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Abstract: Transition to psychosis in at-risk individuals has markedly declined in recent years. So far it has never been discussed in detail that with the growing awareness increasing availability of early psychosis services, a much broader diagnostic spectrum is now being seen in these services. Subsequently, subjects present with symptoms that meet psychosis risk on a purely psychometric basis but may be the phenotypical expression of another underlying mental disorder. Here we critically review four groups of symptoms and clinical features that are frequently reported by individuals with suspected psychosis risk states, yet share strong commonalities with other mental disorders and conditions: isolated hallucinations; unusual bodily perceptions, hypochondriatic fears and cenesthetic psychotic symptoms; depersonalization; obsessive-compulsive, overvalued and delusional ideas. Of the 616 individuals so far assessed in the Bruderholz Early Psychosis Outpatient Service for Adolescents and Young Adults, 218 (30.5%) met ultra-high risk (UHR) criteria, 188 (86.2%) of which suffered from one of the four above mentioned symptom groups. The appraisal of the diagnostic spectra and their overlapping symptoms constitute a tremendous challenge in the clinical assessment of each referred individual. The final conclusion of a clinical assessment should not end with the mere assignment - or non-assignment - to a presumed psychosis risk group, but needs to take into account the 'Gestalt' of these particular symptoms and clinical features and thus be based on many more facets than solely a psychometric or nosological approach. Such an approach may break down the heterogeneous psychosis risk group and enable appropriate treatment regimes.

Suggested Reviewers: Thomas McGlashan
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vast and longstanding expertise in the field

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Conflict of Interest

All authors declare that they have no conflicts of interest.

Contributors

All authors contributed to and have approved the final manuscript.

***Cover Letter**

Bruderholz, April 14th 2014

Dear Editor-in-Chief,

Enclosed please find our manuscript with the title '*Declining transition rates to psychosis: the role of diagnostic spectra and symptom overlaps in individuals with attenuated psychosis syndrome*' that we should like to submit the manuscript for publication in the esteemed *Schizophrenia Research*.
The paper is a critical review of four overlapping spectra with symptoms formally meeting criteria for at-risk mental states for psychosis, specifically ultra high-risk (UHR) criteria, however often representing epiphenomena of other underlying mental states or disorders. Given the growing awareness of potential prodromal states and increasing availability of early psychosis services around the globe, a much broader diagnostic spectrum is now being seen in these services. We emphasize that this phenomenon markedly contributes to the decreasing transition to psychosis reported in the majority of studies of UHR patients. However, up to date, this phenomenon has never been discussed in detail. Thus, our paper provides the first discussion of this important issue.
The four overlapping spectra were drawn from the Swiss *Bruderholz Early Psychosis Outpatient Service for Adolescents and Young Adults* where 616 help-seeking patients have been assessed between July 2002 and February 2014 and which thus represents one of the largest cohorts so far being seen in any specialized early psychosis service. In the present study we studied 218 individuals meeting ultra-high risk (UHR) criteria, of whom 188 (30.5% and 86.2%, respectively) suffered from one of the four symptom groups: isolated hallucinations; unusual bodily perceptions, hypochondriatic fears and cenesthetic psychotic symptoms; depersonalization; as well as obsessive-compulsive, overvalued and delusional ideas.
Given that early detection of psychosis has evolved to one of the most vigorously studied and promoted field in modern psychiatry, we believe that the content of our paper is timely and of pivotal importance. As it is the first in-depth discussion of overlapping diagnostic spectra in potential beginning psychosis, we also believe that our paper represents an important contribution to the field of early psychosis.

We like to emphasize the following points:

- This paper is not considered to be published elsewhere.
- This paper is critically revised and approved by all authors.
- No author has any conflict of interest that could affect the publication of this paper.
- Corresponding author: Andor Simon

Please do not hesitate to contact us, should further questions arise.

Sincerely

A. Simon (on behalf of all co-authors)

Draft: April 14th 2014

Declining transition rates to psychosis: the role of diagnostic spectra and symptom overlaps in individuals with attenuated psychosis syndrome

