

A literature review exploring the factors predisposing university students to develop eating disorders in the United States

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Abstract

Topic

Eating disorders are mental health conditions that can be physically, mentally and socially disabling (Santomauro et al., 2021). They can lead to dangerous health complications, which can be chronic and even deadly. It is also a high economic cost for the American government (Streatfeild et al., 2021). Despite being a prevalent public issue, there is a lack of research reviews about the influential factors among university students that lead to eating disorders. This literature review is set to explore which are the factors that predispose university students to develop eating disorders in the United States.

Methods

This literature review employed a precise search strategy about factors predisposing university students to eating disorders, which includes a detailed exclusion and inclusion criteria and was applied in relevant health databases. Ten articles were selected for analysis. A thematic analysis was used to dissect the main findings and then critically report them. At the end, recommendations were elaborate based on the findings of the thematic analysis.

Findings

The findings show three main factors predisposing university students to developing eating disorders. The first one is the control of emotions. Students use food intake as a way of control against negative emotions and circumstances in their lives. The second one is the view of society. The standards of society have a big influence on the life of

students and the stigmatization of eating disorders complicates the early diagnosis of them. The third one is the influence of food insecurity. Students that face food insecurity are more likely to screen positive for an eating disorder.

Chapter 1: Introduction and Background

This chapter touches on the overall picture of eating disorders (EDs) in the context of public health. It includes: background information about EDs, the relevance of EDs as a public health issue, the rationale of this literature review, the research question, what theoretical framework will be used, and what is the main aim and objectives of this research.

1.1. Background information, theory and rationale

Eating disorders can be physically, mentally and socially disabling; and are linked with the highest mortality rates of cause-specific within mental disorders (Santomauro et al., 2021). An eating disorder is a mental health condition in which a person uses the control of food intake as a way to cope with feelings and other situations that might affect them (NHS, 2021). People with eating disorders are more likely to have lower employment participation, higher health-care and informal care costs and a likelihood to die prematurely (Santomauro et al., 2021). Eating disorders can be developed by any person no matter their age, race, socio-economic status, gender or sexual orientation, however they are often more likely to be diagnose in teenagers and young adults (Santomauro et al., 2021).

Studies show that around 2019, the ranges of prevalence of eating disorders were 4.6% in the U.S, 3.5% in Asia and 2.2% in Europe (Streatfeild et al., 2021). During 2018 to 2019, it was estimated that the total economic costs related to EDs were approximately \$64.7 billion and a cost of approximately \$326.5 billion related to the substantial reduction

in wellbeing linked to EDs (Streatfeild et al., 2021). Currently, the U.S main political contribution towards the control of EDs is the Anna Westin Legacy Act. This Act was passed to help the individuals experiencing EDs by providing funding to improve the healthcare professional training, giving clarity of mental health parity, expanding research on EDs and promoting the reduction of harmful alterations of body image in advertising (Eating Disorders Coalition for Research, Policy & Action, 2022). Since the publication of the Anna Westin Act, the U.S Congress has presented diverse bills to help reduce the prevalence of EDs.

A group that is highly susceptible to developing EDs are university students. When university starts, many students experience difficulties adapting to their new life-styles (Kabakuş Aykut and Bilici, 2021). Many students experience loneliness by being on their own and the hardships of a more challenging level of education (Kabakuş Aykut and Bilici, 2021). This transition affects their eating habits and in serious cases leads to the development of eating disorders (Tavolacci et al., 2015). EDs can be critical for the mental and physical health of students as well as it affects how they perform at their studies (Tavolacci et al., 2015).

There is a diverse range of EDs. Anorexia Nervosa (AN) is one of the leading eating disorders across the world, especially in western high income countries such as the U.S (van Eeden, van Hoeken and Hoek, 2021). AN is characterized by self-starvation, an intense fear of gaining weight, excessive weight loss and a distorted perception of weight (National Institute of Mental Health Office, 2022). Bulimia Nervosa (BN) is another of the leading EDs across the world and in the U.S (van Eeden, van Hoeken and Hoek, 2021). BN implies when a person eats a large amount of food in a very short amount of time and

later makes herself or himself sick, by using laxative, excessive exercise or induce their vomit, in order to not gain weight (NHS, 2020). Stated by The National Institute of Diabetes and Digestive and Kidney Diseases (2021), Binge Eating Disorder (BED) was the most prevalent eating disorder in the United States in 2021. BED happens when an individual eats large amounts of food in a very short period of time until they feel uncomfortably full (NHS, 2020). The secondary health implications developed by EDs have a big negative impact on the life of a person and in many cases drives to chronic diseases. It is highly important that health authorities improve policies and interventions to tackle the current risk factors that influence many university students to develop eating disorders.

This literature review is going to explore which factors lead to EDs, with a special scope in AN, BN and BED, in university students from the United States. The theoretical framework that will be used to underpin the literature review will be the Health Field Concept. This framework identifies four domains that affect health and wellbeing: human biology, the environment, lifestyle and healthcare organizations (Tulchinsky, 2018). This theory will help to critically appraise what are the factors around individuals that could lead them to develop eating disorders. The rationale of this literature review is based on the dangerous health implications led by EDs, and that, although being a prevalent public issue, there is a lack of research reviews about the influential factors on EDs among university students.

1.2. Research question, aim & objectives

Research question

What are the factors predisposing university students to develop eating disorders in the United States?

Aim

The aim of this literature review is to elaborate suitable recommendations to help mitigate the factors predisposing university students to develop eating disorders in the United States.

Objectives

- To explore the available literature about the factors that increase the risk of EDs on university students by establishing a precise search strategy, which includes a detailed exclusion and inclusion criteria and scan through relevant health databases.
- To identify three main factors that influence university students to develop EDs by dissecting in detail ten selected articles, using a thematic analysis and critically reporting the findings.
- To elaborate suitable recommendations on how to reduce the impact of factors leading to EDs, based on the findings of the thematic analysis.

Chapter 2: Literature Review Methodology

This chapter explores the application of the methods selected for the depth search, meticulous selection and critical analysis of relevant literature to answer the research question.

1.3. Inclusion & exclusion criteria

The inclusion and exclusion criteria were directed by the aim of the research question. It was decided to include men and women to evaluate if there was a difference between both genders in the current literature. The year 2010 was selected as the limit on antiquity due to the rising of the body positivity movement on social media during the 2010s. This social movement fights against unhealthy beauty standards and has influenced the view of society on EDs (Darwin and Miller, 2021). It was chosen to include only the studies written in English in order to maximize time and avoid bias in the translation and interpretation of them. The search was limited to only primary research articles to avoid bias on the interpretation of the information. The decision of using only peer reviewed articles was based on the reliability that they provided. Editorials, commentaries, reviews and grey literature were excluded in order to avoid publication bias. The choice of excluding papers that explore the relationship of other health conditions and eating disorders was in order to identify accurately which are the specific factors that lead specifically to EDs.

Inclusion criteria

- Studies based on men and women over 18 years,

- Studies from 2010 onwards,
- Articles written in English,
- Primary research including: randomized control trials, observational studies and qualitative studies.

Exclusion criteria

- Peer review articles that are not base on empirical research,
- Editorials, commentaries or reviews, gray literature,
- Papers that explore the relationship of health conditions (such diabetes, suicide or alcoholism) and eating disorders,
- No full text available.

