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The Relationship Between Perceived Stress and Aggression Behavior Among Individuals with Major Depressive Disorder (MDD)

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Abstract

This study examines how perceived stress impacts aggression in individuals diagnosed with Major Depressive Disorder (MDD), specifically looking at the variations between genders. The study utilizes a quantitative questionnaire to investigate the correlation between stress and aggression, as well as the factors that exacerbate this relationship, including the reciprocal linking of stress and aggression. Perceived stress and aggression exhibited a substantial and advantageous correlation ($r = 0.62$, $p < 0.01$), suggesting that an increase in aggression was linked to elevated stress levels. 78% of males and 58% of females admitted to frequently exhibiting aggression, while males reported engaging in aggressive behaviors more frequently than females. A reciprocal relationship was discovered, in which escalated aggression led to elevated stress levels and increased stress caused heightened aggression ($r = 0.54$, $p < 0.05$), thereby establishing a detrimental feedback cycle. These results indicate that interventions aimed at reducing stress could be especially helpful in decreasing aggression in male MDD patients. This study enhances our comprehension of the dynamics between stress and aggression in MDD and highlights the significance of addressing these aspects in therapy.

Keywords: Perceived stress, Aggression, Gender differences, and Major depressive disorder.

1. Introduction

Stress is typically perceived by individuals as an overwhelming experience, characterized by negative emotions and pressure. Stress is an affective experience that induces physiological, behavioral, and biochemical modifications in the body from a psychological perspective. The relationship between an individual and their environment was previously defined as stress, which occurs when the demands of a situation exceed an individual's mitigating resources (Lazarus & Folkman, 1986). Not all tension is detrimental, despite its frequent negative perception. Certain forms of tension can act as a source of motivation, providing the requisite energy to surmount challenges. However, stress management is complex because of its multifaceted nature. A critical element of stress management is perception. Keller et al. (2012) underscored that stress is the consequence of the interaction between an individual's perception of external stressors and the stressors themselves, even though many individuals attribute stress

to external factors.

The initiation of a stress response is influenced by the interpretation and evaluation of stressful situations by individuals, which is known as perceived stress. According to Shah et al. (2010), self-reports are commonly used to assess perceived stress, while physiological responses are used to evaluate biological stress. Biological, psychosocial, and psychological factors all influence stress levels. From a biological perspective, stress causes changes in the immune, nervous, and cardiovascular systems which could have positive effects in the short run (Selye, 1956). Psychosocial stressors such as economic pressures, interpersonal conflicts, and social interactions impact stress levels. People with lower economic status have a higher chance of developing stress-related health issues like heart disease, as mentioned by Schneiderman et al. (2005). Psychological stressors like marital conflict, abuse, or violence can cause distress in individuals of all ages, according to Toth & Cicchetti (2013).

Aggression, described as actions aimed at inflicting harm on another individual, can be divided into proactive and reactive types. According to Wrangham (2018), reactive hostility develops in response to provocation, but proactive aggression entails intentional acts. A variety of aggressions can be seen, including relational, verbal, and physical aggression, the latter of which targets relationships or reputations (Warburton & Anderson, 2015). According to Bandura's social learning theory (1977), people are more likely to pick up aggressive behaviors from watching others, particularly if they see those acts praised or not punished. According to Liu et al. (2013), aggression can manifest in early childhood or later in life and is often affected by outside variables such as trauma, substance abuse, or injury. Aggression can escalate to more severe forms as people age, including reports of sexual or domestic abuse (U.S. Department of Justice, 2007).

Stress is commonly associated with aggression, often leading to aggressive behaviors as an adverse response. Aggression and perceived stress, which is the individual's evaluation of stressors, have been connected; however, more study is needed to examine this association in people with Major Depressive Disorder (MDD). Aggressive conduct may be worsened by MDD which can cause increased emotional sensitivity and difficulties managing stress. It is important to understand this interaction since animosity within this group can lead to major consequences, including interpersonal violence. This research investigates the relationship between aggression and perceived stress in individuals with MDD to enhance therapies for improved management of stress and aggression (Lazarus & Folkman, 1986; Keller et al., 2012; Wrangham, 2018).

2. Method

2.1 Participants

The were 31 participants diagnosed with Major Depressive Disorder (MDD were recruited from mental health clinics in Kota Kinabalu, Sabah. The participants consisted of 16 males and 15 females, aged between 18 and 60 years. The inclusion criteria required participants to have a confirmed diagnosis of MDD according to DSM-5-TR criteria (American Psychiatric Association, 2013). Individuals with comorbid psychiatric disorders, such as schizophrenia and bipolar disorder, were precluded to mitigate the effect of MDD on the relationship between perceived stress and aggression.

2.2 Research Design

A quantitative cross-sectional design was used for examining the correlation between aggression and perceived stress in individuals with MDD. A self-report survey was administered to participants to assess their levels of perceived stress and aggressive behavior, with an emphasis on gender differences.