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Abstract

Transition to psychosis in at-risk individuals has markedly declined in recent years. So far it has never been discussed in detail that with the growing awareness increasing availability of early psychosis services, a much broader diagnostic spectrum is now being seen in these services. Subsequently, subjects present with symptoms that meet psychosis risk on a purely psychometric basis but may be the phenotypical expression of another underlying mental disorder. Here we critically review four groups of symptoms and clinical features that are frequently reported by individuals with suspected psychosis risk states, yet share strong commonalities with other mental disorders and conditions: isolated hallucinations; unusual bodily perceptions, hypochondriatic fears and cenesthetic psychotic symptoms; depersonalization; obsessive-compulsive, overvalued and delusional ideas. Of the 616 individuals so far assessed in the Bruderholz Early Psychosis Outpatient Service for Adolescents and Young Adults, 218 (30.5%) met ultra-high risk (UHR) criteria, 188 (86.2%) of which suffered from one of the four above mentioned symptom groups. The appraisal of the diagnostic spectra and their overlapping symptoms constitute a tremendous challenge in the clinical assessment of each referred individual. The final conclusion of a clinical assessment should not end with the mere assignment - or non-assignment - to a presumed psychosis risk group, but needs to take into account the ‘Gestalt’ of these particular symptoms and clinical features and thus be based on many more facets than solely a psychometric or nosological approach. Such an approach may break down the heterogeneous psychosis risk group and enable appropriate treatment regimes.

Key words

Prodrome, at-risk state, ultra high-risk, diagnostic spectra

1 Introduction

Over almost two decades now, one of the main goals and interests in clinical psychiatry and in research has been to identify individuals at risk to develop psychosis in order to provide early intervention and thus achieve better outcome (Fusar-Poli et al., 2013). In the mid-1990s, the first set of criteria to operationalize the so-called ultra-high risk (UHR) individuals were published by the Melbourne group in Australia (Yung et al., 1996; Yung et al., 2002), soon followed by an almost identical set of criteria published by the Yale group in Northern America (McGlashan et al., 2001). These criteria include attenuated psychotic symptoms with subthreshold positive psychotic symptoms, brief limited and intermittent psychotic symptoms, and genetic risk combined with significant decrease in level of functioning. In the first studies using UHR criteria, high transition risks were reported with over 50% of the participants developing a psychosis within the first year (Miller et al., 2002). In recent years, however, transition risks have substantially declined across different UHR centres in the world (Fusar-Poli et al., 2012; Nelson et al., 2013) with large proportions of UHR individuals not converting to psychosis (Simon et al., 2011) or even remitting from a UHR state (Simon et al., 2013). Subsequently, terms such as *clinical high risk* (CHR) or *at mental risk states* (ARMS) gradually replaced the term UHR, as risk could no longer be considered ‘ultra-high’ (Fusar-Poli et al., 2013). In 2013, the ‘attenuated psychosis syndrome’ was implemented in Section III (conditions requiring further research and not intended for clinical use) of DSM-5 (American Psychiatric Association, 2013).

Development of more appropriate and tailored intervention models to prevent conversion to psychosis (Fusar-Poli et al., 2007; Yung et al., 2007; Fusar-Poli et al., 2012; Nelson et al., 2013; Stafford et al., 2013), potential lead-time bias (Yung et al.,

2007; Simon et al., 2013) as well as effects of promoting early intervention to both health professionals (Simon et al., 2012a) and the general population (Joa et al., 2008) in numerous countries have been implicated in the decreasing transition rates to psychosis in at-risk individuals. Initial findings were obtained from clinical observations of individuals with more severe symptom levels who had passed through various filters of help-care resulting in an enrichment of high-risk subjects. Today, referrals occur less selectively and often with the aim to rule out psychosis risk and to allay the fears and concerns of individuals and their relatives. Subsequently, assessments in early psychosis services today include individuals with isolated and/or - as is the case particularly in adolescents - transient attenuated psychotic symptoms (Yung et al., 2009; Kelleher et al., 2012). Thus, a more 'extended psychosis phenotype' (van Os et al., 2012) is being tapped compared to two decades ago (Simon et al., 2011; Fusar-Poli et al., 2013), covering a large continuum reaching from benign subclinical, i.e. attenuated, psychotic symptoms in some healthy individuals (Hanssen et al., 2005; van Os et al., 2009) to severe and disabling psychotic symptoms in others, diluting the actual psychosis risk (Nelson et al., 2013).

Yet another phenomenon that emerges from the promotion of early intervention and that may play a role in the declining rates to psychosis has so far never been discussed in detail: attenuated psychotic symptoms can indicate psychosis risk and provide the basis for one of the three UHR criteria which is most commonly met by UHR subjects. However, they may reflect the phenotypical expression of other underlying mental disorders that share a number of clinical features rather than express an actual psychosis risk. The much broader diagnostic spectrum that is being assessed in early psychosis services today, also as a result of these

specialized services having grown to broader youth mental health services in some cases (Nelson et al., 2013), causes a dilution effect on the actual psychosis risk. The present study is an appraisal of the diagnostic spectra and the shared symptoms that constitute a tremendous challenge in the clinical assessment of each referred individual. Symptoms may mirror actual psychosis risk on a purely psychometric basis, but may finally emerge as the phenotypical expression of other diagnostic entities along the spectrum. We highlight that the final conclusion of a clinical assessment should not end with the mere assignment - or non-assignment - to a presumed psychosis risk group, but needs to take into account the 'Gestalt' of these particular symptoms

2 Methods

We chose four groups of symptoms and clinical features that show considerable overlap along various diagnostic spectra: isolated hallucinations; unusual bodily perceptions, hypochondriatic fears and cenesthetic psychotic symptoms; depersonalization; as well as obsessive-compulsive, overvalued and delusional ideas (see Figure 1) (*see supplementary material for clinical cases of each symptom group*).

