

Eating Disorders Among Ethnic Minoritized Adolescents and Young Adults: A Narrative Review on Biological and Cultural Risk Factors

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Eating disorders (EDs) are high impact illnesses that not only affect the social wellbeing of individuals, but also leave long-lasting physical repercussions. Currently, key studies in the field have included exclusively Caucasian or majority Caucasian samples. This leaves the bulk of developments within ED literature to be ungeneralizable amongst people of color. In particular, scholarship on the development of EDs in racial and ethnic minoritized young people has been largely overlooked, which undermines health equity. The focus on youth and young adults is needed to examine the relationship between eating pathology and the unique vulnerabilities that people face throughout puberty and the first stages of adulthood. This review focuses on biological vulnerability and cultural factors in ED development among racial and ethnic minoritized youth and young adults. This literature review was conducted through Google Scholar. The paper will discuss the cultural influences of acculturative stress, biculturalism, and familism on ED development. Additionally, research on the biological factors, heritability, puberty, and menstruation were reviewed.

Introduction

Eating disorders (EDs) are illnesses with the second highest mortality rate behind substance use disorders in youth¹. The most prevalent types of EDs are anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED). AN is divided into two subtypes. Individuals with restrictive AN exhibit severe dieting, refusing to maintain a normal weight and using extreme methods such as excessive exercise to lose weight. The second subtype of AN is the purging subtype. Similar to restrictive AN, individuals restrict food intake and have adverse reactions to weight gain; however, they occasionally engage in “purging” behaviors in which consumed calories are eliminated through forced vomiting, laxatives, and excessive exercise. Similarly, individuals with BN fall into binge-eating episodes, consuming large amounts of food until discomfort, prompting “purging” behavior after. Bulimia is generally diagnosed when a patient engages in more than two binge-purge cycles a week. Alternatively, BED is characterized by consuming large amounts of food in a short time period, even when not an individual is not physically hungry. Those with BED do not purge afterwards, often stirring feelings of shame, embarrassment, or guilt².

Long term effects of EDs include poor cardiovascular health, electrolyte imbalances, and a decrease in bone mineral density, leading to pain and stress fractures³. Furthermore, hypomagnesemia, a condition caused by a lack of magnesium and an imbalance in electrolytes, may develop from the process of purging, a behavior which refers to removal of food through vomiting, misuse of laxatives, and diuretics. For extreme cases,

conditions such as hypomagnesemia leads to vertigo, eye problems, altered mental state, and sudden cardiac death³. Eating disorders also damage the social life of youth and young adults by creating patterns of self-isolation, leading to a decline in positive connections⁴.

Youth and young adults from diverse racial and ethnic groups are similarly vulnerable to biological risk factors of EDs. In twin studies, it seems genetics significantly impacts the risk of developing eating pathology. Genome-wide association studies have found that a single nucleotide polymorphism is correlated with disordered eating; however, due to small sample sizes, no gene has been further considered⁵. Similarly, puberty presents another vulnerable time towards eating pathology. Some research posits that menarche and the timing of physical development activate genetic risks of eating pathology, an area of unique vulnerability specific to biological females⁶. Furthermore, socioeconomic status influences this timing, creating a point of intersectionality between race, gender, and socioeconomic status. These factors overlap in underprivileged communities as minoritized groups may experience an earlier onset of sexual development compared to their White counterparts, increasing risks of ED development⁷. Additionally, the relationship between estrogen and ED development has generated research that both affirms and denies its influence^{6,8}. With these factors in mind, puberty and genetic disposition seem to influence the development of eating disorders.

In addition to biological factors, cultural factors also influence ED development. Racial and ethnic minoritized youth and young adults from immigrant families may have difficulty both

preserving familial traditions and assimilating into the culture of the host country they moved to^{9,10}. Challenges with acculturation, the assimilation into a different environment, may create stressors and trigger disordered eating to lower awareness of adversities. Furthermore, environmental factors such as racism and discrimination amplifies ED risk amongst minoritized youth, correlating to body shame which increases vulnerability towards disordered eating¹¹.

