Translating Basic Emotion Research Into Novel Psychosocial Interventions for Anhedonia

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When viewed through the lens of the field of affective science, it is apparent that anhedonia does not reflect an experiential abnormality in schizophrenia, as has long been assumed. Rather, it involves dysfunctional psychological and behavioral processes, ie, low-pleasure beliefs and reduced overestimation of noncurrent pleasure. Furthermore, cognitive impairments in working memory and long-term memory may be critically linked to these psychological and behavioral components of anhedonia. Despite these advances in understanding anhedonia, the major challenge facing the field still remains—how do we treat these abnormalities?

It is clear that pharmacological agents alone have had minimal effects in remediating these deficits. However, many psychiatric disorders respond to combined pharmacological and psychosocial treatments more so than either treatment alone. Should we expect the treatment of anhedonia in schizophrenia to be any different? Anhedonia is a complex and multifaceted pathology and may need to be targeted from multiple angles. Steroid use in sports may be a good metaphor for how to treat anhedonia in schizophrenia. Athletes taking steroids are unlikely to see any gains in their muscle growth or athletic performance unless they couple steroid use with a weight-training regimen. Similarly, medication alone may have little effect on anhedonia in schizophrenia without concurrent psychosocial treatments aimed at countering low-pleasure beliefs and increasing pleasure-seeking behavior. It may, therefore, be important to consider combining psychosocial and pharmacological treatment trials for anhedonia in the future.

Few psychosocial interventions have been developed with the specific intention of treating negative symptoms of schizophrenia and fewer if any have been designed according to principles guided by the field of affective science. Cognitive behavioral therapy (CBT) may come the closest to remediating the psychological and behavioral components of anhedonia. Grant et al developed a CBT for negative symptoms and functional deficits, which is based upon the premise that negative symptoms are maintained by a series of dysfunctional beliefs (eg, defeatist performance attitudes). They propose that these beliefs contribute to anhedonia, avolition, apathy, and asociality. Cognitive techniques used in this approach attempt to counter such beliefs, and behavioral activation and “behavioral experiment” techniques are an important part of this process. Grant et al’s current manualized intervention also includes methods for targeting neurocognitive impairment, such as structuring each session with visual aids, using concise language, frequent summaries, repetition of important points, positive reinforcement, and structuring the home environment. These methods were recently found to be effective at reducing avolition and improving functional outcome in a sample of chronic schizophrenia patients. However, there was no significant effect on anhedonia.

To target anhedonia specifically as per the Strauss and Gold model described previously, the CBT program developed by Grant et al could be modified to make use of ecological momentary assessment and ecological momentary intervention. One such strategy, for example, would require that patients carry mobile devices (eg, smart phones). These could be programmed to query patients about (1) the nature of their activities (eg, social, work, recreation), (2) how they are feeling during those activities, (3) how they expect to feel when doing those activities in the future, and (4) how they remember feeling in the recent past. These mobile assessments accumulate “data” that can be reviewed in regular treatment sessions to disconfirm the belief that nothing is enjoyable. The mobile device could also send reminders to engage in regularly scheduled pleasurable activities. Rapid advances in the development of applications (apps) for smart
phones specifically designed for such therapeutic purposes make this form of treatment increasingly available.

The aforementioned CBT methods by Grant et al focus on countering negativistic attitudes and dysfunctional behaviors; however, it may also be necessary to focus on maximizing positive emotional experiences by using techniques developed in the field of affective science. These affective science–based interventions aim to increase the frequency and duration of positive emotional experiences. Five techniques have specifically been found to reliably increase the frequency, intensity, and duration of positive emotions: (1) Behavioral display—expressing emotions via nonverbal behaviors, which has been found to have a causal role in increasing positive affect; (2) Being in the moment—directing controlled attention toward positive experiences when they occur; (3) Capitalizing—communicating and celebrating positive experiences with others; (4) Anticipating the enjoyment of a forthcoming event—generating a mental representation of a future positive experience, which can create positive affect in the moment; and (5) Recalling previously pleasurable events—retrieving episodic details of previous pleasurable experiences to increase positive emotion in the moment. There is even a self-report emotion questionnaire that focuses on the temporal aspects of positive emotion, which can be used as an outcome measure in evaluating the effectiveness of these methods at enhancing positive emotion. These therapeutic methods and assessments may offer a promising new means of moving patients toward the normative tendency to overestimate future and past positive emotions, as well as increasing the duration of positive emotional experiences, which has been found to be reduced at the neurophysiological level in patients.

