



香港教育大學

The Education University
of Hong Kong

**UNDERSTANDING THE PREVALENCE AND
INFLUENCING FACTORS OF NEGATIVE
EMOTIONAL EATING AMONG MAINLAND
CHINESE UNDERGRADUATES IN THE
EDUCATION UNIVERSITY OF HONG KONG:
AN EXECUTIVE MANAGEMENT PERSPECTIVE**

Submitted by

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Abstract

This study aims to generate some initial insights into the prevalence and influencing factors of negative emotional eating among undergraduates from mainland China at the Education University of Hong Kong. A quantitative study was conducted on 100 mainland Chinese undergraduates from the Education University of Hong Kong aged from 18 to 23. Participants completed an online questionnaire that included (1) basic background information questions, (2) Depression Anxiety and Stress Scales (DASS-21), and (3) an emotional eating subscale of the Dutch Eating Behaviour Questionnaire (DEBQ). The descriptive analysis and Pearson Correlation Analysis were conducted to examine the negative emotional eating prevalence and its influence factors. The prevalence of negative emotional eating among mainland Chinese undergraduates was 26%, showing positive correlations with depression ($r = 0.503$), anxiety ($r = 0.524$), and stress ($r = 0.575$). This study revealed that negative emotional eating is prevalent among mainland Chinese undergraduates at the Education University of Hong Kong, and executive managers should be aware of negative emotional eating and facilitate prevention and intervention plans for coping with these symptoms.

Keywords: Emotional eating, Mainland Chinese undergraduates, Executive management

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Declaration

I, *JIANG Muwei*, declare that this research report represents my own work under the supervision of *Dr. LUO Jiahui, Jess*, and that it has not been submitted previously for examination to any tertiary institution.

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Chapter 1: Introduction

1.1 RESEARCH BACKGROUND

A study conducted by Cheung (2013) shows that the mainland Chinese student undergoing the process of studying at Hong Kong universities is stressful. This stress can come from various aspects, including the unfamiliar culture and study mode they find themselves encountering. The transition to a new culture and study environment may lead those students to experience psychological adaptation challenges, for example, feelings of depression, anxiety, or disorientation (Yu et al., 2021). A lot of existing research has demonstrated that college students experiencing high levels of academic pressure are prone to develop maladaptive behaviours, such as substance abuse and excessive alcohol consumption (Sze, et al., 2021). Apart from this, negative emotional eating is defined as the habit of consuming food to respond to negative emotions such as stress, anger, or depression (Wilson et al., 2015), which is becoming more common among students and arousing health researchers' interest.

Changes in a living environment often lead to an increase or decrease in self-life satisfaction. Previous studies demonstrated that one of the predominant stages of emotional problems in university students is the transition of being away from home and attending a university, and it mainly affected freshmen when compared with graduates (Chen et al., 2020; Choi,2020). Also, Both the studies conducted in China and some international research indicate that females exhibit a higher prevalence of negative emotional eating compared to males (Sze et al., 2021).

Therefore, conducting a thorough investigation into the prevalence and related factors associated with negative emotional eating behaviours among undergraduates from mainland China at the Education University of Hong Kong is meaningful in understanding and addressing the challenges faced by this student population.

Chapter 2: Literature Review

2.1 NUMBER OF MAINLAND CHINESE STUDENTS IN HONG KONG

In recent years, Hong Kong has become an increasingly popular destination for students from mainland China by the strength of its geographical closeness to mainland China and top-notch education. In 2021/2022, 20,398 non-local students from mainland China (or 20.1% of total enrolments) were enrolled in Hong Kong universities, which has increased by 2.2% in comparison to the numbers recorded in 2019 (University Grants Committee [UGC] 2022; Yu et al., 2021).

2.2 EMOTIONAL EATING

Emotional eating is one of the manifestations of normal eating disruption along with a tendency to increase people's food intake (Sultson et al., 2017). This phenomenon has been further categorized into positive and negative emotional dimensions, each driven by different mechanisms (Barnhart et al., 2020; Sze et al., 2021). In daily life, positive emotions, such as excitement and happiness when people are celebrating or having a family reunion, can also lead to overeating. However, most students are experiencing negative emotional eating, which is associated with emotional regulation difficulties rather than the food's attraction (Sze et al., 2021). In contrast to the appeal of tasty but unhealthy food, studies have shown that internal factors such as stress and anxiety that are not properly regulated can cause a greater urge to eat (Frayn & Knäuper, 2018).