2.3 Measures

- **Perceived Stress**: The *Perceived Stress Scale (PSS-10)*, developed by Cohen et al. (1983), was used to assess participants' perception of stress over the past month. The PSS-10 is a validated tool widely used to measure the degree to which situations in one's life are appraised as stressful.
- **Aggression**: Aggressive behavior was assessed using the *Buss-Perry Aggression Questionnaire (BPAQ)*, which measures physical aggression, verbal aggression, anger, and hostility. This scale is reliable and valid in assessing aggression (Buss & Perry, 1992).

2.4 Methodology

The surveys were distributed to participants in Kota Kinabalu, Sabah, mental health clinics, where they were asked to fill them out during their regular visits. To keep confidentiality and reduce interruptions, the surveys were conducted in a controlled setting. Confidentiality was guaranteed, and participants were urged to answer honestly. It took about half an hour to finish the survey.

2.5 Data Analysis

To investigate the direction and degree of the association between perceived stress and aggression, data were analyzed using Pearson's correlation coefficient. Stress and aggressiveness levels were compared by gender using independent samples t-tests. Using added correlation analyses, a supplementary analysis investigated the cyclical nature of the association between stress and violence. A 95% confidence interval was used to determine statistical significance, which was set at $p < 0.05$.

3. Results

3.1 Demographic Characteristics of Participants

MDD was diagnosed in all 31 participants of the study. The sample was comparatively young to middle-aged, with a mean age of 34.6 years (SD = 9.5) and a range of ages from 18 to 60 years. Gender distribution was roughly balanced, with 16 males (51.6%) and 15 females (48.4%), ensuring gender diversity. Given the focus on individuals with MDD, all participants (100%) met the diagnostic criteria for the disorder. With a balanced gender representation and a range of age groups covered, this demographic makeup made it possible to examine stress and aggressiveness (Table 1).

Table 1: Demographic Characteristics of Participants

Characteristic	***N = 31***
Age Range	18–60 years
Mean Age (SD)	34.6 (9.5)
Gender	
Male	16 (51.6%)
Female	15 (48.4%)
Diagnosis	
Major Depressive Disorder (MDD)	31 (100%)

3.2 Perceived Stress and Aggression

According to the study, there is a substantial positive association ($r = 0.62$; $p < 0.01$) between aggression and perceived stress in people with MDD. This finding suggests that there is a moderately to strongly positive correlation between these two factors. In simple terms, as the participants' perceived stress levels increased, so did their aggressive behaviors. This means that individuals who reported feeling more

stressed also reported more frequent or intense aggressive actions, suggesting that stress may contribute to the expression of aggression in people with MDD.

3.3 Cyclical Relationship between Stress and Aggression

The secondary analysis identified a significant positive correlation between aggression and perceived stress ($r = 0.54$, $p < 0.05$), highlighting a cyclical relationship. This finding suggests that aggression not only arises as a response to stress but also amplifies stress levels, creating a negative feedback loop. As participants displayed more aggressive behaviors, their perceived stress levels intensified, which, in turn, exacerbated their aggression. This self-perpetuating cycle was particularly evident among male participants, indicating a stronger link between stress and aggression in this subgroup. Understanding this cyclical dynamic is critical for developing targeted interventions to disrupt the feedback loop and reduce both stress and aggression effectively.

Table 2: Correlation between Perceived Stress and Aggression

Variable	*Correlation Coefficient (r)*	*Significance (p)*	*Interpretation*
Perceived Stress-Aggression	0.62	< 0.01	Significant positive correlation: higher stress = more aggression
Aggression-Perceived Stress	0.54	< 0.05	Significant positive correlation: cyclical relationship

3.3 Gender Differences

The study found that the way that individuals with MDD perceive stress and aggression varies significantly by gender. Males reported a slightly higher mean perceived stress score (26.2, SD = 7.5) compared to females (24.5, SD = 7.0). This difference was not statistically significant, indicating that both genders experienced similar levels of stress overall. However, a significant difference emerged in terms of aggression in which 78% of male reported engaging in aggressive behaviors, compared to 58% of females. This higher prevalence of aggression in males was also reflected in the mean aggression scores, with males scoring higher (31.5, SD = 6.1) than females (27.6, SD = 6.3). This difference was statistically significant, with a strong positive correlation ($r = 0.62$, $p < 0.01$) between perceived stress and aggression, indicating that as stress levels increased, aggression also increased.

The study also found a cyclical association between stress and aggression ($r = 0.54$, $p < 0.05$), indicating that higher stress led to more aggression, which in turn worsens stress, generating a negative feedback loop. These findings highlight the importance of addressing both stress and aggression in therapeutic interventions, particularly for males, who exhibited higher aggression levels. The findings indicate that individuals with Major Depressive Disorder (MDD) may significantly benefit from stress-reduction and anger-management techniques, suggesting the necessity of gender-specific treatment approaches (Table 3).

