EXPLORING THE LINK BETWEEN FOOD INSECURITY AND EATING DISORDERS

Ayden Hayes

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Abstract

In the last five years, research regarding the link between food insecurity and eating disorders has been on the rise. This review was conducted to explore this link and identify potential gaps and limitations that exist among the current research and how future research can address these. Evidence gathered throughout this review supports a need for changes to screening tools for eating disorders as well as food assistance programs, which indicates some ways that this research can direct future practice for nutrition professionals. The Academy of Nutrition and Dietetics defines disordered eating as irregular eating patterns that are not indicative of an eating disorder diagnosis, while eating disorders are defined using specific criteria set by the American Psychiatric Association. The Academy emphasizes that disordered eating is not a diagnosis and those with disordered eating patterns may not fit the criteria for an eating disorder. Disordered eating behaviors include chronic dieting, weight fluctuations, food rituals, and compulsive exercise among others according to the Academy. The USDA defines food insecurity as “a lack of consistent access to enough food for every person in a household to live an active, healthy life.” This review found that individuals struggling with food insecurity are at increased risk of developing an eating disorder or disordered eating behaviors.
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Key to Symbols

Food Insecurity: FI
Eating Disorder: ED
Binge Eating Disorder: BED
Bulimia Nervosa: BN
Anorexia Nervosa: AN
Internalized Weight Stigma: IWS
Loss of Control: LOC
Unhealthy Weight Control Behaviors: UWCB
Obesity: OB
Sick, Control, One stone, Fat, Food questionnaire: SCOFF
Short Eating Disorder Examination Questionnaire: S-EDE-Q
Eating Disorder Diagnostic Scale for DSM-5: EDDS-5
National Comorbidity Survey-Replication: NCS-R
Differential Item Functioning: DIF
Prevalence Ratio: PR
Confidence Interval: CI
Black and Indigenous People of Color: BIPOC
National Eating Disorder Association: NEDA
Introduction

Based on data obtained by Feeding America, the rate of food insecurity in Shelby County in 2018 was 15%. Compared to an overall rate of 14% for the state of Tennessee and 11.5% for the United States, this number is alarming. It is also important to acknowledge the year that this data was obtained since food insecurity has likely increased in all three groups since the COVID-19 pandemic. As a clinician who will be practicing soon as a Registered Dietitian in the Memphis community, it is essential to understand the impact food insecurity has on our community. While most of the general population is likely aware of the obvious implications of living with food insecurity such as hunger, poor nutrient intake, and malnutrition; the focus of this systematic review will be the relationship between food insecurity and eating disorders.

In a review of emerging evidence of connections between food insecurity and eating disorders published in 2020, Hazzard et al present the fact that much of the existing research in eating disorders is based on the single, affluent, white girl (SWAG) archetype, which focuses on this population specifically and assumes that an eating disorder is rooted in a desire to change one’s weight or shape for appearance related purposes. Those living with food insecurity do not fit into the SWAG stereotype; therefore, eating disorders within this community are likely overlooked in many cases.

While eating disorders among the food insecure may go unnoticed, the aforementioned review gives insight as to why they are likely more common than we think. The authors point out that those living with food insecurity are still restricting food intake, although it may be due to financial reasons as opposed to appearance or weight related concerns. Those living with food insecurity, especially those who rely on Supplemental Nutrition Assistance Programs (SNAP) benefits, often get into a “feast or famine cycle” in which they redeem the majority of their

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1. Hazzard et al.

2. Hazzard et al.

3. Hazzard et al.
SNAP benefits shortly after receiving them and end up running out of food by the end of the month after the funds have been used. During this cycle, individuals are likely to overeat when the food is readily available and eat too little when food is scarce. This establishes a pattern of binging and restricting, which is a common sequence when it comes to binge eating disorder. Restriction can lead to semi-starvation, which can create an obsession with food, reinforcing the disordered eating pattern. If this restriction is due to inaccessibility of food, the individual is likely to binge when they gain access to food, which is why binge eating disorder (BED) is prevalent among the food insecure.