Figure 1 about here

We chose these four symptom groups on the basis of the clinical experience that we gathered between July 2002 and February 2014 in 616 patients assessed in the *Bruderholz Early Psychosis Outpatient Service for Adolescents and Young Adults*, a clinical research facility in North Western Switzerland that was established in 2002 (Simon et al., 2006; Simon et al., 2007; Simon et al., 2012b) and engages in

assessing the long-term course of subjects at risk for psychosis in collaboration with the Department of Psychiatry and Psychotherapy of the University of Basel. Of the 616 patients, 218 (35.8%) met formal UHR criteria according to the 'Structured Interview for Prodromal Syndromes' (SIPS) (McGlashan et al, 2001). The first 196 (N_{UHR} = 73) were included in the Bruderholz study until December 31st 2006 and were prospectively examined for 2 years in terms of clinical and cognitive outcome (Simon et al., 2007; Simon et al., 2012b). Of the 420 patients that were assessed between January 1st and February 28th 2014, a further 145 patients met formal UHR criteria according to the SIPS. For these patients, we did not compute the detailed SIPS rating, but only whether UHR criteria were met.

We discuss historical and phenomenological issues of the various diagnostic spectra and critically review the terms that constitute the cornerstones along the above-mentioned spectra. Specifically, electronic searches were performed in the PUBMED database by combining the following two sets of keywords: (1) „isolated hallucinations□; „cenesthesia□, „cenesthopathy□, „hypochondriasis□ and „hallucinations of body sensations□; „depersonalization□ and „derealization□; and „obsessive-compulsive" and „delusion□; (2) „psychosis□, „psychotic□, „psychotic disorder□, „prepsychosis□, „pre-psychotic□.

We reviewed the database and carefully searched the reference lists of the included articles identified in the original search. We included all papers published in peer-reviewed journals until February 2014, without any language restriction though the vast majority of papers were in English.

3 Results

3.1 Study sample

Of the 616 patients assessed and of the 218 meeting UHR ciriteria, 188 (30.5% and 86.2%, respectively) suffered from one of the four above mentioned symptom groups. As shown in Table 1, mean age did not differ across the four groups. However, there was a marked preponderance of female individuals in the isolated hallucinations group, while male gender was dominant in the remaining 3 symptom groups.

Table 1 about here

3.2 Symptom groups

Isolated hallucinations

No other clinical phenomena are as likely to be attributed to schizophrenia as hallucinations, yet no other clinical phenomenon common to schizophrenia is as widely spread across numerous other states and disorders. Despite the fact that Eugen Bleuler (1911) deemed auditory verbal hallucinations as accessory and therefore non-fundamental symptoms of schizophrenia, Kurt Schneider (1959) assigned voices of arguing, discussing or commenting character to the first-rank symptoms, essentially influencing the formal diagnostic criteria for schizophrenia to this day (American Psychiatric Association, 1994; World Health Organisation, 1999).

The diagnostic validity of isolated hallucinations in young populations that reach criterion A, but not criterion B of DSM-IV and DSM-5 schizophrenia, indeed is a major diagnostic challenge. One the most common misdiagnosis in adolescent psychiatry is to ascribe isolated as well as subclinical or subthreshold hallucinations to schizophrenia (Berenson et al., 1998). The majority of studies report that subthreshold hallucinations are of limited prognostic value for later psychosis

(Dhossche et al., 2002; Simon et al., 2009), and none of the recent prospective studies of patients at initial risk for psychosis found hallucinations to be a single predictor for transition to psychosis (Cannon et al., 2008; Riecher-Rössler et al., 2009; Ruhrmann et al., 2010; Nelson et al., 2013). In contrast, in the German Cologne Early Recognition (CER) study with a follow-up of 9.6 years on average assessing so-called basic symptoms (Huber, 1957), acoustic and visual perception disturbances were reported to be predictive of later psychosis (Klosterkötter et al., 2001). However, the patient sample was highly selective and thus differs from the one that is within the scope of our present discussion.