More research is needed to understand biological and cultural risk factors among youth and young adults from racial and ethnic minorities. Most studies with compelling results rely on majority-Caucasian samples, limiting the generalizability of findings to people of color. For example, recent articles on the genetics of eating disorders are based on the majority Caucasian sample from the Minnesota Twin Registry¹². Although these articles have produced valuable results, diversity should be prioritized. ED risk factors may differ in meaningful ways across ethnic groups due to differences in cultural backgrounds and exposure to different environments of discrimination or alienation, making it a paradigm to increase research and identify the unique vulnerabilities each community faces. Many samples fail also to focus on youth and young adults despite adolescence presenting a unique risk towards eating disorder development. This literature review aims to discuss the extent to which biological and cultural factors impact the development of anorexia nervosa and bulimia nervosa amongst racial and ethnic minority youth and young adults in the United States.

Methods

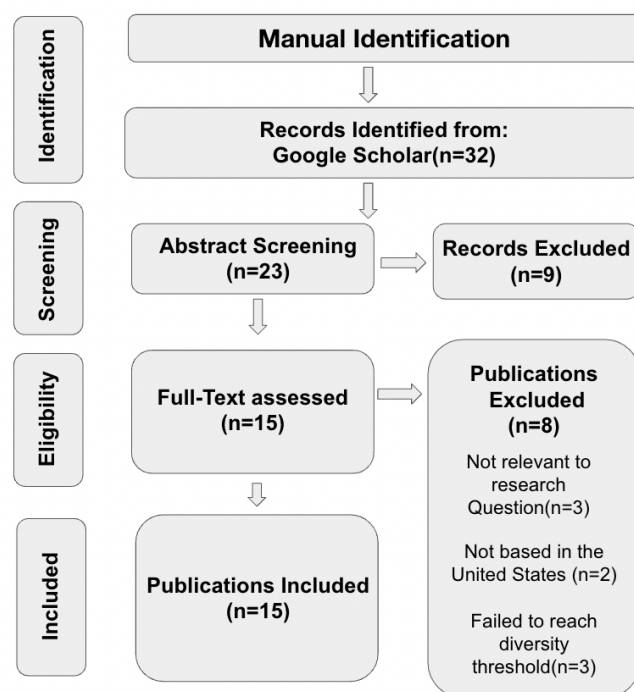
To identify articles relevant to the research question, Google Scholar was used due to its accessibility and comprehensive selection of scholarly material from sources such as the National Library of Medicine, the International Journal of Eating Disorders, and the Wiley Online Library. Inclusion criteria included: studies conducted in the United States, a sample size of at least 15% of racial and ethnic diversity, and participants being youth(12-17) or young adults(18-30). The rationale for the diversity threshold highlights the disparity of research inclusive towards minority groups. Through the initial manual identification of papers, the preliminary requirement of a 20% diversity threshold was kept in mind. However, when reviewing full papers, many studies which included minoritized individuals fell short of the 20% inclusion criteria. Thus, a 15% diversity threshold was adopted to ensures minority populations are adequately represented given the current condition of ED research which focuses almost exclusively on Caucasian populations. Additionally, articles published in the year 2000 and beyond were included in this review. Search terms included: (“anorexia” OR “bulimia” OR “eating disorder” OR “disordered eating”) AND (“youth” OR “child” OR “children” OR “adolescent” OR “teenager” OR “transition aged youth” OR “young adult”) AND

(“BIPOC” OR “Asian” OR “Hispanic” OR “Latino” OR “Latinx” OR “Latine” OR “Black” OR “African American” OR “immigrant” OR “minoritized” OR “minority”).

Search terms used to find cultural factors include: (“Acculturative stress” OR “Acculturation” OR “immigrant” OR “immigration” OR “culture” OR “cultural”). These terms were paired with the general terms above to narrow the range of results.

Search terms used to find biological factors include: (“Menarche” OR “Menstruation” OR “Period” OR “Puberty”) as well as (“heritability” OR “genetics” OR “generational transmission”). These terms were paired with the general terms above to narrow the range of results.