Although there is quite a bit of emerging research affirming the connection between food insecurity and disordered eating behaviors, gaps exist in the research that need to be identified in order to address the issue as it relates to specific populations or disorders. While much of the available research on this topic has been conducted within the last five years, evidence does exist to support a need for change and improvements in assistance programs for the food insecure as well as screening tools for eating disorders. A systematic review of the literature is expected to generate several hypotheses for consideration of future investigation.
Records identified through database searching (n = 1105)

Records after duplicates removed (n = 1096)

Records screened by title and abstract (n = 1096)

Records excluded based on title or abstract review (n = 1072)

Full-text articles assessed for eligibility (n = 24)

Records excluded (n = 4)
- Review (n = 1)
- Full-text unavailable (n = 2)
- Secondary analysis (n = 1)

Studies included in review (n = 20)
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<th>Author, Year, Study Type/Purpose</th>
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<td>Hazzard et al, 20211 Cross-sectional Class D</td>
<td>To examine cross-sectional associations between FI and 12-month eating disorders, mood disorders, and anxiety disorders among U.S. adults.</td>
<td>A sample of English-speaking adults based on a multi-stage clustered area probability design who participated in the NCS-R, a nationally representative survey of the U.S. household population N=2914 N= 2554 (food secure) N = 360 (food insecure)</td>
<td>This article acknowledges that food insecurity disproportionately affects racial/ethnic minorities, so underlying systemic inequalities must also be addressed</td>
<td>FI was significantly associated with greater prevalence of bulimic-spectrum eating disorders (PR=3.81; 95% CI 2.26, 6.42) mood disorders (PR=2.53; 95% CI 1.96, 3.29) and anxiety disorders (PR=1.69; 95% CI 1.39, 2.07)</td>
<td>The results of this study provide evidence in support of cross-sectional associations among adults between FI and mental disorders across eating, mood, and anxiety domains.</td>
<td>The sample had no cases of 12-month AN – unable to investigate association with FI and AN. Measurement methods may have led to misclassification of FI or ED. Use of DSM-IV criteria likely result in underestimates of BN, BED and AN as compared to DSM-5. Data was collected in 2001-2003. Cross-sectional study design.</td>
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<tr>
<td>Rasmussen et al, 2019&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Cross-sectional Class D</td>
<td>To examine the relation between low and very low food security and BED, secondary purpose to assess the association between food security and obesity in the absence of binge eating.</td>
<td>Survey respondents recruited from Amazon’s Mechanical Turk, a web-based recruitment platform. English and Spanish-speaking individuals from the U.S. who were able to provide valid responses for self-reported height and weight as well as food security survey items. N=1251 N=829 (Food secure) N=231 (low food secure)</td>
<td>This article acknowledges that race/ethnicity is a factor that is typically associated with increased binge-eating behaviors. However, groups in this study did not significantly differ by race/ethnicity.</td>
<td>Low food security and very low food security were both associated with increased likelihood of BED and OB group membership. Sex, age, and education were not significantly associated with BED membership. Food security status did not significantly differ by sex (p = .21) but did significantly differ by age (p &lt; .001). Food security also significantly differed by education (p &lt; .001).</td>
<td>Results highlight the need to devote resources towards policy revisions, preventative interventions, and psychiatric treatments aimed at decreasing the overall association of FI with BED and obesity among low-income Americans.</td>
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<td>Christensen et al, 2021&lt;sup&gt;3&lt;/sup&gt;</td>
<td>To evaluate the impact of the COVID-19 pandemic on food insecurity in a large two-cohort sample of university students and to replicate and extend previous studies linking food insecurity to eating disorders.</td>
<td>Students at the University of Kansas recruited through mass emails to random subsets of university students sent by KU’s Office of Analytics and Institutional Research as well as through flyers, bus ads, and social media ads.</td>
<td>This study had lower representation of Black, Asian, and Hispanic students compared with national university enrollment status, which limits generalizability given that FI is more prevalent among Black and Hispanic Americans.</td>
<td>Individuals with food insecurity reported significantly higher prevalence of any ED diagnosis, such that 47.6% of individuals with individual food insecurity scored positive for an ED as compared with 31.1% of individuals without food insecurity (p &lt; .01, NNT = 6.06) The most common ED diagnosis within the food insecurity subsample was OSFED (29.3%), followed by BN (16.2%), BED (1.7%) and AN (0.4%). For the food security subsample, the same order was observed, but with different frequencies: OSFED (19.3%), followed by BN (8.2%), BED (2.6%), and AN (1.0%).</td>
<td>The present study highlights the associations between food insecurity and disordered-eating behaviors and impairment in American university students. As research continues to replicate the association between food insecurity and disordered eating, the ED field must grapple with the significance of this public health issue. Furthermore, the finding that individuals with food insecurity are at a higher risk for EDs</td>
<td>The original version of the Radimer/Cornell Scale was used, which differs slightly in wording and scoring from the validated version of this instrument. The measure also did not contain an instruction about timeframe, which means that participants may have interpreted the question differently, influencing their responses. No information about household composition or place of residence limited the ability to</td>
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<td>food insecurity only)</td>
<td>highlights the importance of providing ED screening for students who access these resources so that they can be referred to treatment. It is possible that by implementing ED screening, organizations that address food insecurity will be able to catch vulnerable individuals with EDs who otherwise may slip through the cracks.</td>
