

The Role of Negative Affect in Eating Disorders

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Abstract: Eating disorders are serious and frequently fatal diseases characterized by disruptions in eating habits, thoughts, and feelings. They are common globally and negatively impact physical and mental health, especially in adolescent girls and young women. Negative affect (NA), marked by unpleasant emotions, is associated with psychological disorders and is crucial for the development and maintenance of EDs. However, the research is still lacking in some areas, such as the connection between different NA types and ED symptoms, as well as the course and development of EDs. This review explores how the specific relationship between negative affect and different primary symptoms of eating disorders vary under different cultural contexts and personal backgrounds, how the progression of NA differentiates among three types of EDs, and other relevant factors influencing the relationship between NA and EDs. The examination of the connection between negative emotions and eating disorders can provide insightful information. However, the conclusions are limited by the studies' nature. Most studies relied on self-report measures, which may not accurately reflect individuals' experiences with eating disorders. To comprehend how eating disorders develop and advance over time, longitudinal studies are also required. The review shows that negative affect and eating disorders have a complex relationship, with different types of negative affect linked to different symptoms. It can contribute to the design of prevention and intervention programs at schools and communities.

Keywords: negative affect, eating disorders, cultural differences

1. Introduction

The significant disturbance of a person's eating habits, as well as associated thoughts and emotions, is defined as eating disorders, which are serious, frequently, and fatal conditions. The three diagnostic sub-types of eating disorders are anorexia nervosa, bulimia nervosa, and binge eating disorders. Negative affect (NA) is a personality attribute marked by a propensity to feel unpleasant emotions like anxiety, despair, and rage [1]. There are various specific types of negative affect, such as fear, shame, hostility, irritability, and distress. It is often associated with psychological disorders, including anxiety disorder, and personality disorder. To understand how negative affect and eating disorders are related, the current review examined the function of NA in the onset and preservation of EDs.

Based on previous research, it is shown that negative affect has significant contribution to Eds [1]. This review paper has synthesized and critically evaluated the current literature on this topic,

shedding light on the significant impact that negative affect can have on the onset, maintenance, prevention, and treatment of EDs. Moreover, underlying emotional and psychological factors that cause and influence negative affect should be identified and addressed, including trauma, low self-esteem, and perfectionism. By doing so, this review hopes to better understand and address the complex interplay between negative affect and eating disorders, and ultimately improve treatment outcomes for those who struggle with these debilitating conditions.

The existing literature suggests that eating disorders would impact multiple aspects of individual and family life. Research has found that the existence of an ED affects the quality of life the most significantly, exceeding other psychiatric illnesses, especially in relation to psychological health [1]. It has been shown that EDs are frequently linked to high degrees of psychiatric comorbidity, notably mood disorders, and anxiety disorders [2]. The negative impact of EDs is quite robust and significant that it even affects those who are not clinically diagnosed with any type of EDs [1]. This suggests that isolated symptoms of EDs or different eating disorder episodes can exert influences on an individual's life. Specific eating disorder symptoms, such as binge eating, purging, and other compensatory are found to link closely with poorer life qualities. It has been shown that the inability to control one's binge eating behaviors could elicit more anxiety, body dissatisfaction, and negative self-concept [3]. Purging behaviors and other compensatory behaviors are also revealed to be associated with physical and mental impairments [1]. Moreover, the negative consequence of EDs impacts beyond merely personal life and extends the disturbance to family life. EDs may challenge family cohesion and create more conflicts between parents and children [4]. Even if not torn apart, the family as a whole is likely to face discrimination, social isolation, and financial repercussions from society.

The negative affect would harm the psychological well-being of individuals. People who display negative affect more frequently are more likely to do so throughout time and even in the absence of any overt sources of stress [5]. Negative affect can also result in a more distorted self-concept. It was found that individuals who are in a negative mood recalled more negative events and had more negative interpretations of the events compared to those in a positive mood [6]. This is because negative affect can elicit more self-focused attention on emotions and feelings, leading to biased and distorted memories of past events [6]. Negative affect is identified as crucial factors that contribute to ED, especially its emergence and persistence. Studies have claimed that higher level of NA is a strong predictor of eating disorder onset [7]. Moreover, specific types of negative affect are claimed to be associated with certain symptoms of eating disorders [8]. For eating disorders in general, fear is the central NA that drives aggravation of ED, such as lower body dissatisfaction and distorted body image.

