



A Study of Relationship Between Loneliness, Emotional Dysregulation, Sense of Control and Binge Eating among Middle Aged Adults in Mumbai

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Abstract: Middle aged adults are vulnerable to binge eating due to biases against self and aging body resulting due to challenges like hormonal changes, midlife crises, menopause, career changes, empty nest syndrome and shifts in family dynamics. Research on this period of life is relatively limited, and many aspects of midlife are still relatively unexplored. The current study aims to investigate the predictive relationship between loneliness, emotional dysregulation, sense of control and binge eating among middle aged adults. The study was conducted on 102 middle aged adults residing in Mumbai. Participants completed UCLA Loneliness Scale (version 3), Difficulties in Emotion Regulation Scale Short Form (DERS-SF), Sense of Control Scale (SC) and Loss of Control over Eating Scale Brief (LOCES-Brief). Pearson's product-moment correlation revealed a significant relationship between all variables. Further, regression analysis revealed that loneliness, emotional dysregulation, and sense of control were found to be independent significant predictors of binge eating ($p < 0.001$). Student's t-test revealed no gender differences in the amount of binge eating experienced. These results demonstrate the importance of loneliness, emotional dysregulation, sense of control in binge eating amongst middle aged adults. These findings will aid in developing treatment plans for binge eating disorder in middle aged adults.

Key Words: *Loneliness, Emotional Dysregulation, Sense of Control, Binge Eating, Middle Aged Adults*

1. Introduction

Middle adulthood or midlife (40 to 65 years old) is the period of the lifespan between young adulthood and old age. Middle aged adults face many challenges including losing their

parents and experiencing associated grief, biological changes, adjusting to live at home without children, dealing with adult children who return to live at home, becoming grandparents, preparing for late adulthood and taking care of aging parents or spouses. Many middle aged adults experience social isolation and loneliness. Absence of daily interactions can create a void in social connections. Challenges faced during midlife also cause a great deal of difficulties in understanding and regulating emotions. As these individuals are sandwich generations, the loss of control over one's life can lead to emotional havoc. These individuals not only worry about parent's deteriorating health, but also are concerned about children's independence, academic or career success, and overall happiness which may again cause diminished sense of control and difficulty in regulating emotions. Middle aged adults may turn to binge eating to cope with all these challenges.

Binge Eating is a common phenomenon in middle aged adults. Dr. Bulik and colleagues identified that as many as 13% of eating disorders sufferers are above the age of fifty. According to a study conducted by JAMA Network Open in 2019, one in five women has dealt with an eating disorder by age 40 which is twice the proportion identified in women at age 21. Challenges like empty nest syndrome, hormonal changes, menopause, career changes, shift in family dynamics, biases against self and aging body makes middle aged adults more prone to binge eating. Research on this period of life is relatively limited, and many aspects of midlife are still relatively unexplored. Compared to other age groups, midlife may be the least studied period of the lifespan.

Multiple studies have highlighted the role of loneliness as a predictor of binge eating (Stevens, 2022 & Lim et al., 2022) and how loneliness contributes to binge eating (Portingale et al., 2022). Several studies have consistently highlighted the positive relationship between emotional dysregulation and binge eating (Kelly et al., 2016; Dingemans et al., 2017; Brustenghi et al., 2019; Benzerouk et al., 2020; Burr, 2021; Hashem et al., 2022; Trompeter et al., 2022). Studies have also demonstrated how locus of control (Kelly-Weedar, 2019 & Kamody et al., 2021), mastery (Gisch et al., 2022) and perceived control (Zysberg & Tell, 2013 & Goetze, 2018) is related to binge eating.

Loneliness

As defined by APA, loneliness is affective and cognitive discomfort or uneasiness that arises from being or perceiving oneself to be alone or otherwise solitary (APA, 2023). Perlman and Peplau (1982) formulated loneliness as the distressing feeling that arises when an individual's social connections are lacking or deficient in some significant manner, either quantitatively and qualitatively.

Emotional Dysregulation

Emotional dysregulation refers to difficulty in regulating emotions. It can manifest in several ways, such as feeling overwhelmed by minor things, struggling to control impulsive behaviours, or having unpredictable anger outbursts. Emotional dysregulation affects how an individual may experience and handle their emotions and tends to impact quality of life, social interaction, and personal life (Cleveland Clinic, 2023).