<td>examine household food security status. No information about financial assistance participants might have been receiving from the university of outside sources. Reliance on self-report questionnaires may have inflated estimations of ED psychopathology relative to a diagnostic interview. Due to recruitment method the sample may have been subject to sampling bias. Cross-sectional design. Financial burdens experienced by</td>
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<td>Zickgraf et al, 2022&lt;sup&gt;4&lt;/sup&gt;</td>
<td>Cross-sectional Class D</td>
<td>To examine the association between food insecurity and eating disorder risk independent of co-occurring anxiety/depression</td>
<td>College students at least 18 years of age who participated in the Healthy Minds Study, a survey about mental health in college students administered online annually. A random 4,000 student sample was invited to participate at each larger institution and all students at smaller institutions were invited to participate.</td>
<td>Over half of students who identified as Black/African American met screening criteria for food insecurity, and students who identified as American Indian/Alaskan Native or Pacific Islander/Native Hawaiian</td>
<td>In sensitivity analyses examining probable ED defined as a score ≥ 3 on the SCOFF, which 11.8% of students met criteria for, food insecurity was significantly associated with 1.66 (95% CI: 1.58–1.74) times greater prevalence of a probable ED before adjusting for other mental health problems and 1.34 (95% CI: 1.27–1.40) times greater prevalence of a probable ED after adjusting for probable depression and anxiety.</td>
<td>Results demonstrated that even after controlling for anxiety and depression and stratifying by gender, food insecurity was significantly associated with greater ED risk. Overall, the present study indicates that the food insecurity–ED relationship is robust and exists across cisgender men, cisgender women, and transgender/gender diverse individuals.</td>
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<td>Frayn et al., 2022</td>
<td>To qualitatively examine (1) mechanisms by which FI impacts B-ED development and maintenance, (2) effects of past and/or present FI on ED treatment, and (3) participant recommendations for addressing FI in future B-ED treatment.</td>
<td>Participants who had completed an outpatient, individual therapy treatment program for B-EDs, endorsed past or present FI, 18 years or older. Must have been at least 6 months out from treatment N = 20 N = 7 (current FI) N = 7 (no current FI)</td>
<td>Participants reported that FI contributed to binge eating by maintaining dietary restraint-binge-eating cycle and by leading them to use food as a coping mechanism or for emotional comfort, both in past and present situations. Present FI interfered with treatment, particularly with adhering to treatment recommendations and food purchasing choices, however, participants did not report any impact of past FI on B-ED treatment. Participants reported that rarely was FI addressed as part of treatment; most participants suggested that future treatments work to (1) assess and problem</td>
<td>The authors conclude that the results of their study indicates a need for clinicians to be more adequately trained in cultural competency and able to provide resources to aid patients in navigating possible barriers to regular eating. This highlights the value of a multidisciplinary team including a dietitian and social worker. Policy makers, advocated, and other public</td>
<td>Small sample size. Heterogeneity of the sample in terms of past versus present FI and the severity of those experiences. History, length, and intensity of FI were not assessed. Most participants were white women. Study was conducted during COVID-19 pandemic.</td>
<td>The specific themes outlined in this study help pinpoint ways in which screening processes and treatment interventions can be improved.</td>
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<td>Students were recruited via email and told they would be eligible to win a gift card N = 121,627</td>
<td>had rates nearly as high.</td>
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<td>Hooper et al, 2022&lt;sup&gt;6&lt;/sup&gt;</td>
<td>Examined how adolescent experiences of household food</td>
<td>Adolescents from 20 public schools</td>
<td>Participants with marginalized</td>
<td>Participants who lived in food insecure homes as adolescents had a qualitatively higher</td>
<td>The authors conclude that the two studies indicate that FI</td>
<td>Relied on self-reporting. Attrition at follow-up. This article brought up several potential rationales</td>
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<td>Longitudinal Class D</td>
<td>Insecurity are related to disordered eating and weight status 8 years later.</td>
<td>Minneapolis/St. Paul Minnesota who completed surveys and anthropometric measures in their classrooms in the 2009-2010 school year.</td>
<td>( N = 1340 )</td>
<td>Prevalence of UWCB, binge eating, and elevated BMI 8 years later, compared to those without food insecurity, but only elevated BMI was significantly different between groups (food insecure: 27.9%, food secure: 21.2%, ( p = .006 )) after adjusting for ethnicity/race and parental education. Regarding incidence of these outcomes, participants who lived in a food insecure home during adolescence had a higher incidence of binge eating (food insecure: 21.3% vs. food secure: 16.2%, ( p = .038 )) and elevated BMI (food insecure: 15.9% vs. food secure: 11.0%, ( p = .024 )) 8 years later. Incidence of UWCB was qualitatively higher in participants with baseline household food insecurity compared to those without, although the difference was not statistically significant.</td>
<td>Plays a role in disordered eating and weight status outcomes. Household FI experienced during adolescence may predispose individuals for incident UWCB, binge eating, and high BMI. Adolescent FI was longitudinally but not cross-sectionally associated with binge eating.</td>
<td>Study did not examine differences in longitudinal outcomes based on being in an energy restricted state due to food scarcity versus due to a desire to control body weight. The median household income range in this sample was lower than that of household with families in Minneapolis and St. Paul.</td>
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(food insecure: 43.6%, food secure: 39.2%, \( p = .267 \)). The persistence of UWCB, binge eating, and elevated BMI at follow-up (i.e., among those who had these outcomes at baseline) was unrelated to baseline household food security status.

