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The relationship between sensory processing patterns, alexithymia, traumatic childhood experiences, and quality of life among patients with unipolar and bipolar disorders

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ABSTRACT

Several studies documented the involvement of sensory perception in emotional processes. The long-term consequences of traumatic experiences and alexithymia have been demonstrated as well. However, the role of extreme sensory processing patterns, traumatic childhood experiences, and alexithymia has not been thoroughly examined in major affective disorders. The present study aimed to: (1) compare unipolar/bipolar patients with regard to their sensory processing patterns, alexithymia, childhood traumatic experiences and quality of life; (2) examine the correlations between sensory processing patterns and childhood traumatic experiences; (3) investigate the relative contribution of diagnostic groups (unipolar/bipolar), sensory processing patterns, alexithymia, and childhood traumatic experiences in predicting quality of life. The sample included 336 participants, 197 with unipolar and 139 with bipolar disorder. All participants completed the Adolescent/Adult Sensory Profile (AASP), Toronto Alexithymia Scale, Childhood Trauma Questionnaire (CTQ), Beck Depression Inventory (BDI)-II, and Short Form 12 Health Survey version 2 (SF-12). Bipolar patients showed significantly higher physical neglect, emotional abuse, and emotional neglect compared with unipolar patients. Both in unipolar and bipolar groups, lower registration of sensory input as well as hypersensitivity correlated with enhanced childhood trauma events. Reduced sensory sensitivity accounted for 11% of the variance in physical health composite score (PCS) of SF-12 whereas reduced depression accounted for 8% of the variance in mental health composite score (MCS). Furthermore, elevated MCS was predicted by depression, physical and emotional neglect. Sensory processing patterns and childhood traumatic experiences may specifically characterize individuals with major affective disorders and play a role in the prediction of their quality of life.

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1. Introduction

There are studies in the current literature that showed the involvement of individual factors such as perceptual processes, alexithymia, and childhood traumatic experieces in the pathophysiology of major affective disorders although the constellation of these possible contributors in differentiating between bipolar and unipolar forms and their effect on quality of life have not been still investigated and integrated in a complex model.

The role of sensory perception in emotional processes has been repeatedly demonstrated (Leitman et al., 2010; Van Rheenen & Rossell, 2013). Extreme sensory processing patterns, also termed as *Sensory Processing Disorders* (SPD) encompass difficulties in registering/modulating sensory information and organizing sensory input in order to carry out successful adaptive responses to situational demands (Humphry, 2002; Miller, Anzalone, Lane, Cermak, & Osten, 2007). These patterns are mainly expressed in hyper- or hyposensitivity to non-aversive stimuli (Bundy, Lane, & Murray, 2002; Liss, Timmel, Baxley, & Killingsworth, 2005). A model derived from self-regulation strategies (Brown, Tollefson, Dunn, Cromwell, & Filion, 2001; Dunn, 1997) regarding the relationship between the individual neurological thresholds and behavioral responses has been developed by Dunn (1997). The central nervous system may be activated by minimal stimuli in lower neurological threshold whereas a large amount of stimuli is requested for activation in higher neurological threshold. In particular, subjects using passive self-regulation strategies allow stimuli to occur whereas individuals with active self-regulation strategies prefer to limit the amount of stimuli in their environment (Dunn, 1997).

Based on Dunn's model, four sensory processing patterns may be identified. The first two patterns refer to subjects with hyposensitivity: (1) Low registration that has been reported in individuals with higher neurological thresholds and passive self-regulation strategy. These subjects may be considered as lacking of motivation or interest in their environment, or indifferent without the necessary ability to recognize/express emotions, or infer other's emotions according to facial expressions (Dunn, 1997). (2) Sensation seeking that can be identified in individuals with higher neurological thresholds and active self-regulation strategy. These individuals actively search and experience pleasure from exciting sensory environments and risk-taking behaviors (Brown et al., 2001; Dunn, 2001). The two other patterns may be identified in individuals with hypersensitivity: (3) Sensation avoiding that characterizes individuals who are usually engaged in limiting their exposure to stimuli, and might experience exclusion/social withdrawal in everyday life (Miller et al., 2007). (4) Sensory sensitivity that may be found in individuals who often experience distractibility/discomfort with sensation (Dunn, 2001, 1997) but do not actively avoid the uncomfortable stimuli. They may experience intense, overwhelming, and invasive experiences to sensory stimuli (Miller et al., 2007) commonly presenting tension, anxiety, and inability in initiating relationships.

Sensory processing patterns seem to be not state-related but rather stable patterns or "trait" markers of major affective disorders. Thus, they may be considered as stable characteristics of individuals with major depressive disorder (MDD) across the lifespan independently of acute mood states. According to our recent study (Engel-Yeger, Gonda et al., 2016), the hyposensitive pattern of low registration was found to be related with elevated depressed mood while the hyposensitive pattern of sensory seeking was reported as a resilient factor.

Consisting evidence also demonstrated that adverse childhood experiences may exert negative effects on mental health (Chapman et al., 2004; McEwen, 2003; Teicher, Andersen, Polcari, Anderson, & Navalta, 2002).

Existing studies suggested that traumatic childhood experiences and, in particular, childhood maltreatment may enhance the risk of lifetime MDD (Chapman et al., 2004; Heimand Nemeroff, 2010; Hovens et al., 2010; MacMillan et al., 2001; Wainwright & Surtees, 2002), and are able to exacerbate the course of the illness in a dose-response manner (Fergusson, Boden, & Horwood, 2008; Edwards, Holden, Felitti, & Anda, 2003; Wiersma et al., 2009). To date, to what extent specific childhood maltreatment may vary between disorders rather than increasing vulnerability for any particular condition (Pietrek et al., 2013) is poorly understood.

Traumatic childhood experiences may be significantly associated with the occurrence of psychopathological conditions such as alexithymia. Alexithymia is commonly characterized by difficulties in identifying and describing feelings. Güleç et al. (2013) found that childhood traumatic experiences were significantly associated with alexithymia that contributed to the emergence of somatic symptoms in MDD. The authors concluded that emotional abuse and neglect were independent predictors of the subsequent emergence of alexithymia and somatization in MDD patients.

The alexithymia factor "difficulties identifying feelings" is linked to a broad range of state-level psychopathology among psychiatric patients (Bankier, Aigner, & Bach, 2001; Grabe, Spitzer, & Freyberger, 2004). In a 7-year follow-up study, Honkalampi et al. (2010) reported that alexithymia was closely associated with concurrent depressive symptoms that have been proposed as an important mediator between alexithymia and psychiatric morbidity. Alexithymia is associated with deficits in affect regulation and emotional information processing (Lundh & Simonsson-Sarnecki, 2002). However, whether sensory processing patterns may influence the contribution of both traumatic childhood experiences and alexithymia to the development of psychopathology has not been investigated in major affective disorders.

Given this background, the present study aimed to: (1) compare unipolar and bipolar patients with regard to their sensory processing patterns, alexithymia, childhood traumatic experiences, and health related quality of life; (2) examine the correlations between extreme sensory processing patterns and childhood traumatic experiences; (3) investigate the relative contribution of unipolar/bipolar subtypes, sensory processing patterns, alexithymia, and childhood traumatic experiences in predicting health-related quality of life.

First, we hypothesized that bipolar patients may exhibit higher traumatic childhood experiences and a more significant burden of psychopathology than unipolar patients. We also supposed that in each diagnostic group, sensory processing