1.4. Search strategy

Following the identification of the inclusion and exclusion criteria, the research question was dissected in key terms and alternative key terms with the help of the PICO framework. PICO stands for: Population, phenomena of Interest and the Context (Boland, Dickson and Cherry, 2017). This framework is a mnemonic employed in evidence-based practice to address a clinical or health related question (Boland, Dickson and Cherry, 2017). Table 1 presents the alternatives of the key terms identified.

What are the **factors predisposing university students** to develop **eating disorders** in the **United States**?

P - University students with eating disorders

I - predisposing factors

Co - the United States

Table 1. Key terms and alternative key terms

Keyword: Predisposing factors	Keyword: University students	Keyword: Eating disorders	Keyword: United States
Alternative Keyword: Influential factors	Alternative Keyword: Undergraduate students College students	Alternative Keyword: Disorder eating Anorexia Nervosa Bulimia Nervosa Binge eating disorder	Alternative Keyword: America USA U.S United States of America

Subsequently identifying the key terms, three bibliographic databases (MEDLINE, CINAHL PLUS and APA Psych) were selected to search for relevant published articles. Following the recommendations of Boland, Cherry and Dickson (2017), a search strategy was developed using the key terms and their alternatives, and the search was assisted within the use of Boolean Operators. These are used to either narrow or broaden the search results (Boland, Dickson and Cherry, 2017). The operators used were AND & OR. As a result, the setting of search terms was developed:

- (((eating disorder or disorder eating or anorexia nervosa or bulimia nervosa or binge eating disorder) AND (university students or undergraduate students or college students)) AND (influential factor or predisposing factors) AND (United States OR America OR usa OR u.s or united states of america))

1.5 Data selection and extraction

After applying the search strategy in the databases, 199 articles show up as results. These articles went through a light selection process by reading the title and the abstract. Subsequently, 35 articles were selected for a more in depth analysis. The articles were read complete to corroborate that they met the inclusion and exclusion criteria. As a result, 10 articles were chosen for the final literature review considering their relevance to the topic. A tool that was employed in the selection process was the PRISMA flow diagram, which the findings will be presented in the research findings chapter.

Further the screen and selection process, the 10 articles were under an extensive analysis. The thematic analysis method was chosen to underpin the examination. Following the statements of Kiger and Varpio (2020), this method is suitable to answer the aim of the research question because it allows an understanding of the experiences, thoughts and behaviors across the studies. The articles were read several times, printed and the most relevant findings were highlighted. The important findings were codified and separated into themes. The critique of the findings, further developed in the chapter of critical discussion, will be underpinned by the Health Field Concept and Health Promotion theoretical framework.

To assist with the in-depth analysis an appropriate research matrix was employed. The research matrix was also useful to evaluate the quality of the articles. It includes the author, date, source, theoretical foundation, aims and objectives, sample population, main findings and conclusions, strengths and limitations, main codes and categories, and

themes. The research matrix facilitates the comparison and contrast of the articles (Boland, Dickson and Cherry, 2017). The results of the matrix will be presented in the research findings chapter.

1.6 Ethics

Even though this literature review is a secondary piece of research, it is still important to acknowledge the ethical considerations that could arise. Systematic reviews do not require ethical approvals, it is upon primary researchers to receive verbal consent and approval from ethic committees (TRIPATHY, 2013). By using peer review articles, it was assured that articles went through an extensive process of ethical consideration to be approved (TRIPATHY, 2013). Other ethical implications that can take place, such as plagiarism, will be addressed using adequate citations and paraphrasing (Boland, Dickson and Cherry, 2017).

Chapter 3: Research Findings

This chapter presents the findings from the analysis of the chosen articles. It includes a summary of the search results, a summary of the main findings and the themes identified through the thematic analysis.

1.7 Summary of search results

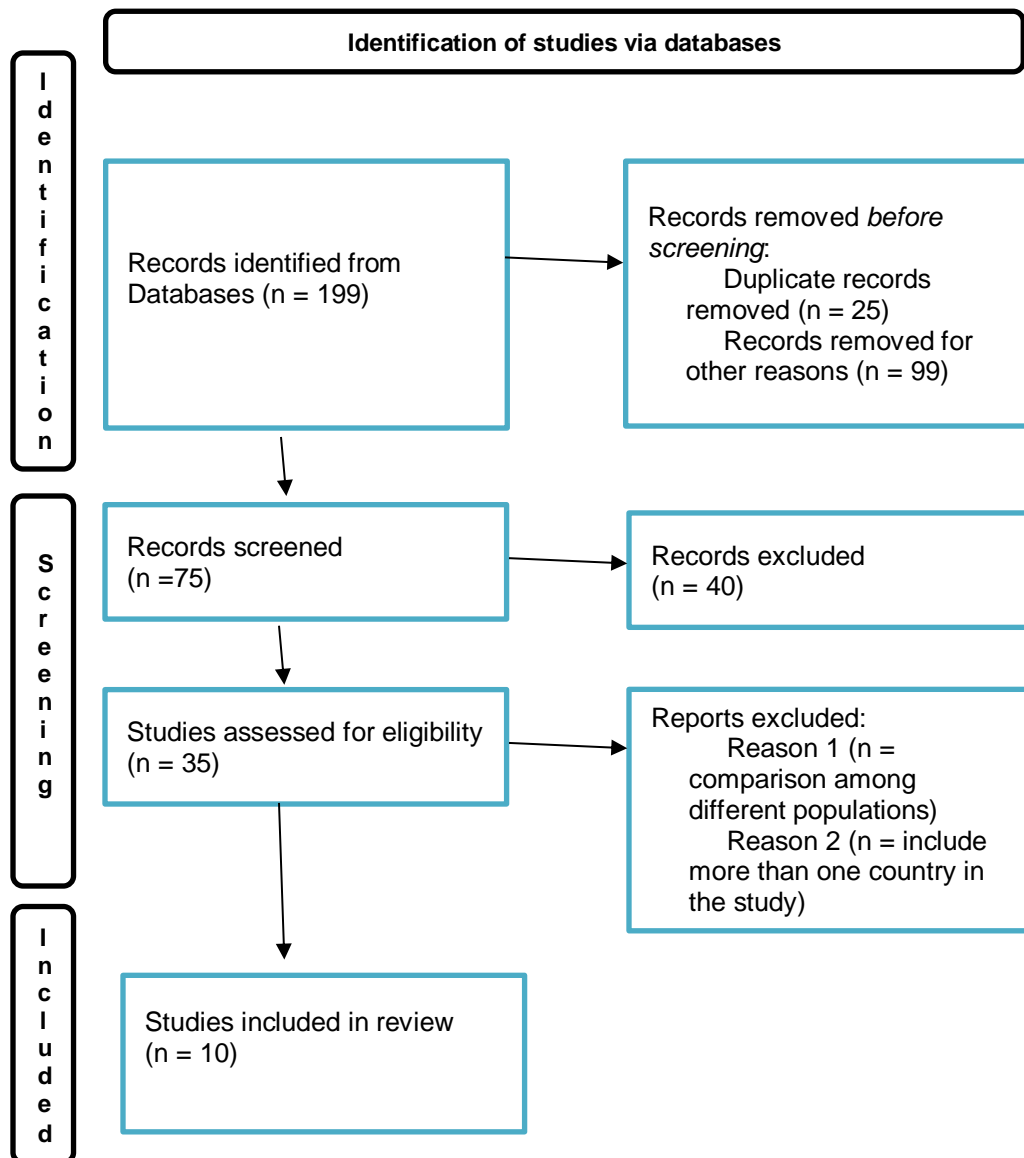
There were a total of 10 articles chosen at the end of the selection process. From the original 199 study results, 124 were removed due to duplication and other reasons. In the final shortcut, 25 were removed because they included population samples that were not relevant to the research question or they were based outside of the U.S or they study other health conditions as covariates. Table 2 shows the articles that were chosen. Diagram 1 presents the results in a PRISMA flow format.