Hallucinations have been reported in a vast array of mental states and non-psychotic disorders, in particular in adolescents, where they are often transitory phenomena and show considerable rates of discontinuation (Liester 1998; Escher et al., 2002). Their presence may neither foreshadow significant psychopathology later in life nor contribute substantially to the prognosis of psychosis (Garralda, 1984; Schreier, 1999). In this young patient population which constitutes the bulk of individuals seen in early psychosis services, hallucinations have been reported in attention deficit-hyperactivity disorder (McGee et al., 2000), conduct disorders (Garralda, 1984), depressive and anxiety disorders (Apter et al., 1988; Ulloa et al., 2000) , borderline personality disorders (Yee et al., 2005), and feature in DSM-IV and DSM-5 separation anxiety disorder and schizotypal personality disorder as well as in ICD-10 schizotypal disorder. Isolated hallucinations may also occur in emotionally distressed adolescents such as in the context of bereavement (Yates & Bannard, 1988), family disruptions, parental separation and persistent incriminating family settings (Best & Mertin, 2007), i.e. so-called type II trauma, for which the term *complex post-traumatic stress disorder* (CPTSD) was introduced (Herman, 1992). Auditory verbal hallucinations, also of the Schneiderian first-rank types, may occur in CPTSD (van

der Hart, 2005) as well as following so-called type I trauma in post-traumatic stress disorder (PTSD) with no significant difference in quality and intensity when compared to schizophrenia (Scott et al., 2007; Jessop et al., 2008). Hallucinations in the context of traumatic experiences are considered dissociative phenomena (Putnam & Peterson, 1994; Nurcombe et al., 1996), and the term *dissociative hallucinosis* has been proposed to account for the non-psychotic *Gestalt* of such experiences (Nurcombe et al., 1996).

A growing body of literature robustly documents that hallucinations may also occur in healthy children and adolescents as well as in adults of the non-treatment seeking general population without leading to personal distress or need for treatment (Tien et al., 1991; McGee et al., 2000; van Os et al., 2001; Dhossche et al., 2002; Johns et al., 2004). For instance, the lifetime prevalence of hearing voices is reported to range from 10% to 39%, with only a minority of these individuals fulfilling criteria for psychosis (Johns et al., 2002).

Unusual bodily perceptions, hypochondriatic fears and cenesthetic psychotic symptoms

One of the most fascinating, yet challenging phenomena with which young patients are referred to specialized early psychosis outpatient services are unusual bodily perceptions and repeated somatic complaints devoid of any evidence for a medical cause. The diagnostic spectrum on which such unusual bodily perceptions may occur is one of considerable width, spreading from age-specific insecurities and fears about physical health and appearance, through hypochondriasis, to an actual psychotic dimension underlying these phenomena.

In no further period of life physical changes occur as dramatically as in adolescence, leading to a greater awareness of these young people of their physical appearance and potentially to a greater concern as to their personal physical health and well-being. Latter may arise in association with unexpected and previously not experienced symptoms, in particular when organs are involved that are attributed with higher fragility or vital importance, e.g. the brain, the eyes, or the heart. It is not unusual that in these young individuals novel bodily perceptions are preceded by a sudden episode of intense anxiety (Roth, 1959) and cause an incisive disruption of the so-called *Meinhaftigkeit* or *I-ness* (Starobinski, 1990). One of its integrative denominators supposedly is *cenesthesia*, first described by German psychiatrist Johann Christian Reil (1811) more than two centuries ago. A century later, French psychiatrist Dupre and Camus (1907) introduced the term *cenesthopathy* for states of disordered cenesthesia, i.e. pathological bodily perceptions. Importantly, adolescent cenesthopathy more often affect anxiety prone, socially insecure and shy individuals (Roth, 1959; Watanabe et al., 2003; Michal et al., 2006). Anxiety-prone adolescents with disturbed narcissistic regulation may react with a catastrophic appraisal of normally transient symptoms following an initial episode of intense anxiety (Schilder, 1914; Michal et al., 2006). If such catastrophic appraisal persists, the differentiation between cenesthopathy and hypochondriasis becomes a challenging task, as the essential part of any definition of hypochondriasis is a morbid preoccupation with one's body or state of health, either mental or physical (Kenyon, 1976).

Bleuler (1911) may have been the first to emphasize the clinical importance of bodily complaints among schizophrenia patients and suggested that the majority of (treatment-resistent) hypochondriacs were schizophrenia patients which may have stagnated at the initial stage of the disease process and therefore may belong to the category of *latent schizophrenia*. The multiplicity of terms introduced in psychiatric

literature referring to both diagnostic dimensions, e.g. *hypochondriac paraphrenia* (Leonhard, 1957) or *hypochondriacal psychosis* (Mayer-Gross, 1932) provides evidence for the difficulty to distinguish hypochondriasis from psychosis.

