

Original Paper

An Investigation of Eating Disorders among Gifted Adolescents

Sally R. Beisser^{1*} & Catherine W. Gillespie¹

¹ Teaching and Learning Department, School of Education, Drake University, Des Moines, Iowa, USA

* Sally R. Beisser, Teaching and Learning Department, School of Education, Drake University, Des Moines, Iowa, USA

Received: January 14, 2020

Accepted: January 23, 2021

Online Published: February 5, 2021

doi:10.22158/ct.v4n1p64

URL: <http://dx.doi.org/10.22158/ct.v4n1p64>

Abstract

Gifted students may experience greater risk of disordered eating, especially during adolescence, which is already a high-risk time for the development of eating disorders. In particular, the novel Covid-19 global pandemic exacerbates stress that may influence adolescents with disordered eating. This study investigated eating disorders of 33 identified gifted adolescents (77% female) in one Midwest state with an online survey using a well-validated instrument, the Eating Disorder Examination-Questionnaire (EDE-Q), that contains subscales of eating restraint, eating concern, shape concern, and weight concern. Narrative responses were included in the data. Results indicated 20% of the gifted adolescents in this study revealed concerning responses about their weight, shape, and dietary restrictions. Voluntary comments revealed apprehension, concerns, and distress among some respondents. Recommendations are provided for teachers, parents, as well as for students themselves.

Keywords

eating disorders, gifted teens, mental health, survey research

1. Introduction

Gifted students may experience greater risk of disordered eating, especially during adolescence, which is already a high-risk time for the development of eating disorders. Fear of fatness and avoidance of fatness through dietary restraint, dieting, and fasting, place adolescents at greater risk for eating disorders. To date, there is very little literature on eating disorder experiences of gifted adolescents. Educators of gifted students are naturally concerned with facilitating advanced academic learning experiences for their students. However, they may be unaware of social-emotional needs, mental health challenges, and incidence of eating disorders. In particular, males are at higher risk of being unidentified, yet eating disorders of males are becoming more problematic, especially among people who do not think males have eating disorders. This study will provide essential information for educators, parents, and the

students themselves. The researchers were curious about the connections between gifted students and eating disorders. The overarching question became, “What are the experiences of gifted adolescents concerning their eating restraint, shape, and weight concern?” Although this study was conducted prior to the Covid-19 pandemic, the authors believe that this information is more important than ever, as people with mental health challenges, including eating disorders, are often negatively impacted by unexpected and stressful situations.

2. Review of Literature

2.1 Description and Prevalence of Eating Disorders

Three primary eating disorders have been recognized by the most recent (2013) 5th edition of the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V): Anorexia Nervosa (often referred to as anorexia or AN), Bulimia Nervosa (often referred to as bulimia or BN), and Binge Eating Disorder (often referred to as binge eating or BED). Each of these eating disorder diagnoses are described below in the three following paragraphs. If individuals do not meet the DSM-V criteria for full-blown eating disorders, they may still have clinically significant partial-syndrome eating disturbances that are equally worthy of clinical attention and further study (Bakalar, Shank, Vannucci, Radin, & Tanofsky-Kraff, 2015).

Core features of anorexia include low weight status and dietary restriction. The typical clinical presentation of a person with anorexia includes undue concern about their own body shape or weight, weight concerns, and body dissatisfaction (Culbert, Racine, & Klump, 2015). Lifetime prevalence of anorexia ranges between 2-4% for women depending on the region and population studied and less than 1% for men (Smink, van Hoeken, Hoek, 2012). In a U.S. sample of 35,995 participants, snapshot (not lifetime) prevalence was 0.77% for heterosexual respondents and more than double at 1.71% for non-heterosexual respondents (Kamody, Grilo, & Udo, 2019). In a surveillance study of the United Kingdom and Ireland, 305 cases of anorexia were reported over an 8-month period, with the average age of individuals being 14.6 and the majority being white (92%) young women (91%) (Petkova, Simic, Nicholls, Ford, Prina, Stuart, 2019). Although the percentages of people affected by anorexia in the population are low, 300 teens in two countries over eight months is still a sizeable number of young people. Help-seeking rates among the 275 out of 36,309 survey respondents who met criteria for anorexia were 34.5%, with men and non-whites seeking help at lower rates than women and whites (Coffino, Udo, & Grilo, 2019).