Table 2. Table of chosen articles

1. Osberg, T. and Eggert, M., 2012. Direct and indirect effects of stress on bulimic symptoms and BMI: The mediating role of irrational food beliefs. <i>Eating Behaviors</i> , 13(1), pp.54-57.
2. Claydon, E. and Zullig, K., 2019. Eating disorders and academic performance among college students. <i>Journal of American College Health</i> , 68(3), pp.320-325.
3. Ellis, J., Essayli, J., Zickgraf, H., Rossi, J., Hlavka, R., Carels, R. and Whited, M., 2020. Comparing stigmatizing attitudes toward anorexia nervosa, binge-eating disorder, avoidant-restrictive food intake disorder, and subthreshold eating behaviors in college students. <i>Eating Behaviors</i> , 39, p.101443.
4. Christensen, K., Forbush, K., Richson, B., Thomeczek, M., Perko, V., Bjorlie, K., Christian, K., Ayres, J., Wildes, J. and Mildrum Chana, S., 2021. Food insecurity associated with elevated eating disorder symptoms, impairment, and eating disorder diagnoses in an American

University student sample before and during the beginning of the COVID-19 pandemic. <i>Int J of Eat Disord</i> , 54, pp.1213 - 1223.
5. Geerling, D. and Saunders, S., 2015. College students' perceptions of individuals with anorexia nervosa: irritation and admiration. <i>Journal of Mental Health</i> , 24(2), pp.83-87.
6. Fitzsimmons-Craft, E., Eichen, D., Monterubio, G., Firebaugh, M., Goel, N., Taylor, C. and Wilfley, D., 2020. Longer-term follow-up of college students screening positive for anorexia nervosa: psychopathology, help seeking, and barriers to treatment. <i>Eating Disorders</i> , 28(5-6), pp.549-565.
7. Filipova, A. and Stoffel, C., 2016. The prevalence of binge eating disorder and its relationship to work and classroom productivity and activity impairment. <i>Journal of American College Health</i> , 64(5), pp.349-361.
8. Barry, M., Sonnevile, K. and Leung, C., 2021. Students with Food Insecurity Are More Likely to Screen Positive for an Eating Disorder at a Large, Public University in the Midwest. <i>Journal of the Academy of Nutrition and Dietetics</i> , 121(6), pp.1115-1124.
9. Mayo, C. and George, V., 2014. Eating Disorder Risk and Body Dissatisfaction Based on Muscularity and Body Fat in Male University Students. <i>Journal of American College Health</i> , 62(6), pp.407-415.
10. Barnett, M. and Sharp, K., 2016. Maladaptive perfectionism, body image satisfaction, and disordered eating behaviors among U.S. college women: The mediating role of self-compassion. <i>Personality and Individual Differences</i> , 99, pp.225-234.

Diagram 1. PRISMA flow diagram



1.8 Summary of main findings

Among the 10 articles appraised, there are: 7 quantitative and 3 mixed methods. The use of different research methods provides diverse perspectives at analyzing the factors inducing university students to develop EDs. There are 2 articles based on only AN, 1 on

only BN, 1 on only BED, 2 on potential eating disorder behaviors, 1 on AN & BN, 2 on AN & BN & BED & Other Specified Feeding or Eating Disorder (OSFED), and 1 on AN & BED & Avoidant-restrictive Food Intake Disorder (ARFID). The diverse range of eating disorders provides the opportunity of a more comprehensive understanding of which are the predisposing factors to EDs.

The sample size range across the chosen articles goes from 102 up to 223,887 participants. The studies were set in both northern (Osberg and Eggert, 2012; Geerling and Saunders, 2015; Barry, Sonnevile and Leung, 2021) and southern (Ellis et al., 2020; Christensen et al., 2021; Mayo and George, 2014; Barnett and Sharp, 2016) states. Three studies were set across different states of the U.S (Claydon and Zullig, 2019; Fitzsimmons-Craft et al., 2020; Filipova and Stoffel, 2016). The wide range of the samples enables the researchers to generalize findings. It also allows the identification of trends on factors predisposing to EDs, it helps to classify which are the similarities and differences, and which eating disorder is more prevalent according to the articles. However, there should be kept in mind that the demographic factors such as race, ethnicity and socio-economic status vary across time and place. This means that findings from the chosen articles could not be an accurate representation of all states.

The oldest article revised is from 2012 and the earliest is from 2021. Over the years, there has been a clear change in the trends of the eating disorders prevalence and the scale measures used in the studies. During the early 2010s there was a special preference in the investigation of AN, BN and potential eating disorder behaviors (Osberg and Eggert, 2012). During the late 2010s, as mentioned by Filipova and Stoffel (2016) the prevalence of BED increased among university campuses of the U.S, so it did the studies about it.

The overall findings show an incrementation of eating disorders across universities during the years. There are multiple factors of life that can predispose students to being at risk of EDs. One of them is emotions. Osberg and Eggert (2012) expressed that students take food intake as a way of control against negative emotions and circumstances in their lives. This behavior has a dangerous impact upon the physical and emotional health of students (Filipova and Stoffel, 2016). Osberg and Eggert (2012) state that students exposed to high levels of stress and negativity were more likely to experience bulimic symptoms and be diagnosed positive for an ED.

Another factor is the view of society. An individual, as part of a community, feels pressure to follow what society considers right or wrong. The standards of society have a big influence on the life of students. Barnett and Sharp (2016) disclosed that women that are exposed to high standards of maladaptive perfectionism are at more risk of being diagnosed with an ED. Mayo and George (2014) report that male students have higher levels of unhealthy beauty standards than females. The high beauty standards are also bound with the stigmatizing views of society on EDS. This has a negative impact at the moment of diagnosis and treatment. Ellis et al. (2020) point out that male students present more stigma towards eating disorders, a high percentage consider that eating disorders are not serious health conditions and that they are uncommon among them. In the current years the prevalence of food insecurity has also been an influential factor of the increase of eating ED diagnosis. Barry, Sonnevile and Leung (2021) explore that there was a higher prevalence of screening positive for an eating disorder if the student experienced any level of food insecurity.

Findings also highlight the significant difference in the academic and social performance between students diagnosed with an ED and the students without one. Filipova and Stoffel (2016) state that students with eating disorders, especially BED, are more likely to deal with daily activity impairment and low classroom productivity. This exposes students, affected by eating disorders, to great inequalities. Filipova and Stoffel (2016) highlight that providing and seeking treatment is a key factor for the improvement of the student's academic performance and social life. This is supported by Claydon and Zullig (2019), who exposed in their study that students being treated with conventional therapy showed better academic results than students with no eating disorders. Osberg and Eggert (2012) findings also highlight that treatment is crucial for the improvement of health and wellbeing, and that there should be more research and treatments based on cognitive behavioral approaches.