Prisma Flow Chart for Reference:



Results

Cultural Factors

Literature on racial and ethnic minoritized youth and young adults have focused on familial relations and acculturation on ED development, a potential stressor which poses unique risks towards people of color. There has also been research on the impacts of conflicting culture-bound body image standards and

Table 1 Below is a table that lists the articles discussed. The articles are identified as biological or cultural and are split into their respective subtopics. The sample size ranges from n=97 to n=8,694. Additionally, ethnic diversity ranged from 18.6% people of color to 100% people of color. Of an initial 32 studies, 15 were discussed in the results section. Reasons for exclusion include: papers failing to meet the 15% threshold of ethnic and racial diversity, papers failing to align with the research focus, and papers which focused on age groups outside of youth and young adulthood(12-30).

Study	Biological or cultural?	Topic	Age	Full Sample Size	Race and Ethnicity of Sample
Higgins et. al 2017	Cultural	Acculturative stress	Range: 18-25, Mean age: 21.5	119	Latinx, 100%
Lee et. al 2009	Cultural	Acculturative stress	Range: 18-30, Mean age: 24	17	Asian Indian, 5.88% (n=1) Cambodian, 17.65%(n=3) Chinese, 5.88% (n=1) Indonesian, 35.29% (n=6) Korean, 17.65% (n=3) Taiwanese, 5.88% (n=1) Thai, 5.88% (n=1) Vietnamese, 5.88% (n=1)
Song et. al 2023	Cultural	Acculturative stress	n/a	n/a	n/a
Lock et. al 2007	Cultural	Acculturative Stress	Range: 12-18, Mean age: 14.8	92	Chinese, 43.75% Indian, 25% Japanese, 6.25% Filipino, 6.25% Mixed ethnicity with at least one Asian parent, 18.75%
Pagan Rivera et. al 2014	Cultural	Acculturative Stress	Range: 12-21, Mean: 22.5	1,551	Mexican-American, 100% (n = 1,551)
Schwartz et. al 2010	Cultural	Definition of Biculturalism	n/a		n/a
Cheng et. al 2019	Cultural	Biculturalism	Mean age: 18.6, Range: n/a	1,177	African American 5%, Asian American/Pacific Islander, 11% Hispanic American, 12% White Americans, 72%
Bardone-Cone et. al 2009	Cultural	Biculturalism	Range: 18-28, Mean age: 19.04	97	African American, 100%(n=97)
Pfeifer et. al 2010	Biological	Definition of puberty	n/a	n/a	n/a
Vannucci et. al	Biological	Puberty	Range: 8-17, Mean: 12.5	468	non-Hispanic White, 58.1% non-Hispanic Black or African, 33.3% Hispanic/Latino, 5.9% Asian Origin, 2.3% Multiple Races, 1.4%
Acker et. al 2023	Biological	Puberty	Range: 14-20, Mean: 16	46,299	White, 35.3%(n=16,359) Black, 7.4%(n=3,418) Hispanic, 26.5%(n=12,257) Asian/Pacific Islander, 21.9%(n=10,151) Indigenous, 0.3%(n=129)
Striegel-Moore et al 2001	Biological	Menstruation	Range: 9-10, Mean: 9.5	2,379	Black, 50.99% (n=1,213) White, 49.01% (n=1,166)
Nobles et. al 2016	Biological	Menstruation	Age of menarche: 12.7	8,694	asian, 12% latina, 32% non-latina black, 62% white, 24% other, 3%
Rolan et. al 2023	Biological	Menstruation	Range: 8-16, Mean: 12	964	Caucasian, 81.4% (n=812) African American, 7.9% (n=78) Asian/Pacific Islander, 0.6% (n = 6) Native American, 0.2% (n = 2) Multi-racial, 7.7% (n = 78) Hispanic/Latinx , 4% (n=38) Missing, 2.1% (n=38)
Suisman et. al 2009	Biological	Heritability	Range: 14-24, Mean: 18.70	179 pairs of siblings	Biological Siblings: Caucasian, 91% other, 9% Adopted Siblings: Caucasian, 16% Asian, 51% Other, 4%

western ideals of thinness. This section will primarily focus on the impacts of these factors amongst female populations.

Acculturative Stress

A common cultural risk factor of EDs is acculturative stress. Acculturative stress refers to stress associated with the challenges of adapting to new cultures, often experienced by immigrants or ethnic minorities⁹.

