EXPLAINING EATING DISORDER BEHAVIOUR AMONG CHINESE UNIVERSITY STUDENTS USING THE EXTENDED THEORY OF PLANNED BEHAVIOUR

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by

GAO ZENG

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LIST OF ABBREVIATIONS

ABSI	A Body Shape Index
AN	Anorexia Nervosa
AN-BP	Anorexia Nervosa Binge/Purging
AN-R	Anorexia Nervosa Restricting
APA	American Psychiatric Association
ARFID	Avoidant/Restrictive Food Intake Disorder
AT	Attitude
BAI	Body Adiposity Index
BDD	Body Dysmorphic Disorder
BED	Binge Eating Disorder
BI	Body Image
BID	Body Image Discrepancy
BMI	Body Mass Index
BN	Bulimia Nervosa
BS	Body Shape
BSQ	Body Shape Questionnaire
BW	Behavioural Willingness
C&D	Construction and Demolition
CED	Clinical Eating Disorders
CFI	*Comparative Fit Index*
CITC	*Corrected Item-Total Correlation*
CNS	*Chinese Nutrition Society*
CSCIO	*China State Council Information Office*
CUN-BAE	Clinical Universidad de Navarra-Body Adiposity Estimator

CVI	*Content Validity Index*
DF	*Degrees of Freedom*
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
EAT-26	Eating Attitudes Test - 26 Item
ED	Eating Disorder
EDNOS	Eating Disorder Not Otherwise Specified
EDS	Eating Disorder Scale
EI	Emotional Intelligence
FBGNC	*Fay Biccard Glick Neighborhood Center*
FCQ	Food Choice Questionnaire
FH	Familial Hypercholesterolemia
FTM	Female-To-Male
FVI	Fruit and Vegetable Intake
GFI	*Goodness of Fit Index*
HE	Healthy Eating
HEXACO	Honesty/Humility-Emotionality-eXtraversion-Agreeableness-Conscientiousness-Openness
I-CVI	*Item Content Validity Index*
IFI	*Incremental Fit Index*
IN	Intention
KMO	*Kaiser-Meyer-Olkin*
MTF	Male-To-Female
NEDA	*National Eating Disorders Association*
NES	Night Eating Syndrome
NFI	*Normal Fix Index*

NSSI	Non-Suicidal Self-Injury
PA	Physical Activity
PBC	Perceived Behavioural Control
PD	Purging Disorder
PUO	Public Opinions
QOL	Quality of Life
R^2	Coefficient of Determination
RMSEA	*Root Mean Square Error of Approximation*
RP	Risk Perception
RSE-S	Rosenberg Self-Esteem Scale
SCOFF-Q	Sick, Control, One Stone, Fat, Food Questionnaire
SE	Self-esteem
SET	Self-efficacy Theory
SNS	Social Networking Site
SN	Subjective Norm
RS	Rumination Syndrome
S-CVI/UA	*Scale-level Content Validity Index/Universal Agreement*
S-CVI/AVE	*Scale Content Validity Index/ Average Variance Extracted*
TPB	Theory of Planned Behaviour
TPB-Q	Theory of Planned Behaviour Questionnaire
TRA	Theory of Reasoned Action
VSQ	Vaccination Services Quality
WC	Waist Circumference
WTHR	Waist-to-Height Ratio
WHR	Waist-to-Hip Ratio
$\chi 2$	Chi-Square Distribution

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MEMERIHALKAN TINGKAH LAKU GANGGUAN MAKAN DALAM KALANGAN PELAJAR UNIVERSITI DI CHINA MENGGUNAKAN TEORI LANJUTAN TINGKAH LAKU TERANCANG

ABSTRAK

Pemakanan remaja yang tidak sihat menyebabkan mereka akan mengamalkan diet, berpuasa dan lain-lain tingkah laku untuk mengurangkan berat badan. Hasilnya menyebabkan gangguan makan dan beberapa siri komplikasi, seperti gangguan fungsi sistem penghadaman, gangguan endokrin, amenorea, hipoglisemia, kekurangan zat makanan, atau kerosakan fisiologi kepada pelbagai sistem organ, dan juga mengancam nyawa. Ia akan menjejaskan kesihatan fizikal dan mental golongan muda dan menanggung kos perubatan yang tinggi di negara seseorang. Walau bagaimanapun, pemakanan yang sihat boleh mengelakkan gangguan makan. Kajian ini melalui teori lanjutan model tingkah laku terancang untuk meramalkan tingkah laku gangguan makan pelajar sarjana lima universiti di Bandar Lanzhou, Wilayah Gansu, China. Kajian ini menggunakan kaedah kajian kuantitatif, dan empat instrumen penggunaan, iaitu “Theory of Planned Behavior Questionnaire (TPB-Q), Body Shape Questionnaire (BSQ), Rosenberg Self-esteem Scale (RSE-S), dan Soal Selidik Peperiksaan Gangguan Makan (EDE-Q)”. Terdapat empat instrumen yang digunakan dalam kajian ini iaitu “Theory of Planned Behavior Questionnaire (TPB-Q), Body Shape Questionnaire (BSQ), Rosenberg Self-esteem Scale (RSE-S), dan Eating Disorder Examination. Soal Selidik (EDE-Q)". Analisis data dapatan dianalisis dengan ujian-T yang dijalankan menggunakan perisian Statistical Package for Social Sciences (IBM SPSS Statistical)