Table 3. Summary of Matrix findings

Reference, State of Study and Eating Disorder	Sample and Research Method	Main Findings and Conclusions
(Osberg and Eggert, 2012) Boston, Massachusetts Bulimia Nervosa (BN)	356 students (114 men, 239 women, 3 did not indicate gender) Cross-sectional study: Daily Hassles Scale (DHS), Bulimia Test-Revised (BULIT-R), Irrational Food Beliefs Scale (IFBS)	Findings present a relationship between direct effects of stress on bulimic symptoms and indirect effects BMI in the population selected. The study exposed that stress might influence upon the selection of high fat food to provide an idea of comfort and help manage emotions.
(Claydon and Zullig, 2019) Different states across the	223,887 students Female (n=143,673; 64.8%), white (n=161,766; 72.2%), GPA	The findings from this study show clear benefits in the use of conventional therapies

U.S Anorexia Nervosa (AN) Bulimia Nervosa (BN)	approximate A or B (n=191,284; 85.4%) Cross-sectional study	(medication and psychotherapy) for EDs to produce positive academic outcomes. There is a significant number of students diagnosed with an ED not receiving treatment which can affect their academic performance.
(Ellis et al., 2020) Greenville, North Carolina Anorexia Nervosa (AN), Binge-eating Disorder (BED) and Avoidant-restrictive Food Intake Disorder (ARFID)	1147 college students (67.2% female, 32.2% male, 0.7% transgender or gender non-binary; mean age = 18.47 years, SD = 1.40). Vignette-based research: DSM-5 disorder, UMB Total, USS Blame, USS Distrust, and Perceived Psychopathology	Findings showed that men displayed more bias and blame compared to women towards all eating disorder presentations.
(Christensen et al., 2021) Lawrence, Kansas Anorexia Nervosa (AN), Bulimia Nervosa (BN) Binge-eating Disorder (BED) and Other Specified Feeding or Eating Disorder (OSFED)	Two samples (N=579; Mage = 21.75, SD = 5.27, range = 18–78) First sample: December 9 to March 5, 2020 Second sample: April 13 to 27, 2020 Cohorts study Cross-sectional study : The clinical Impairment Assessment (CIA), The Eating Disorder Diagnostic Scale (EDDS)	Individuals experiencing food insecurity show significantly greater ED- related impairment, higher prevalence of ED diagnosis and more current episodes of objective binge eating and compensatory fasting. The most common ED diagnosis among students was OSFED followed by BN.
(Geerling and Saunders, 2015) Milwaukee, Wisconsin Anorexia Nervosa (AN)	102 female college students (age: M=19.8, SD=0.98) Vignette-based research: Cognitive attributions scale, Emotional reactions scale , Behavioral dispositions scale	The findings highlight that the public's perception of mild and severe AN might influence individuals to not seek treatment. If the AN case is mild, the problem might be exacerbated, due to peers' admiration of the individual's wish to lose weight. If the AN case is severe, the individual might deny the symptoms and the peers could confront the individual with anger, reducing the chances of treatment referral.
(Fitzsimmons-Craft et al., 2020) 8 universities from Missouri & 28 universities from	123 students (61 eligible for participation), 20.95 (SD=3.34) The Healthy Body Image (HBI)	Findings indicate that most of the people that got a referral for AN, presented feelings of: shame, nervousness, validation and sadness. The most prevailing reasons for seeking

states across the U.S Anorexia Nervosa (AN)	Program, Stanford-Washington University ED Screen (SWED), the Weight Concerns Scale (WCS), the ED Diagnostic Scale and the Clinical Impairment Assessment	treatment were concern with eating, emotional distress and health concerns. The most common barriers for not seeking treatment were stigma, not believing it was a serious issue, lack of time, trust and economic resources.
(Filipova and Stoffel, 2016) A public midwestern university Binge-eating Disorder (BED)	1,165 students Cross-sectional study: Eating Disorder Diagnostic Scales (EDDS), Work Productivity Activity Impairment: General Health, version 2.0 questionnaire (WPAI-GH)	Findings show that students with moderate BED were more likely to experience regular daily activity impairment and classroom productivity impairment than students with no BED. The study also suggests that treatment is a key factor for the potential improvement of the student's academic performance and social life.
(Barry, Sonnevile and Leung, 2021) Ann Arbor, Michigan Anorexia Nervosa (AN), Bulimia Nervosa (BN) and Other Specified Feeding or Eating Disorder (OSFED)	804 students (49.8% male; 50.4% female; median age=21.6 years) Cross sectional study Sick, Control, One stone, Fat, Food (SCOFF) questionnaire	The findings show that there was a higher prevalence of screening positive to an ED among students with food insecurity at any level of severity. There were similar results for men and women, however there was a slightly higher likelihood for men to screen positive to EDs.
(Mayo and George, 2014) Miami, Florida ED behaviors	780 students (399 males and 441 females) Questionnaire surveys: The Eating Attitudes Test (EAT), Bodybuilder Image Grid (BIG)	The findings show a high risk of eating disorders among Hispanic male students due to body dissatisfaction and unhealthy beauty standards on muscularity. There were clear differences in the ideal body image between genders. Males preferred a more muscular and leaner body type than females.
(Barnett and Sharp, 2016) Southern United States ED behaviors	Study 1: 580 female undergraduate students (age range = 18-30) Study 2: 389 female undergraduate students (age range = 18-30) Questionnaire surveys: Almost	The findings suggest that maladaptive perfectionism causes many women to develop unhealthy eating behaviors that could lead to developing eating disorders. Self-compassion acts as a key positive influence against the unrealistic beauty standards about the ideal female body imposed by society and exposed through

	Perfect Scale-Revised Short Form (APS-R), The Body Image Satisfaction Scale (BISS), The Self-Compassion Scale , The Eating Attitudes Test (EAT-26)	social media.
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1.9 Findings of thematic analysis

While critically appraising the articles, it was noticed that there were factors that appear repeatedly. This led to the identification of three main themes: food intake as a way of controlling emotions, stigma & society's view and food insecurity. Table 4 presents the results of the codes, sub-categories and themes identified.

Table 4. Codes and main themes

Codes	Sub-categories	Themes
Under stress, stress induced eating, lift depression, comfort, substitute for other things, emotion management, life success, sympathy, anger, psychological stress	Stress Emotion management Irrational food beliefs	Food intake as a way of controlling emotions
Stigmatization and greater symptomatology, stigmatization and prevention of seeking treatment, society's views, attributions, admiration towards losing weight, body dissatisfaction, sub-threshold eating disorder symptoms	Lack of individuals seeking treatment Stigma and admiration Pressure from society Unrealistic beauty standards	Society's view and stigma
Food deprivation and food access, compensatory behavior, hunger drives, demands on financial resources,	Deprivation of food access Poor longer-term physical and mental health outcomes	Food insecurity

socioeconomic status, racial and ethnic minority students, institutional disparities, negative educational outcomes, psychological stress	Compensatory behaviors and hunger drives	
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1.9.1 Food intake as way of controlling emotions

Across the appraised articles, there has been a strong association between the control of food intake and the management of emotions. Osberg and Eggert (2012) state that there are specific groups across the population that might be more vulnerable to develop unhealthy patterns of food intake to cope with negative feelings such as university students. Irrational food beliefs play an influential role over the way of thought among vulnerable groups. Some individuals see the high intake of food as a way to relieve psychological distress and feel joy and fulfillment (Osberg and Eggert, 2012). While others see the restraint of food intake as pride and admiration (Ellis et al., 2020). Osberg and Eggert (2012) noticed that individuals with irrational food beliefs were more likely to experience bulimic symptoms. Fitzsimmons-Craft et al. (2020) expressed that individuals at a higher risk of AN were more likely to normalize restrain food intake and feel proud about the “auto-control” that they have.