<p>| Poll et al, 2020 | To assess the relationship of high school and collegiate household food security to current disordered food consumption behaviors in a sample of NCAA Division 1 male, collegiate athletes. Male athletes, 18 years and older from a Southeastern Conference university | N = 111 | The authors acknowledge that black males in particular from the Lower Delta regions of Arkansas, Louisiana, and Mississippi, and those who come form food insecure homes, have Among participants, high school FI was significantly correlated with a preoccupation with food, but not binge eating in college. Collegiate FI was significantly correlated with a preoccupation with, and hoarding of, food in college | Among male collegiate athletes, both high school and collegiate FI are associated with preoccupation with food, and collegiate FI is associated with food hoarding. Screening for both high school and collegiate FI and disordered behaviors in athletes is warranted. Future research in a larger sample, including Convenience sampling from a single university. Use of self-report questionnaires. | There is already strong evidence that athletes are at increased risk for developing an ED. (NEDA) This study shows a correlation between FI and a preoccupation with food and food hoarding, which are both indicative of disordered eating patterns. |</p>
<table>
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<th>Barry et al, 2021&lt;sup&gt;8&lt;/sup&gt;</th>
<th>To explore the relation between FI and screening positive for an ED among students attending a large, public Midwestern university</th>
<th>Participants were recruited from a random sample of 2,000 students with oversampling from the following groups: racial/ethnic minorities, first-generation students, and students from lower-income households. N = 804</th>
<th>The authors acknowledge that race/ethnicity is associated with different experiences of both FI and ED symptoms in college students. Compared to students with high food security, a higher prevalence of positive SCOFF screens was found among students with marginal food security (PR, 1.83, 95% CI 1.26 to 2.65, $P = 0.001$), low food security (PR 1.72, 95% CI 1.16 to 2.54; $P = 0.007$), and very low food security (PR 2.83, 95% CI 2.01 to 3.97; $P &lt; 0.001$). Students with food insecurity at any level were more likely to screen positive for an ED via the SCOFF questionnaire. Prospective studies are needed to determine whether FI is a risk factor for the onset of EDs among college students.</th>
<th>Cross-sectional design. Students were only asked about FI over the past year. SCOFF questionnaire cannot provide definitive ED diagnoses. FI and ED screening items were self-reported.</th>
<th>The results indicate that FI may be a risk factor for both males and females, but especially males. This is unexpected as females have higher rates of EDs, but this could indicate that FI has a greater impact on ED risk for males specifically.</th>
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<td>Barry et al, 2022&lt;sup&gt;9&lt;/sup&gt;</td>
<td>To examine the relation of caregiver-reported household FI and child-reported FI with ED risk</td>
<td>Households with incomes ≤ 200% of the federal poverty line</td>
<td>In bivariate analyses, older child age, having a Child-reported FI may be more salient than caregiver-reported household FI as compared to caregivers reporting FI.</td>
<td>Cross-sectional design. Focus on low-income English-speaking households from</td>
<td>No gender differences were observed suggesting that gender differences in</td>
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| Becker et al, 2021  
Cross-sectional Class D | To use the Becker et al. sample to investigate three questions with regard to IWS in a predominantly Latinx, low income, food insecure population. | Adult clients of local food pantries completed questionnaires while obtaining services at food pantries. Nearly 65% of local food pantries completed questionnaires while obtaining services at food pantries. | Individuals living with FI experience IWS at concerning levels. Additionally, IWS played a small yet significant role in cross-sectional risk for ED pathology regardless of FI severity, while dietary restraint contributed to independent ED pathology risk identified in this sample population challenges previously held stereotypes of who experiences disordered eating. It is different, but not significantly different, from the majority of food insecure population. | ED symptoms may be less prominent or less detectable in preadolescents compared to older samples. | No height or weight data to examine influence of BMI. Highly marginalized sample population and the majority of local food pantries completed questionnaires while obtaining services at food pantries. | This study was unique in its population. IWS contributes to ED risk regardless of FI severity. Those living with FI experience IWS at concerning levels. |
<p>| Royer et al, 2021&lt;sup&gt;11&lt;/sup&gt; | To determine the association between FI and disordered eating behaviors in undergraduate college students | A convenience sample of undergraduate students aged between 18-25 years who completed an online survey and were recruited for an ongoing FI study through a recurring digital advertisement on a university | This sample was majority white. Due to low numbers in some categories race/ethnicity was categorized as non-Hispanic White, Hispanic, non-Hispanic White/Caucasian, Hispanic/Latino, 16.5% as Black/African American and 11.3% as Non-Hispanic White/Caucasian. N = 503 | Across all food security ranges, linear trends detailed significant associations between FI and global disordered eating behaviors ($\beta = 0.17; P &lt; 0.001$), eating concern ($\beta = 0.27; P &lt; 0.001$), shape concern ($\beta = 0.17; P = 0.001$), and weight concern ($\beta = 0.21; P &lt; 0.001$), but not restraint ($\beta = 0.10; P = 0.08$). | FI was consistently related to disordered eating behaviors. Future research may consider longitudinally examining this relationship, as FI and disordered eating behaviors may be associated with worse health outcomes among low income. Cross-sectional design. Language modifications were made to validated measures to enhance comprehension. Utilized self-reported measures. | Again, there is a certain level of financial privilege required to attend a university. Therefore, the results of this study cannot be applied to the general population. |</p>
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<th>Student Portal Website. N = 533</th>
<th>Hispanic Black, non-Hispanic Asian, and other.</th>
<th>Vulnerable college students</th>
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**Kim et al, 2021**<sup>12</sup> Cross-sectional Class D