Bulimia typically includes binge eating, compensatory behaviors (purging), over-evaluation of body shape or weight, body dissatisfaction, weight concerns, and dietary restriction (Culbert, Racine, & Klump, 2015). Lifetime prevalence of bulimia ranges between 2-3% for women depending on the region and population studied and less than 1% for men (Smink, van Hoeken, & Hoek, 2012). Additionally, bulimia rates have decreased over the years whereas the other eating disorders have not decreased. In a

U.S. sample of 35,995 participants, snapshot (not lifetime) prevalence of bulimia was 0.24% for heterosexual respondents and more than triple at 1.25% for non-heterosexual respondents (Kamody, Grilo, & Udo, 2019). Help-seeking rates among the 91 out of 36,309 survey respondents who met criteria for bulimia were 62.6%, with men and non-whites seeking help at lower rates than women and whites (Coffino, Udo, & Grilo, 2019). It is noteworthy that the lowest number of survey respondents had bulimic symptoms compared to symptoms of anorexia (275/36,309) and binge eating disorder (256/36,309), yet it had they were the group most likely to seek help.

Binge eating disorder is distinguished by binge eating without compensatory behaviors (purging). Clinically, a person with binge eating disorder may exhibit emotional eating in addition to the typical bulimia issues of over-evaluation of body shape or weight, body dissatisfaction, weight concerns, and dietary restriction (Culbert, Racine, & Klump, 2015). Lifetime prevalence of binge eating disorder ranges between 2-4% for women depending on the region and population studied and less than 1% to 2% for men (Smink, van Hoeken, & Hoek, 2012). In a U.S. sample of 35,995 participants, snapshot (not lifetime) prevalence of binge eating disorder was 0.81% for heterosexual respondents and more than double at 2.17% for non-heterosexual respondents (Kamody, Grilo, & Udo, 2019). Help-seeking rates among the 256 out of 36,309 survey respondents who met criteria for binge eating disorder were 49%, with men and non-whites seeking help at lower rates than women and whites (Coffino, Udo, & Grilo, 2019). In an example of partial-syndrome eating disorders with wide-ranging impact, 154 undergraduate women at Palestine Polytechnic University were assessed and 50% had some level of binge eating symptoms (Badrasawi & Zidan, 2019). Those who struggled with binge eating were more likely to also have higher levels of depression, stress, and anxiety.

2.2 Risk Factors for Eating Disorders

Risk factor for eating disorders include those that are sociocultural or socio-environmental, such as social media and living in a culture that idealizes thinness, those that are psychological, such as inborn temperament and the trait of perfectionism, and those that are genetic or biological, such as hormonal changes and disturbances (Bakalar, Shank, Vannucci, Radin, & Tanofsky-Kraff, 2015). Reviewing all three of these spheres of influence over 50 research studies, Culbert, Racine and Klump (2015) concluded that all three of the areas interact with each other. For instance, when individuals do not internalize the cultural message of the thin ideal, that is partly due to genetics and partly due to the individual's sociocultural environment. Even with the interactions among them, researchers were able to identify these variables as eating disorder risk factors: "sociocultural influences (media exposure, pressures for thinness, thin-ideal internalization and thinness expectancies) and personality characteristics (negative emotionality/neuroticism, perfectionism, and negative urgency)" (p. 1156). Biological factors such as serotonin or dopamine disturbances emerged not as risk factors, but rather as correlates of eating disorder development. Similarly, the following sociocultural and psychological risk factors predicted the onset of eating disorders for 1,272 women who were followed from a three-year

period from 18-21 years of age: internalization of the thin ideal, body dissatisfaction, denial of the costs of pursuing the thin ideal, dieting, fasting, overeating, positive expectations of what thinness would bring, and mental health care (Stice, Gau, Rohde & Shaw, 2017).

Recent conceptualizations of the sociocultural effects of a culture that idealizes thinness points to the internalized thin ideal as being both a cultural and individual fear of fatness. Fear of fatness and avoidance of fatness predicted eating restraint among 79 young (averaging 19 years old) Australian women (MacLeod, Macleod, Dondzilo, & Bell, 2019). Dietary restraint can include taking smaller servings to avoid weight gain, and it is related to eating disorder symptoms. Specifically, dietary restraint predicts binge eating, and varies according to individuals' level of sense of eating-related self-efficacy (which is people's perception of their ability to control their overeating in various situations, including around holidays or when upset). In Linardon's (2018) sample of 237 young women (averaging 25 years old), stronger eating-related self-efficacy was related to lower levels of binge eating, but no matter how much eating-related self-efficacy was exhibited, higher levels of eating restraint predicted higher levels of binge eating.