In addition to applying procedures aimed at enhancing positive emotion, it may be necessary to target strategies through which patients may habitually “dampen” their positive emotions. Affective suppression is one strategy that decreases the frequency or intensity of positive emotions and consists of restricting nonverbal displays of positive emotion. Many schizophrenia patients have restricted facial and vocal affect, and these symptoms often have been linked to greater self-reported use of affective suppression as an emotion regulation strategy. A tailored positive emotion–focused intervention developed by Bryant uses social skills training to increase awareness of emotional expressivity, to provide instruction in how to express emotion, and schedules in periods of nonverbal emotional expression into daily life activities. Given that electromyography studies indicate that individuals with schizophrenia display microexpressions of emotion in response to affective probes that are undetectable by observers, it may be that the capacity to produce positive expressions is intact in schizophrenia and that the aforementioned training procedures could be used to increase the frequency of emotional expressions and potentially the frequency of positive experiences as a result.

Distraction is another emotion regulation strategy that can decrease the frequency, duration, and intensity of positive emotions. It involves controlled (ie, effortful) cognitive processes, such as engaging in activities and thoughts unrelated to a current positive emotional experience, and automatic (ie, reflexive) cognitive processes, such as attention not being reflexively drawn toward pleasurable experiences. It is unclear whether patients engage in distraction processes in the midst of pleasurable activities, although it certainly seems plausible given the potential for hallucinations and delusions to interfere with such activities. In a series of studies, our group has shown that patients with higher levels of anhedonia and avolition are less likely than patients with lower negative symptoms and healthy individuals to have their attention automatically captured by pleasant stimuli. It may be that the types of attention–emotion retraining programs that have proven effective in mood disorders could influence these controlled and automatic processes and increase the frequency and duration of pleasurable experiences in schizophrenia as well.

Faultfinding, which consists of focusing on the negative elements of primarily positive situations or searching for what could have made a situation better, also dampens otherwise positive experiences. It is unclear whether patients engage in faultfinding; however, evidence that patients display “affective ambivalence” or coactivation of positive and negative emotions to pleasant and neutral stimuli may be somewhat consistent with this notion. Perhaps patients are more likely to experience a coactivation of negative emotions than controls during potentially pleasurable events due to their unique life experiences, lack of resources, or chronic elevations in negative affect that bleed over into most daily events (including positive experiences). Techniques, such as those used by Bryant, which involve savoring positive experiences, may have utility for decreasing the frequency with which patients experience coactivations of positive and negative emotions.

Anticipating negative emotions and experiences is another means through which dampening occurs. This involves frequently generating mental representations of negative experiences, which engender negative emotions in the present. It is unclear whether individuals with schizophrenia have more frequent or more intense anticipation of negative emotion than controls; however, cognitive techniques, such as the savoring methods developed by Bryant, which train individuals to identify when they are having anticipatory negative thoughts, checking whether they are functional, and then changing them by anticipating more pleasurable future events could be effective at remediating such deficits if they do in fact exist.
Conclusions and Recommendations

CBT- and affective science–based approaches have promise for improving the psychological and behavioral components of anhedonia. However, additional strategies may be needed to combat the cognitive impairments that interact with these aspects of anhedonia. Cognitive remediation may be beneficial in this regard. Several studies have demonstrated that specific retraining programs are effective at enhancing neuropsychological functioning. Anhedonia may, therefore, require an extensive treatment approach, including pharmacology, CBT, affective science approaches to enhancing positive emotion, and cognitive remediation. It is unrealistic to expect all of these approaches to be delivered at once. As such, a tiered approach may be best. In other disorders (eg, mood), it is often helpful to begin with a pharmacological intervention combined with targeted behavioral methods aimed at activation. This sequence may be beneficial in schizophrenia combined with targeted behavioral methods aimed at activation. This sequence may be beneficial in schizophrenia.

References