dan projek SPSSAU (2021) untuk mengenal pasti perbezaan sikap gangguan makan (AT), norma subjektif (SN), kawalan tingkah laku persepsi (PBC), niat (IN), bentuk badan (BS), dan harga diri (SE) dengan jantina, umur, BMI, pendapatan keluarga yang berbeza dalam kalangan pelajar universiti. Dapatan keputusan kajian ini menunjukkan bahawa sikap pelajar universiti (AT), norma subjektif (SN), kawalan tingkah laku persepsi (PBC), niat (IN), dan bentuk badan (BS) dengan tingkah laku gangguan makan mempunyai hubungan dan menunjukkan niat (IN), bentuk badan (BS), dan harga diri (SE) boleh meramalkan tingkah laku gangguan makan dalam kalangan pelajar universiti. Jantina dan BMI yang berbeza dalam sikap (AT), norma subjektif (SN), kawalan tingkah laku yang dirasakan (PBC), bentuk badan (BS), harga diri (SE), dan skor niat (IN) mempunyai kepentingan. Pendapatan keluarga hanya mempunyai signifikan dalam harga diri (SE). Jantina dan BMI sebagai penyederhana boleh menjejaskan tingkah laku gangguan makan dalam lanjutan teori tingkah laku terancang (TPB). Oleh itu, terdapat kesan penyederhanaan jantina dan BMI terhadap hubungan antara niat, bentuk badan, harga diri, dan gangguan makan dalam kalangan pelajar universiti Cina, dan kesan sederhana umur dan pendapatan keluarga terhadap hubungan antara niat, bentuk badan, harga diri, dan gangguan makan ditunjukkan tidak mempunyai hubungan yang signifikan dalam kalangan pelajar universiti Cina dalam model ETPB. Akhir sekali, hasil kajian melaporkan bahawa secara berkesan boleh meramalkan tingkah laku gangguan makan di kalangan pelajar universiti Cina menggunakan model ETPB dan menilai kumpulan status tingkah laku gangguan makan orang yang berbeza dan campur tangan pencegahan selanjutnya terhadap tingkah laku gangguan makan berlaku dalam kajian masa depan.

EXPLAINING EATING DISORDER BEHAVIOUR AMONG CHINESE UNIVERSITY STUDENTS USING THE EXTENDED THEORY OF PLANNED BEHAVIOUR

ABSTRACT

Adolescents' unhealthy eating leads to them to adopt certain measures such as a diet, fasting and other behaviours that are likely to reduce body weight. The measures in turns lead to eating disorders and series of complications, such as impaired digestive system function, endocrine disorders, amenorrhea, hypoglycaemia, malnutrition, or physiological damage to various organ systems, and even life-threatening. It will affect the physical and mental health of the young and incurs high medical costs in one's country. In the long term it will be a physical and mental health issue that will increase medical expenses to treat it. Therefore, using the Theory of Planned Behaviour, this study was conducted to identify the factors that influence eating disorders among university students in the province of Gansu, China. Data was analysed using IBM SPSS and PROCESS 4.0 to answer all research questions developed. Results showed that there was significant difference in attitude towards physical activity, subjective norm, perceived behavioural control, body shape, self-esteem, and intention to engage in physical activities. between gender and body mass index (BMI). Gender and BMI also moderate the relationship between intention, body shape, self-esteem, and eating disorder. However, different gender and BMI in different attitudes (AT), subjective norms (SN), perceived behavioural control (PBC), body shape (BS), self-esteem (SE), and intention (IN) scores have significance. Family incomes only have a significant in self-esteem (SE).

CHAPTER 1

INTRODUCTION

1.1 Introduction

An eating disorder is considered an issue of public health issue and is classified under the groups of psychological illnesses comprising binge eating disorder, anorexia nervosa, and bulimia nervosa (American Psychiatric Association, 2019). Each type of eating disorder has specific criteria that must be met in order to receive a diagnosis by experts. The key features of eating disorders include severe and ongoing disruptions in eating behaviours, along with the troubling feelings and thoughts that go along with them. In many cases, an eating disorder is typically associated with weight, thus leading them to adopt a diet, fasting, and other behaviours to reduce body weight (Cheng et al., 2019). It should be noted that eating disorders co-occur with other mental health problems such as obsessive-compulsive disorder, mood and anxiety disorders, and alcohol and substance use.