To build on existing adolescent studies examining associations among FI, body weight, and ED psychopathology in an a priori investigation of FI.

Participants were drawn from two adolescent samples (clinical and community) enrolled in ecological momentary assessment studies in the New York City metropolitan region. N = 38

For the EDE-Q subscales, there were significant effects of shape and weight overvaluation (p < 0.01) and body dissatisfaction (p < 0.01) among Hispanic adolescent s, but not their peers. Among Hispanic adolescents only, those with FI had FI was associated with overvaluation of shape/weight and frequency of binge episodes among those who reported binge eating.

The observed associations between FI and BMI and ED pathology are generally consistent with a new and growing literature and add evidence to suggest that FI may be a risk factor for excess weight gain and ED pathology, particularly in Hispanic adolescents.

Small sample size. Convenience sampling. The selection of categories for race and ethnicity.

I found it surprising that there was no difference when comparing the association between FI and ED for Black adolescents with their peers.
greater shape/weight overvaluation and body dissatisfaction compared to those who were not food insecure. Among those adolescent s who reported having at least one binge episode, in the Hispanic subgroup only, FI was associated with a greater number of binge episodes.
Becker et al., 2019\textsuperscript{13}  
Cross-sectional design  
Class D  

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<th>Study Design</th>
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<th>Methods</th>
<th>Findings</th>
<th>Implications</th>
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| To replicate recent findings showing an association between the severity of FI and increased ED pathology | Clients of an urban food bank in San Antonio, Texas.  
N = 891 | With regard to race and ethnicity, as hypothesized, there were no differences in the frequency of clinically significant ED pathology in either the total sample or the CHH FI group. | Participants in the most severe FI group reported significantly higher levels of ED pathology, dietary restraint, anxiety, and depression. | Findings provide further evidence that the thin, White, affluent, female ED stereotype offers a flawed portrait and highlight the need for additional psychological research that focuses on marginalized populations to address disparities in access to care. Both scholars and clinicians need to move away from the No resources available to conduct a validity study of the measures in Spanish. Some questions were modified to make them understandable. Cross-sectional design. Self-reported weight and height data. | The majority Latinx population allows for a different perspective relative to the majority of similar studies. |
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<th>Authors</th>
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<th>Sample Details</th>
<th>Key Findings</th>
<th>Study Limitations</th>
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<td>West et al, 2021</td>
<td>Cross-sectional</td>
<td>To clarify the association between FI and LOC eating among adolescents and examine whether household FI moderated the association between income-to-needs and LOC eating.</td>
<td>Adolescents ages 12-17 N = 60</td>
<td>Higher household FI was positively associated with adolescent LOC eating (b = 0.662, t(59) = 5.09, p &lt; 0.1), after controlling for adolescent BMI percentile, race, ethnicity, biological sex, and age. FI significantly moderated the association between income-to-needs and LOC eating, ΔF(1,56) = 11.99, p &lt; .01, with the interaction effect explaining an additional 12% of variance. Specifically, lower household income-to-needs was associated with greater LOC eating among adolescents at higher levels of household FI.</td>
<td>Small sample size. LOC eating was assessed by a self-report questionnaire. Cross-sectional design. This finding expands upon prior work by highlighting specific socioeconomic factors that place youth from low-income backgrounds at even greater risk for negative health outcomes. Future research is needed to understand potential ways to intervene for adolescents to prevent future LOC eating in the context of FI.</td>
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<td>O’Connor et al, 2022</td>
<td>Cohort study</td>
<td>To explore whether item endorsement on two commonly used ED questionnaires.</td>
<td>Cisgender women recruited through Amazon’s majority white sample. No mention of racial</td>
<td>There was no evidence of clinically significant DIF within the S-EDE-Q. Two items on the EDDS-5 exhibited statistically and clinically significant DIF, Findings highlight a potential need to adapt ED measures to fully capture ED</td>
<td>Use of a non-clinical population. Unclear whether the findings from the S- This study is valuable because it outlines specific flaws in ED screening tools.</td>