2.3 THE NEGATIVE IMPACT OF NEGATIVE EMOTIONAL EATING BEHAVIOUR

Emotional states have the potential to impact both the amount and the nutritional quality of food consumed (Carlos et al., 2020). Also, the effect of negative emotional eating on relieving bad emotions such as anxiety and depression is short-lived. Research has shown that there exists a linkage between stress and the increasing consumption of unhealthy food, particularly food with high fat and sugar while decreasing the consumption of low-calorie, high-nutrient foods such as fruits and vegetables, which is related to changes in glucocorticoids (including cortisol) and corticotropin-releasing factor. Hence, people will be more inclined to crave high-calorie, low-nutrient, and tasty foods (Hill et al., 2022). Carlos et al.(2020) reported that “anxiety can also lead to greater consumption of foods with a high fat and sugar content as a coping strategy”(p.2), which will lead to a negative emotional cycle since unhealthy eating behaviours always followed by another negative emotion such as a feeling of regret, guilt and self-disappointed, also cause troubles with being overweight or obesity, difficulties in losing weight and even the occurrence of metabolic disorders (Sze, et al., 2021). Hence, physical health problems associated with obesity or metabolic disorders will occur, including cardiovascular disease, stroke, Type 2 diabetes, some forms of cancer, and premature death (Araiza & Lobel, 2018).

2.4 POTENTIAL INFLUENCING FACTORS OF NEGATIVE EMOTIONAL EATING

Gender seems to be a determining factor in eating. Research has found that females have a better nutritional profile than males (Carlos et al., 2020). Also, a study of negative emotional eating sampled at the University of Hong Kong and the Chinese University of Hong Kong showed that the prevalence of negative emotional eating was 7.4% in males and 13.3% in

females, which approved the difference of negative emotional eating between genders (Sze et al., 2021).

In addition, the student's academic year can be a potential factor, as one study of university students showed that first-year students' inability to adapt to the new environment can result in negative emotional eating behaviours, such as stress-related over-eating (Carlos et al., 2020).

What's more, life satisfaction can be a potential factor when research shows that university students in Hong Kong, who have negative emotional eating reported lower perceived life satisfaction than those non-negative emotional eating students (Sze et al., 2021).

As for the potential mental health factors in this research, several existing studies suggest that contemporary tertiary students show an alarmingly higher prevalence of mental health issues compared to the public across the world, from 25%-62% in Hong Kong, Ethiopia, Turkey, India, and Egypt (Cheng & Wong, 2021). Depression, anxiety, and stress seem to be the predominant psychological issues that university students encounter around the world during university life (Carlos et al., 2020)

When compared to local students, international students perform elevated levels of anxiety (Forbes-Mewett & Sawyer, 2019). At the same time, negative emotions such as anxiety can result in adverse health effects through direct and indirect behavioural changes and cause them to disrupt normal eating behaviours (Hill et al., 2022, Naseem, 2018). A recent investigation into emotional eating frequency over a 28-day period among 335 female university students revealed that approximately half of them reported that emotional eating occurs at some time, and 51.3% have an association with anxiety (Constant et al., 2018).

Previous studies have emphasized the significance of stress in influencing eating habits (Reichenberger et al., 2018). Adolescents who perceive higher levels of stress also tend to exhibit increased instances of emotional eating (Wilson et al., 2015). Also, students show a higher possibility of maladaptive responses to stress, such as unhealthy eating habits (Gustems-Carnicer et al., 2019). Data collected from different universities worldwide indicates that university students suffer higher stress levels compared to the general population, and students who enrolled in teacher education programs experience a different level of stress during their undergraduate studying life (Gustems-Carnicer et al., 2019).

Moreover, in most cases, depression is related to appetite loss and subsequent weight loss (van Strien, 2018). However, there exists a specific type of depression characterized by atypical symptoms that are the opposite of the usual symptoms, such as a heightened appetite in response to distress, including the feeling of depression (van Strien, 2018).

2.5 THE DIFFERENCES OF REGIONAL EATING HABITS

Furthermore, long-term eating habits can influence individual preferences for food choices, which in turn affects the occurrence and extent of emotional eating (Kopp, 2022; Vartanian & Porter, 2016). There are few previous studies of emotional eating among Chinese, which has significantly different eating habits, while most studies in the field of negative emotional eating have always focused on Western countries that have a high rate of instant food consumption, such as food in high oil and salt fried chicken burgers (Sze, et al., 2021). However, with the rapid development of China's economy and the rapid modernization of packaged food, the consumption of snacks and high-calorie foods has become more (Zhai et al., 2014).

University life is stressful in Hong Kong. Also, although the consumption of packaged food in mainland China is become more popular, comparing mainland China and Hong Kong, a city that has a long history of the Western diet, it's obvious that people in Hong Kong have a greater tendency to consume pre-packaged food, which leads to a major shift in the consumption of high-calorie pre-packaged foods and then becomes more likely to stimulate student's impulsive high-calorie food consumption when under high stress (Sze, et al., 2021).



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Chapter 3: Research Purpose & Questions

This project aims to generate some initial insights into the prevalence and influencing factors of negative emotional eating among undergraduates from mainland China in the Education University of Hong Kong. The following three research questions will be explored to support the core research goal:

1. What is the prevalence of negative emotional eating among (a sample of) undergraduate students from mainland China at the Education University of Hong Kong?
2. Does the prevalence of mainland Chinese students' negative emotional eating differ by their gender, academic year, self-life satisfaction, and perceived level of depression, anxiety, and stress?
3. Is there a correlation between mainland Chinese students' negative emotional eating and their perceived level of depression, anxiety, and stress?