Research shows that young adults, such as university students, have a higher risk of eating disorders (Chanen & Thompson, 2019; Pike & Dunne, 2015). This phenomenon may be because they are a self-conscious age group who always want to be seen as beautiful and attractive, as those who feel secure in their physical appearance have better self-esteem and feel more confident in social interactions. Physical appearance can influence someone's first impression and how others see them. An interesting finding was that COVID-19 has been associated with worsening patients

with eating disorders, with the number of teen patients at least doubled during the pandemic (Hartman-Munick et al., 2022). Changes in social and family environments, self-isolation, and difficulties getting access to healthcare may have made teens more vulnerable to relapses or worsening of symptoms of eating disorders. This may indicate the need for teenagers to socialize to reduce the possibility of getting an eating disorder. Apart from that, as rightly observed by Booth et al. (2004), young people can be reluctant to seek help for eating disorders simply because of their fear of being judged.

1.2 Background of the Study

Eating disorders can be caused by various factors, which are sometimes inter-related. Studies have shown that ED symptoms in the general population usually appear concurrently with depression, anxiety, and other psychological symptoms (Puccio et al., 2017; Pauli-Pott et al., 2013). In general, it is believed that a complex interaction between personality traits, genetics, and environmental factors - such as stressful or traumatic events, social comparison, early experiences, and cultural beauty standards - leads to eating disorders.

For example, it has been consistently demonstrated that personality has a significant impact on eating disorders. Personality has been shown to have a significant role as a risk factor (Lilenfeld et al., 2006), a moderator of symptom expression [Taska et al., 20], a determinant in treatment decisions (Fairburn et al., 2009), and an outcome predictor (Wagner et al., 2006). High levels of perfectionism, impulsivity, harm avoidance, reward reliance, sensation seeking, neuroticism, and obsessive-

compulsiveness are frequently linked to eating disorders, along with low levels of self-directedness, assertiveness, and cooperativeness (Krug et al., 2011; Klump et a., 2004).

In contrast, research on environmental factors demonstrated lower consistency. For example, regarding social aspects, while a study by Adamson et al. (2019) showed positive associations between the two variables, findings from Cardi et al. (2019) reported no significant results. Nevertheless, it is common knowledge that peers and family are among the main factors influencing eating behaviour. Adolescence is a time when they prioritize peer acceptability, and social pressures can have a significant impact on eating habits. Peers, for example, may subtly support the notion of the "ideal" thin body form through social reinforcement, which pressures adolescents to miss meals or follow a diet. Adolescents who observe their friends engaging in poor eating habits may emulate these practices.

Apart from that, one crucial aspect that needs to be paid attention to is related to the aspect of attitude toward eating disorders. Researchers such as Zwickert and Rieger (2013) quote that eating disorder receives less attention relative to disorders such as depression or schizophrenia. For example, a study by Roehrig and McLean (2010) showed that eating disorders like anorexia nervosa and bulimia nervosa were perceived as more culpable, attention-seeking, and fragile compared to depression. A study by Stewart et al. (2006) also reported similar findings – where bulimia nervosa were more likely to blame for their illness and to believe that they could 'pull themselves together. Nevertheless, it cannot be denied that a positive attitude can influence a person's eating habits. For example, paying attention to nutritional

information and dietary advice can encourage healthier eating. Parental and familial influences have the same power to change a young person's behaviours as peer influences do. The family significantly impacts the environment a child grows up in. As a result, parents frequently mediate their children's eating preferences and habits. Constant parental supervision of their eating habits may have made adolescents choose fewer unhealthy foods and foods with fewer calories.

Studies related to eating disorders also found two critical variables that influence eating disorders, namely self-esteem and body shape. Self-esteem is usually associated with how we value and perceive ourselves. The variable is essential since it can affect how we act and behave. Research by Mora et al. (2017) found a positive relationship between self-esteem and eating disorder behaviours. Recent research by Jenkins and Davey (2020) and Pelc et al. (2023) also found a strong relationship between self-esteem and eating disorder behaviours among adolescents. People with low self-esteem are more motivated to accomplish their weight and shape goals to feel better about their looks (Fairburn et al., 2003). This concept suggests that the disproportionate overvaluation of weight and shape causes severe dieting and other weight-control behaviours, which ultimately lead to binge eating or low weight.

Body shape is a new variable associated with eating disorders. Body shape is people's subjective image of their body, which may be distinct from how it appears. Dissatisfaction with appearance and the attempt to alleviate it by actions like monitoring, dieting, and avoidance are common indicators of negative body image. Therefore, Body shape is a multifaceted notion encompassing conscious and

unconscious behaviours associated with a person's physique and self-observations, thoughts, feelings, memories, and fantasies (Mallaram, 2023). Various studies show that there is a significant relationship between these two variables (Hummel et al., 2021; Mohr et al., 2016; Horndasch et al., 2015; Evans et al., 2013; Hamel et al., 2012; Gaudio & Quattrocchi, 2012).

