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A Qualitative Exploration of School-Based Intervention Needs Among Rural Appalachian Youth

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## Academic Abstract

Disordered eating is prevalent in the United States, with over 20% of children and adolescents reporting some form of disordered eating. Eating disorders are associated with detrimental physical effects and co-occurring mental health difficulties. One population that appears to be at high risk for developing disordered eating symptoms is rural youth. Unfortunately, rural youth often do not receive treatment for their disordered eating symptoms due to myriad care barriers, including geographical restrictions and financial constraints. School-based interventions offer promise to address such barriers and increase access to treatment among this vulnerable group. This study represents a first step at identifying rural youth needs and formatting preferences for a school-based intervention. Participants were 11 rural adolescents ( $M_{\text{age}} = 15.09$ ) from Appalachia. Participants reported their demographic characteristics in surveys and completed a semi-structured interview assessing their needs and formatting preferences for a school-based intervention for disordered eating. Data were analyzed using inductive thematic analysis; the following themes emerged. Rural youth reported that an intervention should promote healthy and balanced eating, teach social media literacy, and discuss external factors and overlapping mental health difficulties, and de-emphasize the value of weight and shape. Rural youth also suggested that the intervention design take into consideration logistical and cultural factors of rural communities. These data suggest that rural youth's treatment preferences align with existing school-based interventions for disordered eating.

However, modifications may be needed to address logistical and cultural factors that may impact acceptability and feasibility of school-based eating disorder interventions in rural communities.

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## General Audience Abstract

Disordered eating are the behaviors associated with eating disorders such as anorexia nervosa, bulimia nervosa or binge-eating disorder. These behaviors include, but are not limited to fasting, self-induced vomiting, and over exercise. Disordered eating is prevalent in the United States, with over 20% of children and adolescents reporting some form of disordered eating. Eating disorders are associated with detrimental physical effects and co-occurring mental health difficulties. One population that appears to be at high risk for developing disordered eating symptoms is rural youth. Unfortunately, rural youth often do not receive treatment for their disordered eating symptoms due to myriad care barriers, including geographical restrictions and financial constraints. School-based interventions are mental health treatments offered within school-settings to increase accessibility of such treatments. These interventions may be promising for increasing access to mental health treatment in rural Appalachia. This study represents a first step at identifying rural youth needs and formatting preferences for a school-based intervention. Participants were 11 rural adolescents ( $M_{\text{age}} = 15.09$ ) from Appalachia. Participants reported their demographic characteristics in surveys and completed a semi-structured interview assessing their needs and formatting preferences for a school-based intervention for disordered eating. Data were analyzed using inductive thematic analysis; the following themes emerged. Rural youth reported that an intervention should promote healthy and balanced eating, teach social media literacy, and discuss external factors and overlapping mental health difficulties, and de-emphasize the value of weight and shape. Rural youth also suggested

that the intervention design take into consideration logistical and cultural factors of rural communities. These data suggest that rural youth's treatment preferences align with existing school-based interventions for disordered eating.

# A Qualitative Exploration of School-Based Intervention Needs Among Rural Appalachian Youth

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## **Introduction**

More than 20% of children and adolescents in the United States (U.S.) report some form of disordered eating (Bean et al., 2019), defined as symptoms of an eating disorder within or outside of a full threshold eating disorder diagnosis (e.g., excessive exercise, laxative use, binge eating, extreme dietary restriction). Eating disorders are associated with psychological distress and dysfunction, including comorbid depression and anxiety (Olsen et al., 2016) as well as deficits in physical health concerns, including abnormalities in blood parameters and problems with dental health (Flamarique et al., 2024; Ximenes et al., 2010). Importantly, disordered eating symptoms below the clinical threshold often develop into diagnosable eating disorders in late adolescence and early adulthood (Neumark-Sztainer et al., 2006). One group that appears at particularly high risk for eating disorders is rural adolescents. One study demonstrated that 30% of rural high school students screened at high risk for an eating disorder, compared to 14.6% of suburban/urban high school students (Miller et al., 1999). This disparity may reflect geographical disparities in treatment access or unique risk for disordered eating among rural youth that should be considered in treatment development or adaptation. Because research within this population is scarce, we cannot know from existing data if treatments should be modified (and if so, how) to be more accessible or tailored to rural adolescents. Although treatment for eating disorders is difficult to access across the U.S., as only about 20% of individuals with an eating disorder access treatment (Penwell et al., 2024), the inaccessibility of eating disorder treatment is especially salient for rural communities (Streatfeild et al., 2021). Thus, my current study sought to explore rural youth needs and preferences for a school-based intervention for disordered

eating. I focused on youth residing in Appalachia, a rural region of the U.S. that is uniquely impacted by healthcare disparities, including mental healthcare and eating disorders (Streatfeild et al., 2021).