Gerd Huber (1957) first described patients with *cenesthetic schizophrenia* as a subtype of schizophrenia that is characterized by peculiar disturbances of bodily perceptions commonly associated with vital discomfort, fatigue and exhaustion, but that remained often unidentified as psychotic disorder due to its longstanding hypochondriacal features. Cenesthetic schizophrenia has never been incorporated in DSM and appears undefined in ICD10 among *other schizophrenia* without having been identified in previous ICD editions. Huber differentiated three *developmental disease levels* ranging from uncharacteristic hypochondriacal symptoms, to qualitatively bizarre cenesthesias, and finally typical schizophrenic symptoms such as first rank Schneiderian symptoms, i.e. somatic passivity phenomena/bodily hallucinations. Huber claimed a close resemblance to Bleuler's (1911) *latent schizophrenia*, as he suggested that this was a type of schizophrenia that comes to a standstill after one or a few short psychotic episodes. However, in about one quarter of patients with cenesthetic schizophrenia, Huber observed acute onsets with so-called dysesthetic crises, characterized by vegetative symptoms and an elementary fear of dying (Huber, 1971).

While in cenesthetic schizophrenia the classic schizophrenia symptoms are limited to psychotic exacerbations, it was recognized that cenesthetic disturbances also occurred in a large percentage (64%) of other schizophrenia subtypes (Huber, 1971; Bräunig et al., 2000). This is supported by recent studies demonstrating considerable prevalence rates of abnormal bodily experiences in the early onset of schizophrenia (Kato et al., 1997; Röhricht & Priebe, 2002; Stanghellini et al., 2012). These findings underline that cenesthopathies are not restricted to Huber's cenesthetic

schizophrenia where they generally emerge after many years only. Further, the phenomenological view posits that the essential feature of schizophrenic existence is disembodiment, leading to initially normal cenestheasias being lived in hyperreflexive awareness and diminished self-awareness (Stanghelini, 2009).

Depersonalization

Depersonalization is a fascinating psychological phenomenon and typically labeled as ‘a rare disorder’ that many clinicians have never encountered. The word ‘depersonalization’ was first introduced by the psychologist Ludovic Dugas in 1894. Mayer-Gross (1935) identified two forms of the condition according to whether the feelings of unreality and strangeness referred to self or surroundings, and used the term *derealization* for the latter. Shorvon (1946) was the first to propose that chronic depersonalization constituted a psychiatric illness in its own right. Depersonalization disorder is classified as a dissociative disorder labeled *depersonalization disorder* in DSM-IV and DSM-5, whereas ICD-10 classifies it as an independent neurotic condition labeled as *depersonalization-derealization syndrome*.

Depersonalization occurs along a spectrum of severity with short-lasting episodes (*normal depersonalization*) with prevalence rates ranging from 30% to 70% (Roberts, 1960; Myers & Grant, 1972) to severe and disabling forms (*depersonalization disorder*) in 0.8% and 1.9% (Johnson et al., 1984; Michal et al., 2009). In about two-thirds of these patients, depersonalization persists, and in one-third of patients, it runs an episodic course, with each episode usually lasting from a few days to a few months (Baker et al., 2003; Simeon et al., 2003a).

In clinical practice, most of the patients with *depersonalization disorder* typically struggle to describe the experience, make use of a variety of metaphors and

commonly use the prefix ‘as if’ to describe their symptoms (Simeon et al., 2003a; Sierra, 2009). In contrast, patients with psychosis experience their symptoms as real. Two recent factor analytical studies yielded factors comprising *anomalous body experience* and *body distortion*, *emotional numbing*, *anomalous subjective recall*, and *alienation from surroundings* (i.e. *derealization*) (Sierra et al., 2005; Simeon et al., 2008). Patients with *depersonalization disorder* often describe *anomalous body experience* and *body distortion* as a *lack of body ownership feelings (Sierra, 2009)*, complain being unable to experience a relationship between their bodies and the self, and experience parts of their body, or the totality of it, as alien. Feelings of *loss of agency* refer to the complaints of depersonalized patients that their behavior feels automatic and robotic without the intervention of a willing self. Typical complaints about *disembodiment feelings* encompass feelings of *not being there* or *being outside their bodies*. Furthermore, they complain that body parts, usually their hands, have grown larger or smaller, or that the body feels lighter. Patients experiencing *emotional numbing* report different degrees of attenuated emotional experience, such as loss of affection, pleasure, fear or disgust. Although the ability to retrieve information seems unaffected in *anomalous subjective recall*, patients frequently report that memories, particularly of personal events (e.g. episodic memory), seem to have lost any personal meaning and that recently experienced events seem to recede into an indefinite remote past. All symptom domains of depersonalization are commonly accompanied by the *alienation from surroundings* or *derealization* (Sierra, 2009).