1.3 Problem Statement

Eating disorder continues to be a significant risk behaviour among youth and adolescents with consequences for physical and mental health. For example, Toral et al. (2016) evaluates the prevalence of risk behaviours related to eating disorders and body image satisfaction among 427 undergraduate students. Self-esteem is one of the risk factors for the development of eating disorder behaviours; low self-esteem scores significantly increase the high score on the scale of eating disorder behaviours (Mora et al., 2017). Bell et al. (2019) shows differences in gender among eating disorder attitudes and behaviours and proneness to an eating disorder. Calzo et al. (2016) reported the variation in the presentation of eating disorder symptoms across the age periods. Being overweight and obese in individuals with an eating disorder has been associated with the severity of eating disorder correlates (Balantekin et al., 2021). Eating Disorder Examination Questionnaire (EDE-Q) scores increased with BMI (Rø et al., 2012). In a large cross-sectional study of US adults, Udo and Grilo (2018) found that those with higher income had increased odds of lifetime anorexia disorder (AN)

among eating disorders. Eating disorders have been confirmed to be present in low-income populations (Najjar et al., 2018).

Various factors have been linked to eating disorder behaviours, such as biological, psychological, emotional, social, and interpersonal factors. However, most studies are conducted only based on one factor, and until now, there are very few studies that look at the eating disorder issue from a comprehensive point of view. As a result, the issue of eating disorders is only seen from one aspect that is isolated from other factors and ultimately causes a lack of understanding related to the issue of eating disorders. Therefore, this study will use the Theory of Planned Behaviour (TPB) to explain the issue of eating disorders so that this issue can be seen from psychological, emotional, social, and interpersonal factors.TPB studies are a significant model for explaining behavioural changes. TPB variables such as attitude, subjective norms, and perceived behavioural control can explain the specifics to be studied. However, past studies show that more than this model is needed to provide a comprehensive picture of a single issue. On the other hand, additional variables are needed for this model to increase its explanatory power. Therefore, based on previous studies, this study will test the ability of two additional variables, namely (1) self-esteem and (2) body shape, to explain eating disorder issues. A more complete description of TPB and its expected ability to explain eating disorder issues will be made in Chapter 2 and Chapter 3.

Finally, based on a review of past studies, TPB is also influenced by contextual factors such as gender, location, age, economic status, etc., in explaining behaviour. For instance, the severity of eating disorder correlations has been linked to being

overweight or obese in people with eating disorders (Balantekin et al., 2021). In the meantime, Bell et al. (2019) showed gender variations in eating disorder attitudes, behaviours, and susceptibility to an eating disorder. According to Calzo et al. (2016), eating disorder symptoms showed differently in different age groups. A nationwide sample of women between the ages of 16 and 50 showed a significant decline in EDE-Q scores with age (Rø et al., 2012). Eating disorders and obesity can coexist, aggravating problems with one's physical and mental health (Jebeile et al., 2021). Unsupervised weight management and dieting, however, increases the likelihood of eating disorders and influences university students' eating disorder behaviour (Jebeile et al., 2021). In conclusion, since it is well known that these contextual elements vary from nation to nation, it is not surprising that different research yields different results.

1.4 Research Objectives

The purpose of this study is to examine eating disorder behaviour among university students in Lanzhou City, Gansu Province, China using the ETPB. This study will also investigate moderating effects of gender, age, BMI, and family income on eating disorder behaviour among university students. The research objectives are as follows:

1. To determine differences in attitude toward physical activities, subjective norm, perceived behavioursal control, body shape, self-esteem, intention to

engage in physical activities, and eating disorder among students with eating disorders with regards to gender and BMI.

2. To examine the relationships between TPB variables, body shape, intention to engage in physical activities, and eating disorder behaviour.
3. To investiga the influence of TPB variables, body shape, intention, and self-esteem on eating disorder behaviour.
4. To examine the moderating effects of gender, age, BMI, and family income on the relationship between body shape, self-esteem, and eating disorder behaviour.

1.5 Research Questions

The following research questions were addressed in this study:

1. Are there any significant differences in attitude toward physical activities, subjective norm, perceived behavioural control, body shape, self-esteem, intention to engage in physical activity, and eating disorder behaviour among students with eating disorder with regards to gender?
2. Are TPB variables, body shape, intention, and self-esteem significant related?
3. Are TPB variables, body shape, intention, and self-esteem significant predictors of eating disorder behaviour?
4. To what extent do gender, age, BMI, and family income moderate the relationship between intention, body shape, self-esteem, and eating disorder?

1.6 Research Hypotheses

H_{01}: There are no significant differences in the mean sores of attitude toward physical activities, subjective norm, perceived behavioural control, body shape, self-esteem, intention to engage in physical activity, and eating disorder behaviour among students with eating disorder with regards to gender?

H_{01a}: There are no significant differences in the mean sores of attitude toward physical activities between male and female students.

H_{01b}: There are no significant differences in the mean sores of subjective norm between male and female students.

H_{01c}: There are no significant differences in the mean sores of perceived behavioural control between male and female students.