A survey-based study by Higgins et. al dwells on the correlation of familial disconnect, defining the term as an ego-threatening stress from difficulties meeting cultural expectations, and disordered eating¹¹. Their findings suggest that familial disconnect has been associated with poor negative effects and an increased association with binge eating (BED).

This phenomenon of familism, a cultural value emphasizing that family is prioritized over oneself, stretches beyond Latinx young adults and applies to different ethnic groups. In striking similarity, Lee et. al¹³ surveyed 17 young adult Asian-American immigrants. Findings show that Asian Americans, second-generation immigrants especially, experience stress from familial obligations, the need to fit the “model minority” construct, and stigma regarding mental health issues. It is important to recognize the limited sample size of this study and the risks of bias which may have contributed to the results; however, a study assessing EDs amongst Asian Americans, reported similar trends. A group of Asian American adolescents (mean age: 14.8) with anorexia nervosa were studied. The participants scored higher on the Family Environment Scale for achievement orientation, suggesting a perfectionism is related to, if not a risk factor towards, anorexia nervosa¹⁴. Researchers frame this drive to meet cultural standards through the lens of Asian philosophy and the central concepts of caring for family and honoring family. Within Asian American and Latinx youth and young adults, researchers have invested attention into immigration processes.

Higgins also¹¹ tested the escape theory, the idea of disordered eating as a way to disconnect from adversity which comes with new environments. In a group of Latina young adults between the ages of 18 and 25, Higgins et al. examined acculturative stress and discriminatory stress as risk factors for disordered eating. Findings show a strong relationship between acculturative stress and bulimic symptoms. Environmental effects of racism correlate to aversive effects such as body shame which correlates to disordered habits such as binge eating.

Furthermore, second generation immigrants appear to be especially susceptible towards eating pathology. This pattern is exhibited in Mexican American high schoolers aged 12 through 21 as research using nationally representative datasets suggests that second generation students face an acute vulnerability to mental health issues in comparison to their first and third generation counterparts¹⁵. As Song et al¹⁶ describes in their findings, first generation Asian immigrants remain more firmly rooted

within their cultural identity which serves almost as a protective factor against pressures to conform. Conversely, third generation immigrants can be described as the grandchildren of immigrants and may have a greater sense of belonging in America. These feelings of displacement may pose additional stressors which many White Americans may not feel as birth citizens and accepted members of their established community.

To synthesize results, feelings of familial disconnect correlates with BED¹¹ while familism is associated with the development of AN¹⁴ Amongst Latina young adults(18-25), acculturative stress and BN share a strong relationship while environmental effects of racism correlates with binge eating¹¹. Immigration status also remains a prominent risk factor throughout childhood and young adulthood(12-21) which magnifies vulnerabilities to mental health issues^{15,16}.

Biculturalism

Biculturalism refers to the adoption of the host culture while also maintaining traditional ethnic backgrounds¹⁷. One study surveyed¹⁸ the baseline risk factor towards AN and BN development amongst 1,177 Caucasian, African American, Asian American, and Hispanic American young adult women. Although there were no statistically significant differences in ED prevalence amongst ethnic groups, two out of the thirteen risk factors identified varied between racial groups: BMI and idealization of thinness. First, Asian Americans had a significantly higher internalization of western thinness ideals in comparison to White and African Americans despite generally having lower BMIs. Second, African Americans had a significantly lower thin idealization than their Asian counterparts, a potential protective factor, while also having a higher BMI, a predictor of ED development. An inverse relationship between idealization of the western thinness ideal was seen amongst the Black women and Hispanic women within this study. Hispanic adolescents felt an increased urge to conform to western beauty standards shared by Caucasian women while Black women were less likely to idolize thinness. The study highlights how Hispanic girls who were less acculturated held less anti-fat ideas, suggesting strong cultural identity can serve as a protective factor against ED development. These findings highlight that EDs affect ethnic minorities just as much as White Americans and reveal the distinctive risk factors which may be more or less prevalent across different ethnicities.