Eating disorders have been demonstrated to impact negatively psychological health and have high comorbidity with other emotion-related psychological disorders. Negative affect decreases subjective well-being while it is also a significant contributor to the onset and progression of eating disorders. However, there are still some gaps in the current literature. While some studies identify specific negative affect in eating disorders, it is not clear what is the relationship between types of NA and symptomology of eating disorders, and how they can relate to and inter-influence others. Most studies have focused on clinical patients while sub-clinical individuals should also be considered. Previous research has mainly addressed the cross-sectional association between NA and EDs, with less attention paid to the trajectory and advancement. To fill in the gap in the literature, the review analyzed the role of NA in EDs from the following perspectives: the relationship between NA and primary symptoms of EDs, the trajectory between NA and different ED episodes, and other relevant factors.

2. The Relationship Between Specific Negative Affect and Primary Symptomology of Eating Disorders

A variety of symptoms, such as disordered eating habits, poor body perception of one's body, and emotional and cognitive difficulties, characterize eating disorders. Negative affect such as anxiety, discomfort, humiliation, and guilt could increase the likelihood of the emergence and exaggerate the maintenance of eating disorders. However, depending on cultural and individual variables, the precise association between NA and several basic symptoms of eating disorders may differ. To explore the multifaceted relationships between symptoms and affective states in EDs, network analysis has been recognized as a valuable tool. This tool is useful to identify the most central symptoms and affective states by uncovering the underlying mechanisms of EDs. The creation of more effective interventions to prevent and treat EDs could also be informed via network analysis.

In the study by Wong et al., ED symptoms and affective states were compared among different types of clinically diagnosed EDs patients in the US [9]. The study used network analysis with self-report data collected from a sample of ED-diagnosed participants. The findings showed that the most prevalent negative emotional states in the network were fear and distress, while the guilt of eating and feeling ashamed was the most interconnected symptoms. This suggests that the development and perpetuation of EDs can be worsened if individuals feel humiliated which will make consuming behavior more guilty. It is also revealed that negative affect spreads its impact down the network, as feeling ashamed can up-regulate another negative affect [9]. This emphasizes the need of comprehending the function of negative emotion in the development and maintenance of eating disorders.

However, the results of the network analysis seem to vary from that of the US in the context of Iran. Sahlan and Sala used a sample of Iranian college students to investigate how negative affect would influence ED symptoms [10]. The results showed some variations from the previous study done in the US context. The study revealed that hostility and shame instead of fear and distress were the most central negative affect for Iranian college students [10]. While guilt of eating and feeling ashamed was found to bridge between the networks, the study suggested that hostility was a major bridge symptom, which was connected to vomiting and covert eating. It could be inferred from the current study compared with other studies in the Western culture that there might be cultural differences in how negative affects link to and increase eating disorder symptoms. Moreover, the variation between the results might be attributed to the impact of negative affect appearing to vary between non-clinical and clinical groups of participants.

Based on the studies, the examination of how various types of NA relate to different basic symptoms of EDs is critical to fully uncover the complex relationship between the two. Both studies share some similarities in that they identify the negative affect and symptoms of eating disorders are all interconnected. The two networks are bridged by several core negative affect and eating disorder symptoms. This implies that the impact of a single negative affect can not only propagate through its network but can also contribute to the development and maintenance of eating disorder symptoms within its network. In other words, even though there is no direct relationship between specific negative affect or symptoms, it could have ripple effects over the entire network. However, when identifying the bridging negative affect and eating disorder symptoms, there is inconsistency under different cultural contexts. It can demonstrate that there may be cultural differences in how negative affects link to and increase eating disorder symptoms, with the most central negative affect and symptoms varying between different populations. These findings imply that more studies should look into the impact of cultural and individual variables when investigating the association between the two.