### **Eating Disorders Among Rural Communities**

Most studies of youth eating disorders in rural communities were conducted over twenty years ago (Miller et al., 1999; Thompson et al., 2001). From these studies, it appears that eating disorders disproportionately affect rural students compared to urban/suburban students. Little is known about why this disparity exists, but there are certain aspects of the rural environment that may contribute to risk (Hahn et al., 2023). First, rural communities include a disproportionate number of individuals with lower socioeconomic status (SES), relative to urban and suburban communities (US Department of Agriculture Economic Research Service, 2022). Contrary to popular stereotypes of eating disorders being diseases of affluence, it is now clear that lower SES is actually associated with higher rates of disordered eating (Huryk et al., 2021; Larson et al., 2021). In addition to high rates of economic stress, rural areas are also characterized by disproportionately high levels of food insecurity (Coleman-Jenson et al., 2021), as grocery stores with nutritious and fresh food options can be geographically distant or otherwise difficult or unsafe to reach, such as in inclement weather (Liese et al., 2007). Additionally, 59.40% of children in Virginia public schools received free or reduced lunch in the 2024-2025 school year (Virginia Department of Education, January 2025) and in some rural Virginian counties, 100% of students are eligible for free or reduced lunch (Virginia Department of Education, January 2025). Given the robust link between food insecurity and disordered eating (Barry et al., 2022; Becker et al., 2017; Kosmas et al., 2025; Lydecker et al., 2019; Nagata et al., 2023), it is possible that the higher prevalence of food insecurity in rural communities contributes to eating disorder

risk and prevalence. Such an association would indicate modifications would be needed to not only increase access to treatment, but also to adequately treat eating disorder symptoms among this group.

An additional consideration for disordered eating interventions among rural youth is weight stigma, defined as the negative attitudes, beliefs, and discriminatory behaviors that people in larger bodies experience due to their body size and shape (Rubino et al., 2020). Rural youth may face unique pressures to pursue body ideals and experience weight stigma within their communities. Although both rural and urban/suburban youth likely receive messaging from popular media to pursue the “thin ideal,” (a widely promoted Western cultural standard of beauty that equates female attractiveness, happiness, and success with a slim physique (Kidd et al., 2023), rural youth are more likely than urban youth to be working labor-intensive jobs at home and might feel pressure to maintain a more muscular body (Linardon et al., 2022; Williams et al., 2008). On the other hand, the focus on muscle strength and body utility, which could include appreciating one’s body for its function rather than appearance, may be protective against disordered eating. Importantly, the value of body utility is not necessarily incompatible with experiences or internalization of weight stigma. Indeed, youth engaging in labor-intensive jobs may still hold negative beliefs about high weight and engage in behaviors to avoid gaining weight, such as maladaptive or excessive exercise or muscle-building behaviors. Further, although research on weight stigma in rural communities is limited, one study found that rural youth report experiencing weight-based teasing (Williams et al., 2008). Another study found that 64% of rural adults reported experiences of weight stigma from their healthcare providers (Hughes et al., 2019). It is unclear if rural youth experience weight stigma more frequently than their urban counterparts, or if such experiences are particularly salient to disordered eating

development, as they are in samples not selected for rural status. Additionally, given that rural communities often have high community cohesion, programs that are peer-led (e.g., The Body Project) might be more likely to be accepted by rural students, given their acceptability in other groups (Avery et al., 2021; Stice et al., 2003; Winzelberg et al., 1998; Zabinski et al., 2000). Nevertheless, it is critical to understand the unique eating disorder risk factors among rural youth to inform intervention adaptation.

### **Rural Appalachia**

Appalachia is a region within the eastern U.S. that stretches from parts of New York to Alabama with roughly 26.4 million residents (Appalachian Regional Commission, n.d.). Thirteen states comprise the region of Appalachia, which is roughly based around the location of the Appalachian Mountains. Appalachia is filled with a rich history and strong cultural identity. However, Appalachia also faces extreme economic distress. Despite substantial need for mental health services, individuals living in Appalachia are often geographically distant from hubs of mental healthcare providers (Hahn et al., 2023). As a result, residents seek mental healthcare less frequently. In turn, eating disorder symptoms are less likely to be detected during routine care and individuals are less likely to be referred to mental health care. Even when eating disorder treatment is accessed, individuals in Appalachia drop out at high rates, from 20 – 70% across treatment settings, and it is unclear why (Bottera et al., 2023), suggesting that our current interventions are not acceptable to or inclusive of the needs of this group. Other barriers to care include financial or insurance coverage constraints and a lack of available healthcare providers in their immediate community (Douthit et al., 2025). As in other rural regions, residents of Appalachia are also at high risk for food insecurity, as 13.5% of rural Appalachia in Virginia are food insecure (Appalachian Regional Commission, n.d.).

## **Utility of School-Based Interventions**

Eating disorder onset occurs primarily in mid to late adolescence (Allen et al., 2013). Thus, it is crucial that interventions are developed to be accessible to adolescents. Oftentimes, regardless of geographic location, adolescents have multiple time demands such as schoolwork, sports, academic clubs, and interpersonal relationships. Additionally, they may have little access to transportation for after-school appointments, especially if their parents hold full-time employment. The acceptability of existing selective school-based interventions for disordered eating for rural adolescents has yet to be explored. Selective interventions are targeted and delivered to populations who are currently at high risk, rather than to all students (e.g., universal prevention programs; Spencer et al., 2025). Selective interventions have been effective in fostering higher self-esteem and developing effective coping strategies among adolescents (Cooper et al., 2021; Masten, 2014; Yadav et al., 2010). As such, selective school-based interventions are a promising avenue for delivering accessible eating disorder treatment.