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<td>Lydecker et al, 2019&lt;sup&gt;16&lt;/sup&gt; Cross-sectional Class D</td>
<td>To extend a previously published work by examining the relationship between FI and BN.</td>
<td>Respondents recruited online who completed a battery of established measures and were categorized into three study groups: healthy-</td>
<td>Majority white sample. No mention of racial/ethnic concerns.</td>
<td>Low and very low food security were both associated with increased likelihood of BN group membership compared with HW but not BED</td>
<td>Findings suggest that FI is associated with BN and also suggest that FI’s association with BN is similar to that for BED. These findings highlight the need for greater clinical and self-reported data. Lack of generalizability to those outside of the U.S. Sample was not nationally representative. Cross-sectional design.</td>
</tr>
<tr>
<td>Simone et al, 2021\textsuperscript{17}</td>
<td>To describe the experience of, and factors associated with, disordered eating in a population-based sample of emerging adults during the COVID-19 outbreak.</td>
<td>Participants in the EAT 2010-2018 study were invited to complete the C-EAT survey in April-May of 2020. N = 720</td>
<td>Respondents in the present sample were less likely to identify as African American or Black and less likely to have a lower SES than the EAT 2010-2018 respondents. The authors note that COVID-19 has had Low stress management was significantly associated with a higher count of extreme UWCBs. FI, higher depressive symptoms, and financial difficulties were significantly associated with a higher count of less extreme UWCBs. Higher stress and depressive symptoms were significantly associated with greater odds of binge eating.</td>
<td>Psychological distress, stress management, financial difficulties, and abrupt schedule changes may have contributed to disordered eating during the COVID-19 pandemic. Interventions that target stress management, depressive symptoms, and financial strain and provide tools to develop a routine may be particularly effective for emerging adults. Sample had a high attrition rate. Differences in pertinent demographic variables between the C-EAT sample and earlier measurement occasions. The survey included differences in the measurement of disordered eating across waves of data collection. Disordered eating behaviors were based on self-report measures and This strengths of this study include the ability to survey a cohort of adults who have already been surveyed for similar reasons in the past. This offers a more accurate depiction of the impact of COVID-19 in these specific areas.</td>
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<td>weight (HW), BED, and BN. N = 873</td>
<td>research attention to associations between FI and EDs that include binge eating to inform ED prevention and treatment</td>
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<td>Study</td>
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<td>McGowan et al., 2022&lt;sup&gt;18&lt;/sup&gt;</td>
<td>Cross-sectional Class D</td>
<td>To examine the association between indicators of social adversity, including socioeconomic status and race/ethnicity, and children’s disordered eating behaviors and attitudes.</td>
<td>Children ages 8-10 years old were recruited from Michigan. N = 183</td>
<td>A linear association was observed between greater social adversity and more disordered eating behaviors and attitudes among children in this sample. These findings emphasize the need for eating disorder research in children from racial/ethnic minorities and socioeconomically disadvantaged populations to support future prevention efforts. Small sample size. All children recruited from English-speaking, low-income families from one geographic region in the U.S. The ChEAT-24 overall score does not distinguish between specific types of ED behaviors and attitudes. Race/ethnicity was dichotomized. Cross-sectional design. This study indicates a need for a larger, more racially diverse sample in future studies.</td>
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<td>West et al., 2019&lt;sup&gt;19&lt;/sup&gt;</td>
<td>To examine the prevalence of several risk factors</td>
<td>Participants included individuals</td>
<td>Among higher SES adolescents, overweight/obesity</td>
<td>Risk factors for binge eating may vary by SES, Limited sample sizes. Brief self-</td>
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Longitudinal Class D for binge eating by SES and SES as a potential moderator of these risk factors.

involved in Project EAT during early/middle adolescence and 5 years later during late adolescence/emerging adulthood. N = 2179
correlated with SES in the U.S. Authors state that there may be racial/ethnic associations that they were not able to address due to the limited sample sizes within specific racial/ethnic groups and suggest that future studies should address this.