3. Negative Affect and Eating Disorder Episodes

Although previous literature has identified the contribution of specific negative affect on eating disorders, the progression of EDs is rather dynamic. Determining how negative affects alter during different eating disorder episodes is of great significance. Moreover, it is expected that the trajectory of negative affect may also vary depending on distinct diagnostic groups for three subtypes of EDs. Traditional retrospective assessments of NA and ED behaviors has defectiveness to completely capture the accurate and dynamic interactions between these two variables. To track fluctuations in NA and eating disorder behaviors in real time more accurately, ecological momentary assessment (EMA) has been quite identified in recent studies as a possible alternative method.

Wonderlich et al. Conducted a study that discussed the use of EMA in studying negative affective states and ED behaviors as an alternative to traditional retrospective assessments among three groups including anorexia nervosa (AN), bulimia nervosa (BN), and obesity group [11]. Results suggested that the frequencies of various eating disorder behaviors were generally highly correlated with negative affect obtained via the two different means of measurement. The study also revealed that the correlation between purging behavior and negative affect is the strongest among all the behaviors. It indicates that there is a strong link between eating disorder behaviors and negative emotions. It is possible that experiencing more unfavorable emotions would elicit more disordered eating behaviors, particularly purging behaviors which then result in the perpetuation and even aggravation of eating disorders.

Wonderlich and colleagues further assessed how binge eating influenced the trajectory of NA among three diagnostic groups of EDs which are AN, BN, and BED [12]. The research team utilized the EMA to track how NA changed pre- and post-binge eating episodes among participants in all three diagnostic groups (7 days for BED; 2 weeks for AN and BN) throughout the day. The data showed that levels of reported negative affect after a binge-eating episode varied across ED diagnostic categories. Compared with BED group, AN and BN groups, in particular, experienced more significant fluctuation of negative affect after binge eating episodes. The second major result is that distinct ED diagnostic groups have diverse negative affect trajectories, which means that these groups experience negative affect at various rates of onset and remission. When compared with BED patients, bulimia-diagnosed patients experienced greater NA before over consumption of food. However, the emotion dropped significantly after the binge-eating episode. It indicated that binge eating episodes contribute to the increasing fluctuation of negative affect among eating disorders diagnostic participants. The role of negative affect should be examined uniquely for each subcategory of eating disorders.

The study by Berg and colleagues specifically investigated how different types of negative affects progressed before and after three categories of eating episodes which are overeating without losing control, losing control without overeating, and binge eating using EMA for two weeks, targeting on obese adults [13]. The researchers discovered that, among the five forms of negative affects studied, global negative affect and guilt fluctuated the greatest, increasing before and decreasing after binge eating episodes. In addition, guilt was found to also be down-regulated after the overeating-only episodes. It is consistent with previous studies that binge eating episodes elicit great negative emotion fluctuation. This study further suggested that overeating or losing control of eating alone was not adequate to impact emotions but the combination of the two can influence the feeling of guilt.

The three papers examined the use of EMA to better understand the connection between NA and ED behaviors. They all utilized EMA to capture real-time data on emotions and eating behaviors, which allowed for a more accurate and detailed analysis. The studies demonstrated that negative

affect varies among different diagnostic groups of eating disorders. This is because certain types of eating disorders incorporate different disordered eating behaviors, exhibiting multiple episodes. The intensity of fluctuation of affects varies across different episodes. Negative emotion is also strongly associated with many eating disorder behaviors, particularly purging behavior. Purging behaviors as a prominent contributor may be the result of negative reinforcement of the behavior itself. Purging behaviors can provide temporary relief from negative emotions, such as anxiety or guilt, leading to a cycle of negative reinforcement, where the individual is more prone to the engagement of purging behaviors to cope with NA in the future. Furthermore, all studies above reveal that binge eating episodes would trigger significant fluctuations in negative affective state. Both purging and binge eating behaviors that had primary influence are common symptoms of bulimia nervosa. It could infer that BN patients may experience more server negative affect fluctuation compared with other diagnostic groups. One possible reason is due to perfectionism. Individuals with bulimia may have a strong desire for perfectionism, and purging behaviors may be seen as a way to “undo” or compensate for the perceived “damage” caused by binge eating. However, when the desired outcome is not achieved, negative affect can result. Another possible explanation is that frequent repetition of binge eating and purging behaviors can cause changes in the body’s hormonal levels, blood sugar levels, and electrolyte imbalances, which can contribute to mood swings, anxiety, and irritability. The three studies collectively show the importance of EMA in comprehending the nuanced connection between NA and eating disorder behaviors. They provide insights into the mechanisms underlying eating disorders and highlight the importance of developing tailored treatment approaches based on individual differences among different diagnostic groups.