Sense of Control

A sense of control is feeling one has sufficient choice, freedom and autonomy. A sense of control can also be described as a learned and generalized belief that one has the ability to and does control and shape their own life (Mirowsky & Ross, 1991).

Binge Eating

Binge eating involves consumption of large amounts of food in a short period of time and is accompanied by a sense of lack of control over the eating. Binge eating may be done in secret and is typically followed by feelings of shame, guilt or distress (Mayo Clinic, 2024). It is one of the core symptoms of DSM-5 recognized eating disorders including bulimia nervosa, anorexia nervosa (binge eating and purging subtype) and binge eating disorder (APA, 2022).

2. Purpose

The purpose of the study is to investigate the predictive relationship between loneliness, emotional dysregulation, sense of control and binge eating among middle aged adults.

3. Hypotheses

H1: Loneliness will be a significant predictor of Binge Eating among middle aged adults.

H2: Emotional Dysregulation will be a significant predictor of Binge Eating among middle aged adults.

H3: Sense of Control will be a significant predictor of Binge Eating among middle aged adults.

4. Method

4.1 Participants

The sample consisted of 102 participants (52 Females, 50 Males) residing in Mumbai. The sample's age range was 41 to 55 years (M=22.38, SD=4.74).

4.2 Instruments

UCLA Loneliness Scale (version 3) (Russell, 1996): It is a 20-item scale assessing degrees of loneliness. It has shown good psychometric properties with internal consistency coefficient ranging from .89 to .94 and good test-retest reliability. Convergent validity of the scale was demonstrated by significant correlations with other important measures of loneliness (Russell, 1996).

Difficulties in Emotion Regulation Scale – Short Form (Kaufman et al., 2015): It is a 18-item short form of the original 36 items Difficulties in Emotion Regulation Scale. It has six subscales- nonacceptance of emotional responses, difficulty engaging in goal-directed behaviour, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. It exhibits good internal consistency and concurrent validity (Kaufman et al., 2016).

Sense of Control Scale (Lachman & Weaver, 1998): It has 12-items and has two subscales- perceived constraints and personal mastery. It has strong psychometric properties, with a Cronbach's alpha of 0.86 for perceived constraints and 0.70 for personal mastery, indicating good internal consistency reliability. This scale is a valuable tool for measuring one's sense of control over various aspects of life (Lachman & Weaver, 1998).

Loss of Control over Eating Scale Brief (Latner et al., 2014): It is a 7-item brief version of 24 items Loss of Control over Eating Scale. It measures binge eating in the past 4 weeks or 28 days. It exhibits strong reliability with a Cronbach's alpha value of .92 and strong test-retest reliability (Latner et al., 2014).

4.3 Procedure

Purposive sampling technique was used with the help of online google forms in order to gain responses from participants. Before administration of the survey, Informed consent was taken for each participant. After the completion of the survey, scoring and statistical analysis was computed. All ethical considerations were followed throughout the research.

5. Results

Table 1. Descriptive statistics for the variables (N=102)

	Loneliness	Emotional Dysregulation	Sense of Control	Binge Eating
Mean	43.598	48.637	52.176	17.039
SD	12.855	17.966	14.47	8.492
Range	47	62	67	26

Table 2. Pearson Product Moment Correlation Coefficient between the variables (N=102)

	Loneliness	Emotional Dysregulation	Sense of Control	Binge Eating
Loneliness	-	-	-	-
Emotional Dysregulation	0.752***	-	-	-
Sense of Control	-0.668***	-0.766***	-	-
Binge Eating	0.641***	0.698***	-0.683***	-

Note: Pearson's Correlation is significant at the * $p < .05$, ** $p < .01$ and *** $p < .001$.