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Chapter 4: Research Design

4.1 METHODOLOGY AND RESEARCH DESIGN

This research will be conducted in a quantitative method. Therefore, it collects data by sending out the online questionnaire, which includes participants' basic background information, 21 questions on the DASS-21 scale, a self-life satisfaction scale, and a 13-item emotional eating subscale in the Dutch eating behaviour questionnaire.

4.2 PARTICIPANTS

This research used a hybrid model for participant recruitment, combining both online and offline methods. Participants were recruited through face-to-face intercept at the Education University of Hong Kong Taipo campus or invited through WeChat groups, which only consisted of mainland Chinese undergraduates. The students who wanted to participate in this research filled out the online questionnaire via the questionnaire's link or QR code on the Wenjuanxing online survey collection platform. Ultimately, a total of 100 participants were recruited for the study.

The most common age for undergraduate entry is 18, and the normative learning period for undergraduates at Education University of Hong Kong is 4-5 years, depending on the major and program. In order to focus on undergraduate students from mainland China, participants were only included if they were (i) 18-23 years old of age and (ii) studying for an undergraduate degree. Local, international, and exchange students will be excluded from the research. Notably, the study focused exclusively on undergraduate students from mainland China. Thereby, local, international, and exchange students will be excluded from the research.

4.3 INSTRUMENTS

4.3.1 The Dutch Eating Behaviour Questionnaire (DEBQ)

Dutch Eating Behaviour Questionnaire includes a 13-item emotional eating subscale, which is the most typically used instrument to measure negative emotional eating and has high internal consistency with 0.964 Cronbach's alpha (Sze et al., 2021). Participants will be required to mark their responses on a 5-point ordered rating range from never (1) to very often (5) (Frayn & Knäuper, 2018). Each statement's score will be aggregated and averaged to attain the final score (Sze, et al., 2021). Higher DEBQ scores indicate that negative emotional eating symptoms are more severe, and scores exceeding 3.25 are recommended to be used in research to identify individuals who are experiencing negative emotional eating (Frayn & Knäuper, 2018).

4.3.2 Depression, Anxiety, and Stress Scales (DASS-21)

Depression, anxiety, and stress scales are always used to measure mental health conditions are comprised of depression anxiety and stress subscales, and each of them has seven items (Sze et al., 2021). A study shows that the internal consistency of all three subscales in DASS-21 is high among Chinese students, with Cronbach's alphas of 0.83 for depression, 0.80 for anxiety, 0.82 for stress, and 0.92 for the overall scale (Wang et al., 2016). Each question will be rated on a 4-point ordered rating range from 0-3, which indicates the level of match between the description and the participant's status over the past week, and the score for each subscale needs to be multiplied by 2 to get the final subscale score (DASS-21, 2015). If the participants have an anxiety score > 7 , a depression score > 9 , and a stress score > 14 , they will be considered as having mild or more severe depression, anxiety, and stress symptoms (Sze et al., 2021).

4.3.3 Social Demographic Analysis

Demographic analysis includes the collection of participant's ages, gender, faculty of study, and academic years. For the convenience of the study, self-life satisfaction will be asked in one question. Participants can rate their responses on a 5-point ordered rating range from totally dissatisfied (1) to totally satisfied (5) (Sze et al., 2021), which has been widely used in health psychological research (Macias, 2017). All the results will be summed and displayed in percentage.

4.4 PROCEDURE AND TIMELINE

After obtaining approval from the "Human Research Ethics Committee of The Education University of Hong Kong." In January 2024, the questionnaire was designed for this research. Data collection and analysis commenced in March 2024 after a sufficient number of questionnaires had been collected between January 2024 and February 2024.

4.4.1 Table 1

Timeline

Content	The Duration of Time
Questionnaire design	January 2024
Data collection	January 2024 - February 2024
Data analysis	February 2024 - April 2024

4.5 DATA ANALYSIS

Data were coded in Excel and then the analysis was conducted by using the Statistical Package for the Social Sciences (SPSS) 27.0. At the same time, in order to better clarify the participants' self-life satisfaction, a score ≤ 3 is defined as not satisfaction as they chose very dissatisfied,

dissatisfied, and normal, and a score > 3 is defined as satisfied with their life as they chose to satisfy and very satisfy.

Firstly, the frequency statistics of demographic information of the participants were conducted to detect the number and percentage of different variables, which also includes the result of the prevalence among a sample of undergraduate students from mainland China. Then, the frequency statistics were used to analyse the number and percentage of negative emotional eating ($DEBQ > 3.25$) among participants based on 6 dimensions, including gender, academic year, self-satisfaction, different levels of depression, anxiety, and stress, to respond to whether negative emotional eating prevalence differs by those 6 factors.