4. Relevant Factors in the Relationship

Eating disorders have been linked to negative affect, such as anxiety and depression, but other relevant factors may have an impact on the occurrence and maintenance of EDs. These factors may either strengthen the relationship or uncover the possible mechanism behind it. Ivanova and associates examined how interpersonal issues and negative emotions may increase the likelihood of developing ED with a sample of Canadian patients who receive treatment [14]. After the clinical assessment of eating disorders by clinicians, participants were instructed to fill out a retrospective questionnaire regarding negative affect and instability, and interpersonal functioning. The findings demonstrated that interpersonal issues were significantly linked to ED psychopathology and negative affect in both biological genders. In particular, the study discovered that for males and females who receive treatment for an ED, negative affective state was strongly related with eating disorder psychopathology. Additionally, interpersonal problems were found to contribute to NA, which further induced greater levels of ED psychopathology. These results lend credence to the idea that relationship problems might exacerbate NA and ultimately lead to the emergence of disordered eating habits.

Ritchie et al. investigated how people with eating disorders have impaired fading affect biases in their autobiographical memories [15]. Fading affect bias describes how negative emotions connected to the past tend to disappear more quickly than positive ones. Researchers instructed participants to recall some of their past events, followed by rating the frequency and effect of the events. According to the study, people who had eating disorder symptoms had altered fading affect bias in their autobiographical recollections. They tended to remember negative events as more emotionally intense and more persistent than positive events, which is the opposite of what is typically seen in healthy individuals. Negative affect may persist longer than positive ones which reinforce the concerns about shape, weight, and eating.

The study by Bardone-Cone et al. examined what influence NA would have on the recovery of eating disorders combined with other predictors (i.e., self-concept and personality) by conducting a

longitudinal study with a follow-up assessment after 7-8 years after the baseline measurement [16]. The assessment of the severity of recovery and symptoms of EDs was collected via clinical interviews while the measurement of negative affect including anxiety and depression was obtained from self-reported questionnaires. The results indicated that those who recovered from eating disorders exhibited a decreasing trend for negative affect. However, in both of the examined negative affect, it demonstrated that there is no discernible difference in depression symptoms between the groups who had recovered and those who had not. The recovered group demonstrated a significantly lower level of anxiety symptoms. It implies that the decrease in anxiety level could be an important signal of the reduction of eating disorder symptoms, as anxiety is usually comorbid with eating disorders. The study suggests that down-regulating negative emotions for eating disorder-diagnosed individuals might be a target to develop recovery strategies.

