



Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

A temporal examination of co-activated emotion valence networks in schizophrenia and schizotypy

Alex S. Cohen^{a,*}, Dallas A. Callaway^a, Kyle R. Mitchell^a, Jeff T. Larsen^b, Gregory P. Strauss^c

^a Department of Psychology, Louisiana State University, USA

^b Department of Psychology, University of Tennessee, USA

^c Department of Psychology, Binghamton University, USA

ARTICLE INFO

Article history:

Received 24 September 2015

Received in revised form 9 December 2015

Accepted 12 December 2015

Available online xxxx

Keywords:

Schizophrenia

Schizotypy

Anhedonia

Emotion

Affect

Negative

Affective chronometry

ABSTRACT

Emotional abnormalities are prominent across the schizophrenia spectrum. To better define these abnormalities, we examined state emotional functions across opposing ends of the spectrum, notably in chronic outpatients with schizophrenia (Study 1) and college students with psychometrically defined schizotypy (Study 2). In line with existing studies, we predicted that individuals with schizophrenia would show unusually co-activated positive and negative emotions while college students with schizotypy would show abnormally low positive and abnormally high negative emotions. Drawing from the affective science literature, we employed continuous emotion ratings in response to a dynamic and evocatively “bittersweet” stimulus. Participants included 27 individuals with schizophrenia, 39 individuals with psychometrically defined schizotypy and 26 community and 35 college control participants. Participants continuously rated their state happiness and sadness throughout a six-minute clip from a tragicomic film (i.e., *Life is Beautiful*). In contrast to expectations as well as the extant literature, there were no state emotional abnormalities noted from either schizophrenia-spectrum group. Of particular note, neither individuals with schizophrenia nor individuals with schizotypy were abnormal in their experience of state negative, positive or coactivated emotions. Conversely, abnormalities in trait emotion were observed in both groups relative to their respective control groups. These results help confirm that the schizophrenia-spectrum is not characterized by deficits in state emotional experience and suggest that sadness is not abnormally co-activated with pleasant emotions. These results are critical for clarifying the “chronometry” of emotional dysfunctions across the schizophrenia-spectrum.

© 2015 Published by Elsevier B.V.

1. Introduction

Emotional dysfunctions manifest across the schizophrenia-spectrum. At one extreme of the spectrum, individuals with chronic schizophrenia show high self-reported trait negative affectivity (tNA – disposition involving proclivity to experience unpleasant emotions), low self-reported trait positive affectivity (tPA – disposition involving proclivity to experience pleasant emotions), clinically-rated anhedonia (i.e., diminished pleasant emotional experience), and high levels of state negative emotion during laboratory and mobile assessment studies (Cohen and Minor, 2010; Horan et al., 2008; Kring and Moran, 2008; Myin-Germeys et al., 2009). These emotional abnormalities are by no means benign, as they are associated with poor functioning and illness course (Blanchard et al., 1998; Horan et al., 2008); reflect potentially heritable biomarkers of

illness risk (Keshavan et al., 2005; Lenzenweger, 2006; Tarbox and Pogue-Geile, 2011) and represent potentially important treatment targets (Gard et al., 2007). In support of the notion that emotional dysfunctions reflect a vulnerability marker, college students with schizotypy – defined in terms of high levels of magical ideation, ideas of reference, social anhedonia and other subclinical schizophrenia-like phenomena, also show a host of emotional abnormalities – many of which are similar in both quality and magnitude to individuals with chronic schizophrenia. For example, individuals with schizotypy report levels of tNA and tPA that are similar to individuals with schizophrenia (Cohen et al., 2012a; Horan et al., 2008) and show anhedonia via both self-report and clinician-rated measures (Blanchard et al., 2011). When directly compared with each other, college students with self-reported schizotypal traits, but not individuals with schizophrenia, report experiencing low levels of state positive emotion in reaction to evocative laboratory stimuli (Cohen et al., 2012a). These findings are counterintuitive in that college individuals with schizotypy should be healthier than outpatients with chronic schizophrenia in virtually every conceivable way (e.g., Cohen et al., 2014; Lenzenweger, 2006). The present study explored

* Corresponding author at: Louisiana State University, Department of Psychology, 236 Audubon Hall, Baton Rouge, LA 70803, USA.
E-mail address: acohen@lsu.edu (A.S. Cohen).

dysfunctions in emotional experience in schizophrenia (Study 1) and schizotypy (Study 2) using highly sensitive laboratory methods.

Despite a fairly large literature exploring emotional experience across the schizophrenia-spectrum, there are two major knowledge gaps that have yet to be addressed. The first concerns the emotional valence of the dysfunction(s). Most prior studies have focused on positive and negative valences; conceptualized as either distinct constructs, or opposing ends of a linear dimension (Russell, 1980). The “evaluative space model” of emotion posits that positive and negative emotions are separable, not antagonistic, and in some case, are co-activated (Cacioppo et al., 1997). Consider “bittersweet” emotions, for example, elicited when one moves from friends and family to improve occupational circumstances, during which both happiness and sadness are experienced simultaneously (Larsen and McGraw, 2014; see also “emotional complexity” as discussed by Lindquist and Barrett (2008)). Emotional ambivalence – a term coined by Eugene Bleuler to highlight the existence of opposing emotional experience to a common object is relevant here (Bleuler, 1950). Importantly, ambivalence does not necessarily refer to the co-activation of opposing emotions, and could alternatively reflect the rapid oscillation between opposing emotions; for example as “affective oscillating” emotions as described by Norris et al. (2010). Definitional and conceptual ambiguities aside, there is evidence that individuals across the schizophrenia-spectrum experience positive and negative emotions that are temporally proximate in an abnormal way. Individuals with schizophrenia have reported abnormally co-activated positive and negative emotions when processing unambiguously neutral and positively valenced laboratory stimuli across a number of studies (see Cohen and Minor (2010) for a meta-analysis; Tremblay et al., 2009b). In schizotypy, abnormal co-activation of self-reported “trait-like” positive and negative emotions (vis a vis ambivalence) is seen on standardized questionnaires (MacAulay et al., 2014), and, per a recent experience sampling study, are associated with abnormal social motivation and emotion regulation (Burgin et al., 2014). On the other hand, laboratory evidence of co-activated positive and negative systems in schizotypy is limited (e.g., Cohen et al., 2011). Importantly, no study to our knowledge has directly explored co-activated emotions in the schizophrenia-spectrum using stimuli meant to simultaneously activate positive and negative valence systems – an important endeavor for understanding how these emotional abnormalities manifest. This was the primary goal of the present study.