In addition, to account for the third research question, the Pearson Correlation Analysis was examined between DEBQ score and depression score, anxiety score, and stress score. A further analysis was conducted based on the result of the observed correlations of DEBQ scores between the different mental health variables.

Chapter 5: Findings

5.1 DEMOGRAPHIC CHARACTERISTICS

A total of 100 participants completed the questionnaire, and there were no missing data ([Table 2](#)). After the frequency analysis, the participants included 22 males (22%) and 78 females (78%). According to the participant's age, 15% of them were 18 years old, 24% of them were 19 years old, 20% of them were 20 years old, 17% of them were 21 years old, 11% of them were 22 years old, and 13% of them were 23 years old.

As for the participant's faculty of study, 19% of them were from the Faculty of Liberal Arts and Social Sciences (FLASS), 40% of them were from the Faculty of Education and Human Development (FEHD), and 41% of them were from Faculty of Humanities (FHM). Besides, 25% of participants were year 1 students, 31% of participants were year 2 students, 19% of participants were year 3 students, 19% of participants were year 4 students, and only 6% participants were year 5 students.

Regarding the participant's self-life satisfaction, 69% of them were satisfied with their own life, and 31% of them were dissatisfied with their own life. Among those participants, 26% of them were regarded as having negative emotional eating symptoms as their DEBQ score was over 3.25, and 74% of them were classified as an individual without negative emotional eating as their DEBQ score was equal to or less than 3.25.

In terms of the results of participants' DASS-21, as for the depression level, 42% of them were normal, 15% of them were at a mild level, 20% of them were at a moderate level, 10% of them were at a severe level, and 13% of them were at an extremely severe level. In addition, as for the anxiety level, 28% of them were normal, 8% of them were at a mild level, 24% of them were at a moderate level, 14% of them were at a severe level, and 26% of them were at an extremely severe level. Besides, as for the stress level, 41% of them were normal, 22% of them were at a mild level, 15% of them were at a moderate level, 18% of them were at a severe level, and 4% of them were at an extremely severe level.

5.1.1 Table 2

Demographic Characteristic

Variable	n	Percent (%)
Gender		
Male	22	22.00
Female	78	78.00
Age		
18	15	15.00
19	24	24.00
20	20	20.00
21	17	17.00
22	11	11.00
23	13	13.00
Faculty of Study		
Faculty of Liberal Arts and Social Sciences (FLASS)	19	19.00
Faculty of Education and Human Development (FEHD)	40	40.00

Variable	n	Percent (%)
Faculty of Humanities (FHM)	41	41.00
Academic Year		
Year 1	25	25.00
Year 2	31	31.00
Year 3	19	19.00
Year 4	19	19.00
Year 5	6	6.00
Self-Life Satisfaction		
Satisfied (Score>3)	69	69.00
Dissatisfied (Score≤3)	31	31.00
Negative Emotional Eating Score		
DEBQ score≤3.25	74	74.00
DEBQ score>3.25	26	26.00
DASS-21 Depression levels		
Normal (0-9 points)	42	42.00
Mild (10-13 points)	15	15.00
Moderate (14-20 points)	20	20.00
Severe (21-27 points)	10	10.00
Extremely severe (28+ points)	13	13.00
DASS-21 Anxiety levels		
Normal (0–7 points)	28	28.00
Mild (8–9 points)	8	8.00
Moderate (10–14 points)	24	24.00
Severe (15–19 points)	14	14.00

Variable	n	Percent (%)
Extremely Severe (20+ points)	26	26.00
DASS-21 Stress levels		
Normal (0–14 points)	41	41.00
Mild (15–18 points)	22	22.00
Moderate (19–25 points)	15	15.00
Severe (26–33 points)	18	18.00
Extremely Severe (34+ points)	4	4.00

5.2 RQ 1: THE PREVALENCE OF NEGATIVE EMOTIONAL EATING

According to the questionnaire results, the prevalence of negative emotional eating among a sample of undergraduate students from mainland China at the Education University of Hong Kong was 26% ([Table 3](#)).

5.2.1 Table 3

The Prevalence of Negative Emotional Eating

Variable (N=100)	n	Percent (%)
Negative Emotional Eating Score		
DEBQ score \leq 3.25	74	74.00
DEBQ score $>$ 3.25	26	26.00

5.3 RQ 2: THE PREVALENCE OF NEGATIVE EMOTIONAL EATING UNDER DIFFERENT FACTORS

The results of the prevalence of negative emotional eating differ by different factors, as shown in [Table 4](#). Based on gender differences, the prevalence of individuals with a DEBQ score

greater than 3.25 was higher among males (31.82%) compared to females (24.36%), which showed a difference between the prevalence of negative emotional eating among males and females. In terms of the prevalence of negative emotional eating differs to the academic year, participants from year 2 (32.36%) had the highest prevalence of negative emotional eating, followed by participants from year 3 (31.58%) and participants from year 1 (24.00%). Conversely, participants from year 4 and year 5 had lower prevalence rates than others, with 15.79% and 16.67%, respectively. In addition, regarding self-life satisfaction, participants who reported being satisfied with their life (27.54%), which means the self-life satisfaction score was greater than 3, have a higher prevalence of negative emotional eating compared to those who are dissatisfied (22.58%).