Interventions such as The Body Project and Student Bodies are effective in reducing eating disorder pathology, including risk factors such as thin-idealization and symptoms such as compensatory behaviors like self-induced vomiting and excessive exercise (Stice et al, 2021, Stice et al., 2003; Sundgot-Borgen et al., 2024; Winzelberg et al., 1998; Zabinski et al., 2000). Yet, it is not clear if these interventions – which target eating disorder risk factors and symptoms – are acceptable to and feasible for rural communities. There are some potential challenges with existing programs. For example, clinician-led programs may be difficult to implement due to a lack of providers, especially in rural areas. Research has shown that teacher-led mental health literacy programs may be less effective than clinician-led interventions overall, but given the lack of providers in rural areas, teacher-led programs may be a more realistic method for

disordered eating prevention programs in rural schools (Yager et al., 2013). Additionally, given the fact that rural communities are often unified communities with a potential for dual roles (e.g., clinicians being friends of families), more consideration might be needed on whether these interventions should be delivered in an individual or group format. The Body Project, for example, is intended to be delivered in a group; however, it is unclear whether this format would be acceptable to students in rural communities.

### **The Current Study**

Given the large gap in research of treatments for disordered eating in rural youth, particularly in Appalachia, this study aims to utilize qualitative interviews to explore the needs and preferences of rural adolescents for school-based interventions for disordered eating. Qualitative interviews prioritize participants' voices and contextualize their narratives, which can allow researchers to better understand the sociocultural and systemic factors that could be overlooked by quantitative approaches (Bergman et al., 2012, Maxwell et al., 2023). Using qualitative methods to assess rural adolescents' intervention needs and preferences can inform culturally sensitive and accessible school-based interventions. Inductive thematic analysis is a method of qualitative data analysis that involves identifying and reporting patterns that appear in data (Braun & Clarke, 2006). An inductive approach to qualitative analysis relies primarily on the ideas conveyed in the dataset to construct codes and themes (Braun & Clarke, 2006), allowing participant voices to dictate the results rather than the interpretations of the research team. In the current study, rural adolescents completed a qualitative interview assessing their needs and formatting preferences for a school-based intervention for disordered eating. We asked them specifically what topics they would and would not like the intervention to cover, if they would prefer an individual or group intervention, and if this intervention would be acceptable in

their community as well as any additional factors we should take into consideration about their community. Since I used inductive thematic analysis, I followed the data-driven approach set forth by Braun and Clarke (2022) and did not generate hypotheses.

## **Methods**

### **Participants**

Data come from a qualitative interview study that examined risk and protective factors for disordered eating among rural and suburban/urban youth ( $n = 26$ ). Only rural youth were asked questions about treatment needs and formatting preferences, so only those participants are included in the current study ( $n = 11$ ;  $M_{\text{age}} = 15.09$ ,  $SD = 1.51$ ). Participants were recruited primarily through Instagram and Facebook advertisements. Instagram and Facebook allow for advertisements to be funneled to specific geographical locations. Thus, advertisements for this study were set to target zip codes in the New River Valley area and other parts of rural Virginia to target our rural sample. To be eligible for the study, participants were required to be between 12-17 years of age, currently in grade 6-11, proficient in English, and engaging in at least one eating disorder behavior in the past 7 days. Rurality was determined using National Center for Education Statistics (NCES) locale coding. Participants reported the school they attended, and if it was considered rural by the NCES, they were considered eligible for the study.

### **Procedures**

A total of 2,112 people expressed interest in the study. Interested participants were asked to complete an online eligibility screening on Research Electronic Data Capture (REDCap) either through scanning a QR code or by being directed to the screening link by a member of the study team. The eligibility survey delivered through REDCap took participants no more than 15 minutes and they were asked to provide information regarding their grade in school, age, county

of residence, English proficiency, and endorsement of at least one eating disorder symptom in the past 7 days. If participants appeared eligible, they were then prompted to fill out their contact information. Within 24 hours, a member of the study team reached out via phone to verify their eligibility and schedule them for a study visit. Following eligibility screening, 190 people met inclusion criteria and were invited to participate in the study.

The study was approved by the University's Institutional Review Board. Before adolescents could participate, parental consent was required. Parents were emailed the link to the electronic consent form on REDCap. Once parental consent was obtained, adolescents were emailed the link to the assent form on REDCap. Once adolescents completed the assent form, they were permitted to schedule their study visit using an electronic scheduling assistant. Data collection occurred remotely through the University's secure Zoom platform. Participants attended one Zoom study session in which they completed demographic and eating disorder symptom questionnaires and a semi-structured qualitative interview with a graduate research assistant. During the semi-structured interview, participants were asked questions to understand what they viewed as important content and formatting components to school-based interventions for disordered eating in rural schools. Interview duration was up to 60 minutes (range: 20-60 minutes). Participants were compensated with a \$25 Amazon.com electronic gift card.