Table 3.1 Model Summary table for Loneliness predicting Binge Eating

Model	R	R ²	Adjusted R ²	RMSE	R ² Change	F Change	df1	df2	p
H ₀	0	0	0	8.492	0	-	0	101	-
H ₁	0.641	0.411	0.405	6.553	0.411	69.644	1	100	<.001

Note: Dependent Variable: Binge Eating; Predictor: Loneliness

Table 3.2 ANOVA Table for Loneliness predicting Binge Eating

Model		Sum of Squares	df	Mean Square	F	p
H ₁	Regression	2990.241	1	2990.241	69.644	<.001
	Residual	4293.602	100	42.936		
	Total	7283.843	101			

Note: Dependent Variable: Binge Eating; Predictor: Loneliness

Table 3.3 Coefficients Table for Loneliness predicting Binge Eating

Model		Unstandardized	Standard Error	Standardized	t	p
H ₀	(Intercept)	17.039	0.841		20.264	<.001
H ₁	(Intercept)	-1.415	2.304		-0.614	0.541
	Loneliness	0.423	0.051	0.641	8.345	<.001

Note: Dependent Variable: Binge Eating; Predictor: Loneliness

Table 4.1 Model Summary table for Emotional Dysregulation predicting Binge Eating

Model	R	R ²	Adjusted R ²	RMSE	R ² Change	F Change	df1	df2	p
H ₀	0	0	0	8.492	0	-	0	101	-
H ₁	0.698	0.487	0.481	6.115	0.487	94.780	1	100	<.001

Note: Dependent Variable: Binge Eating; Predictor: Emotional Dysregulation

Table 4.2 ANOVA Table for Emotional Dysregulation predicting Binge Eating

Model		Sum of Squares	df	Mean Square	F	p
H ₁	Regression	3544.328	1	3544.328	94.780	<.001
	Residual	3739.515	100	37.395		
	Total	7283.843	101			

Note: Dependent Variable: Binge Eating; Predictor: Emotional Dysregulation

Table 4.3 Coefficients Table for Emotional Dysregulation predicting Binge Eating

Model		Unstandardized	Standard Error	Standardized	t	p
H ₀	(Intercept)	17.039	0.841		20.264	<.001
H ₁	(Intercept)	1.002	1.755		0.571	0.569
	Loneliness	0.330	0.034	0.698	9.736	<.001

Note: Dependent Variable: Binge Eating; Predictor: Emotional Dysregulation

Table 5.1 Model Summary table for Sense of Control predicting Binge Eating

Model	R	R ²	Adjusted R ²	RMSE	R ² Change	F Change	df1	df2	p
H ₀	0	0	0	8.492	0	-	0	101	-
H ₁	0.683	0.467	0.461	6.233	0.467	87.479	1	100	<.001

Note: Dependent Variable: Binge Eating; Predictor: Sense of Control

Table 5.2 ANOVA Table for Sense of Control predicting Binge Eating

Model		Sum of Squares	df	Mean Square	F	p
H ₁	Regression	3398.690	1	3398.690	87.479	<.001
	Residual	3885.153	100	38.852		
	Total	7283.843	101			

Note: Dependent Variable: Binge Eating; Predictor: Sense of Control

Table 5.3 Coefficients Table for Sense of Control predicting Binge Eating

Model		Unstandardized	Standard Error	Standardized	t	p
H ₀	(Intercept)	17.039	0.841		20.264	<.001
H ₁	(Intercept)	37.957	2.320		16.360	<.001

	Loneliness	-0.401	0.043	-0.683	-9.353	<.001
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Note: Dependent Variable: Binge Eating; Predictor: Sense of Control

Table 6. Ancillary Analysis: Independent t-test comparing Binge Eating across Gender

Variables	t	df	p
Binge Eating	-0.372	100	0.710

Note: Student's t-test.

6. Discussion

The aim of the current study is to investigate the predictive relationship between Loneliness, Emotional Dysregulation, Sense of Control and Binge Eating among middle aged adults. Hence, a regression analysis was conducted thrice with four variables.

The results were in line with the first hypothesis of the study. Correlation analysis ($r = 0.64$, $p < .001$) showed that binge eating and loneliness had a positive correlation. The results of simple linear regression showed that loneliness was found to be a significant predictor of binge eating ($p < 0.001$). These findings were consistent with the study done by Lim et al. where he found a statistically significant positive relationship between loneliness and binge eating ($\beta_{14} = 0.215$, $p < .005$) (Lim et al, 2022). Another study conducted by Tatsi et al investigated whether emotion dysregulation and loneliness can contribute to the etiology of Food Addiction (FA) where loneliness was also found to positively predict food addiction ($P = 0.002$) (Tatsi et al, 2019). Additionally, in 2022 Stevens examined the relationship between loneliness and binge eating symptoms where the findings indicated that both loneliness and perceived stress individually were found to have predicted binge eating (Stevens, 2022). Individuals may use binge eating to try to cope with loneliness. A study in the Czech Republic revealed that loneliness, stress, boredom, and humiliation contributed to overeating and vomiting. The participants reported that these eating behaviours helped them to cope with feelings of loneliness, boredom, undervaluation and emotional distress (Yassin, 2023).