Stress is another factor that influences food intake along with irrational food beliefs. In binge eating individuals stress acts as a motive to select high fat foods. For them food is a reward that can soften the hardships that they experience in different aspects of life (Osberg and Eggert, 2012). In university students this situation is very common due to the high levels of stress that they are exposed to (Claydon and Zullig, 2019). Osberg and

Eggert (2012) express that stress has a direct influence over bulimic symptoms and an indirect influence on BMI. Claydon and Zullig (2019) state that individuals who screen positive for EDs are more likely to be under high levels of stress.

1.9.2 Society's view and stigma

Among the reviewed articles, there is a noticeable impact on the influence of society over the likeliness of students to develop EDs. Overtime society has established unrealistic beauty standards of what is ideal and what is not, which have been impulse through social media (Barnett and Sharp, 2016). These have been very harmful towards the health of the public. Many students force themselves into unhealthy routines, such as extensive workout sessions and highly restrictive diets (Fitzsimmons-Craft et al., 2020). Barnett and Sharp (2016) express that perfectionism causes many women to be at risk of unhealthy eating behaviors which lead to EDs. Geerling and Saunders (2015) state that men were more likely to be exposed to high levels of body dissatisfaction. Their findings show that Hispanic men aspirate to an extremely low body fat percentage, which is only possible following a strict dieting regimen and is usually done without professional accompaniment.

The analyzed articles also report that society's view towards eating disorders has a negative impact on university students. Society generates a lot of stigma towards EDs leading to negative feelings and discriminatory behaviors against people that have them (Ellis et al., 2020). Stigma downgrades the severity of EDs and marginalizes individuals affected by them. Geerling and Saunders (2015) expose that the public's perception of

mild and severe AN influence on individuals to not seek treatment. The societal view towards individuals with mild AN symptoms is admiration due to the individual's wish to lose weight, this attitude can exacerbate the AN cases and lead to develop severe symptoms. Stigma is viewed differently between genders. Due to gender stereotypes, males have more difficulty expressing and seeking help when they are experiencing symptoms of EDs (Mayo and George, 2014).

1.9.3 Food insecurity

The articles display an evident association of food insecurity and the occurrence of EDs. Christensen et al. (2021) reported that students, from the University of Kansas, facing any level of food insecurity were more likely to screen positive for an ED than students with food security. An individual can experience food insecurity for diverse reasons, mainly due to socio-economic factors, such as coming from poverty or low-resources or a minority-ethnic household (Barry, Sonnevile and Leung, 2021). Christensen et al. (2021) state that students who identified as Hispanic or Black were more likely to report individual food insecurity than other students. The rates of food insecurity also differ between genders. According to Barry, Sonnevile and Leung (2021), male students were at higher risk of food insecurity than females, however positive screens for EDs were still higher for females than males. They also report that students with food insecurity were more likely to lose the control of eating and endorse self-induced vomiting.

Time also influences the likelihood of experiencing food insecurity. Christensen et al. (2021), report that students are more likely to experience food insecurity at the end of the academic semester. Food insecurity also endorses stress factors over students that affect

their academic performance. Christensen et al. (2021) state that students experiencing food insecurity show significantly greater ED- related impairment, frequent episodes of binge eating and compensatory fasting. This is supported by Filipova and Stoffel (2016), who report that students who did not have a safe food source were under high levels of psychological distress affecting their work and classroom productivity and endangering their health.

Chapter 4: Critical Discussion

This chapter is based on the critical discussion of the main findings. Theoretical frameworks and policies will be used to evaluate the relevance of the findings. The discussion is underpinned by the use of the Health Field Concept theoretical framework. The limitations of the articles are also explored.

1.10 Discussion

As mentioned at the beginning of this literature review, the Health Field Concept theoretical framework is underpinning the discussion of the findings and themes. When Lalonde (1974) introduced this theoretical framework it provided a broader perspective at studying what factors influence the health of the population. This framework identifies four domains that affect health and wellbeing: human biology, the environment, lifestyle and healthcare organizations (Tulchinsky, 2018).

Lalonde (1974) explained that the arrangement and resources of health organizations are crucial for the intervention and treatment of patients. From the analysis of the articles, it was clearly identified that many students diagnosed with an ED were not receiving or seeking any kind of treatment (Christensen et al., 2021; Barry, Sonnevile and Leung, 2021; (Claydon and Zullig, 2019). According to Ellis et al. (2020) and Barry, Sonnevile and Leung (2021), just a handful of students were asked by their general practitioners about their eating habits, and many of them reported not being able to afford treatment for their diagnosed ED. Fitzsimmons-Craft et al. (2020) expressed that there is a lack of

accessible EDs screening in universities, and there is a lack of specific information about symptoms and attitudes that can be considered as part of a possible diagnosis of ED.

The Anna Westin Legacy Act (2015) has had great contributions increasing the health services and investigations towards eating disorders. However, there is still a lack of action by the U.S government towards the rate of eating disorders among universities (Barry, Sonnevile and Leung, 2021). It would be useful that the American government develop new bills about the research and mitigation of EDs on university students. As well as, the introduction of new public health guidelines on universities about more accessible resources of active screening and prevention of EDs.

Individuals have a complex way of thinking which influences the lifestyle of each one. Lalonde (1974) distinguished lifestyle as a wide network of the decisions that give people more or less control over their health. The findings show that society's ideals around body figure and mental health impulses students to take risky decisions in their lifestyle (Geerling and Saunders, 2015; Ellis et al., 2020). The idealization of a perfect body input by society, leads many students to choose to be subject to strict diet and workout regimens which can lead to undernutrition and iron deficiency (Mayo and George, 2014). They also can take more extreme measures to lose weight such as self-induced vomiting and starvation (Barnett and Sharp, 2016).

The unrealistic idealization of body image has been seen through diverse groups of population. Since the 2000s, there has been a high increase of EDs diagnosis across the western population (Darwin and Miller, 2021). Studies show that the fashion industry is one of the main responsible for this, due to the standards of thinness required to be a

model (Rodgers, Ziff, Lowy and Austin, 2020). Most of the professional models are young adults who are at a very high risk of developing EDs (Rodgers, Ziff, Lowy and Austin, 2020). Many students aspired to be as thin as fashion models, influencing them to take risk decisions for their health to achieve their objective.

Even though the body positivity movement and the Anna Westin Legacy Act have been crucial to fight against the unrealistic standards of beauty, there is still a lot of stigmatization around body image and EDs (Eating Disorders Coalition for Research, Policy & Action, 2022; Darwin and Miller, 2021). Stigma downplays the severity of the symptoms of many EDs, complicating the early detection of them. The findings expose high levels of acceptance towards mild symptoms of AN due to the societal ideals of thinness (Geerling and Saunders, 2015). Findings also show that students decide to hide the existence of severe unhealthy behaviors due to social pressure (Fitzsimmons-Craft et al., 2020). Students with severe EDs felt the need to shelter their eating problems due to the fear of being rejected and feelings of failure with themselves (Fitzsimmons-Craft et al., 2020). The decision of hiding and maintaining unhealthy eating behaviors leads students to feel trapped and puts them at risk of developing chronic health conditions.