## **Measures**

### ***Demographic Survey***

Participants completed demographic surveys to report their gender, sexuality, race, ethnicity, and food security status. To assess current child food insecurity, the Child Food Insecurity Experiences Scale (CFIES) was administered (Frongillo et. al., 2022). The CFIES is a 10-item questionnaire that asks respondents to rate experiences of food insecurity with responses

on a 5-point scale (1=*never*, 2=*one or two times*, 3=*many times*, 4=*don't know*, or 5=*refuse to answer*). Examples of questions are “Did you skip a meal because your family didn’t have enough food to eat?” and “Did you feel sad or mad because your family didn’t have enough food to eat?”. The CFIES is a validated and reliable measure with a Cronbach’s alpha ranging from 0.88 to 0.94 (Frongillo et. al., 2022).

### ***Eating Disorder Symptoms***

Participants completed the Eating Disorder Diagnostic Scale (EDDS) to report their current eating disorder symptoms (Stice et al., 2004). This information was used to characterize the clinical breakdown of our sample. The EDDS is a 23-item self-report measure of eating disorders that maps onto the Diagnostic Statistical Manual of Mental Disorders– Fifth Edition DSM-5 criteria for anorexia nervosa, bulimia nervosa, and binge-eating disorder (American Psychiatric Association, 2013). The EDDS demonstrates strong criterion validity with diagnoses made from semi-structured interviews (Stice et al., 2004).

### ***Qualitative Interview***

Interview questions were designed to assess participants’ preferences for a school-based program on eating disorder symptoms and risk factors. Graduate students were allowed to ask clarifying or follow-up questions within each question as needed. Below is a list of the six questions.

1. If you were to participate in a program like that, what topics do you think we should talk about? (e.g., healthy eating, healthy physical activity, body image, managing emotions, relationship skills, etc.)
2. What about things you think we should definitely NOT talk about or things that would be less helpful for you and your peers?

3. Would you want to participate in a group program or would you prefer individual support? Or, would you want a little bit of both?
4. How do you think your classmates would perceive a program like this?
5. What else do you think we should know about your community or school that would help inform the development of this program?
6. Is there anything else you want to tell us today?

### **Data Analysis**

Frequency statistics were used to characterize the sample's demographic and clinical breakdown. Interviews were transcribed verbatim by members of the research team. Then, the data were analyzed using inductive thematic analysis following a six-step procedure listed below (Braun & Clarke, 2006).

1. Familiarizing oneself with the data: This step included engaging with the data in a meaningful way. This can include either collecting the data or by repeated readings of the data. Since I did not collect this data, I did repeated readings of the data to engage with it in a meaningful way.
2. Generating preliminary codes: This step involved generating initial codes, which are keywords that represent ideas conveyed across responses. The codes are often specific.
3. Identifying potential themes: After generation of the codes, then I identified broader themes that encompassed the idea being conveyed by the codes. This involved grouping similar codes together to form a broader theme.
4. Reviewing and validating themes: Once themes were established, then I conducted a thorough review of the content to ensure that it followed a coherent pattern. Themes were then validated by looking at the dataset as a whole and ensuring that the themes correctly

represented the data. An additional member of the research team (co-investigator) reviewed and helped revise the themes further.

5. Naming and defining themes: In step 5, I further refined and named the themes in a way that accurately reflected the content.

6. Disseminating the data: The final step should involve composing a formal manuscript of the report for submission to a scientific journal, book, or other source that will be disseminated to the broader scientific and/or general community. I will use this manuscript for submission to a scientific journal.

Consistent with the above steps, two coders (members of the research team, both undergraduate and graduate students) reviewed the completed transcripts and generated preliminary codes. Preliminary codes were discussed and finalized. The two researchers then coded the transcripts. Coders met to discuss any coding disagreements in the data. Coding was completed in Summer of 2023, and themes were developed in Fall of 2025. I thoroughly reviewed the transcripts and followed the steps of Braun and Clarke to develop candidate themes using codes (Braun & Clarke, 2006). As the last step, I finalized the themes and subthemes with the co-investigator.

With thematic analysis, one must understand their relative positionality to the work. I am not from a rural background; however, the research team that collected the data and coded it consisted of individuals from both rural and urban/suburban backgrounds. I am also passionate in understanding how cultural factors like geographical region influence eating disorder development. I have conducted and consumed eating disorder research for almost seven years and have received training from multiple experts in the field. I have worked with families who come from various socioeconomic backgrounds and have learned a great deal about the myriad

barriers that families face when accessing care. I believe that my previous experience within the field of eating disorders and working with families and adolescents from various backgrounds have provided me the expertise to complete this project with cultural humility.

## **Results**

### **Descriptive Statistics**

Table 1 presents the demographic characteristics of the sample and Table 2 depicts the clinical characteristics of the sample. The majority of our sample was in the 11<sup>th</sup> grade and there was racial diversity across participants. Regarding clinical characteristics, the sample exhibited mostly bulimia nervosa-type symptoms ( $n = 7$ ). Regarding food insecurity, participants had no (27%), few (55%) or many (18%) experiences of food insecurity per the CFIES classification guidelines. Table 3 depicts the themes, subthemes and model quotes. For many participants, multiple codes emerged in their responses.

### **Acceptability of a School-Based Intervention For Rural Youth**

In general, participants expressed positive views of school-based interventions, but some participants expressed some concerns.