However, the idea of Black women having a significantly higher tolerance to eating pathology due to higher body positivity is challenged by a questionnaire-based study of 97 African American students (mean age: 19.04)¹⁹. The paper has linked maladaptive perfectionism, the aspects of perfectionism which include setting unrealistic standards and the fear of failure, to being more critical to perceived weight status. Interestingly, adaptive perfectionism, those who feel fulfilled even though they may not have met their goals as imagined, did not play

a role in the development of bulimic symptoms. Instead, the combination of maladaptive perfectionism and the perception of being overweight leads to a cycle of binge eating and self-punishment which can include the development of bulimic symptoms. The paper's findings report that the relationship between perfectionism and disordered eating habits is not limited to Caucasian individuals and suggests that though African American women may be more body positive, the demographic is not immune to stressors that predict disordered eating.

To synthesize findings, idealization of western thinness ideals and BMI were identified as risk factors whose prevalence varied across ethnic groups. Asian Americans were more likely to internalize western thinness ideals than other ethnic groups (influencing risks of developing AN/BN) while Black Americans generally had higher BMI, predictive factors towards AN or BN¹⁸. Additionally, maladaptive perfectionism amongst Black young women is a predictive factor towards binge eating and purging, a cycle which can result in bulimic symptoms¹⁹. Both studies surveyed young adult women (18-30), suggesting the transition away from adolescence could present unique ED risks when navigating adulthood.

Biological Factors

A large volume of research has focused on the correlation between eating disorder development, puberty, and menstruation. Additionally, research on genetic predisposition to EDs was sought; however, papers which adhered to the review's requirements were very limited.

Heritability

We sought articles on heritability and familial transmission, but only one paper met the standards set by the review.

A study which compared 123 adopted siblings (50% of adopted siblings were Chinese) and 56 biological female siblings found disordered eating influenced by genetic disposition. The study tested "nature vs nurture" as differences in eating habits between adoptive and biological siblings would signal biological disposition at play instead of habits cultivated by the environment. Indeed, the researchers found heritability as a strong indication for disordered eating as biological siblings exhibited similar eating habits while differences in adoptive siblings were statistically significant²⁰. Although the results were compelling, it is important to recognize the limitations of this study as conclusions cannot be drawn from a singular paper. This simply highlights the disparity of research and similar studies must be conducted to either corroborate or contradict these findings.

Puberty

Puberty was also a key focus in the articles found due to adolescence triggering both physical and mental maturity. Emphasizing this period of development is crucial as the phase introduces an acute vulnerability to mental health crises²¹. Indeed, Vanucci and colleagues found puberty to be a critical risk period for loss of control (LOC) eating within a sample of 468 children and adolescents ranging from 8 to 17 years old²². The sample's composition focused on non-Hispanic Black people as the group represented the greatest percentage of racial and ethnic minorities at 33.3% in comparison to the 58.1% of non-Hispanic white participants. Youth in puberty experienced more disordered eating mindsets than pre-pubal children, suggesting that puberty heightens the risk of eating pathology amongst adolescence. Vanucci also reported body dissatisfaction during childhood rarely led to LOC eating while body dissatisfaction during early to middle adolescence predicted LOC eating patterns that persist not only through teenage years, but into early adulthood. This study also suggests that genetic disposition to LOC eating throughout puberty may be triggered by variations in the single nucleotide polymorphism (rs9939609). These alleles dictate responses towards appealing foods and may influence brain mechanisms which manage reward cues^{22,23}.

Menstruation

Menstruation amongst adolescent girls along with menarche, defined as the first menstrual cycle, was also a key focus in the existing literature. This is an especially important area to survey as menstruation is a gender specific mechanism which influences biological risks. A longitudinal study surveyed early, mid, and late onset of menarche in relation to eating disorder symptoms amongst African American (n=1213, 50.99%) and Caucasian (n=1166, 49.01%) girls²⁴. They concluded premature sexual development and early onset of periods lead to increased body dissatisfaction and drive for thinness in comparison to peers who experienced mid or late sexual development. Their findings also suggest late maturation as a protective factor against disordered eating. Interestingly, a study using the Index of Concentration at the Extremes (ICE), has identified the influences of structural racism and socioeconomic status on pubertal timing (n=46,299). For context, Black and Hispanic girls who were overweight or whose mothers lack a college education are disproportionately represented in ICE's least privileged quartile while the White girls fell amongst the most privileged quartile. The findings suggest that Black girls are 2.16 times more likely to experience early pubarche (appearance of pubic hair) and 1.81 times more likely to experience early thelarche (growth of breast tissue) in comparison to White girls. This phenomenon is also observed amongst Hispanic girls as they were 1.16 times more likely to experience early pubarche and 1.23 times more likely to experience early thelarche in comparison to White