The environment in which a person lives has a significant impact on their health. Lalonde (1974) stated the environment includes all the elements that are external to the human body and from which an individual has limited or no control. From the articles analyzed, it was shown that food insecurity increases the possibilities of developing EDs among students (Christensen et al., 2021; Barry, Sonnevile and Leung, 2021). Food preoccupation increases the levels of emotional distress among students because of the lack of control over their living conditions, this exposes them to episodes of binge eating

(Christensen et al., 2021). Many students that face food insecurity are usually from low-income or minority ethnic households (Christensen et al., 2021). The studies also show a difference between genders, females and males are both affected by food insecurity but the risk is higher among males (Barry, Sonnevile and Leung, 2021). This could be because women are more used to experiencing food deprivation due to the diet culture, so they are less influenced by food insecurity (Barry, Sonnevile and Leung, 2021). These results are also translated in a wider context of society. Rasmusson et al. (2018) reported that individuals, across the U.S, facing food insecurity experienced recurrent episodes of binge-eating and overeating. The United States government has established different measures and policies towards fighting food insecurity across the population, however there is a lack of policies towards university students experiencing food insecurity (Barry, Sonnevile and Leung, 2021).

1.11 Limitations

A noticeable limitation is that most of the articles were cross-sectional studies (Osberg and Eggert, 2012; Claydon and Zullig, 2019; Christensen et al., 2021; Filipova and Stoffel, 2016; Barry, Sonnevile and Leung, 2021). The limitation of these kinds of studies is that they are subjected to a single point in time, which means that the findings could have been influenced by just particular events that happen during the recollection of information (Boland, Dickson and Cherry, 2017). The findings of this literature research should try to be replicated using long term cohort studies and control clinical samples.

Another clear limitation is the possible presence of self-report response bias across the studies (Osberg and Eggert, 2012; Ellis et al., 2020; Geerling and Saunders, 2015; Barry, Sonnevile and Leung, 2021; Mayo and George, 2014; Barnett and Sharp, 2016). Response bias takes place when a participant offers self-assessed measures about a phenomenon (Rosenman, Tennekoon and Hill, 2011). This kind of bias can take place due to a desire for social approval by the participants, especially when anonymity and confidentiality cannot be assured (Rosenman, Tennekoon and Hill, 2011).

Chapter 5: Conclusion and Recommendations

1.12 Conclusion

This literature review has successfully explored and identified what are the factors that predisposed university students to develop eating disorders. The findings show the presence of three main factors influencing students to unhealthy eating behaviors. The first factor is the use of food as a way of controlling emotions. Many individuals have the irrational belief that food provides emotional comfort. Students use high fat food intake as a way of control against negative emotions and circumstances in their lives. Studies show that students exposed to high levels of stress and negativity were more likely to be diagnosed positive for an eating disorder.

The second factor is the view of society. The findings show that society's ideals around body figure and mental health impulses students to make unhealthy choices that lead to developing eating disorders. The idealization of a perfect body, influences many students to choose to be subject to strict diet and workout regimens, they also can take more extreme measures such as self-induced vomiting and starvation. The high beauty standards are also bound with the stigmatizing views of society on eating disorders. Studies show that stigmatization complicates the early diagnosis of eating disorders.

The third factor is the influence of food insecurity. The findings state that students who face food insecurity are more likely to screen positive for an eating disorder. Food preoccupation increases the levels of emotional distress among students, which exposes them to episodes of binge eating. There was a clear difference between genders, females and males are both affected by food insecurity but the risk is higher among males.

Findings also highlight the significant difference in the academic performance between students diagnosed with an eating disorder and the students without one. Students with eating disorders are more likely to deal with daily activity impairment and low classroom productivity. Studies claim that providing and seeking treatment are key factors for the improvement of the student's academic performance and social life.

1.13 Recommendations

The findings of this literature review led to elaboration of the following recommendations in subsequent categories: policy, research and practice.

- Policy - new bills should be generated focusing on the risks of eating disorders on university students. The focal point of the bill should be on funding to develop new health interventions, in order to control the factors that expose university students to be at high risk of eating disorders. Policies based on the reduction of stigma towards eating disorders should also be in place.
- Research - future research should focus on the factors predisposing male students to develop eating disorders, what are the weaknesses of the current interventions against eating disorders, and what new strategies could be put in place to reduce the normalization of unhealthy eating behaviors.
- Practice - universities across the nation should work together with the Eating Disorders Coalition (EDC) organization to develop new policy initiatives based on controlling the factors that lead university students to develop eating disorders. The U.S congress should create new public health guidelines and bills, about

active screening of eating disorders in universities and affordable treatment for students.

Chapter 6: Personal Reflection

Writing this literature has been a crucial learning experience for my professional development. It has allowed me to extend my knowledge in a topic that I am passionate about and that is currently an important public health issue across the world. During the research process I experience many difficulties that lead me to develop diverse skills that will help me in future working scenarios.

What I learn during the making of this literature review is that there is a lack of health research in university students. It was quite surprising to gain knowledge about the lack of resources and health services provided in the United States for students. Many participants from the studies reported that not being able to afford treatment was one of the main reasons for not seeking treatment. The lack of affordable health treatment represents a serious risk for the public health of the United States, keeping in mind that it is one of the countries with the higher rates of non-communicable and chronic diseases.

At the beginning, the focus of this literature review was only on anorexia nervosa among university students. However, due to a lack of studies center on only anorexia nervosa, I decided to expand the focus on eating disorders in general with a special scope in anorexia nervosa, bulimia nervosa and binge eating. After doing a preliminary search, the research question was narrowed down to only the United States, within the United Kingdom and Canada included at the beginning of the research. This decision was taken due to the fact that the environmental settings of the countries are different from each other. Another major change made was to only focus on understanding what were the main factors that influence university students to eating disorders, instead of exploring

their prevalence. This decision was taken based on the information found from the articles selected.

Reflecting of what I could have done different during the process of constructing a literature was to develop an annotated bibliography of my articles. At the moment of analyzing the articles I highlight the most important things and translated into a matrix table. However, I did not write my interpretation of the information. Lack of my personal interpretation was a weakness during the writing process. Because I had to go back and read portions of the articles to refresh my memory and write about in the discussion of my findings. Another thing that I would have done different is the arrange of my time schedule and personal deadlines. While planning my time schedule I did not expect that the reading of the articles took more time than the expected. In the future I will be more conscious about my difficulties on how fast I can read and digest information, in order to meet with my personal deadlines. Overall, the building of this literature review was a fulfilled academic experience that enable my personal and professional growth.

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Appendix

ARTICLE	THEORY(S)	AIM OF THE STUDY	POPULATION AND SAMPLE	RESEARCH TOOLS USED IN STUDY	MAIN FINDINGS AND CONCLUSIONS	STRENGTHS AND LIMITATIONS OF THE RESEARCH	MAIN CODES AND CATEGORIES	THEME
Author Date and Source (using Harvard referencing system)	Any theoretical Foundatio ns?	Aims and Objectives	Setting? Location? Sample characteristic s? Size of sample Method of recruitment	Quantitative; Qualitative; Mixed Methods	Summary of main findings and conclusions.	Any critical comments about the theoretical points? Research methods? Results? Findings? Any research implications for your change in practice?		
Osberg, T. and Eggert, M., 2012. Direct and indirect effects of stress on bulimic symptoms and BMI: The mediating role of irrational food beliefs. Eating Behaviors, 13(1), pp.54- 57.	Cognitive theories of bulimia- nervosa and binge eating	Evaluate the possible relationship of irrational food beliefs (IFBs) in the connection between stress and bulimic symptoms and BMI in a subclinical population. Hypothesis 1, stress has a direct impact on bulimic symptoms. Hypothesis 2, that stress has an indirect	356 students (114 men, 239 women, 3 did not indicate gender) Northeastern university Mean age was 20.54 years (SD=3.94, range 18-43)	Cross-sectional Use of online survey to recollect data: - Daily Hassles Scale (DHS) Bulimia Test-Revised (BULIT-R) -Irrational Food Beliefs Scale (IFBS) -Bootstrapping to increase power and decrease Type I error rates	There is a clear relationship between the effects of stress on bulimic symptoms and BMI in the population selected. The findings show a direct and indirect impact on bulimic symptoms through irrational food beliefs. The findings show that there is not a direct impact of stress on BMI, however there is	Limitations of the study: Cross-sectional study - limited control among outside variables Self-report survey- bias	Under stress Stress induced eating Lift depression Comfort Binge foods, binge eaters Substitute for other things Emotion management Irrational food beliefs	Stress Emotion management Irrational food beliefs

