" (*ipse* is Latin for "self" or "itself"), reflecting the notion that this level of selfhood is the ground or basis of various aspects of conscious experience (Sass and Parnas, 2003). This is contrasted with more elaborated levels of selfhood, such as the reflective self (the self as an object of reflection) or the narrative self (social identity) (Parnas, 2003).

Various anomalies of subjective experience reflective of basic self-disturbance have been described in schizophrenia spectrum conditions. They include disturbed stream of consciousness, sense of presence, corporeality, self-demarcation, and existential reorientation, all of which are intimately interrelated (Parnas, 2003; Parnas et al., 2005b). These disturbances have been comprehensively catalogued in the Examination of Anomalous Self-Experience (EASE) instrument (Parnas et al., 2005b). In brief, these subjective disturbances consist of:

Stream of consciousness

The early phase of schizophrenia is marked by an emerging experiential gap between the self and mental content. The sense of "mineness" of mental content is disrupted, as if thoughts were taking on an almost autonomous and anonymous identity. Patients may complain, for example, of experiencing thoughts as pressured or as having a physical, object-like, or acoustic quality. This may evolve into frank psychotic symptoms, such as thought insertion and thought broadcasting. As Schneider (1950) pointed out with regard to first rank symptoms, there is at the core of these symptoms a "radical qualitative change in the thought processes" (p.100) in the sense of a transformation in the *form* of consciousness with a diminished sense of thoughts having an implicit first person quality (the "mineness" or *Meinhaftigkeit* of experience; Raballo and Parnas, 2012).

Presence

Normal human experience consists of being absorbed in activity amongst a world of (animate and inanimate) objects and this absorption provides us with a sense of "inhabiting" our self in a pre-reflective, tacit, or automatic fashion. This is referred to as *presence* or as *self-affection*. Our experiences appear to us in a first-person mode of presentation—that is, we automatically or pre-reflectively experience them as *our* experience. This sense of "mineness" constitutes a basic form of self-awareness. Disturbed presence is often evident in the schizophrenia spectrum, with a characteristic sense that the self no longer "saturates experience" (Parnas and Handest, 2003, p.125) but instead stands alienated from itself. Patients may describe various forms of depersonalisation or derealisation, a sense of inner void, and a reduced ability to be affected or influenced by events or other people.

Corporeality

A disjunction between one's subjectivity and bodily experience can be observed in schizophrenia spectrum conditions, particularly during the pre-onset or prodromal phase, as represented in many of the bodily basic symptoms, such as cenesthesias and impaired bodily sensations (Klosterkötter et al., 2001). There can be a transformation in the experience of the "lived body" (Merleau-Ponty, 1964): experiential distance emerges between the self and bodily experience; one no longer "inhabits" one's body but, rather, experiences it as an object.

Self-demarcation

Subtle phenomena indicating a loss or permeability of self-world boundaries are apparent in schizophrenia spectrum conditions. Examples of these phenomena are a confusion of boundaries between self and others (e.g., losing sense of whether thoughts, feelings, etc. originated in oneself or another person), a sense of passivity in relation to the world and others, or experiencing the physical presence and contact of others as threatening.

Existential reorientation

A common finding in studies of the early psychotic phase has been of a developing preoccupation with philosophical, supernatural, and metaphysical themes (Yung and McGorry, 1996; Møller and Husby, 2000). The rupture in "normal" self-experience motivates such a preoccupation; in cognitive terms, the patient is attempting to explain, justify, or perhaps just to explore his anomalous experience. Feelings of centrality or solipsism may come to the fore.

For more comprehensive descriptions of these anomalous subjective experiences see Parnas (2003, 2005b), Parnas and Handest (2003), and Sass (1992).

The basic self-disturbance model of schizophrenia has gained substantial empirical support. In brief, empirical findings indicate that basic self-disturbance distinguishes schizophrenia spectrum conditions from other psychoses (Parnas et al., 2003; Nelson et al., 2013b), characterises the schizophrenia prodrome in retrospective studies (Parnas et al., 1998; Møller and Husby, 2000; Parnas and Handest, 2003; Parnas et al., 2005a), is present in non-psychotic family members of schizophrenia spectrum patients (Raballo and Parnas, 2011; Raballo et al., 2011), predicts onset of schizophrenia spectrum disorders in those who present with non-psychotic conditions (Parnas et al., 2011), is prominent in "ultra high risk" (UHR) patients (Davidsen, 2009; Nelson et al., 2012) and predicts future onset of psychotic disorder in UHR patients, particularly schizophrenia spectrum cases (Nelson et al., 2012). This model of schizophrenia does not discount the fact that "the self" or self-experience is disturbed in many other psychiatric disorders, but asserts that it is a different *level* or *type* of selfhood that is disturbed in most of these conditions (Parnas, 2003; Lysaker and Lysaker, 2010; Nelson et al., 2013a). (Depersonalisation disorder may be, to some extent, an exception; Sass et al., 2013a). The fact that first person patient accounts of their illness are highly consistent with the self-disturbance model (in fact, have made explicit reference to the model; Kean, 2009) is further encouragement for this approach (Saks, 2007).

The psychological processes that are thought to underlie basic self-disturbance are the complementary distortions of hyper-reflexivity and diminished self-affection, the two facets of "ipseity disturbance" (Sass, 1992; Sass and Parnas, 2003). Hyper-reflexivity refers to an inflated self-consciousness and heightened awareness of aspects of one's experience that are normally tacit and implicit and "in the background" of experience (e.g., awareness of the act of breathing or sensations while walking, or of the "inner speech" that mediates our thinking). This has the effect of objectifying these aspects of experience, thereby forcing them to be experienced *as if* they were external objects, and transforming them in various reifying ways (as when mental images take on a quality of "phantom concreteness" (Sass, 1994)). Hyper-reflexivity consists of both *reflective* hyper-reflexivity (or hyper-reflectivity), which refers to an exaggerated intellectual or reflective process, and *operative* hyper-reflexivity, which refers to acts of awareness that are not intellectual in nature, that may not occur voluntarily, as in the case of kinaesthetic experiences "popping" into awareness, and that are probably more primary in a pathogenetic sense (Sass and Parnas, 2007).[2]

Diminished self-affection refers to a weakened sense of existing as a *subject* of awareness. Hyper-reflexivity and diminished self-affection are considered to be complementary aspects of disturbed "ipseity": "…Whereas the notion of hyperreflexivity emphasizes the way in which something normally tacit becomes focal and explicit, the notion of diminished self-affection emphasizes a complementary aspect of this very same process—the fact that what once *was* tacit is no longer

[2] A recently completed study of self experience under conditions of intense introspection (in the "introspectionist" research of early 20th century psychologists like Titchener) suggests that even *volitional* introspection of this kind can induce many (but not all) of the self-anomalies common in schizophrenia-spectrum disorders. See Sass et al. (2013a) and Hunt and Chefurka (1976), both discussed in Sass this issue.