#### ***Positive Views (n = 7)***

The majority of rural youth said they believed that a school-based intervention for disordered eating would be viewed positively by their classmates and would be an acceptable way to prevent or mitigate disordered eating symptoms. They said that most of their peers would view the intervention as something that everyone should be able to access. Indeed, some youth explained that mental health treatment is difficult to access in their communities, so school-based interventions would increase access to treatment. Additionally, they mentioned how most of their classmates would not explicitly advocate for an intervention for themselves, thus an integrated

intervention in their school would be helpful to address body image and eating concerns their peers have without having to single themselves out.

#### ***Concerns About an Intervention (n = 4)***

Although a large proportion of the sample viewed school-based interventions positively, some youth expressed concerns. For example, some participants said that some of their friends and peers might openly say that they would find the intervention to be ineffective or not needed, but at the same time might secretly feel as if they would want to participate. Participants discussed how some of their peers might be apprehensive about the intervention itself and the intent behind it. There was also a discussion of how their peers might find the intervention to be “stupid” since mental health is not valued in their community and that depression or anxiety is a “choice.”

#### **What Do Rural Youth Want to See in a School-Based Intervention?**

In terms of intervention format, the majority of participants stated that they would prefer both group and individual elements ( $n = 8$ ). Group elements were cited as a way in which rural youth might feel as if they are not alone in their struggles. Participants felt that it would be nice to know that there are peers who may relate to what they are going through and to introduce different perspectives about similar difficulties regarding shape, weight, and eating. However, they also thought having individual elements might allow them to feel more comfortable discussing the specific difficulties that they are experiencing.

Regarding content, participants indicated various topics they would like to be discussed in the intervention. They also had several ideas for topics that should not be discussed. Four themes emerged: Healthy and balanced eating, external stressors and overlapping mental health problems, de-emphasis of weight and shape, and social media literacy.

### ***Healthy and Balanced Eating (n = 11)***

All participants stated that they wanted to learn how to eat in a healthy and balanced way. They described wanting guidance on how to eat in a way that makes their body feel nourished, rather than modifying diets to fit a certain body standard. One participant described experiencing food insecurity and the challenges associated with eating enough and/or a variety of food when access to food is limited. The participants noted that if a student receives free lunch, they might not have the ability to choose the contents of their next meal and noted that this should be taken into consideration when discussing proper nutrition. Participants desired to learn about how consistent under- or over-eating can lead to chronic illnesses and negative consequences (e.g., loss of menstrual cycle due to low body weight). Additionally, it was also stressed that education about nutrition should not focus on consuming a certain amount of food but rather how food can support energy and movement.

**Subtheme: Eating Disorder Myths (n =5).** Within the theme of healthy and balanced eating, a subtheme of participants wanting support around identifying and debunking misconceptions about weight and eating disorders emerged. Particularly, some participants wanted the intervention to discuss ways to pursue health that did not involve extreme food restriction or excessive exercise to lose weight. Participants described wanting psychoeducation on eating disorders including the different types of eating disorders and how symptoms can look different across people. Participants also wanted more knowledge of how labeling foods as “good” or “bad” can contribute to disordered eating and skills for how to eat in a balanced way.

### ***External Stressors and Overlapping Mental Health Problems (n = 3)***

Nearly a third of participants described wanting the intervention to address coping with external stressors and the disordered eating-related consequences. Stressors such as college (e.g.,

what major they want to pursue) and their future (e.g., what career they wanted to pursue) were cited as anxiety-provoking. Participants also discussed how symptoms of depression can exacerbate their disordered eating symptoms, such as increasing their thoughts around poor body image. Participants discussed how stress from school due to tests, assignments, and expectations around grades often resulted in a lower mood, thus lowering their self-esteem.

### ***De-Emphasis of Weight and Shape (n = 6)***

More than half of participants described wanting an intervention that does not focus on weight as an outcome or an indicator of health. Some participants noted how metrics like body mass index and weight are not reliable or accurate indicators of body composition and health. Therefore, they desired that weight be discussed in a neutral, nonjudgemental way. For example, participants wanted the intervention to discuss how living in a larger body does not always equate to a lack of proper diet and exercise. Also, participants wanted to discuss what exercises can make the body feel stronger, rather than focusing on exercise to change one's shape. Participants also noted that it would be helpful for an intervention to teach skills to help mitigate the effects of weight-related bias they see on social or traditional media.

### ***Social Media Literacy (n = 5)***

Some participants indicated that an emphasis on the positive aspects of social media use, such as its potential to be a recovery tool, would be helpful. They noted that some discussion of the unhelpfulness of social and peer comparison, especially related to body image, could be useful, but that demonizing social media altogether would be unhelpful. They explained that despite what their parents and teachers often said, social media can be a safe space if used in a supportive way (such as communicating with caring friends). As such, they suggested including discussions of how to use social media productively and helpfully.

## **Rural Community Considerations**

When asked for additional considerations for their community, youth described logistical and cultural factors.

### ***Logistical Factors (n = 4)***

Participants described a few logistical factors that needed to be considered and integrated into a school-based intervention. For example, they recommended that the intervention be suitable for the size of their schools, which they described as “overcrowded.” Additionally, youth mentioned that the intervention would need to incorporate hands-on activities and not just talk through their feelings since they reported that most of their peers had shorter attention spans. They noted that activities may help them and their peers learn more effectively. They also described that the intervention would need to recruit the “right people” which they explained as kids who like speaking with adults and feel comfortable disclosing information to them.

