Anticipated Reward in Obsessive-Compulsive Disorder: Are Compulsions Rewarding?

To the Editor: Affect and behavior are closely linked. Researchers have investigated the influence of affective reactions to incentive outcomes on behavior. More recently, interest has shifted to the affective state that occurs during the anticipation of a behavior. Affect during this phase is best situated in time to motivate behavior and is typically associated with the expected outcomes of that behavior. This notion is relevant for compulsive behavior in obsessive-compulsive disorder (OCD), which is associated with a deficit in using accurate models of prospective action-outcome scenarios. This deficit may in turn influence anticipatory affect and exacerbate compulsions despite their detrimental consequences. More insight into the affective changes before and after compulsions in OCD can increase our understanding of how affect and behavior dynamically interact in this disorder. In this study, we directly investigated self-reported affect before, in anticipation of, and after OCD-related compulsions to elucidate the role of positive and negative affective states in compulsive behavior.

Method. Twenty-two consecutive and treatment-seeking patients with DSM-IV OCD (mean ± SD age = 39.17 ± 12.42 years, 11 males) completed the Temporal Impulsive Compulsive Scale, a self-report instrument that was developed to assess affective states over time during specific repetitive behaviors (scale is available from the authors upon request). It consists of a selection of 6 Positive Affect (cheerful, proud, determined, confident, energetic, alert) and 8 Negative Affect (guilty, lonely, nervous, sad, afraid, disgusted, ashamed, irritable) items from the Positive and Negative Affective Schedule (PANAS). Participants indicated how intensely they experienced these affective states before (pre-choice phase), in anticipation of (anticipatory phase), and after (consummatory phase) their primary OCD compulsion behavior (ie, washing, checking, ordering, or hoarding). This study was approved by the local institutional review board.

Scores were calculated (in centimeters) using a visual analog scale that varied from 0 “not at all” to 10 “extremely.” Mean responses were separately calculated for positive and negative affect at each temporal phase. Each participant received 1 mean score for items within the Positive Affect scale and 1 for items within the Negative Affect scale. The affective experiences of OCD patients are illustrated in Figure 1. Patients were divided into three groups: those who experienced an increase in positive affect and either increase or no change in negative affect, those who experienced increases in both positive and negative affect, and those who experienced an increase in positive affect and decrease in negative affect.

Figure 1. Affective Experiences Prior to (stage 1, pre-choice), in Anticipation of (stage 2, anticipatory), and After (stage 3, consummatory) the Primary OCD Compulsion

<table>
<thead>
<tr>
<th>Group Description</th>
<th>Pre-Choice</th>
<th>Anticipatory</th>
<th>Post-Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in positive affect and either increase or no change in negative affect</td>
<td>A. Positive affect</td>
<td>Increase (n = 6)</td>
<td>No change (n = 4)</td>
</tr>
<tr>
<td></td>
<td>B. Negative affect</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Increase in positive affect and decrease in negative affect</td>
<td>C. Positive affect</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td></td>
<td>D. Negative affect</td>
<td>Decrease</td>
<td>Increase</td>
</tr>
</tbody>
</table>

Note: A. Positive affect, B. Negative affect, C. Positive affect, D. Negative affect. Express values in centimeters on a visual analog scale from 0 “not at all” to 10 “extremely.”
Affect scale. We defined increase or decrease in positive or negative affect when patients showed a difference of more than 1 standard deviation shift from the pre-choice phase to the anticipatory phase.

Discussion. It is intriguing that almost all of the OCD patients studied showed an increase in positive affect in anticipation of their compulsion. In addition, 10 of them showed a concurrent decrease in negative affect, while the remainder showed either a concurrent increase or no change in negative affect. The increase in positive anticipatory affect may indicate a rewarding aspect of compulsions, and concomitant decreases in negative affect (particularly sadness and irritability) suggest craving/addictive processes, which could contribute to the persistence of these behaviors. These findings may be particularly relevant to those OCD patients who show blunted nucleus accumbens activity during anticipation of generic rewards, which is offset by enhanced activity during anticipation of performing OCD-related compulsions. This explanation supports analogies between OCD and addiction and is consistent with the co-occurrence of compulsive and impulsive symptoms in OCD and addictive disorders. The findings provide insights into the phenomenological and neurobiological systems that maintain, and even promote, compulsions in OCD-related behaviors.

References


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