H_{01d}: There are no significant differences in the mean sores of body shape between male and female students.

H_{01e}: There are no significant differences in the mean sores of self-esteem between male and female students.

H_{01f}: There are no significant differences in the mean sores of intention to engage in physical activity between male and female students.

H_{01g}: There are no significant differences in the mean sores of eating disorder behaviour between male and female students.

H_{12}: Attitude toward physical activities, subjective norm, perceived behavioural control, body shape, self-esteem, and intention to engage in physical activities are significant predictors to eating disorder behaviour among students with eating disorder behaviour.

H_{13}: Intention to engage in physical activities fully mediates the relationship between TPB variables and eating disorder behaviour.

H_{14}: Intention to engage in physical activities fully mediates the relationship between TPB variables and eating disorder behaviour.

H_{15}: Gender, Age, BMI, and family income moderate the relationships between intention to engage in physical activity, body shape, self-esteem, and eating disorder behaviour.

1.7 Significance of the Study

The significance of predicting eating disorders risk factors among university students is as follows:

1. This study is the first of gender, age, BMI, and family income to predict eating disorders risk factors among university students in Lanzhou City, Gansu Province, China.
2. The findings of this study will serve as guidelines for educational developers to include knowledge of eating disorders and health promotion among university students.

3. The results of this study can help the relevant governmental authorities and education department and university leaders in formulating improvements to provide balanced development for eating disorders and health nutrition courses study among university students.
4. Predict intervention eating disorders risk factors among the behaviours of university students, discuss the impact of the correlation between the risk factors on the physical and mental health of university students, and build a healthy eating protection mechanism for university students.
5. Improving university student knowledge of healthy eating behaviour, and its result can prevent university students' eating disorders and provide a healthy group of work, study, and life. This might improve the potential behaviour to help university students use a healthy diet.

1.8 Conceptual Framework

Toral et al. (2016) evaluates the prevalence of risk behaviours related to eating disorders and body image satisfaction among 427 undergraduate students. The main characteristic of self-esteem is initiative or self-esteem level, other features of the degree of self-esteem, are achieving socially prescribed or self-imposed standards (contingent self-esteem) (Pinquart & Gerke, 2019). Self-esteem is one of the risk factors for the development of eating disorders behaviour, low self-esteem scores significantly increased the high score on the scale of eating disorders (Mora et al., 2017).

Obesity and eating disorders can coexist resulting in exacerbated physical and psychological health issues (Jebeile et al., 2021). However, unsupervised dieting and managing weight will cause eating disorder risk and affect eating disorder behaviour among university students (Jebeile et al., 2021). Being overweight and obese in individuals with an eating disorder has been associated with the severity of eating disorder correlates (Balantekin et al., 2021). Eating Disorder Examination Questionnaire (EDE-Q) scores increased with BMI (Rø et al., 2012).

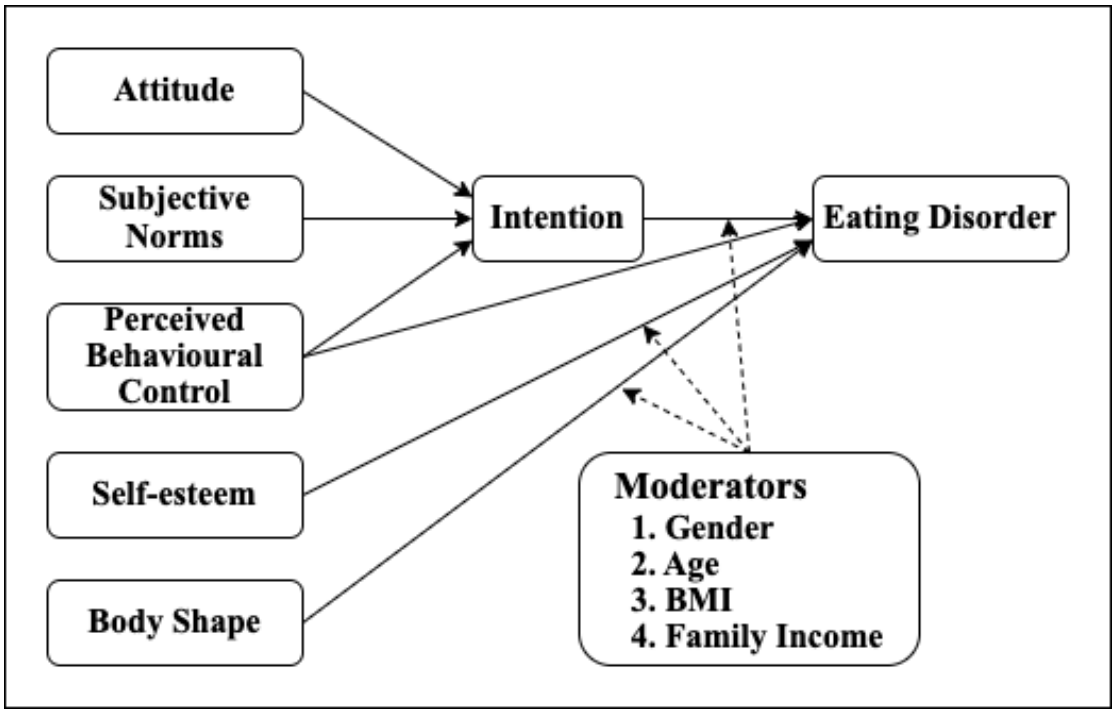
Overall, this study's purpose of the research is to findings the eating disorder behaviour among university students in Lanzhou City, Gansu Province, China. The study is that using the conceptual extension of a theoretical model which is based on the theory of planned behaviour. The study through attitude (AT), Subjective Norm (SN), and perceived behaviour control (PBC) to expand and add to body shape (BS) and self-esteem (SE) of variables in the theory of planned behaviour and gender, age, BMI, family income of variables in moderators, to measure the variables whether can affect suffer from eating disorder behaviour among Chinese university students.