girls. The paper highlights the impacts of economic privilege and how youth in disadvantaged communities, many of them being neighborhoods of color, experience disparities in pubertal development from their privileged counterparts. The implications of these findings illustrate how ED risk factors may differ amongst Black and Latinx girls from their white peers due to the socioeconomic factors and privileges that influence the onset of puberty⁷.

Similarly, a study conducted by Nobles and colleagues corroborates the influence of pubertal timing while analyzing premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD), a more severe version of PMS which can lead to psychological, emotional, and behavioral disruptions²⁵. It's important to note how Black young adult women (ages 24-30) composed 62% of the wide sample size of 8694 people. Both PMS and PMDD contribute to physical (i.e. bloating and food cravings) symptoms and emotional symptoms (i.e. depressive, irritable moods) prior to menstruation. Nobles found that PMDD was significantly associated with longer-term BN, extending the duration of disordered eating by 11 years. Additionally, both PMDD and PMS were associated with BED (binge eating disorder) and subthreshold BED respectively. These findings suggest that premenstrual syndromes trigger negative attitudes before menstruation and increase the risk of binge eating during menstruation. Furthermore, some may experience greater vulnerability to fluctuations in ovarian hormones. Nobles suggests that sensitivity to PMS or PMDD may indicate a shared genetic risk towards BN.

However, it is worthwhile to mention Rolan et al's study. Their work suggests that estrogen may have little influence on the development of AN and BN. The paper urges more data collection on non-hormonal factors that occur during the first stages of puberty and encourages research in neurobiological development. This commentary contrasts a number of papers suggesting a link between eating pathology and hormones such as estrogen and progesterone. These conflicting findings highlight a disparity of research within the biological field of eating disorders etiology⁸.

To synthesize findings, puberty presents a critical risk period for loss of control eating, a symptom of both BN and BED, amongst adolescents from 8-17 years old. More specifically, premature sexual development amongst girls and the onset of menstruation increases risks towards disordered symptoms driven by body dissatisfaction and a pursuit of thinness. Findings suggest that late maturation may be a protective factor²⁴. Furthermore, socioeconomic status impacts the onset of puberty, with Black and Latinx girls living in disadvantaged communities experiencing earlier menarche in comparison to White counterparts. This highlights an intersection of risk factors as the lack of privilege influences early development and impacts how individuals of color may be most vulnerable to EDs at a younger age⁷. The risk factors which come with menarche and sexual development are the most prevalent amongst youth and those within their teenage

years (10-17). PMS and PMDD were associated with risks towards BED and BN and the symptoms PMS and PMDD seem to generate adverse effects amongst young adult women (24-30)²⁵. It is important to acknowledge there are conflicting ideas on if hormones really do impact BN and AN development⁸.

Discussion

In general, there is not enough research that includes racial and ethnic minoritized young people. Even with the low threshold of 20% diversity, it was difficult to find papers that were even minimally inclusive. Ultimately, the restriction had to be lowered to 15%. This highlights a prominent issue in the field as majority Caucasian samples are either automatically defaulted to or seem to be preferred. A more conscious effort must be made so results of studies can be applied to different racial and ethnic groups, not just the majority. Additionally, the results of the studies which do include people of color must be duplicated to reach definite conclusions regarding biological and cultural risk factors of EDs. The literature on EDs which includes ethnic and racial minorities is far from complete as several studies contradict each other and there are few direct causal factors found in the current literature.