### ***Cultural Factors (n = 7)***

Participants indicated that in their small rural communities, everyone knows each other so the intervention would need to be sensitive to this group dynamic. However, some participants noted that the familiarity between community members might be a strength of the setting since people may be more inclined to participate if they know others who are there. Participants also mentioned that people in their communities can be “prejudiced” towards those who look different (e.g., style of dress or membership in the LGBTQ+ community). Participants described feeling that school administrators and teachers do not handle peer victimization adequately (e.g., blaming the victim for the reason why they were bullied) and as a result, they felt that it was difficult to trust adults. Consequently, participants expressed concern that youth who feel ostracized due to their identities may be reluctant to share their feelings in an intervention for

fear that the school could use this information against them. Youth also noted that their communities are diverse in terms of race, ethnicity, and socioeconomic status. They indicated that the intervention would need to take into consideration how such identities may influence body standards within their community. For example, a participant discussed “skinny shaming” in the Black community. Oftentimes, people in their community will tease others for being smaller but also tease them for being bigger which causes some confusion for youth on what society would like their body to look like.

### **Discussion**

This study sought to understand rural youth needs and preferences for school-based interventions for disordered eating. Given the themes that emerged, there is a clear need for a selective school-based interventions for disordered eating in rural youth, and some tailoring to this group may be warranted. Rural youth were generally in agreement that this intervention would be acceptable and viewed positively by their peers, with few participants expressing concerns for negative reactions. They also mentioned how mental healthcare in their communities is largely inaccessible, suggesting that a selective school-based intervention may be a more accessible route to receiving eating disorder treatment.

School-based interventions for rural youth should be tailored by content and format to meet their needs. There appears to be many parallels between current interventions and the needs of rural youth. Table 4 presents alignment between existing evidence-based eating disorder treatments and selective school-based interventions with rural youth needs and preferences for interventions. Most rural youth desired an intervention that teaches them how to eat in a healthy and balanced way, but without an emphasis on caloric intake or food’s effect on weight. Fortunately, this perspective appears across several eating disorder treatments and school-based

interventions, including Enhanced Cognitive Behavioral Therapy (CBT-E), The Body Project, and Family-Based Treatment (FBT; Fairburn, 2008; Le Grange et al., 1992; Stice et al., 2012). Although these treatments do not prescribe specific meal plans, they encourage individuals to listen to their bodies and develop a pattern of eating that is consistent and balanced in the types of foods consumed, including nutritious foods and “fun” foods (e.g., desserts). Indeed, research shows that prescribing meal plans that dictate what an individual should eat are not helpful in eating disorder recovery (Harrop et al., 2025; Padrão et al., 2012). Therefore, school-based interventions for rural youth should perhaps educate students on the potential dangers of prescribed meal plans and instead provide information on the value of having a varied diet that is satisfying to the individual. CBT-E provides psychoeducation regarding healthy and balanced eating; rural youth may benefit from school-based interventions that include some of this content. Rural youth also wanted the intervention to include discussions of the myths of eating disorders and debunk the misconceptions surrounding them. Existing interventions, like CBT-E and FBT, extensively address myths regarding eating patterns and weight including psychoeducation about the consequences of eating disorders.

Notably, rural adolescents discussed how for some, their smartphones were the only way to communicate with those who support them and lift them up, while also sometimes being a source of negative body comparison that exacerbated their eating disorder symptoms. Although interventions like The Body Project do address social and bodily comparisons to peers, they do not address healthy and adaptive social media use, likely because when they were developed, social media use was less ubiquitous (Stice et al., 2012). Discussions of social media use and eating disorder behaviors likely do occur in individual treatment, but no formal protocol for social media literacy exists as part of interventions for disordered eating. Because youth appear

to need more explicit guidance on how to regulate their social media use without abandoning it all together, modifications to existing school-based interventions should consider including how to balance the benefits and challenges of social media. Youth often turn to social media for connection and entertainment (Vannucci et al., 2019); thus, we must leverage social media as a values-based tool for social connections and entertainment. Yet, we should still aim to de-emphasize the social media use that results in youth comparing themselves to others and contributing to the dissatisfaction with their diet and body shape/weight.

Rural youth also mentioned that they would prefer the intervention to de-emphasize the importance of weight and shape, with a stronger focus on increasing body utility then changing appearance. Our current interventions for disordered eating do convey the importance of de-centralizing weight and shape as a means to define one's worth, but these interventions were developed 15+ years ago (e.g., FBT and CBT-E; Fairburn, 2008; Le Grange et al., 1992) and thus may include some outdated language regarding modern conceptualizations of weight (Nutter et al., 2025). Rural youth seem to desire an intervention with more explicit weight-neutral language, concurrent with the body neutrality movement (Darwin et al., 2018). The Body Project is a dissonance-based selective intervention that teaches youth how to create a better relationship with their body and could be a starting point for adapting such intervention pieces for rural youth.