		<p>impact on bulimic symptoms through its influence upon irrational food beliefs.</p> <p>Hypothesis 3, stress has a direct impact on BMI.</p> <p>Hypothesis 4, that stress has an indirect impact on BMI through its influence upon irrational food beliefs.</p>			<p>an indirect impact of stress on BMI through irrational food beliefs. The data shows the influence of stress on the selection of high fat food may be influenced by the beliefs that can provide comfort and help manage emotions. The study highlights the need of more research using cognitive models on eating disorders. It also recommends that clinicians should consider addressing the clients' underlying irrational beliefs.</p>			
Claydon, E. and Zullig, K., 2019. Eating disorders and academic performance among college students. <i>Journal of American College</i>	Not mention	Explore the link between Eating Disorders (EDs) and Academic Performance (AP) in a nation-wide sample of college students. With the hypothesis	The American College Health Association- National College Health Assessment (ACHA - NCHA) - nationally-representative survey.	<p>-Mixed method data collection: paper and web surveys</p> <p>-Cross-sectional study</p> <p>-Covariates: gender, sleep difficulties and depression and substance abuse</p> <p>-Ordinal logistic regressions</p>	Anorexia Nervosa- Students diagnosed with AN and reported not receiving treatment or only one conventional treatment (medication or psychotherapy) or other treatment did not have	<p>Presence of potential bias selection, recall bias, social-desirability bias and nonresponse bias.</p> <p>Cross-sectional study design</p>	<p>Life success</p> <p>Medical and psychological outcomes</p> <p>Anorexia Nervosa</p> <p>Bulimia Nervosa</p> <p>Seeking treatment</p> <p>Barriers</p> <p>Academic performance</p> <p>Lack of treatment in students with EDs</p>	<p>Eating disorders and Academic performance</p> <p>Lack of treatment for EDs</p>

Health, 68(3), pp.320-325.		that students undergoing treatment for Anorexia Nervosa(AN) and Bulimia Nervosa(BN) would have a higher Grade Point Average (GPA) than students without EDs.	Post-secondary intuitions that participated in the ACHA-NCHA in the Spring 2010, Fall 2010 and Spring 2011. 223,887 students Female (n=143,673; 64.8%), white (n=161,766; 72.2%), GPA approximate A or B (n=191,284; 85.4%) Age (22.36 ± 5.96), BMI (24.24 ± 5.12) Being diagnosed with or treated for AN and BN in the last 12 months (n=651, 0.29%; n=647, 0.28%), Most students diagnosed with an ED reported not receiving treatment		significant differences in GPA scores in comparison with students that did not have AN. Students diagnosed with AN and receiving both medication and psychotherapy were 1.49 (95% CI 1.24, 1.80) times more likely to have higher GPAs compared to those without AN. Bulimia Nervosa- Students diagnosed with BN and reported not receiving treatment did not have significant differences in GPA scores in comparison with students that did not have BN. Students diagnosed with BN and receiving both medication and psychotherapy were more likely to have higher GPAs	Not report of the type of medication or psychotherapy used		
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			<p>Sleeping difficulties within the last 12 months (n= 55,758)</p> <p>Less than 10% reported being diagnosed or treated for depression in the past 12 months</p>		<p>compared to those without BN (OR= 1.36,95% CI 1.11, 1.67, p=.004).</p> <p>Men with BN and receiving no treatment or other treatment for BN reported having higher GPAs. Women with BN and receiving other treatment show a 26% lower GPA in comparison with students that did not have BN.</p> <p>The results from this study show clear benefits in the practice of therapies for EDs to produce positive academic outcomes. There is a significant number of students diagnosed with an ED not receiving treatment which can affect their academic performance.</p>			
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					Colleges should increase awareness of ED treatments among students.			
Ellis, J., Essayli, J., Zickgraf, H., Rossi, J., Hlavka, R., Carels, R. and Whited, M., 2020. Comparing stigmatizing attitudes toward anorexia nervosa, binge-eating disorder, avoidant-restrictive food intake disorder, and subthreshold eating behaviors in college students. <i>Eating Behaviors</i> , 39, p.101443.	Not mention	To evaluate the stigma attitudes towards Anorexia Nervosa (AN), Binge-eating Disorder (BED) and Avoidant-restrictive Food Intake Disorder (ARFID), and their subthreshold eating behaviors (restrained eating, emotional eating and picky eating) among college students. Hypothesis 1: less stigma towards ARFID and be seen as less pathological than AN or BED. Hypothesis 2: EDs would get more stigma and be	1147 college students East Carolina University (gender identity: 67.2% female, 32.2% male, 0.7% transgender or gender non-binary; mean age = 18.47 years, SD = 1.40). Recruitment: the research management website, an offered course credit for participation Characteristics of the sample population: Students enrolled in an introductory psychology course 72.2% identified as White, 14.2% identified as	-Randomized vignettes about a clinical ED (AN, BED or ARFID) or a subthreshold eating presentation -Gender randomized vignette DSM-5 disorder -Measures: Stigma, Bias and Blame -Bias: The Universal Measure of Bias (UMB) -Blame and distrust: The Universal Stigma Scale (USS) -Perceived psychopathology: three-item scale to assess perceived psychopathology -Demographic variables: one-way analysis variances (ANOVAs) -Target condition x target gender identity X participant gender: multivariate analysis of variance (MANOVA)	The MANOVA analysis presented no notorious effects for target gender and BMI. The UMB results showed that students demonstrate considerable more bias toward AN in comparison to the other eating presentations. The USS Blame scale results showed that students show notoriously more blame toward restrained eating and lower toward AN. The USS Distrust scale results displayed that the AN target got notoriously greater distrust scores than all presentations AN and BED were rated more pathological that	Presence of potential bias selection, recall bias, social-desirability bias and nonresponse bias.	Stigmatization and greater symptomatology Stigmatization and prevention of seeking treatment Society views	Stigma

		perceived as more pathological than the subthreshold targets. Hypothesis 3: there would be less stigma towards restrained eating and be seen as less pathological than the other two subthreshold targets, especially by female-identified participants. There would be more stigmatizing attitudes by men than women, especially towards the AN target.	Black, 3.6% identified as Hispanic, 1.7% identified as Asian, and 8.3% identified as other/multiple ethnicities. Mean body mass index: 24.27(SD=4.96)		the other presentations Findings showed that men displayed more bias and blame compared to women towards all eating presentations The first hypothesis was supported, the second one was partially supported and the third one was also supported.			
Christensen, K., Forbush, K., Richson, B., Thomeczek, M., Perko, V., Bjorlie, K., Christian, K.,	Not mention	To evaluate the relationship between food insecurity and eating disorders (ED) pathology, in two cohorts of	University of Kansas (KU) Two samples (N=579; Mage = 21.75, SD = 5.27, range = 18–78)	Online questionnaires - measure by Qualtrics or the REDCap database system Questionnaires included: Demographics	Findings show no significant difference in race, ethnicity, gender, BMI or prevalence of ED diagnosis between the two cohorts; whereas	The study could have been made too early to evaluate the impact of COVID-19 on the influence of food	Binge eating Food deprivation and food access Compensatory behavior Hunger drives Demands on financial resources	Food insecurity