It is also interesting how throughout the narrative review, the niche with the most literature including people of color is focused on the social influences of ED development. As research began to explore more technical topics of genetic disposition and genome-wide association studies, it seems like minority groups weren't included at all within sample groups. There is almost a gradient of when minoritized groups are incorporated into studies. The end with the most inclusion focuses solely on culture and its ties to ED development; however, as research begins to look into genetics and biological processes, there is a threshold where people of color are completely excluded from research. This disparity must be addressed so both the cultural and biological causes and effects of EDs can be evaluated and generalized to people of color. No matter the topic, diversity should be prioritized.

Still, both cultural factors and biological factors play a significant role in ED development in minoritized young people. Acculturative stress especially presents unique challenges to second generation immigrants. Adapting to the host environment may push young adults in the demographic to escape through disordered eating, hoping to decrease awareness towards reality and the adversity it may bring. Furthermore, factors of biculturalism and a drive for perfectionism to reach cultural standards act as predictors for ED symptomatology among ethnic minoritized youth in general. Twin studies and SNPs (single nucleotide polymorphisms) add a biological dimension to the review. Indeed, puberty is a time of physical and mental development which triggers eating disorders such as AN, BN, or binge eating.

It is also important to note that ED risk factors may vary

between ethnic groups. The risk factors of BMI and internalization of thinness differed across Asian Americans and African Americans. The internalization of Western ideals of thinness amongst Asian Americans were significantly higher than Caucasian and African American counterparts. In contrast, African Americans had a low thinness internalization while typically having a higher BMI, a predictive factor for ED development. Additionally, immigrants from ethnic groups may experience risk factors triggered by acculturative stress and biculturalism, phenomena which native-born White Americans may not be exposed to. In regard to differences in biological factors, research has shown Black and Latina girls may experience an earlier onset of sexual development in comparison to Caucasian girls due to lower socioeconomic status. While a later maturation is suggested as a protective factor, many minoritized girls may be exposed to ED risks earlier due to upbringing in an underserved community.

Strengths

This narrative review included a number of studies based on minoritized communities. It calls to attention the insufficient inclusion of people of color in ED research, especially in respect to twin studies and the genetic field. Additionally, it focuses on youth and adolescents which is a uniquely vulnerable period where risks of mental health disorders and eating disorders present themselves. This period of change is often not recognized and analyzed enough in the current literature.

Weaknesses

Many studies in this review were survey studies. Survey studies may spark controversy as some argue the method identifies correlations instead of causations. Additionally, due to the lack of literature which meets paper requirements, only one study was featured under the heritability section. Research tended to focus on women and girls while the puberty section touched briefly on eating disorder development amongst boys. A pivot to include studies with male youth and young adults would be beneficial as a substantial portion of ED research focuses on women and girls. Similar to how increasing research amongst minoritized groups increases health equity, a conscious inclusion of men allows for research to become more applicable to a greater number of people. Additionally, increased research amongst this demographic is needed to address stigma and combat ideas which depict men as invulnerable to EDs while also finding effective treatment methods amongst the demographic. Furthermore, more data exploring African American youth and ED risk factors must be gathered. In this review, Latinx people were the most represented, followed by studies on Asian people, and then studies focused on African Americans. It is important to highlight the limited studies on Black individuals in com-

parison to other ethnic groups. More research is necessary to ensure prevalent risk factors unique to Black people are thoroughly understood and given equal representation. Although the review concentrated on racial and ethnic minoritized youth, the addition of Middle Eastern and West African samples in the field will further inclusion. Finally, only two papers specified nationalities within ethnic groups, an element of identity that must be elaborated on as blanket statements like “Asian” and “Latino” cover a range of nationalities and varying experiences. For example, “Asian” may refer to both East Asia and South Asia, homogenizing two vastly different cultures and eliminating nuances in how ethnic groups experience and respond to certain environmental conditions. Thus, the explicit labeling of ethnic groups, such as Indian, Fijian, Puerto Rican, etc. are important when considering how individuals may respond to risk factors.