As depersonalization is a particular type of dissociation involving a disrupted integration of self-perceptions with the sense of self, it is readily, but often wrongly conceived as an expression of psychosis, resulting in psychosis being the most common misdiagnosis of depersonalization. The prevalence of depersonalization in

patients with schizophrenia has been reported to range from 6.9% to 11.1% (Hunter et al., 2004). Rather than being specific to schizophrenia, depersonalization is more likely to manifest in pre-psychotic states (Huber, 1957). Indeed, phenomena related to *anomalous body experience* and to *body distortion* as well as *derealization* feature among the basic symptoms, as do difficulties in discriminating between different emotions (Gross et al., 1987). Also, *derealization* was reported to be predictive of later psychosis (Klosterkötter et al., 2001). Finally, *anomalous subjective recall* needs to be delineated from actual memory impairments commonly found in the phases preceding psychosis (Simon et al., 2007; Fusar-Poli et al., 2012; Giuliano et al., 2012; Bora & Murray, 2013).

In contrast, depersonalization is highly prevalent as a comorbid phenomenon in individuals with childhood trauma, especially emotional, physical and sexual abuse (Simeon et al., 2001), as well as in patients with borderline, avoidant and obsessive-compulsive personality disorders (Simeon et al., 2003a; Hunter et al., 2004). The highest prevalence rates, however, have been reported in anxiety disorders including panic disorders and social phobia (Baker et al., 2003; Simeon et al., 2003a; Simeon et al., 2003b).

Obsessive-compulsive, overvalued and delusional ideas

Since the 19th century, there have been accounts of patients with both psychotic and obsessive-compulsive symptoms (OCS) (Berrios, 1989). Co-morbidity rates for OCS in schizophrenia patients have been reported to vary from 7.8% to 46.6% (Fenton & McGlashan, 1986; Berman et al., 1998; Frommhold, 2006) and co-morbidity rates for obsessive-compulsive disorder (OCD) in first-episode and chronic schizophrenia populations to vary from 7.8% to 26% (Poyurovsky et al., 2000; Hagen et al., 2013). Further, OCS were reported to occur in about one fifth of UHR subjects (Niendam et

al., 2009; Fontenelle et al., 2011; Sterk et al, 2011). Thus, estimated prevalence rates for OCS in the general population are similar (21-24%), but cleary lower for OCD (2-3%) (Fullana et al., 2009).

The considerable co-occurence of OCS and OCD, respectively, and schizophrenia is at the origin of diagnostic proposals such as *obsessive psychosis* (Solyom et al., 1985) and *delusional OCD* (O'Dwyer & Marks, 2000), suggesting that obsessive ideas in the sense of a neurotic phenomenon and psychotic delusional ideas mark the two opposing poles of a continuum. Theoretically, the shift from an obsession to a delusion would occur when resistance, i.e. the internal struggle against an obsessional urge or idea, is abandoned and insight is lost. Overvalued ideas, i.e. unreasonable and sustained beliefs that are maintained with less than delusional intensity, may thus conceptually be placed somewhere between these two opposing poles. Already Bleuer (1911) had suggested that the entire obsessive-compulsive syndrome may be a prodrome or a latent variant of schizophrenia and that OCS may therefore be considered accessory symptoms of schizophrenia. Also, Karl Leonhard (1957) described pronounced OCS in subtypes of schizophrenia which he termed *verschrobene Hebephrenie* and *Manirierte Katatonie*.

In clinical practice, the differentiation between obsessive and delusional ideas, however, presents one of the most difficult and challenging tasks. This is unintentionally mirrored in DSM-IV and DSM-5 where the specifier "with poor insight" is allowed for the diagnosis of OCD, and even more so in DSM-5 which has implemented the additional specifier "with absent insight/delusional belief". It has been posited that an appreciable proportion of obsessive-compulsive patients become psychotic only in the sense of a transient loss of insight or the transient emergence of paranoid ideas and that definite psychotic deterioration in well-established OCD is extremely rare (Insel & Akiskal, 1986). According to Karl Jaspers

(1946), obsession in the strict sense means taking up a stand towards the contents: assessing the contents of consciousness as being unfounded, nonsensical and incomprehensible (i.e., ego-dystonic), the ego defends itself against them. Thus, obsession is a reflexive phenomenon where the individual can have an image which is his own but which he does not want to have. Both Jaspers (1946) and Schneider (1939) agreed on the fact that compulsive acts always follow secondarily or as a defense against obsessive ideation. Whereas the patient with an obsession in the strict sense is always able to reflect upon himself and to evaluate his own thought as nonsensical, self-reflexivity collapses in the case of delusional ideas and the ego can no longer keep an evaluating distance from the contents of consciousness, but is completely seized by them (i.e., ego-syntonic). States of long-standing neurosis where obsessive ideas have been integrated into one's own experience may acquire ego-syntonic character, and ego-syntonic and even bizarre character may also emerge in anxiety-driven compulsive acts when these are performed to prevent the occurrence of catastrophic or fatal events.

