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Anhedonia in schizophrenia: The role of subjective experiences

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Abstract

Background: High levels of anhedonia have been found in patients with schizophrenia; specifically they report higher levels of social anhedonia rather than physical anhedonia, and further, in the anticipatory rather than consummatory facets of pleasure. Nonetheless, contrasting results emerged regarding the underlying mechanisms of this deficit. Basic Symptoms (BS) disturb subjective experiences present for most of the illness' course; this impacts patients' daily lives leading to a loss of the ability to organize the experience of the self and the world in a fluid and automatic way. Considering the role played by negative emotions in the subjective evaluation of anhedonia, the aim of the study is to clarify the role of BS in the assessment of anhedonia in a sample of patients with schizophrenia (n = 53) compared with healthy controls (n = 46).

Methods: Participants completed a self-administered trait questionnaire evaluating social anhedonia (Revised-Social Anhedonia Scale), physical anhedonia (Physical Anhedonia Scale), and the consummatory and anticipatory pleasure experiences (Temporal Experience of Pleasure Scale). BS were evaluated with the Frankfurter Beschwerde-Frageboden (FBF) whereas psychopathology was assessed with the Positive and Negative Syndromes Scale.

Results: Patients scored higher than healthy controls in social, physical and anticipatory anhedonia, but not in consummatory anhedonia and these relationships were mediated by the FBF. Basic Symptoms of Memory, Overstimulation and Lack of Automatism were related to some facets of anhedonia, independently from depressive symptoms.

Conclusions: We hypothesize that a subjective cognitive deficit and a reduced ability in information processing, could prevent patients from retaining a positive experience from past pleasant activities. Therefore the lack of pleasure would be, at least in part, related to an avoidance of potentially stressful new scenarios.

1. Introduction

The first descriptions of the "failure in the ability to experience pleasure" date back to the XIX century [1–3], but it was the French psychologist Ribot [4] that, in 1896, coined the term anhedonia, in contrast to analgesia, to describe the inability to experience pleasure. The multiple meanings of anhedonia in literature reflect the ambiguous definition of pleasure and the fact that pleasure has always been associated with seeking behaviors [5]. The evaluation of hedonic ability in psychiatry considered both the nature of the stimulus (i.e. physical or social) and the reward-related mechanisms (i.e. wanting or liking) [6–9]. Moreover, pleasure associated with future events could be divided into anticipated (i.e. pleasure expected to be experienced in the future) and anticipatory (i.e. pleasure experienced in the immediate present, imagining future events) [10]. Cognitive mechanism may be involved in anticipated pleasure whereas the anticipatory one relies more on emotional features [11,12].

The first time that the word anhedonia appeared was within a description of Schizophrenia by Pascal [13], although an impairment in the ability to experience pleasure has always been associated with Kraepelin [14] and Bleuler's [15] description of schizophrenia and specifically with the affective flattening. Its role as a distinctive characteristic of schizophrenia was initially hypothesized

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by Myerson [16], but it is only with Rado [17] and Meehl [18] that it acquires a central position in the pathogenesis of the disorder.

Most of the studies observed higher levels of anhedonia in patients with schizophrenia, specifically for social rather than physical experiences [19,20], compared to healthy subjects [21–27]. Furthermore, literature agrees that 'wanting', more than 'liking', is impaired in Schizophrenia [28–31] even in the early phases of the disorder [32]. A limitation of these studies evaluating anhedonia in patients with schizophrenia is the method of its assessment. On the one hand, some of the scales used (i.e. the Anhedonia–Asociality subscale of the Scale for the Assessment of Negative Symptoms, SANS and the Passive/apathetic social withdrawal score at Positive and Negative Syndromes Scale, PANSS) [33,34] chiefly evaluate the behavioral facets of anhedonia, relying on the assumption that the reduction of involvement in pleasant stimuli reflects only an emotional disturbance [35], although anergia, abulia, social anxiety and intentional avoidance of stressful situations could reduce engagement in pleasant situations [36–39].