In this study, eating behaviours was conceptualized as the dependent variable. At the same time, attitude, subjective norms, perceived behavioursal control, and intention to engage in physical activities were hypothesized as predictors based on the TPB. Based on literature such as Jenkins and Davey (2020) and Pelc et al. (2023), the candidate hypothesized that self-esteem is a significant predictor of eating disorder behaviour. Similarly, based on studies such as by Mohr et al. (2016) and Horndasch et al. (2015) body shape was also hypothesized as a significant predictor of eating disorder

behaviour. In addition, demographic variables, namely (1) gender, (2) age, (3) BMI, and family income, were hypothesized as significant moderators that influence the relationships between intention to engage in physical activities, self-esteem, and body shape towards eating disorder behaviours.

Figure 1.1

Conceptual Framework Based on the ETPB



1.9 Operational Definitions

The terms and definitions, particularly the operational definition used in this study are the following:

1.9.1 Eating Disorder

According to the American Psychiatric Association (2013) and He et al. (2021) eating disorders are behavioural problems marked by severe and persistent disturbances in eating behaviours as well as the accompanying painful thoughts and emotions. The eating disorder evaluation questionnaire (He et al., 2021) was used in accordance with the needs of the study to assess eating disorder behaviour among university students in Lanzhou City, Gansu Province, China, According to Prnjak et al. (2020), if a questionnaire score was greater than or equal to 15, it was indicated that the respondent had eating disorder behaviour.

1.9.2 Attitude

According to Cantril and Allport (1935), attitude can be defined as a condition of readiness that unites psychology and nerves. It depends on experience to shape a person's reaction to all other relevant circumstances and objects and to impose a directive or dynamic difference. The theory of planned behaviours questionnaire (Upadhyaya, 2018) was used to assess university students in Lanzhou City, Gansu Province, China's views toward eating disorders and their behaviours using the TPB model, based on the needs of the study. Additionally, a 7-point Likert scale is being used in the study (Upadhyaya, 2018): strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, and strongly agree. High attitudes towards eating disorders were reflected by the questionnaire's high scores.

1.9.3 Subjective Norm

According to Ajzen (1991), a subjective norm can be defined as the perceived social pressure to perform or not perform the behaviours. In this study, subjective norm is operationalized using the items by Upadhyaya (2018). A 7-point rating scale is being used in the study, namely, strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, and strongly agree. According to Upadhyaya (2018), the high questionnaire scores revealed that university students had high subjective norms regarding eating disorders.

1.9.4 Perceived Behavioural Control (PBC)

Perceived behavioural control was described as "the perceived ease or difficulty of performing the behaviour" (Ajzen, 1991; Kim et al., 2013). According to the study's need, the perceived behavioural control of the theory of planned behaviour questionnaire (Upadhyaya, 2018) was adopted to evaluate perceived behavioural control toward eating disorders behaviour. The high scores that it was indicated high perceived behavioural control toward eating disorders.

1.9.5 Intention

According to Ajzen (1991), an intention is a person whose choice or effort to carry out the behaviour is traceable to his attitudes, subjective norms, and perceived behavioural control. The purpose of the theory of planned behaviour questionnaire (Upadhyaya, 2018) was chosen to assess intention toward eating disorders behaviour

in accordance with the needs of the study. A higher score denotes a greater intention to participate in physical activity.

1.9.6 Body shape

Body shapes can perceive the accuracy of the perception, associated effects, and emotions (negative or positive) to evaluate the importance of a person's cognitive schema, it is shown that a multi-dimensional structure by Strand et al. (2021). According to the study's need, the body shape questionnaire (Liao et al., 2010) was adopted to evaluate body shapes among university students in Lanzhou City, Gansu Province, China. And it is adopting a 7-point Likert scale (never, rarely, sometimes, not sure, often usually, and always) in the study (Liao et al., 2010), following those statements (Have you been afraid that you might become fat (or fatter)?, never to always) (Liao et al., 2010). The high questionnaire scores that it was indicated a high body shape toward eating disorders behaviour among university students (Upadhyaya, 2018).

