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Comparison of clinician-rated and self-report insight in Korean patients with schizophrenia using VAGUS insight scale

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ABSTRACT

This study was aimed to explore self-report auditory verbal hallucinations to provide unique and valuable information in addition to clinician-rated assessment in patients with schizophrenia. The VAGUS (http://www.vagusonline.com) is a recently developed insight scale that includes both clinician-rated (CR) and self-report (SR) versions. Insight measures obtained by the two versions of the VAGUS from the clinicians and the patients, respectively, in forty-one patients diagnosed with schizophrenia by DSM-IV-TR criteria were compared. Correlation coefficients for inter-scale convergence and 3-D biplots for multivariate relationship were derived from the subscales of the VAGUS. For external validation, correlation analyses with abridged version of Scale to Assess Unawareness in Mental Disorder (SUMD-A) and PANSS G12 item were conducted. Total scores of VAGUS-CR and –SR were 5.2 ± 2.6 and 4.9 ± 2.2, respectively. There was a strong correlation between them along with moderate pairwise correlations among the subscales. The 3-D biplots demonstrated that most subscales were clustered as a single factor apart from self-report *Symptom Attribution* separated as an independent factor. The VAGUS-CR, not -SR correlated significantly with the SUMD-A and PANSS G12. The utility of the VAGUS in reaching more overall understanding of the elusive phenomenon of insight in patients with schizophrenia is discussed.

1. Introduction

Insight is an elusive phenomenon in patients with schizophrenia. Lack of insight is believed to be the single most important factor in determining treatment compliance, risk of relapse, psychosocial functioning, and, ultimately, prognosis in patients with schizophrenia (Amador and Kronengold, 2004; Emsley et al., 2008). Tremendous efforts have been invested to define and understand this phenomenon (Amador et al., 1993; Aleman et al., 2006a, 2006b; David et al., 1992; Karow and Pajonk, 2006; Marková et al., 2003). Yet, comprehensive understanding still requires further clarification of the concept and elaboration of study methods (Lysaker et al., 2013). Thus, researches on insight have seen a trend toward increasing complexity, both on the conceptual and methodological levels (Hwang et al., 2009).

Recently, the complementary role of self-report scale in insight assessment has been reappraised (Jovanovski et al., 2007; Karow et al., 2008; Uher et al., 2012). Self-report may not only be as valid as interview-based assessment, but may provide valuable information which is not accessible from the latter (Uher et al., 2012). Although a trained observer might produce a more valid assessment, it might under-appreciate patient's unique beliefs and values. More fundamentally, without any objective laboratory tests, the clinician inevitably has to depend on patient's verbal description of his/her attitude and judgement. Self-rating provides more direct access to patient's internal experiences and, therefore, provides more intimate reflection of individual's opinion and belief (Cleary et al., 2014; Karow et al., 2008). In this regard, self-report may be advantageous in uncovering multidimensional nature, thus in finding neurobiological substrate of insight

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(Ouzir et al., 2012).

Over the last decade, standardized measurements of insight have proliferated including both self- and clinician-rating scale (Amador and Strauss, 1993; Birchwood et al., 1994; Marks et al., 2000; David et al., 1992; Marková et al., 2003). Comparisons between the two modes of assessment revealed appreciable discrepancy (Fervaha et al., 2015; Jung et al., 2010; Tranulis et al., 2008). For example, self-report and clinician-rated scales have yielded somewhat different correlations with other psychiatric symptoms (Cleary et al., 2014). Until now, direct pairwise comparison between self- and clinician-rating insight was not possible because available scales were confined to either of the two modes. The VAGUS, a recently developed insight scale for patients with schizophrenia spectrum disorders (Gerretsen et al., 2014), is unique in that both clinician-rated (CR) and self-report (SR) versions have been simultaneously developed. Each version contains the same subscales, which enables the paired-comparison of different components of insight. Such a direct comparison may reveal the similarity and dissimilarity between the two modes and help to elucidate the unique contribution of self-rating scale.

This study aimed to examine the relationship between the self-report and clinician-rating method of insight assessment and to evaluate the utility of the self-report for eliciting complementary information. For this purpose, multiple methodologies were employed, which included paired-comparison between the same subscales of the two different versions of VAGUS, inspection of multivariate relationships among all the subscales using 3-D biplots and correlation analysis with other established scales such as Scale to Assess Unawareness in Mental Disorder (SUMD-A) and PANSS G12 item. Furthermore, this was also an effort to apply the scale developed in Western culture to Korean patients with schizophrenia, which could support cross-cultural validity and utility of the VAGUS and facilitate sharing and comparing of future research results on insight.