<p>Ayres, J., Wildes, J. and Mildrum Chana, S., 2021. Food insecurity associated with elevated eating disorder symptoms, impairment, and eating disorder diagnoses in an American University student sample before and during the beginning of the COVID-19 pandemic. Int J of Eat Disord, 54, pp.1213 - 1223.</p>		<p>university students before and during the beginning of the COVID-19 pandemic. Hypothesis: Prediction of significantly more people with food insecurity in the second cohort study sample during the beginning of the COVID-19 pandemic (April 2020) than in the first cohort sample (December 2019 - early May 2020). Students experiencing food insecurity would report more likelihood of objective and subjective binge-eating episodes and compensatory behaviours, than students with no food insecurity.</p>	<p>General characteristics of student population: Median family income = \$125,000 69% of students get some sort of financial aid 68.3% identified as white 4.4% identified as Black or African-American 8.5% identified as Hispanic 5.1% identified as Asian Method of recruitment: Mass emails to random subsets of university students Fliers, bus ads and social media ads</p>	<p>The clinical Impairment Assessment (CIA) The Eating Disorder Diagnostic Scale (EDDS) Radimer/Cornell hunger and food insecurity measure Classification of individuals is based on their self-reported eating disorder symptoms (EDDS) and impairment resulting from their symptoms (CIA): Possible anorexia nervosa (AN), bulimia nervosa (BN), binge-eating disorder (BED), or other specified feeding or eating disorder (OSFED) First sample: December 9 to March 5, 2020 Second sample: April 13 to 27, 2020</p>	<p>age was a significant difference between the two. Students who identified as Hispanic or Black were more likely to report individual food insecurity than other students. Individuals with higher BMIs were more likely to experience food insecurity. The hypothesis that food insecurity would be higher during the beginning of COVID-19 pandemic than in the before of the pandemic was not supported. Individuals experiencing food insecurity show significantly greater ED-related impairment, higher prevalence of ED diagnosis and more current episodes of objective binge</p>	<p>insecurity among students. There might have been bias from the students at interpreting the questions. There was no control of the information about household compositions or place of residence. Sampling bias Cross-sectional study limitations The prevalence of ED and higher education settings vary across the US, this means that the impact of food insecurity may vary. Lower representation of race and ethnic communities in the study sample.</p>	<p>Negative educational outcomes Socioeconomic status Racial and ethnic minority students Institutional disparities</p>	
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		Students with food insecurity would disclose higher levels of impairment from ED symptoms. Students experiencing food insecurity would be susceptible to be diagnosed with bulimia nervosa, binge-eating disorder, or other specified feeding or eating disorder than students not experiencing food insecurity.			eating and compensatory fasting. The most common ED diagnosis among students was OSFED, followed by BN. Findings show that students are more likely to experience food insecurity at the end of the academic semester. The study suggests incrementation of ED screening and resources to mitigate food insecurity.			
Geerling, D. and Saunders, S., 2015. College students' perceptions of individuals with anorexia nervosa: irritation and admiration. Journal of Mental Health, 24(2), pp.83-87.	Attribution theory	To study the cognitive attribution, emotional reactions and behavioral dispositions of public stigma towards Anorexia Nervosa (AN) in comparison to Major Depressive	102 female college students (age: M=19.8, SD=0.98) 70.6% reported knowing someone diagnosed with AN Recruitment: psychology subject pool (n=44),	Use of four vignettes of a female showing symptoms of mild MDD, severe MD, mild AN and severe AN. Cognitive attributions scale: Biological Attributions Scale, Self-Responsibility Attributions Scale and Vanity Attributions Scale	The findings show that the students were more likely to associate AN to vanity and self-responsibility. Students were more likely to associate both disorders to biological factors, especially for severe cases. Participants expressed more	Findings should be attempted to be replicated in a representative sample. The impact of social desirability on responses might influence on expressing less negativity. The imitation scale provides low reliability.	Emotional reactions Attributions Admiration towards losing weight Anger Sympathy Individuals not seeking treatment	Stigma and admiration Lack of individuals seeking treatment

		<p>Disorder (MDD). With the predictions: That the study's participants would associate the cause of AN to psychological factors while MDD to biological factors. That psychological attribution would be linked with anger, social distance and feelings of admiration toward AN. Participants would advocate less sympathy towards AN than MDD. Participants would express more likelihood to emulate targets with AN than targets with MDD.</p>	<p>receiving extra credit for participating</p>	<p>Emotional reactions scale: Sympathy Reaction Scale, Admiration Reaction Scale and Anger Reaction Scale</p> <p>Behavioral dispositions scale: Imitation Scale, Coercion into Treatment Scale and Social Distance Scale</p> <p>Multivariate analyses of variances (MANOVAs)</p>	<p>admiration, anger and less sympathy towards the AN cases. Findings report more admiration for mild AN, while for severe AN was reported the most anger. There was no admiration towards levels of MDD. The findings highlight that the public's perception of mild and severe AN might influence individuals to not seek treatment. If the AN case is mild, the problem might be exacerbated, due to peers' admiration of the individual's wish to lose weight. If the AN case becomes more serious, the individual might deny the symptoms and the peers could confront the individual with anger, reducing the chances of treatment referral.</p>	<p>The vignette-based research might increase its validity with the support of observing field reactions.</p>		
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Barry, M., Sonnevile, K. and Leung, C., 2021. Students with Food Insecurity Are More Likely to Screen Positive for an Eating Disorder at a Large, Public University in the Midwest. Journal of the Academy of Nutrition and Dietetics, 121(6), pp.1115-1124.	Not mention	To explore the cross-sectional relationship between food insecurity and screenings positive for an ED, and to establish if there is difference if the relation was adjust by sex and/or race/ethnicity.	University of Michigan - winter semester (January to April) of 2018 804 students (49.6% male, 50.4% female, median age range= 21.6 years) Students from households with average annual income less than \$65,000 Sample generated by the Office of the Registrar Students were contacted by E-mail	Cross-sectional study Online Qualtrics survey 10-item US Adult Food Security Survey Module 5-item Sickness, Control, One stone, Fat, Food (SCOFF) questionnaire Covariates: age, sex, residency status (in state vs out of state), race/ethnicity, and degree type. Financial aid and parental education level (self-reported) Post Stratification weights Poisson regression	Findings show that males present a higher likelihood of food insecurity prevalence, compared to females (37.5% and 32.7%, respectively). 29.0% of students tested positive for an ED in the SCOFF questionnaire; there was a higher prevalence among women than men. There was a higher prevalence of positive EDs results among students that experienced any level of food insecurity.	Presence of potential bias selection, recall bias, social-desirability bias and nonresponse bias.	Body dissatisfaction Psychological stress Depression Irregular eating patterns Sub-threshold eating disorder symptoms Poor longer-term physical and mental health outcomes	Food insecurity Poor longer-term physical and mental health outcomes Psychological Stress