A second major knowledge gap involves how temporal features of emotion (e.g., “affective chronometry”; Davidson, 1998) may be abnormal across the schizophrenia-spectrum. Laboratory studies of emotional experience typically involve processing static stimuli for relatively brief periods of time and quantifying experience at one time point, often immediately following stimulus offset. This is a limitation because emotional experience is dynamic over time. Moreover, quantifying emotional experience, particularly in the absence of the evocative stimuli as is often done in laboratory studies, requires the involvement of episodic and semantic processing systems that are distinct from those involved in “on-line” current reports (Strauss and Gold, 2012). Illustrative of this point, studies have found that individuals with schizophrenia are not abnormal in state (e.g., “on-line” or “consummatory”) experience of pleasure but have found low positive experience when anticipating emotional experience (Kring et al., 2011) or when recalling past emotional experiences (Herbener et al., 2007). To our knowledge, no published studies have explored emotional chronometry using dynamic laboratory stimuli. The second primary goal of this study was to evaluate emotional experience using continuous assessment of emotional experience to dynamic stimuli over an extended period of time. As an adjunct to the primary analyses of this study, we examined how emotional experience varies as a function of positive, negative and disorganization symptoms and traits in schizophrenia and schizotypy; important in light of evidence that the schizophrenias-spectrum is at least phenotypically heterogeneous (and likely mechanistically heterogeneous) (e.g., Kwapil et al., 2012).

2. Study 1 methods

2.1. Patient participants

The patient group included 27 adults with Diagnostic & Statistical Manual of Mental Disorders 4th edition (DSM-IV; American Psychiatric Association, 1994) diagnosed schizophrenia, recruited from an outpatient clinic. Individuals were clinically stable at the time of testing and were receiving pharmacotherapy under the supervision of a multi-disciplinary team. A nonpatient control group of 26 individuals from the community was also recruited. Exclusion criteria included: a) Global Assessment of Functioning rating (GAF; APA, 1994) below 30, b) documented evidence of intellectual disability from medical records, c) current or historical DSM-IV diagnosis of alcohol or drug abuse suggestive of severe physiological symptoms (e.g., delirium tremens, repeated loss of consciousness) assessed from clinical interview, and d) history of significant head trauma (requiring overnight hospitalization) from clinical interview or medical records. Exclusion criteria for the controls also included the presence of a DSM-IV diagnosis of schizophrenia, depression, mania or endorsement of clinically significant psychosis symptoms (present or by history), assessed from clinical interview.

2.2. Diagnostic and symptom ratings

Diagnoses were made based on information obtained from medical records and from The Structured Clinical Interview for DSM-IV (SCID-IV; First et al., 1996). The Scales for the Assessment of Positive and Negative Symptoms (SAPS & SANS respectively; Andreasen 1984a, 1984b) were used to measure positive and negative symptoms in individuals with schizophrenia. Summary scores reflecting positive (i.e., global delusion and hallucination scores), disorganization (i.e., global thought disorder and bizarre behavior scores), and negative, composed of alogia-blunted affect (i.e., global alogia and blunted affect scores) and anhedonia-avolition (i.e., global anhedonia and avolition scores) were used. Preliminary diagnoses and symptom ratings were made by one of four doctoral level students who were trained to criterion (intra-class correlation coefficient values >.70). Diagnoses and ratings were videotaped and reviewed during a monthly case conference meeting that was led by a licensed clinical psychologist with considerable diagnostic experience (Alex S. Cohen).

2.3. Self-reported symptoms and trait affect

Trait affectivity was measured using the Positive And Negative Affect Schedule (PANAS; Watson and Clark, 1999) with instructions to indicate how they “generally feel”. A scale from 1 to 5 was employed. tPA and tNa scores showed acceptable reliability across each group (α 's > .75).

2.4. Continuous emotion assessment task

Participants were seated in front of a computer monitor and completed a brief tutorial on using an “evaluative space grid” (Larsen et al., 2009) to continuously assess their emotional experience (See Fig. 1). Briefly, participants were asked to indicate their emotional experience “at that moment” on a grid where the x-axis reflects happiness and the y-axis reflects sadness. Both the evaluative space grid and the current experience were displayed to the participant throughout the task. The cursor initially appeared in the cell representing neutrality (i.e., no happiness or sadness), after which participants used the mouse to move the cursor throughout the space. The cell location of the mouse cursor was recorded every 500 ms. Standardized instructions, adapted from those of Larsen et al. (2009) were used. A film clip approximately six minutes long from the end of the movie *Life is Beautiful*, involving a father entertaining his son while awaiting execution in a Nazi

Download English Version:

<https://daneshyari.com/en/article/6823273>

Download Persian Version:

<https://daneshyari.com/article/6823273>

[Daneshyari.com](https://daneshyari.com)