1.9.7 Self-esteem

Self-esteem is oneself attitude, it is related to personal beliefs about skills, abilities, social relationships, and future outcomes (Coopersmith, 1967), it is defined as the emotional response that people experience as they contemplate and evaluate different things about themselves (Heatherton & Wyland, 2003). According to the study's need, the Rosenberg self-esteem scale (Chen et al., 2015) was adopted to evaluate self-esteem using the ETPB model among university students in Lanzhou City,

Gansu Province, China. And it is adopting a 5-point Likert scale (completely disagree, disagree, neutral, agree, and completely agree) in the study (Chen et al., 2015), following those statements (On the whole, I am satisfied with myself, completely disagree to completely agree) (Chen et al., 2015). The high questionnaire scores that it was indicated a high self-esteem toward eating disorders behaviour among university students (Chen et al., 2015).

1.9.8 Gender

According to the characteristic of gender males and females (Udry, 1994) measure Chinese university students' eating disorder behaviour based on the ETPB in this study. Bell et al. (2019) showed differences in gender in eating disorder attitudes and behaviours and proneness to an eating disorder. The study will examine gender as one of the factors that can affect eating disorder behaviour among Chinese university students through the ETPB.

1.9.9 Age

Calzo et al. (2016) reported the variation in the presentation of eating disorder symptoms across the age periods. Eating Disorder Examination Questionnaire (EDE-Q) scores decreased significantly with age from a national sample of women aged 16–50 years (Rø et al., 2012). These levels will be categorized into four groups, including 18-19 years, 20-21 years, 22-23 years, and above 24 years (Hamilton Project, 2017). The age in this study means the undergraduate students' age. The study will examine

age groups as one of the factors that can affect eating disorder behaviour among Chinese university students through the ETPB.

1.9.10 Body mass index (BMI)

Body mass index (BMI) in this study means that engaging in unhealthy eating and weight-control behaviours leads to higher or lower BMI. Body mass index is categorized into four groups, respectively underweight (<18.5 kg/m2), normal weight (18.5-22.9 kg/m2), overweight (23.0-24.9 kg/m2), obese (≥25.0 kg/m2) by the Hospital Authority of Hong Kong (Hospital Authority of Hong Kong, 2019). Obesity and eating disorders can coexist resulting in exacerbated physical and psychological health issues (Jebeile et al., 2021). On the other hand, unsupervised dieting and managing weight will cause eating disorder risk and affect eating disorder behaviour among university students (Jebeile et al., 2021). Being overweight and obese in individuals with eating disorders has been associated with the severity of eating disorder correlates (Balantekin et al., 2021). Eating Disorder Examination Questionnaire (EDE-Q) scores increased with BMI (Rø et al., 2012). The study will examine BMI as one of the factors that can affect eating disorder behaviour among Chinese university students through the ETPB.

1.9.11 Family Income

Family income in this study means the amount of income (money) that both parents made in a year. And these amounts will be categorized into three groups. Low (below 16,443 RMB/year), Medium (between 16,443-41,172 RMB/year), and High (above 41,172 RMB/year) (Central People's Government of the People's Republic of

China, 2020). In a large cross-sectional study of US adults, Udo and Grilo (2018) found that those with higher income had increased odds of lifetime anorexia disorder (AN) among eating disorders. Eating disorders have been confirmed to the present in low-income populations (Najjar et al., 2018). The study will examine family income as one of the factors that can affect eating disorder behaviour among Chinese university students through the ETPB.

1.10 Limitations of Study

The limitations of the research are factors that influence researchers beyond their control and exist in scientific research. Uncontrollable influencing factors may cause many restrictions on research conclusions and practical applications in other situations, but this study also has some limited influencing factors. Researchers should consider the limitations of their research while considering the results of this research. The limitations of this study are as follows:

1. Age: The population described in the research is only full-time on-campus undergraduate students in the age range of 18-24 years surveyed by the research and can't be applied to university students in any age group in other ranges.
2. Time: The time described in the research is limited to the time of conducting research and questionnaires in 2021-2022, the time dimension of different research may have differences.

3. Location: The undergraduate students who drop out, suspend, or drop out due to physical reasons are not included in the scope of the study. Postgraduate and graduate students and high school students are not included.
4. Participants: The participants described in the study are limited to healthy university students who are full-time on-campus at the university, and university students who are not studying at the school are not included.
5. Literature: There are no studies predicting eating disorder risk factors among university students using the theory of planned behaviour in China, but there are many related literature studies on university students' eating disorders in other countries and regions, and the cultural dimension of different countries may have differences.