2. Methods

2.1. Participants

Patients diagnosed with schizophrenia by board certified psychiatrists according to DSM-IV-TR were recruited from in-patient wards and out-patient clinics of two university affiliated hospital neuropsychiatric departments. Electronic medical records were reviewed by the authors to confirm the diagnosis and to select eligible subjects. The exclusion criteria included past history or current evidence of organic brain damage, substance abuse, personality disorder and childhood originated disorders such as pervasive developmental disorder or mental retardation. Patients who could understand the purpose and procedure of the study, and who gave written consents were enrolled as study subjects. The demographic characteristics and clinical information were obtained from electronic medical records of two university hospitals and compared by gender. The medication history was also reviewed and chlorpromazine equivalent doses were calculated according to the usual guidance (Woods, 2003). The study protocol was reviewed and approved by the institutional review board of Dongguk University International Hospital.

2.2. Assessment

2.2.1. The VAGUS-CR and VAGUS-SR

The VAGUS scale (http://www.vagusonline.com) was developed by Gerretsen et al. (Gerretsen et al., 2014). It is the first scale to measure insight in psychosis with both self-report and clinician-rated versions. The VAGUS clinician-rated and self-report versions consist of 5 items and 10 items, respectively. Each item is scored using a 10-point Likert scale. Items for VAGUS-SR contain 'positive' and 'negative' valence phrases to minimize possible response bias from self-report. From the items, four subscale scores of different components of insight are calculated according to the scale manual: *Illness Awareness, Symptom Attribution, Awareness of Need for Treatment and Awareness of Negative Consequences*. For this study, the Korean versions of VAGUS were prepared by translation/back-translation process with a panel of professionals including psychiatrists, a Korean literature specialist and a clinical psychologist who is bilingual in Korean and English. In addition, the prepared version was sent to the original authors and feedback was obtained. The assessments of VAGUS-CR, SUMD-A, and PANSS were performed by JHY and psychiatric residents who were trained and supervised by CIW.

2.2.2. Scale to Assess Unawareness in Mental Disorder abridged version (SUMD-A)

The abridged version of the SUMD is a clinician-rating insight scale based on a semi-structured interview. This scale allows scoring of current awareness or insight into global state, positive symptoms and negative symptoms. The first three items which probe global awareness ask about 1) awareness of mental disorder, 2) social consequences, and 3) efficacy of medication. Each item is rated on 0 ~ 3 point scale, so that higher scores indicate poorer awareness (Amador et al., 1993). SUMD-A has been considered the 'gold standard' and one of the most frequently used scales in insight research (Michel et al., 2013). The Korean version of SUMD was shown to have high reliability (Cronbach alpha: .81 ~ .98) and high concurrent validity (Spearman's rho: .56–.96) (Song et al., 2006).

2.2.3. The Positive and Negative Syndrome Scale (PANSS)

The PANSS (Kay et al., 1987) is a 30-item rating scale consisting of positive scale (7 items), negative scale (7 items), and general psychopathology scale (16 items). It is specifically developed to assess individuals with schizophrenia and is used very widely in research settings. We assessed G12 item in the PANSS which consists of multiple components such as awareness of the illness and the need for treatment and recognition of psychotic symptoms (Gharabawi et al., 2006) The Korean version of the PANSS was shown to have high internal reliability and high concurrent validity (Yi et al., 2001).

2.3. Statistical analysis

The demographic characteristics and clinical information were compared using *t*-test and chi-square test according to the data type. The relationships between the corresponding pairs of VAGUS-CR and -SR such as total scores and four dimensional subscales were explored by calculating correlation coefficients. To explore the multivariate relationship among the dimensional subscales of insight, bivariate correlation coefficients were calculated among all the subscales of two versions of the VAGUS. The correlations with SUMD-A and PANSS G12 item were also obtained for the external validation of the VAGUS. For correlation analysis, Spearman's rho was calculated considering relatively small sample size. The obtained p-values from correlation coefficients were adjusted with Holm–Bonferroni method to control the family-wise error rate. The 3-D biplots were drawn by first conducting principal component analysis (PCA) and using the factor loadings as vector coordinates to lot variables in 3-D vector space. In this way, highly correlated variables were plotted together because the cosine between the two arbitrary vectors indicated bivariate correlation coefficients. The factor structure of scale items was investigated by PCA with oblique rotation. Oblique rotation was applied because the purpose of analysis was to study the homogenous grouping pattern among the variables but not to obtain orthogonal factors for further analysis. The adequate number of factors was decided by eigenvalue criteria (greater than 1). The Kaiser–Meyer–Otkin measure of sampling adequacy was calculated to confirm the quality of PCA result. Due to the very limited sample size, this PCA should be considered as an exploratory attempt to get a glimpse of the factor structure. Interpreting the obtained result as a definite evidence should be avoided. The