Finally, rural youth explained that overlapping mental health conditions such as depressed mood and anxiety can exacerbate their disordered eating. Incorporating techniques from general and CBT-E into a selective school-based intervention might be helpful in targeting transdiagnostic mechanisms (e.g. emotion dysregulation) for disordered eating and other psychopathology (Monell et al., 2018). General stress management skills such as emotion

regulation skills, mindfulness techniques, and solution-focused therapy skills could be helpful to establish healthy coping mechanisms for rural youth in response to stress from thoughts about their future (Atkinson et al., 2015; Chen et al., 2023; Helland et al., 2024). Incorporating these evidence-based techniques into a school-based intervention for rural youth may help to mitigate the transdiagnostic correlates of disordered eating.

Given the community considerations that rural youth indicated, utilizing activities from our current eating disorder interventions may be a salient mechanism for increasing buy-in from rural youth. Fortunately, many of the current interventions do involve activities and worksheets. Emphasizing these aspects of the intervention might be an excellent way for rural youth to engage with the intervention meaningfully and to maximally benefit from it. Additionally, an intervention that provides a safe place to discuss the value of differences, and the importance of nonjudgment for rural youth who are stigmatized (e.g. LGBTQ+ youth) would be helpful given the stigma youth described experiencing within their rural communities. Special care may be needed for interventionists to create an environment in which rural youth feel comfortable to openly identify with aspects of their culture that impact disordered eating and speak on their thoughts and feelings without fear of judgment.

Interestingly, although rural youth did indicate that they would prefer the intervention to de-emphasize weight and shape, we did not find that concerns for muscularity were present among this group, as theorized by experts (Hahn et al., 2023). However, we did not explicitly ask about muscularity in our interview. The sample that was recruited was predominantly cisgender female and included only one cisgender male. Given the difference in societal body standards for men and woman, different themes might have emerged with a more gender diverse sample. Boys, men, and gender diverse populations are historically underrepresented in eating disorder

research. Thus, it is important that future work include representative samples to increase our understanding of how findings may differ (or not) in these groups.

### **Strengths, Limitations, and Future Directions**

This study was the first to examine school-based intervention preferences for treatment of disordered eating among rural youth. This is a strength because rural communities have limited access to eating disorder treatment, despite being at elevated risk for an eating disorder. Rural communities are also often understudied in eating disorder literature, as most studies include samples of white, affluent, and suburban/urban individuals (Goel et al., 2022). Nonetheless, there are still some limitations. First, while we had a diverse sample in terms of racial and ethnic minorities, especially within rural communities, gender diversity was limited. Future research may reveal different intervention preferences that better serve gender diverse groups. Second, although qualitative data provides rich and meaningful information on individuals' lived experiences, this study was conducted using a small sample size and a short semi-structured interview assessing intervention preferences. Additionally, there was a secondary analysis based on pre-existing data, thus sample size was limited and it is unclear if saturation was reached during interview coding. Quantitative methods might be utilized to confirm these data with larger sample sizes, and to also broaden the scant literature on rural communities and eating disorders. In particular, little is known about the risk and maintenance factors of eating disorders in rural youth, thus more research is needed to identify and, eventually, address, the potentially unique mechanisms of eating disorders within rural communities. Future research may also use focus group designs to present results of the current study, obtain further feedback on intervention needs and preferences, and use results to develop prototype interventions that can be systematically tested for usability, feasibility, and efficacy among rural youth.

## **Conclusions**

Interventions for disordered eating likely can be applied in a rural school-based setting, but modifications are needed to ensure that they are accessible and fit the needs of rural youth. More research to understand unique risk and protective factors for eating disorders in rural communities is needed to further bolster intervention efforts. Future work might utilize quantitative and qualitative methods to further define the intervention needs of rural youth and how to make these interventions more accessible. Using these preliminary results, future work should develop more specific questions assessing the type of content and logistical factors rural youth would like to see in a school-based intervention. For example, it might be helpful to inquire who they would prefer to lead the intervention, additional cultural facts to consider, and how often the interventions sessions should occur. Then, this data would be used to create a prototype intervention utilizing techniques from established eating disorder interventions for further testing.

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## Appendix A

**Table 1**  
*Demographic Characteristics of Participants*

Characteristic	Participants	
	<i>n</i>	%
Grade		
8 <sup>th</sup>	3	27
9 <sup>th</sup>	2	18
10 <sup>th</sup>	2	18
11 <sup>th</sup>	4	36
Race		
Asian or Asian-American	2	18
Black or African American	4	36
White or European-American	2	18
Biracial or Multiracial	1	9
Other	1	9
Prefer not to answer	1	9
Ethnicity		
Non-Hispanic or Latine	9	82
Hispanic or Latine	1	9
Prefer not to answer	1	9

*Note.*  $n = 11$

**Table 2**  
*Clinical Characteristics of Participants*

Clinical Characteristics	Rural Participants	
	<i>n</i>	%
Eating Disorder Diagnosis		
Anorexia Nervosa	1	9
Bulimia Nervosa	7	64
Binge Eating Disorder	1	9
Atypical Anorexia Nervosa	1	9
Other or Unspecified Feeding or Eating disorder	2	18