As for the depression level, participants with severe and extremely severe depression levels have a higher prevalence rate of negative emotional eating (60.00% and 61.54%) compared to those with normal, mild, or moderate depression levels (14.29%, 13.33%, and 20.00%). As for the anxiety level, participants at the moderate level and severe levels showed a similar rate of negative emotional eating prevalence (25.00%, 21.43%). However, participants at an extremely severe level demonstrated the highest prevalence of negative emotional eating (50.00%), while participants at the mild level were 0%. Finally, in terms of stress levels, the prevalence of negative emotional eating increased with the severity of stress levels. The prevalence of negative emotional eating was 9.76%, 18.18%, and 33.33% when participants' stress levels were normal, mild, and moderate, respectively. However, participants with severe and extremely severe stress levels showed higher prevalence rates of negative emotional prevalence (50.00% and 100.00%).

5.3.1 Table 4

The Prevalence of Negative Emotional Eating Differ by Different Factors

Factors	DEBQ score	DEBQ score	Prevalence
	>3.25 (n)	≤3.25(n)	(%)
Gender			
Male	7	15	31.82
Female	19	59	24.36
Academic year			
Year 1	6	19	24.00
Year 2	10	21	32.26
Year 3	6	13	31.58
Year 4	3	16	15.79
Year 5	1	5	16.67
Self-Life Satisfaction			
Satisfied (Score>3)	19	50	27.54
Dissatisfied (Score≤3)	7	24	22.58
DASS-21 Depression Level			
Normal (0-9 points)	6	36	14.29
Mild (10-13 points)	2	13	13.33
Moderate (14-20 points)	4	16	20.00
Severe (21-27 points)	6	4	60.00
Extremely severe (28+ points)	8	5	61.54
DASS-21 Anxiety Level			
Normal (0–7 points)	4	24	14.29

Factors	DEBQ score	DEBQ score	Prevalence
	>3.25 (n)	≤3.25(n)	(%)
Mild (8–9 points)	0	8	0.00
Moderate (10–14 points)	6	18	25.00
Severe (15–19 points)	3	11	21.43
Extremely Severe (20+ points)	13	13	50.00
DASS-21 Stress Level			
Normal (0–14 points)	4	37	9.76
Mild (15–18 points)	4	18	18.18
Moderate (19–25 points)	5	10	33.33
Severe (26–33 points)	9	9	50.00
Extremely Severe (34+ points)	4	4	100.00

5.4 RQ 3: THE RELATIONSHIP BETWEEN NEGATIVE EMOTIONAL EATING AND THE LEVELS OF DEPRESSION, ANXIETY, STRESS

From [Table 5](#), it can be seen that the value of the correlation coefficient between the DEBQ score and depression level is 0.503 and showed a significance at the 0.01 level, which indicated that there was a significant positive correlation between the DEBQ score and depression level.

5.4.1 Table 5:

Pearson Correlation Analysis between Depression Level and DEBQ Score

		Depression Level	DEBQ Score
Depression Level	Pearson Correlation	1	.503**
	Sig. (2-tailed)		<.001
	N	100	100

		Depression Level	DEBQ Score
DEBQ score	Pearson Correlation	.503**	1
	Sig. (2-tailed)	<.001	
	N	100	100

** . Correlation is significant at the 0.01level (2-tailed)

From [Table 6](#), it could be seen that the value of the correlation coefficient between DEBQ score and anxiety level is 0.524 and showed a significance at the 0.01 level, which indicated that there was a significant positive correlation between DEBQ score and anxiety level.

5.4.2 Table 6:

Pearson Correlation Analysis between Anxiety Level and DEBQ Score

		Anxiety Level	DEBQ Score
Anxiety Level	Pearson Correlation	1	.524**
	Sig. (2-tailed)		<.001
	N	100	100
DEBQ Score	Pearson Correlation	.524**	1
	Sig. (2-tailed)	<.001	
	N	100	100

** . Correlation is significant at the 0.01level (2-tailed)

From [Table 7](#), it could be seen that the value of the correlation coefficient between DEBQ score and stress level is 0.575 and showed a significance at the 0.01 level, which indicated that there was a significant positive correlation between DEBQ score and stress level.

5.4.3 Table 7:

Pearson Correlation Analysis between Stress Level and DEBQ Score

		Stress Level	DEBQ Score
Stress Level	Pearson Correlation	1	.575**
	Sig. (2-tailed)		<.001
	N	100	100
DEBQ Score	Pearson Correlation	.575**	1
	Sig. (2-tailed)	<.001	
	N	100	100

** . Correlation is significant at the 0.01 level (2-tailed)

Therefore, correlation analyses revealed that participant's negative emotional eating was positively associated with their depression level, anxiety level, and stress level.