In his phenomenological analysis of the *Gestalt* of delusions which is thought to be one of the most impressive descriptions ever written concerning early schizophrenia (Hambrecht & Häfner, 1993; Mishara, 2010), German psychiatrist Klaus Conrad (1958) highlights that once a psychotic dimension is reached, however, patients are unable to shift the 'frame of reference'. Conrad provides a phenomenological stage model with a prodromal delusional mood preceding the onset of delusion formation. During this period that can last up to several months or even years, the patient experiences an increasingly oppressive tension and a feeling of expectation that something very important is about to happen, similar to what Jaspers termed *Wahnstimmung* when patients explain that 'something is in the air'. The patient then draws attention to irrelevant stimuli and thoughts which now become a potential

threat that spreads to the entire perceptual field, preparing the basis for subsequent delusion formation. Finally also the inner world is contaminated with the appearance of first-rank symptoms.

4 Discussion

The present paper is an appraisal of symptoms that are common to individuals with potential risk for psychosis, but are also found in other mental disorders and conditions and thus constitute a considerable overlap along various diagnostic spectra. The evidence of such diagnostic spectra with overlapping symptoms has so far been ignored in the discussion why transition rates in individuals meeting formal psychosis risk criteria are declining. Studies of these individuals usually refer to the phenomenon of comorbidity (Fusar-Poli et al., 2014) or to 'clinical noise' (Nelson et al., 2013) to acknowledge the presence of symptoms that share psychometric equality with psychosis risk. However, the present paper highlights that the classification of symptoms with psychometric equality constitutes a challenging task that reaches far beyond mere comorbidity. As shown in our paper, such individuals not infrequently present as diagnostic conundrums and may not be assigned to one specific diagnostic category. Although this approach is at odds with the traditional concept of classifying mental health disorders into single categories, our review provides prototypical examples of diagnoses that overlap in terms of symptoms with no necessary "clear water" between single categories (Shorter & Wachtel, 2013). This is the case specifically in adolescents who often present phenomena that theoretically lie on a continuum from normal adolescent to actual pathological states. All of the symptoms and mental states reviewed in our paper typically emerge in adolescence or young adulthood, i.e. the age groups when the majority of mental health disorders evolve (Jones, 2013). Adolescents and young adults undergo

multitudinous changes in behaviour, develop diversity of contextual thinking, and experience frequent emotional turmoil. Within this developmental context, mental phenomena may either occur only transiently, or they may evolve into actual mental health disorders in more vulnerable and predisposed individuals. As early psychosis services have widened their scope to become broader youth mental health services (Nelson et al., 2013), the definition of an actual psychosis at-risk state has become an often enigmatic task compared to the very early days of the initial early psychosis services when patients were drawn from much more circumscribed samples to begin with (Yung et al., 1996; Miller et al., 2002). While the most commonly used set of criteria to operationalize psychosis at-risk, i.e. the UHR criteria, has contributed to a tremendous increase of knowledge of the phases preceding psychosis onset, these criteria today are being applied in a substantially different, i.e. larger framework, where individuals benefit from low-threshold and more direct admission and thus present an abundant multitude of psychopathological phenomena. Because of the worldwide expansion of the early psychosis movement and the growing awareness in both general population and professional health care groups of the importance to assess and intervene as early as possible, identification of individuals at risk for psychosis comes full circle with the initial aim of early psychosis detection taken right back to the core, i.e. a thorough appraisal of the psychopathological phenomena. Given the many symptomatic overlaps and diagnostic spectra, any psychopathological appraisal of a single symptom cannot occur without a comprehension of the *Gestalt* that is at the origin of the symptom formation (Uhlhaas & Mishara, 2007). The comprehension of the *Gestalt* provides us with the indispensible key to better understand whether a specific symptom actually mirrors psychosis-risk or not. A constricted understanding of these symptoms, however, would lead to diagnosing psychosis risk and indicate treatment that may fall wide off

the mark, and instead of conferring symptom relief may increase risk of stigmatizing these young individuals.