*Note.*  $n = 11$

**Table 3***Themes and Model Quotes*

<b>Themes</b>	<b>Model Quote</b>	<b>Participant Characteristics</b>
Positive	“I think that would be quite useful because I do know that like there are quite a few people in my school who have like body image issues.”	<i>Girl Asian Age 17 Few experiences of food insecurity Rural: Fringe</i>
	“I think they'd think of it just as like mental health services like it would be like equivalent to that, like it's something that should be taught like in general or should be like accessible to everyone.”	<i>Girl Black Age 13 Many experiences of food insecurity Rural: Fringe</i>
Concerns about Intervention	“I think some of them would like to hear it, but I think also some of them would think it's probably the dumbest thing or dumbest class they've ever taken because that's just how they are. Not that it's because it's a dumb class, but because they grew up and still are growing up in a town with their parents and other people who don't believe in mental health and that it's not an important thing.”	<i>Girl Bi-racial Age 14 Few experiences of food insecurity Rural: Fringe</i>
	“There are some teens who just don't have the perspective or the ability to see the nuance of those kind of things. So, unless you start teaching it from a really really young age, then it's just not something, it's something you have to unlearn first before you can be receptive of that kind of knowledge.”	<i>Girl White Age 16 No food insecurity Rural: Fringe</i>
Healthy and Balanced Eating	“I guess just education on like different types of disordered eating.”	<i>Girl Asian Age 16 No food insecurity Rural: Fringe</i>
	“I would talk about like the proper eating methods and umm like feeling good about yourself instead of doing it for others and umm like just like being satisfied with yourself.”	<i>Boy Black Age 17 Many experiences of food insecurity Rural: Distant</i>
External Stressors and Overlapping	“But like understanding and being compassionate about why that happens because that person doesn't have access to produces, because they live in a community where it's not safe to exercise, or they don't really know how to exercise or	<i>Girl White Age 16 No food insecurity</i>

Mental Health Problems	they're struggling with depression or substance abuse and that sort of thing."	<i>Rural: Fringe</i>
	"I know that some people get anxiety about what they're going to do with their future, so maybe like support groups on like kids doing maybe college prep for their mental health."	<i>Girl Black Few experiences of food insecurity Rural: Fringe</i>
Social Media Literacy	"...cell phones are their only communication with their friends or people that actually care about them, it's like a solace for them. It's the only it's like a crutch. It's the only thing they have."	<i>Girl Black Age 16 Few experiences of food insecurity Rural: Fringe</i>
	"...so many people use like Instagram or TikTok as a guide of what a good diet is or what good eating is, and it's it's not. Most of the time it just breaks your heart, and you don't see yourself lose a pound or you like, see what celebrities are doing to lose weight."	<i>Girl Bi-racial Age 14 Few experiences of food insecurity Rural: Fringe</i>
De-Emphasis of Weight and Shape	"I know that are people that like overeat but I don't think like asking them to cut down on like the amount of food that they're consuming is going to be really helpful. I think maybe instead they should talk about like healthier options to choose from rather than eating like junk food that most of them are probably consuming right now."	<i>Girl Age 17 Asian Few experiences of food insecurity Rural: Fringe</i>
	"Definitely not [...] having us like everyone weigh themselves not having you know people write down what they eat and like for the entire day or week definitely not you know calling out anyone or like bullying them because there are certain size or have certain condition"	<i>Girl Black Age 14 Few experiences of food insecurity Rural</i>
Logistical Factors	"We're very cramped. There's too many students."	<i>Girl Black Age 16 Few experiences of food insecurity Rural: Fringe</i>
	"My school I think is more like activity based. I feel like we get a lot of learning it through activities."	<i>Boy white Age 14 No food insecurity Rural: Fringe</i>
Cultural Factors	"...we have some kids who are lesbian in our school or gay or, you know, pansexual or whatever their orientation is and they'll just bully them ruthlessly. It is, it's bad. It's really bad at my school. And of course they say there's a no bullying policy. But	<i>Girl Bi-racial Age 14</i>

	when your own principals think the same way, of course you're not going to get help right?"	<i>Few experiences of food insecurity Rural: Fringe</i>
	"So like my school at my school, it's like a family there, like even if you don't know each other, you already know their business before you know that the person's name. Like that's how close we are."	<i>Girl Age 16 Hispanic/Latine Few experiences of food insecurity Rural: Distant</i>

*Note:* Rural Fringe = rural area  $\leq 5$  miles from an urban area and  $2.5$  miles  $\leq$  from an urban cluster. Rural area distant = rural area  $> 5$  miles but  $\leq 25$  from an urbanized area and an area that is  $> 2.5$  miles but  $\leq 10$  miles from an urban cluster. Rural area remote = area that is  $> 25$  from an urbanized area and  $> 10$  miles from an urban cluster (NCES Locale classifications and criteria, 2022).

**Table 4**

Themes and how well our current interventions address these needs

Themes	Intervention				
	The Body Project	Interpersonal Psychotherapy	Student Bodies	Enhanced Cognitive Behavioral Therapy	Family-Based Treatment
Healthy and Balanced Eating			✓	✓	✓
External Factors and Overlapping Mental Health Concerns			✓	✓	
De-Emphasis of Shape and Weight	✓	✓	✓	✓	✓
Social Media Literacy					
Logistical Factors	✓		✓	✓	✓
Cultural Factors					