(RR = 3.2; 95% CI: 1.8, 5.7), body dissatisfaction (RR = 2.6; 95% confidence intervals (CI): 1.2, 5.5), dieting (RR = 4.0; 95% CI: 2.0, 8.2), and family weight-teasing (RR = 2.3; 95% CI: 1.3, 4.3) predicted increased risk for binge eating. Among adolescents from low-SES backgrounds, overweight/obesity (RR = 1.5; 95% CI: 0.9, 2.5), dieting (RR = 2.2; 95% CI: 1.2, 3.9), and food insecurity (RR = 1.4; 95% CI: 0.7, 2.7) predicted increased risk for binge eating. Moderator analyses revealed that overweight/obesity, body dissatisfaction, dieting, and family weight-teasing were stronger risk factors in the high-SES group than the low-SES group; interactions with food insecurity could not be examined given the low

suggesting the potential utility of modifying intervention and prevention methods based on SES. In particular, the role of food insecurity must be addressed.

report survey items. respondents/data. It is helpful to be able to look at all of these studies together since they focus on the same cohort of people.
| Gomez et al, 2022<sup>20</sup> | To examine if engaging in dietary restraint due to weight/shape concerns versus economic hardship differentially relate to disordered eating. | Adults experiencing FI who completed online measures assessing severity of FI, disordered eating, LOC over eating, and dietary restraint. N = 582 | FI disproportionately affects non-White household, single mothers, and individuals with incomes below the poverty line (USDA, <sup>2020</sup>); thus, race, gender, annual household income, education, and marital status were included as predictors. | In the sample, 18% reported engaging in dietary restraint primarily due to weight/shape concerns, 33% due to economic hardship, 18% other/do not know, and 30% due to a mix of reasons. There were positive correlations between FI, economic hardship, dietary restraint, disordered eating, and loss of control over eating. Regression analyses revealed the association between dietary restraint and disordered eating does not differ across individuals who endorse economic hardship as a motivator for dietary restraint. Findings replicated with loss of control. However, the association between dietary restraint and disordered eating grew stronger as more dietary restraint was reported. | Research is needed to replicate findings and examine how patterns of food scarcity impacts disordered eating in food insecure populations with and without weight/shape concerns. Findings suggest that motivation for dietary restraint may influence associations with dietary restraint and the cognitive components of disordered eating, but not the behavioral components of disordered eating. | Analyses based on self-report. Cross-sectional data. Potential for more measurement error than structured interviews. Sample consists only of adults reporting some level of FI. | This study is valuable because it takes a closer look at the reasoning behind dietary restraint in individuals experiencing FI. |
covariates restraint due to weight/shape concerns was endorsed. No significant association emerged with loss of control.
Methodology

Between August 2021 and August 2022, a systematic literature review with the purpose of identifying existing gaps in research regarding the link between eating disorders and food insecurity was conducted utilizing the systematic review process outlined by the Academy of Nutrition and Dietetics’ Evidence Analysis Library. The inclusion criteria for this review include peer-reviewed, human studies published in the English language between 2002 and 2022. The databases used in the research process include PubMed, MEDLINE, ScienceDirect, CINAHL Complete, APA PsycInfo, and Scopus. Key search terms utilized were food insecurity, eating disorders, and disordered eating. Articles included in this study were analyzed using the Academy of Nutrition and Dietetics’ Quality Criteria Checklist for primary research. Of the studies included in this review, 75% were cross-sectional in design, which demonstrates a need for a broader range of study types on this topic. However, all articles included in the final review are relevant to the purpose of this research and received a positive quality rating.

Results

A search using the methods previously described yielded 20 studies that matched the inclusion criteria. I personally reviewed the abstracts of 1096 articles after duplicate articles were removed, which yielded 24 studies. Of the remaining articles, 4 were excluded for various reasons and I was left with the 20 studies included in this review. Of these articles, 75% were cross-sectional in design. 10% were longitudinal, 10% were cohort studies, and 5% were case series. All of the articles used in this review found an association between food insecurity (FI) and eating disorder (ED) pathology or disordered eating behaviors. 40% of the studies included in this review were able to link FI with specific eating disorders or disordered eating behaviors, while 60% simply acknowledged the link between general disordered eating behaviors and FI.
88% of studies found a link between FI and binge eating disorder (BED) and 38% found a link between FI and bulimia nervosa (BN).