1.11 Summary

This chapter is mainly to introduce eating disorders behaviour epidemic risk factors among university students in different of country, especially in Lanzhou City, Gansu Province, China. Firstly, to find out the psychological factors that cause eating disorders behaviour. In addition, using the ETPB to predict, explain, and intervene in eating disorders risk factors behaviour among university students in Lanzhou City, Gansu Province, China. It is dedicated to predicting the risk factors of university students' eating disorders behaviour and researches the causes of undergraduate students' eating disorders behaviour, the formative assessment practice of risk factors

mainly includes attitude, subjective norm, perceived behavioural control, body shape, self-esteem, and intention. It also discussed the problem statement, purpose, objectives, and research questions of the study. The chapter outlined several main hypotheses about eating disorders' risk factors behaviour among university students. This chapter also articulated the significance of the study and its operational definitions.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter outlines a literature review of eating disorders (ED) behaviour for university students, ranging from the Theory of Planned Behaviour model to the ETPB (ETPB) model. Included that discusses the origins, definitions, and applications of the Theory of Planned Behaviour model, and how to use it to describe each variable in the ETPB model, an interrelated review of the literature on eating disorders (ED), revolve around the reasons for eating disorders (ED), the effecting of eating disorders (ED) behaviour, eating disorders and university students to discuss an interrelated review of the literature on this study, especially eating disorders behaviour among Chinese university students. And an interrelated review of the literature on the ETPB model and eating disorders (ED). It will include the model's all variables with eating disorders (ED) discussed in more detail. It also discusses an interrelated literature review on the moderator variables and eating disorders (ED). It will include the moderator variables and eating disorders (ED) discussed in more detail. So, through this chapter of the literature review to better predict eating disorder behaviour using the ETPB model.

2.2 Eating Disorder

A mental disorder defined by abnormal eating habits that negatively affect a person's physical and mental health called eating disorders or eating disorder

behaviours, not only does it cause binge eating disorder (where people eat a large amount in a short period), anorexia nervosa (where people have an intense fear of gaining weight and restrict food or overexercise to manage this fear), bulimia nervosa (where people eat a lot and then try to rid themselves of the food), pica (where people eat non-food items), rumination syndrome (where people regurgitate food), avoidant/restrictive food intake disorder (ARFID) (where people have a reduced or selective food intake due to some psychological reasons), and a group of other specified feeding or eating disorders, but also it causes obesity (American Psychiatric Association, 2013).

Anxiety disorders, depression and substance abuse are common in eating disorders behaviours ("What are eating disorders?", 2015). The studies show that 0.12 of dancers were affected by self-psychological that cause eating disorder behaviours (Bachar, 2020; Giannopoulou et al., 2020; Rikani et al., 2013; Izydorczyk et al., 2020). And individuals who have experienced sexual abuse are also more likely to suffer from eating disorder behaviours, such as pica and rumination disorders occur more universally in intellectual disabilities (Arcelus et al., 2014; Chen et al., 2010; Rikani et al., 2013). More previous studies found that eating disorder behaviours also reflect in perceiving, processing, and coping with emotions in mental and psychological states (Zhang et al., 2022; Haghshomar et al., 2022; Mento et al., 2021; Rossi et al., 2023).

Stice and Van Ryzin (2019) identified eating disorder risk factors that predict the future onset of eating disorder behaviour, but none has provided a test of the temporal sequencing of the emergence of risk factors of eating disorder behaviour

development. Stice et al. (2017) found that negative affect and functional impairment predicted the onset of all eating disorders, including thin-ideal internalization, dieting, overeating, restraint, eating concerns, shape concern, weight concern and mental health care predicted onset of subthreshold/threshold bulimia nervosa (BN), binge eating disorder (BED), and purging disorder (PD), positive thinness expectations, denial of cost of pursuing the thin ideal and fasting predicted onset of two of these four disorders among young woman (M = 18.5 years, SD = 4.2), for example, low BMI and dieting specifically predicted onset of subthreshold/threshold anorexia nervosa (AN) or low BMI; pursuit of the thin ideal and the resulting body dissatisfaction, dieting, and unhealthy weight control behaviours increase the risk for binge/purge spectrum eating disorders; youth who are inherently lean, rather than purposely pursuing the thin ideal, are at risk for anorexia nervosa (AN) (Reichenberger et al., 2020; Gao et al., 2024; Aquino-Llinares et al., 2024; Esin & Ayyıldız, 2024; Fitzsimmons‐Craft et al., 2020; Chami et al., 2022; Aycan et al., 2024; Trott et al., 2020; Rossi et al., 2023; Izydorczyk et al., 2020; Giannopoulou et al., 2020; Trott et al., 2020).

However, intentions of combined inhibitory control training can reduce eating disorder behaviours (Chami et al., 2022). The key to closing the treatment gap for eating disorder behaviours still needed respondents' help-seeking intentions to help them stay motivated and follow through with treatment (Fitzsimmons‐Craft et al., 2020). In addition, Ali et al. (2020) reported attitudes, intentions, and behaviours systematically explain perceived barriers to help-seeking for eating, weight, or shape concerns among teenagers (aged 18-25 years) in Australia. By intervening in patient's attitudes,