Table 3: Gender Differences in Aggression and Perceived Stress

Variable	*Male (N = 16)*	*Female (N = 15)*	*Correlation (r)*	*p-value*
Mean Perceived Stress	26.2 (7.5)	24.5 (7.0)		
Aggression Prevalence	78% (12/16)	58% (9/15)	0.62	< 0.01
Mean Aggression Score	31.5 (6.1)	27.6 (6.3)		
Cyclical Relationship (Stress-Aggression)			0.54	< 0.05

3.4 Characteristics Associated with High Aggression

The table illustrates the prevalence of anxiety (85%), irritability (78%), and anger (82%) among participants with high levels of aggression. These emotional factors are closely linked to the exacerbation of perceived stress and the reinforcement of aggressive tendencies. Anxiety was the most reported factor, with 85% of aggressive participants experiencing heightened apprehension. Anxiety likely heightened their sensitivity to stressors, making them more reactive and prone to aggression as a coping mechanism. Irritability, reported by 78% of aggressive individuals, emerged as another critical factor. Frequently observed alongside stress and mood disorders, irritability appears to serve as a bridge between emotional dysregulation and outward aggressive behaviors. Anger, present in 82% of cases, played a pivotal role in amplifying perceived stress levels. Anger is often tied to difficulties in managing emotional responses, which could explain the increased intensity and frequency of aggression among participants.

This compounding effect of anxiety, irritability, and anger highlights how these emotional states contribute to the cyclical relationship between stress and aggression. It underscores the importance of addressing these factors in stress management interventions, particularly for those exhibiting aggressive behaviors.

Table 4: Table: Characteristics Associated with High Aggression

Associated Factors	**Percentage of Aggressive Participants Reporting**	**Observations**
Anxiety	85%	Higher levels in individuals with aggression
Irritability	78%	Frequently reported alongside aggressive behaviors
Anger	82%	Amplifies perceived stress levels

4. Intervention Implications

The findings emphasize the necessity of targeted stress management interventions to address the interplay between stress and aggression, particularly in male participants with MDD who exhibited a higher prevalence of aggressive behaviors. Tailored approaches focusing on the emotional states associated with aggression, anxiety, anger, and irritability are essential to effectively disrupt the negative feedback loop between stress and aggression.

Anxiety Reduction

There was 85% of aggressive participants reporting elevated anxiety. Thus, the interventions like mindfulness-based stress reduction (MBSR) or cognitive-behavioral therapy (CBT) can equip individuals with techniques to identify and manage anxious thoughts (Milani et al., 2013). These approaches help

lower reactivity to stressors, potentially reducing aggressive responses.

Anger Management

As anger was prevalent in 82% of aggressive participants, strategies for emotional regulation, such as recognizing triggers and practicing de-escalation techniques, can be highly beneficial (Zohuri & Dalili, 2023). Anger management training can aid individuals in expressing their emotions constructively rather than through aggression.

Irritability Control

Given that 78% of participants cited irritability, lifestyle changes could play a significant role in reducing its occurrence. Improved sleep hygiene, regular physical activity, and relaxation techniques such as deep breathing or progressive muscle relaxation can help manage irritability, mitigating its contribution to aggressive behaviors.

By addressing these interconnected factors, interventions can reduce both perceived stress and aggression, ultimately improving emotional well-being and social interactions. The need for gender-specific approaches is particularly important, as males demonstrated a stronger link between stress and aggression, requiring interventions tailored to their unique coping mechanisms and behavioral patterns. This holistic approach could significantly enhance the effectiveness of treatment for individuals with MDD.

5. Conclusion and Recommendation

The study discovered a substantial correlation between aggression and perceived stress in individuals with Major Depressive Disorder (MDD). Elevated levels of stress were associated with a higher incidence of aggressive behaviors. The cyclical feedback loop was proved by the bidirectional nature of this relationship, as aggression also contributed to increased stress. It is important to note that this pattern was more pronounced in male participants, which implies that males may be more susceptible to the adverse effects of stress and aggression. Furthermore, both stress and aggression were seen to be worsened by emotional factors, including anxiety, irritability, and wrath. In individuals with MDD, the complex relationship between emotional dysregulation and aggressive behavior is underscored by these findings.

Interventions that emphasize stress management and emotional regulation are essential, as there is a robust correlation between stress and aggression, particularly in males. Cognitive-behavioral therapy (CBT) and mindfulness are among the anxiety-reducing techniques that may help participants in suppressing aggressive impulses and moderating their thoughts. Anger management strategies, such as the identification of triggers and the practice of de-escalation, would also be helpful in the reduction of aggressive behavior. Additionally, lifestyle modifications that include relaxation exercises and enhance sleep hygiene may alleviate irritability and reduce stress levels, thereby disrupting the cycle of aggression and stress.

It is recommended that interventions be specifically tailored to address the unique needs of males with MDD, who showed higher levels of aggression in this study. Emotional regulation techniques, in conjunction with cognitive and behavioral strategies to reframe stress and anxiety, could result in substantial enhancements in the management of both stress and aggression. Furthermore, promoting lifestyle modifications, including improved sleep, physical activity, and relaxation techniques, will enhance emotional well-being and alleviate irritability. The effectiveness of these interventions and the necessity of adjusting strategies should be guaranteed through consistent monitoring and follow-up. By addressing these emotional and psychological factors, interventions can break the negative feedback loop

between stress and aggression, improving overall well-being and interpersonal relationships for individuals with MDD.

Disclosure Statement

No potential conflict, of interest was reported by the author.

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