50% of the studies sampled an adult population, 30% sampled a population of college students, and 25% of the included studies sampled a population of adolescents. Only 10% of the studies included in this review looked at adults utilizing a local food bank.

The purpose of this study was to explore the link between food insecurity and eating disorders and it was hypothesized that a link would be confirmed through a systematic review. The findings of this review confirm that there is in fact an association between FI and ED or disordered eating behaviors with an emphasis on BED and BN.

**Discussion**

Potential gaps in the research include a need for more studies focused on a college age population. This group is interesting due to their perceived versus actual financial privilege. While attending a college or university requires some level of financial privilege, this is often the first time young adults are financially responsible for themselves and they may not be receiving financial assistance from their families. This may also be their first experience with budgeting and prioritizing various expenses. Food may not be a top priority for those in this demographic, which has the potential to lead to food insecurity and subsequent disordered eating patterns.

Another gap to explore would be reliance on food banks, food assistance programs, or other resources designed to assist those experiencing food insecurity. Only two of the studies included in this review pulled a sample from local food banks and none of the reviewed studies inquired about food assistance programs or additional resources utilized in obtaining food. This has the potential to be especially significant due to the feast and famine cycle that can be a result of food assistance programs. This cycle mimics binge eating disorder, so it would be useful to
know if there is a correlation among the food insecure population between those utilizing food assistance program and those experiencing BED.

Additionally, I feel that it would be advantageous to focus additional research on this matter on the BIPOC community. According to Marriott et al., “food insecurity prevalence is estimated to be three times higher among non-Hispanic Black households and two times higher among Hispanic households compared to non-Hispanic White households.” Not only are BIPOC individuals more likely to experience FI, but the National Eating Disorder Association reports that Black teenagers are more likely to engage in behaviors characteristic of BN than their white counterparts and the same is true for Hispanic adolescents and their non-Hispanic peers. It is also important to note that people of color were less likely to be asked about eating disorder symptoms by healthcare professionals than white people. Because members of the BIPOC community are more likely to experience both FI and disordered eating behaviors, this puts them at an increased risk when compared to white people. Dedicating more time to this population would make sense for future research on this topic.

Lastly, I would urge future research to acknowledge the lack of funding for eating disorder treatment as this is certainly a barrier in addressing this issue. In a 2017 study, Murray et al. reported that “approximately 20 million women and 10 million men in the US can be diagnosed with a dSM-5 eating disorder (i.e. anorexia nervosa, bulimia nervosa or binge eating disorder) at some point in their lifetime.” The high mortality and comorbidity rate for eating disorders makes this statistic especially alarming. However, as this article points out, the funding for eating disorder research does not reflect the prevalence of eating disorders in the United States. Murray et al. state that a “recent funding report by the US National Institute of Mental Health revealed that, across all psychiatric conditions, funding for eating disorder research was
the most discrepant from the burden of illness they represent.”25 This article also acknowledges the high cost of treatment, which has the potential to prevent many of those suffering with an eating disorder from a chance at recovery. I believe that the connection between FI and disordered eating likely exposes a group of people who may be undiagnosed, which could mean that there is an even greater number of individuals living with an eating disorder than reflected in the above article.

Limitations include the overwhelming representation of cross-sectional design among the studies included in this review. A wider variety of study designs including additional longitudinal studies would provide more valuable insight on the relationship between ED and FI. Additional longitudinal studies would allow for researchers to determine whether the impact of FI on eating patterns and behaviors extends beyond the period during which an individual is experiencing FI. It can be difficult to change well-established eating patterns and those who engage in disordered eating behaviors often require assistance from therapists and registered dietitians who specialize in eating disorder recovery. These resources can be costly and individuals experiencing FI may not have access to adequate healthcare to afford them these opportunities.

**Conclusion**

This review indicates that individuals struggling with FI are at increased risk of developing an ED or disordered eating behaviors. The aforementioned gaps and limitations represent opportunities for future research as well as ways in which nutrition professionals can advocate for better policies and practices to address these issues. Future application of this data may include more adequate screening for eating disorders among patients or clients who are experiencing FI. Advocacy for improvements in food assistance programs is also important for
nutrition professionals to consider. The data included in this review is highly relevant to nutrition professionals as well as healthcare professionals in general to consider, especially those working in a community with high rates of FI.
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Doi:10.1002/eat.23668


https://www.nationaleatingdisorders.org/people-color-and-eating-disorders


Doi: 10.1002/wps.20465.