The results were in line with the second hypothesis of the study. Correlation analysis ($r = 0.69$, $p < .001$) showed that binge eating and emotional dysregulation had a positive correlation. The results of simple linear regression showed that emotional dysregulation was found to be a significant predictor of binge eating ($p < 0.001$). These findings were consistent with the study done by Trompeter et al. where it was found that emotion dysregulation is a distinct factor of eating disorder behaviours among adolescents (Trompeter et al, 2022). In a 2024 study by Howells et al, results demonstrated that both positive and negative emotion

dysregulation are associated with binge eating in young adults. Inadequate emotional clarity of negative emotions was associated with binge eating and absence of negative emotion regulation strategies was found to be associated with binge eating in young adults (Howells et al, 2024). Additionally, Dingemans et al. conducted a comprehensive review on emotion regulation in Binge Eating Disorder. Scientific literature demonstrates that negative emotions and maladaptive emotion regulation strategies are significant contributors to the development and persistence of binge eating in individuals with Binge Eating Disorder (BED) (Dingemans et al, 2017).

The results were in line with the third hypothesis of the study. Correlation analysis ($r = -0.68$, $p < .001$) showed that binge eating and emotional dysregulation had a negative correlation. The results of simple linear regression showed that sense of control was found to be a significant negative predictor of binge eating ($p < 0.001$) indicating low sense of control will significantly lead to binge eating. These findings were consistent with the study by Gisch et al where in a linear and logistic regression analyses, the results showed that females with a higher level of mastery were less likely to be underweight or obese. Also, males with a higher level of mastery were less likely to be obese. Mastery was associated with better diet quality overall and lower snacking frequency and less ED symptoms (Gisch et al, 2022). Another study by Goetze found that perceived control was predictive of binge eating severity, where higher self-reported perceived control was found to be associated with less severe binge eating symptoms and this association was significantly mediated by perceived stress and depressive symptoms (Goetze, 2018). Additionally, Hilde Bruch found that behaviours associated with anorexia nervosa were actually an individual's attempt to achieve "mastery" in one particular area of life in an otherwise chaotic life. Thus, anorexia was found to be correlated with an individual's underlying sense of powerlessness in their life and a general lack of control (Freidenreich, 2009).

Additionally, a Student's t-test was conducted to gauge differences in female and male subjects among the criterion variable. t-test revealed both genders do not differ significantly with respect to the amount of binge eating experienced. Although research suggests binge eating is more prominent in women (Kessler et al., 2013; Pace Serena and Muzi, 2019), research also suggests that males report binge eating about as often as females if subthreshold and clinical levels of binge eating disorder are combined. However, males are not as likely as females to meet BED criteria. One of the factors could be gender differences in the experience of a 'binge', rather than the existing differences in binge eating behaviour. The diagnostic emphasis on binge eating as including "loss of control" may lead to a heightened diagnosis of

BED among females, however both genders may experience a comparable weight-related consequence from binge eating (Amicis et al, 2023). Furthermore, these studies that conclude females have higher amounts of binge eating (Kessler et al., 2013; Pace Serena and Muzi, 2019) are conducted on different age groups and study on middle aged adults experiencing binge eating is very limited.

7. Conclusion

The aim of this study was to investigate whether loneliness, emotional dysregulation and sense of control are a significant predictor of binge eating in middle aged adults. A significant strong correlation was found between loneliness, emotional dysregulation, sense of control and binge eating. Student's t-test revealed both genders do not differ significantly with respect to the amount of binge eating experienced. The study had certain limitations including the use of online self-report measures which is prone to social desirability and lack of environmental control and no screening was conducted for substance use/dependence. Future research can explore specific groups like middle-aged adults with obesity or compare trends across different age groups. Furthermore, future studies can also explore sub-facets of the studied variables for comprehensive understanding of binge eating.

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