Directions for the future

Future directions for research must include a deliberate aim to include people of color, especially when analyzing heritability and biological risk factors. Many literature reviews and research papers were based on the Minnesota Twin Registry which is predominantly Caucasian (although it is important to note they recently expanded their program to include African American twins). Even high-impact research from Klump et. al²⁶ and Strober et. al²⁷ could not be included due to their data being collected from primarily Caucasian sample sizes. This itself highlights a glaring issue as papers with the most compelling results, in this case strong familial heritability of eating disorders, cannot be generalized to people of color. Instead, a nationwide twin study should be conducted for a more comprehensive view of different racial and ethnic demographics. Additionally, more investment in youth-based longitudinal studies is required to create a deeper understanding on the timeframe of eating disorder development. For example, an Australian-based study by Abraham et. al should be replicated. With a 25% diversity, the researchers determined the timeframe of eating disorder development after menarche²⁸.

Besides research, clinicians must expand ED treatment accessibility amongst minority groups by discarding biases which label ethnic minorities as less likely to develop EDs. Additionally, increasing diversity amongst treatment providers may bypass barriers to seeking help and increase communication through the patient’s native language, form a mutual sense of understanding, and suggest pathways of recovery with the victim’s cultural background in consideration. Ethnic representation amongst clinicians stands as a vital step towards addressing disparities of accessibility within communities of color.

Furthermore, policy changes are necessary to combat societal misunderstands and general unawareness of eating disorders. The National Comorbidity Survey-Replication estimates nearly

30 million Americans suffer from AN, BN, BED, and subthreshold BED, yet 70% of those suffering with disorders do not receive the necessary treatment. One of the first barriers to accessing services and resources that aid recovery is the lack of education. Many EDs go undetected during early stages due to the inability to recognize symptoms, inhibiting early intervention and dampening chances of seeking treatment²⁹. Legislative shifts that mandate the inclusion of eating disorders in mental health curriculums across the United States are key towards increasing ED awareness and strengthening recognition of ED risk factors, encouraging adolescents and young adults to seek help when needed. Furthermore, discussions on body image and unachievable beauty standards must be held to combat the internalization of thinness which serves as a predictive factor towards AN and BN development amongst impressionable adolescents.

Limitations

Limitations of this literature review include using exclusively Google Scholar as the primary search engine. Although Google Scholar has an extensive database, relying solely on one site may have limited the access to certain papers that could have been discussed in this review. Additionally, this paper does lack a sensitivity analysis comparing results at a 15% diversity threshold and a 20% diversity threshold which is important to bolster the reliability of identified trends. Furthermore, it is important to recognize that certain studies featured within this paper have limited sample sizes. For example, Lee et. Al's 2009 study on Asian Americans has a sample size of only 17 individuals, generating risks of potential bias and unreliable results. Despite certain trends being corroborated by Lock et. Al's 2007 study, caution is still needed when evaluating the quality and the results of the study. Bardone-Cone's 2009 study on Black young adult women could also improve its sample size of 97 individuals. Without expanding the sample size, random variability and difficulties generalizing findings may follow. Despite its flaws, the study does have merits of conducting a longitudinal study and surveying an underrepresented population in ED research. In regard to heritability, there was one study which was featured as it was the only paper that adhered to the paper's standards. It is important to note the risks of having only one study as results have not been replicated and findings may have been a result of random variability or influenced by biases. ED heritability amongst ethnic groups is certainly an area which demands more attention and is a point of future research.

This paper also focuses primarily on women, meaning the biological and cultural risk factors are most relevant to females and may not translate the same towards men. It is important to recognize there might be gender specific cultural and biological risk factors which are a necessary area of future research. A focus surveying the influences of sexual orientation, trauma exposure, and disability is also a worthwhile field to explore in

the future.

Conclusion

This narrative review discussed both cultural and biological factors in eating disorder development amongst racial and ethnic minoritized youth/young adults. Regarding the cultural facet, acculturative stress; biculturalism; and familism seem to influence ED symptomatology. There is also an overlap of environmental factors as socioeconomic status was seen to trigger biological processes which activate greater sensitivity towards risk factors.

More research must be conducted amongst ethnic minorities. This critique also applies to the biological aspect of the review as only one paper on heritability was included due to the lack of sample diversity. More research inclusive of ethnic minoritized groups is needed to expand the generalizability of eating disorder discoveries and enhance health equity.

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