According to the studies, other factors such as interpersonal issues, memory issues, and personality problems can have an impact on the association between unpleasant emotions and eating disorders. The emergence of disordered eating actions could also be triggered by interpersonal issues via exacerbating NA, as study has identified a substantial correlation between interpersonal problems and eating disorder psychopathology [14]. It is reasonable to infer that individuals use abnormal food consumption habits such as overeating or restricting eating as a means to digest or regulate negative emotional state such as anxiety, depression and stress. Interpersonal problems can also contribute to negative affect and exacerbate disordered eating behaviors. For example, difficulties in relationships, such as conflicts or lack of social support, may lead to feelings of loneliness, sadness, or anxiety, which can trigger disordered eating behaviors. Ritchie et al. revealed that autobiographical memory in those who have eating disorder symptoms is disturbed by fading affect bias [15]. The disrupted fading affect bias observed in individuals with symptoms of ED is associated with the persistence of negative emotions associated with past events. This may reinforce concerns about shape, weight, and eating, resulting in more distorted self-concept and more severe of ED conditions. The persistence of negative emotions may also contribute to a negative self-image and low self-esteem, which are common features of eating disorders. Another longitudinal study conducted by Bardone-Cone et al. found that reducing negative emotions could be an important target for developing recovery strategies [16]. This suggests that reducing negative emotions, particularly anxiety, may be an important target for developing recovery strategies is promising. As a result, it would be effective in treatment of EDs if incorporating more components of improving emotion management abilities and minimizing unpleasant emotions. Treatment for EDs may benefit from techniques like cognitive-behavioral therapy (CBT) and dialectical behavior therapy (DBT), which are efficient in improving the capacity for emotion regulation and reducing negative affect. The studies highlight the importance of understanding how NA would impact the onset and preservation of EDs. By addressing negative emotions and improving emotion regulation skills, it may be possible to develop more effective treatment strategies for EDs.

5. Conclusion

Eating disorder has a complicated association with negative affect, with various forms of negative affect being linked to particular symptoms of EDs. Cultural and individual differences were shown significant effects, highlighting the need for consideration of these factors in research on this topic. Moreover, negative affect varied among different diagnostic groups of eating disorders and were strongly associated with purging behaviors, which may be reinforced by providing temporary relief from negative emotions. Negative feelings are closely related to the actions of eating disorders, especially purging. Purging provides temporary relief from negative emotions, leading to a cycle of negative reinforcement. BN patients may experience severe negative emotion fluctuations due to

perfectionism or hormonal changes caused by binge eating and purging behaviors. The link between NA and EDs is also influenced by other pertinent characteristics, including interpersonal difficulties, memory issues, and personality. Difficulties in relationships can contribute to negative affect which many individuals use EDs symptoms as a coping method. Autobiographical memory shows a disturbed fading affect bias in people with eating disorder symptoms, which may lead to a more biased and distorted self- and body-concept. Reducing negative emotions, particularly anxiety, may be an important target for developing recovery strategies. Strategies, such as those in CBT and DBT, are likely to have better therapeutic outcomes in treating EDs by improving emotion regulation skills and reducing negative emotions.

The limitations stem from the nature of the research that was analyzed. Many studies used self-report measures for participants to reflect emotional state. Yet, these measures are prone to bias and may not reflect the experiences of people with EDs objectively. Additionally, most studies were conducted with clinical samples, limiting the generalizability of the findings to individuals in non-clinical settings. Equal attention should be given to the sub-clinical and high-risk populations that are vulnerable to eating disorders. Most of the studies analyzed the trajectory of NA for clinically diagnosed patients. However, the progression of NA and ED behaviors should also be tracked for high-risk populations to monitor the trend and develop more effective prevention measures.

The review emphasizes the intricate connection between eating disorders and negative affect, showing how various forms of negative affect are connected to various symptoms of the condition. Researchers also examine the optimal timing and delivery of these interventions and investigate the moderating effects of individual and cultural differences on the effectiveness of these interventions. Researchers and clinicians should utilize a combination of objective and subjective measurements to address this complexity. Additionally, interventions aiming to regulate and reduce NA, interpersonal problems, and memory biases may be effective in alleviating ED symptoms. Treatment strategies such as CBT and DBT that emphasize improving emotion regulation skills may be effective in reducing eating disorder symptoms. Mindfulness-based interventions may also be a promising approach to reducing negative emotions and improving emotion regulation skills. Investigating the efficiency of mindfulness-based therapies in emotion regulation and ED symptoms is one possible field of future research. Future research might also assess the best delivery and timing of these programs for the treatment of eating disorders, as well as compare the efficacy of mindfulness-based interventions to conventional CBT and DBT techniques. Finally, to fully capture stages of ED progression under the influence of NA, longitudinal studies are needed. This review can provide some insights for the relevant prevention programs at schools.

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