On the other hand, self-report trait questionnaires (e.g. the Revised-Social Anhedonia Scale, R-SAS; the Physical Anhedonia Scale, PAS; the Temporal Experience of Pleasure Scale, TEPS; and the Snaith Hamilton Pleasure Scale, SHAPS) [40–43] aimed at measuring a more subjective anhedonia, do not capture how some negative emotions affect the patients' score [44,45].

Moreover, in patients with schizophrenia, a discrepancy has been observed between the ability to experience pleasure as assessed by questionnaires (i.e. expressive anhedonia) and that reported in laboratory studies and via experience sampling method (i.e. experiential anhedonia). In fact, levels of positive emotion were similar to those of healthy subjects when providing reports of current feelings, but lower when reporting their noncurrent feelings through representative or retrospective interviews [12,45,46]. Remarkably, in the evaluation of current feelings, patients with schizophrenia showed higher levels of negative emotions [35,47] anyway. A peculiar dimension of schizophrenic psychopathology that, by definition, is associated with negative emotions, is the subtle experienced disturbances in drive, affect, thinking, speech, (body) perception, motor action, central vegetative functions and stress tolerance [48]. Patients with schizophrenia experience these disturbing subjective symptoms for most of the illness' course [48].

The first detailed investigations of patient subjective experience in schizophrenia began in the 50s with the studies by Chapman [49] and Huber [50], the latter on the basis of Süllwold's observations on motor disorders [51].

Among these experiences, the most studied are Basic Symptoms: uncharacteristic elementary experiences, confined to the subjective sphere, that are "not behavioural, but experiential in kind" [52] and are the manifestation of disorders in information processing [53] and considered the direct consequence of the neuropathological defect [49,54]. They are present in the pre-, intra- and post-psychotic phases of the disorder.

Schneiderian's first rank symptoms and Negative symptoms hail from these pre-existing disorders along a continuum of psychopathological evolution as an interaction between the personological matrix and coping mechanism [55].

A way in which patients could cope with basic symptoms is the avoidance of new scenarios, which in turn, could evoke them. This is reflected by an impairment in the subject's global functioning [53].

Basic Symptoms may therefore affect a patient's ability to anticipate pleasant events, recalling them and maintaining a hedonic tone. This could result in ambivalent experiences [56,47] that could in part justify the patients' higher scores in questionnaires assessing trait anhedonia.

The aim of the study is to evaluate whether patients with schizophrenia are more anhedonic than healthy controls in self-report trait questionnaires and if this relationship is mediated by Basic Symptoms.

2. Materials and methods

2.1. Sample recruitment and procedure

The study sample was comprised of 53 patients with schizophrenia recruited among the outpatients service in a Community Mental Health Service and 46 healthy controls (HCs). Exclusion criteria for study participation were: 1) being younger than 18 or older than 65 years old; 2) cognitive impairment (MMSE <25) [57] or language barriers interfering with the capacity to reliably answer diagnostic interviews or questionnaires; 3) evidence of substance use disorder; 4) and in the HC group the presence of an axis I or II diagnosis according to DSM-IV-TR diagnostic criteria.

After giving informed consent all patients were interviewed by an expert psychiatrist (R.F.). The study protocol has been approved by the relevant national and institutional committees on human experimentation and according the Helsinki Declaration of 1975, as revised in 2008.

2.2. Measures

2.2.1. Axis I and II pathology

Current psychiatric disorders were assessed with the Structured Clinical Interview for DSM-IV Axis I disorders Research Version (SCID-I/P-RV) [58].

Psychopathology severity was assessed by means of the Positive and Negative Syndromes Scale (PANSS) [34] and, in the patient group, depressive symptoms were evaluated with the Calgary Depression Scale for Schizophrenia (CDSS) [59]. PANSS consists of three different subscales: positive, negative and general psychopathology. All participants were clinically stable, being defined as no inpatient hospitalization within three months of study participation; in the same way, none of them underwent changes in therapy in the aforementioned time interval. We adopted the CDSS, rather than other instruments to assess depression because it