5.4.4 Table 8:

Summary of Pearson Correlation

	DEBQ Score
Depression Level	0.503**
Anxiety Level	0.524**
Stress Level	0.575**

* $p < 0.05$ ** $p < 0.01$



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Chapter 6: Discussion

This study suggested that nearly three in ten mainland Chinese undergraduates in the sample of the Education University of Hong Kong were defined as having negative emotional eating symptoms. At the same time, research conducted among mainland Chinese undergraduates from two universities in Wuhan Province reported that the prevalence of negative emotional eating was 52.7%, which showed an even higher negative emotional eating prevalence (Liu et al., 2020). What's more, another research conducted among undergraduates in mainland China showed that the negative emotional eating prevalence was 14.7% (He et al., 2020). Combining those previous studies with this study, although mainland Chinese undergraduates are from different academic backgrounds and universities, it is clear that negative emotional eating is prevalent among mainland Chinese students. In addition, research demonstrates that the cultures in Hong Kong and mainland China are different in various cultural dimensions, leading mainland Chinese students to have many adjustment difficulties, such as interpersonal relationships, language barriers, and even greater psychological distress (Zeng, 2021). While there are limited studies about mainland Chinese students' negative emotional eating, this finding results thereby suggests that it is important to pay more attention to mainland Chinese undergraduates' negative emotional eating symptoms. Screening and management of negative emotional eating are definitely needed among mainland Chinese undergraduates at the Education University of Hong Kong.

The results of the Pearson Correlation Analysis conducted in this study supported that mainland Chinese undergraduates' negative emotional eating level is positively associated with their levels of depression, anxiety, and stress, which indicates that negative emotional eating may serve as a coping mechanism for psychological distress among those mainland Chinese

undergraduates at the Education University of Hong Kong. Additionally, it is clear that the Education University of Hong Kong is mainly focused on nurturing educators, and a study showed that teacher education students will experience different stress levels, and long-time exposure to stress may result in many stress symptoms among teacher students, such as anxiety and depression (Gustems-Carnicer et al., 2019). However, at present, there is a lack of guideline-based treatment in Hong Kong despite the potential adverse consequences of negative emotional eating. Therefore, during the process of implementing screening and management for negative emotional eating among mainland Chinese undergraduates, clinicians or psychologists may consider incorporating assessments about negative emotional states, particularly when encountering young individuals exhibiting such emotions (Sze et al, 2021). This approach can facilitate the identification of students who may be at risk for negative emotional eating and enable the provision of suited counseling and interventions aimed at addressing both emotional distress and maladaptive eating behaviours. When negative emotional eating was considered a poor coping mechanism for stress, therapies aimed at enhancing emotion regulation skills may reduce negative emotional eating (van Strien, 2018). According to some emerging Western evidence, yoga has a significant capacity for psychological well-being improvement, especially hatha yoga, by offering the cultivation of meditation and breath (O'Shea et al., 2022). Thus, conducting relevant randomized controlled trials is essential for identifying treatment modalities for mainland Chinese students as similar studies in mainland Chinese populations are lacking.

During the last twenty years, although more attention has been focused on male eating behaviours, the relevant research is still limited, and men are always overlooked in this area (Lazarevich et al., 2023). In this research, the results regarding the difference in the prevalence of mainland Chinese undergraduates' negative emotional eating show that male prevalence

(31.82%) is higher than female prevalence (24.36%), which is in contrast to some previous studies. In spite of the reasons for the opposite results in this research are not clear and need further research, increasing evidence from previous studies showed that negative emotional eating is positively associated with disordered eating and the male prevalence rates of eating disorders might be underestimated at the same time (Barnhart et al., 2021; Furnham & Calnan, 1998). The extensive focus on females in eating disorder research leads to increased attention among women while encouraging males to avoid acknowledging what they perceive to be primarily a female disorder, such as males may not characterize large quantities consumption of food as overeating (Furnham & Calnan, 1998). A previously conducted study's results showed that more males reported overeating than females (Striegel-Moore et al., 2009). The unawareness of eating disorders or the unwillingness to acknowledge them among males may result in a lower prevalence of negative emotional eating than in females in previous studies. Also, in a gender-specific analysis, males showed a higher reactivity to stress exposure, for instance, increased neuroendocrine activation and elevated cortisol release (Chen et al., 2020). It is easier for female students to keep a healthy lifestyle and maintain a stable weight when encountering a stressful situation, while male students have a higher possibility of losing behaviour control, such as increasing food consumption and reducing physical exercise (Chen et al., 2020). Therefore, based on the results of this study and those previous studies, despite studies that have shown some potential reasons for different prevalence between males and females, negative emotional eating among both males and females deserves further screening and management rather than just focusing on females while males' prevalence may be underestimated.