Figure legend

Figure 1:

Diagnostic spectra and symptom overlaps: from left to right x-axes show increasing severity of signs/symptoms towards psychosis.

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None.

Figure 1

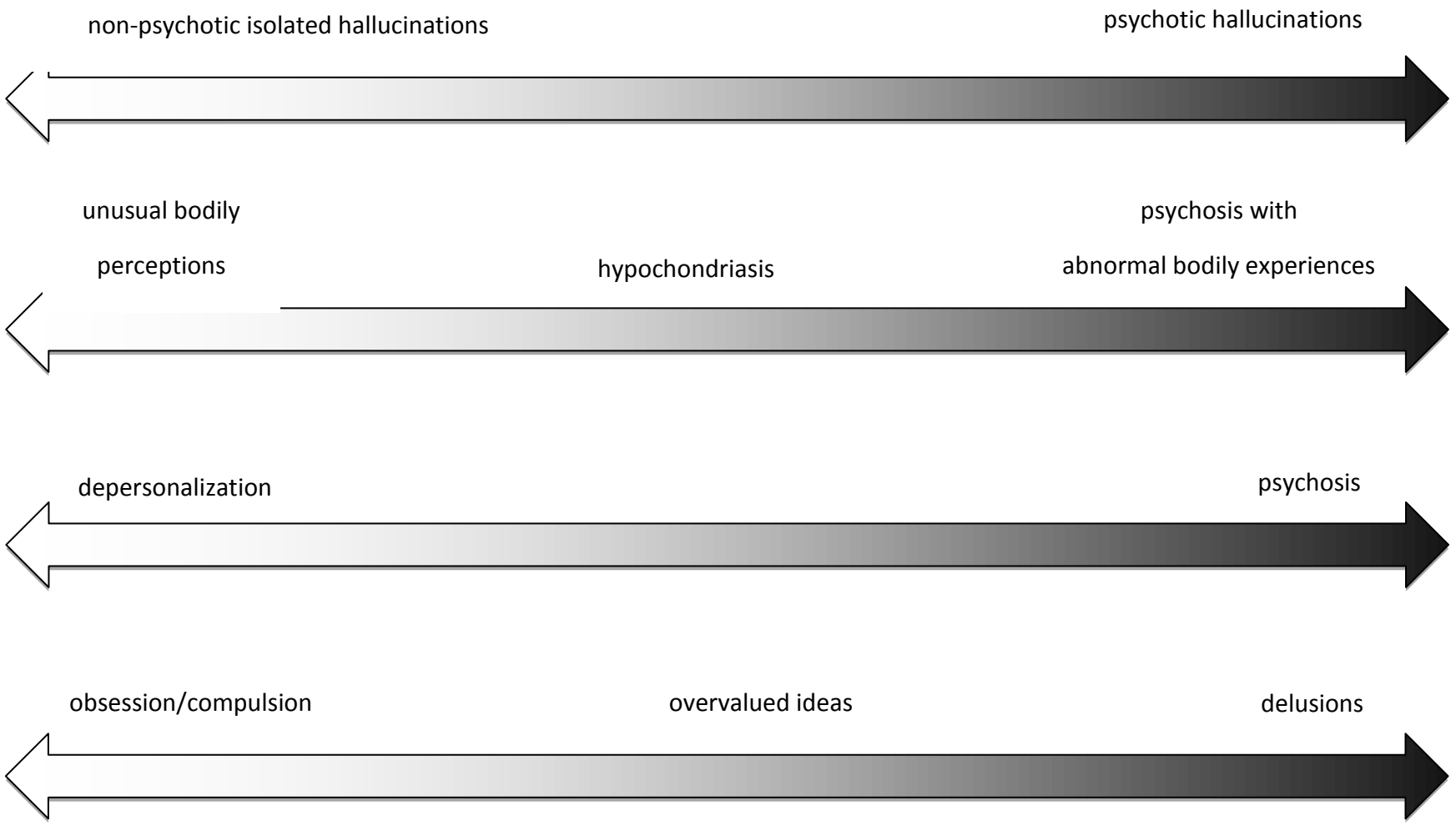

Figure 1

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Table 1

Table 1

Age and Gender of the UHR Study Sample (N = 188)

	hallucinations (n=86)	cenesthopathies (n=29)	depersonalization (n=30)	OCS/delusions (n=43)	Test Statistic	p
Mean Age (±SD)	18.2 (± 3.8)	20.0 (± 5.5)	18.8 (± 3.5)	18.9 (± 4.3)	F=1.103	0.221
Gender (male/female)	20/66	21/8	22/8	35/8	χ^2=53.676	0.000

F: ANOVA over all study groups; only levels of significance is indicated in this table