As for the mainland Chinese undergraduates' prevalence of negative emotional eating from different academic years. The results have shown as expect that the prevalence of negative

emotional eating was significantly lower among mainland Chinese undergraduates in year 4 and year 5 than in the previous three years. There exists a study result that proved younger students have higher academic stress than older students because they have not yet fully adapted to the academic stress of university life, while senior students have acquired and adapted to effective time management strategies, resulting in reduced levels of academic stress (Khan et al., 2013). Also, research has shown that the average levels of stress among year 1 and year 2 undergraduates are higher than those of year 3 and year 4 undergraduates because they have not yet learned how to deal with their academic stress by using their problem-solving skills (Misra et al., 2000). The stress experienced by year 1 undergraduates is associated with changes and conflicts, whereas year 2 undergraduates' stress is predominantly derived from self-imposed pressure (Misra et al., 2000). The previous research indicates that the different prevalence of negative emotional eating among mainland Chinese undergraduates from different academic years may be due to the different stress levels and the ability to cope with stress. However, further qualitative studies can be conducted to investigate the specific reasons for the variances in the prevalence of negative emotional eating among mainland Chinese undergraduates from different academic years at the Education University of Hong Kong, such as the sources of stress and psychological factors.

In addition, in contrast to the trend observed in the previous literature, the result of this study shows that students with higher levels of self-life satisfaction had a higher frequency of suffering from negative emotional eating. It has been suggested that the manner of dealing with the emotion may be more necessary than the emotion itself when considering the cause of eating behaviour change (Evers et al., 2010). One possible explanation is that students with high self-life satisfaction scores may also try to use food to maintain their emotional state, using food to boost their mood when they are feeling down. In other words, these students may not

just use food to alleviate negative emotions but rather deem it as a tool to maintain or enhance their emotional well-being. Therefore, further research is needed to explore more deeply the underlying mechanisms driving the relationship between self-life satisfaction, emotional eating, and coping strategies in greater depth.

Chapter 7: Limitation

There still exist several limitations in this study that should be improved in future studies. Firstly, this study provides an approximate calculation of the negative emotional eating among mainland Chinese undergraduates at the Education University of Hong Kong. As the DEBQ only consists of 13 potential emotional triggers, the prevalence of negative emotional eating may increase or decrease when the study is conducted under other emotional eating scales than DEBQ such as the Emotional Eating Scale (EES), which consists of a broader range of 25 potential emotional triggers for negative emotional eating. Secondly, the sample size of this quantitative research was too small, which may result in a larger prevalence of negative emotional eating based on different factors, and the sample size could be increased in future studies. Thirdly, regarding self-life satisfaction, a single scale was used to obtain the results, but multiple-item scales should be used for detailed examination in future research, such as the satisfaction with life scale (SWLS) with 5 items using a 7-point scale (Diener et al., 1985). Finally, this research only included some specific factors, while other potential factors were not covered and should be continued to examine in the future.

Chapter 8: Significance and Implications

8.1 SIGNIFICANCE OF THE RESEARCH

Based on the wave of studying abroad and the unique academic environment at the Education University of Hong Kong, this research, which focuses on mainland Chinese undergraduates at the Education University of Hong Kong, has significant meanings. Firstly, the study of negative emotional eating is under-researched in Hong Kong, and thereby, this study can contribute to the literature on this area. Secondly, this study reveals more insights into negative emotional eating among Chinese students in Hong Kong, while there are limited studies of Chinese undergraduates' negative emotional eating among eight public universities in Hong Kong and limited studies of mainland Chinese students at one specific university in Hong Kong. Thirdly, this study can generate some initial insight into the analysis of the prevalence of mainland Chinese undergraduates' negative emotional eating under different factors in Hong Kong. Fourthly, this study can provide some initial insight for more target-oriented and theoretically-based research in psychology and health, increasing the university's executive managers' awareness of negative emotional eating among mainland Chinese students and facilitating a plan for negative emotional eating screening and eating interventions, which can be beneficial to mainland Chinese students' psychical health and well-being. Finally, although the sample of this study only focused on mainland Chinese students at the Education University of Hong Kong, it can still draw the attention of other schools or universities to the negative emotional eating of students, leading to further research and the development of interventions.

8.2 IMPLICATIONS FROM A PERSPECTIVE OF EXECUTIVE MANAGEMENT

According to the significance and research results of this study, there are some implications for executive officers and managers regarding organizing and conducting relevant plans for negative emotional eating symptoms.

- 1. Raising the awareness of negative emotional eating:** Executive managers can organize some workshops to raise employees' and students' awareness about negative emotional eating, including its causes and its negative impact.
- 2. Provide supporting resources for students:** Executive managers should ensure that sufficient resources are available for students to seek help if they realize they are struggling with negative emotional eating by proactively collaborating with several departments, such as the psychological department and the Student Affairs Office (SAO) at the Education University of Hong Kong to develop comprehensive programs to screening negative emotional eating and providing counseling services and some sports workshops that can mitigate students' negative emotions. In addition, collaborating with external organizations, such as nonprofit organizations, research institutions, and professional institutions, to expand school intervention and support for negative emotional eating problems.
- 3. Encourage students to take self-care activities:** Executive managers can encourage students to prioritize self-care practices, such as regular exercise, adequate sleep, and mindfulness activities while specifically focusing on the interventions of negative emotional eating is not enough, which can encourage students themselves to choose the most suitable actions to manage stress and reduce the likelihood of resorting to negative emotional eating.

4. **Advocating a culture of health:** Executive managers can promote healthy eating and negative emotional management by promoting a healthy campus culture. They can organize health awareness campaigns in collaboration with the school cafeteria, promote knowledge about healthy eating, and encourage positive emotional regulation and coping strategies.

Chapter 9: Conclusion

Negative emotional eating is a behaviour that can bring underappreciated risk and has a high prevalence among mainland Chinese undergraduates at the Education University of Hong Kong. While students' self-negative emotions such as depression, anxiety, and stress are correlated with negative emotional eating and the different prevalence of negative emotional eating under different factors, more research is still needed among mainland Chinese students to identify more potential factors behind negative emotional eating and better treatments for negative emotional eating. From the perspective of executive management, it is important for the school's executive managers to initiative screen and manage it.

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Appendices

Appendix A: Questionnaire

Part 1: Personal information

1) Sex

Male

Female

2) Age

18 19 20 21 22 23

3) Faculty of study

FEHD

FHM

FLASS

Part 2: Self-life satisfaction

	Very satisfied	Satisfied	Normal	Dissatisfied	Very dissatisfied
You are satisfied with your life	5	4	3	2	1

Part 3: Depression, Anxiety, and Stress Scales (DASS-21)

The following questions are from DASS-21, a shortened version of DASS developed by Lovibond and Lovibond in 1995.

Please read each statement and circle a number 0, 1, 2, or 3, which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all.

1 Applied to me to some degree or some of the time.

2 Applied to me to a considerable degree or a good part of time.

3 Applied to me very much or most of the time.

1) "I found it hard to wind down"	0	1	2	3
2) "I was aware of dryness of my mouth"	0	1	2	3
3) "I couldn't seem to experience any positive feeling at all"	0	1	2	3
4) "I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)"	0	1	2	3
5) "I found it difficult to work up the initiative to do things"	0	1	2	3
6) "I tended to over-react to situations"	0	1	2	3
7) "I experienced trembling (e.g. in the hands)"	0	1	2	3
8) "I felt that I was using a lot of nervous energy."	0	1	2	3
9) "I was worried about situations in which I might panic and make a fool of myself"	0	1	2	3
10) "I felt that I had nothing to look forward to"	0	1	2	3
11) "I found myself getting agitated"	0	1	2	3
12) "I found it difficult to relax"	0	1	2	3
13) "I felt down-hearted and blue"	0	1	2	3
14) "I was intolerant of anything that kept me from getting on with what I was doing"	0	1	2	3
15) "I felt I was close to panic"	0	1	2	3
16) "I was unable to become enthusiastic about anything"	0	1	2	3
17) "I felt I wasn't worth much as a person"	0	1	2	3
18) "I felt that I was rather touchy"	0	1	2	3

19) “I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)”	0	1	2	3
20) “I felt scared without any good reason”	0	1	2	3
21) “I felt that life was meaningless”	0	1	2	3

Part 4: 13-item emotional eating subscale in Dutch Eating Behaviour Questionnaire (DEBQ)

The following questions are taken from the Dutch Eating Behavior Scale published in 1986 by Van Strien et al.

	Never	Rarely	Sometimes	Often	Always
1) “Do you have the desire to eat when you are irritated?”	1	2	3	4	5
2) “Do you have a desire to eat when you have nothing to do?”	1	2	3	4	5
3) “Do you have a desire to eat when you are depressed or discouraged?”	1	2	3	4	5
4) “Do you have a desire to eat when you are feeling lonely?”	1	2	3	4	5
5) “Do you have a desire to eat when somebody lets you down?”	1	2	3	4	5
6) “Do you have a desire to eat when you are cross?”	1	2	3	4	5
7) “Do you have a desire to eat when you are approaching something unpleasant to happen?”	1	2	3	4	5
8) “Do you get the desire to eat when you are anxious, worried or tense?”	1	2	3	4	5
9) “Do you have a desire to eat when things are going against you or when	1	2	3	4	5

things have gone wrong?"					
10) "Do you have a desire to eat when you are frightened?"	1	2	3	4	5
11) "Do you have a desire to eat when you are disappointed?"	1	2	3	4	5
12) "Do you have a desire to eat when you are emotionally upset?"	1	2	3	4	5
13) "Do you have a desire to eat when you are bored or restless?"	1	2	3	4	5