2.3 Biological Risk Factors

Biological risk for eating disorders includes hormonal including hormonal changes associated with puberty as well as genetic risk factors. Although genetic associations have been made with anorexia, bulimia, and binge eating disorder, the manifestation of these disorders is still multifactorial, including input from genetic and environmental factors (Bulik, Blake, & Austin, 2019). The presence of a definite genetic component to eating disorders could reduce the stigma and help individual who are struggling and their families to experience less shame about their condition, but unfortunately, according to one-third of 50 women with a history of eating disorders, blaming genetics could also increase stigma, one half of the interviewees thought that a genetic explanation would lead to less personal agency, and that would be harmful to people with eating disorders (Easter, 2012). Similarly, a study of 216 participants investigating the impact of genetic explanations for eating disorder development, researchers found it less helpful to emphasize the biological nature of eating disorder development because although self-blame was avoided, recovery self-efficacy was decreased (Farrell, Lee, & Deacon, 2015).

2.4 Other Familial Factors

Over ten years ago, the Academy for Eating Disorders (AED) released a position paper emphasizing that although families can play a role in the development of their children's eating disorders, it "stands firmly against any etiologic model of eating disorders in which family influences are seen as the primary cause of anorexia nervosa or bulimia nervosa, and condemns generalizing statements that imply families are to blame for their child's illness" (Le Grange, Lock, Loeb, & Nicholls, 2010, p. 1). The AED organization argued instead for the engagement of families, where appropriate, in their children's eating disorder recovery treatment. This is still somewhat of a contentious issue in the field of eating disorders. It is certainly too simplistic and not helpful in any way to assert that parents cause eating disorders. However,

families can play a role in the development of eating disorders, even if they are not the primary cause. For instance, in a study of 50 families with adolescents receiving treatment for eating disorders, it was found that the adolescents with eating disorders were more likely than the general population to have lower perceived family functioning (Tafà et al., 2017). Additionally, mothers of those with anorexia were more likely to be rigid, mothers of those with bulimia were more likely to be enmeshed, and mothers of those with binge eating disorder were more likely to be chaotic than those in the general population. Similarly, children's attachment relationships with their parents can influence the development of eating disorders. Cortés-García, Hoffman, Warschburger, and Senra (2019) found that secure attachments between mothers and children were protective against the later development of disordered eating among a general population sample of 904 boys and girls who were followed for six years, starting at age 10. Additionally, secure attachments to fathers were found to play a smaller but significantly positive role, especially for boys. Secure attachments to peers did not have any observable effect on disordered eating.

2.5 Adolescents and Eating Disorders

Three major studies have been conducted that follow children over a period of at least five years to determine the sequence of risk factors in the development of eating disorders (Davis & Smith, 2018; Goldschmidt, Wall, Zhang, Loth, & Neumark-Sztainer, 2016; Rohde, Stice, & Marti, 2015). All three studies point to the possible opportunity for early identification of and intervention with young people exhibiting eating disorder risk factors.

When Rohde, Stice, and Marti (2015) followed 496 young women for eight years starting at age 13, they could determine who was at risk by age 14. Over the course of the study, 12% of the participants experienced at least one eating disorder. The sociocultural factors of perceived pressure to be thin, thin-ideal internalization, and body dissatisfaction all had positive linear relationships with increases in eating disorder symptoms, which of course was not positive at all for these young women. All the young women experienced the risk factors at higher rates as they got older, but those who developed eating disorders experienced the risk factors more from the start of data collection.

Onset of puberty is one of the factors that contributes to the development of eating disorders. Davis and Smith (2018) followed 1,906 children from 5th to 10th grade (from age 11) and found that when onset of puberty leads to negative urgency ("When I am upset I often act without thinking") and then in turn leads to thinness expectancies ("If I were thin, I would feel more worthwhile") or eating expectancies ("eating helps me forget bad feelings, like being sad, lonely or scared"), binge eating or purging is a significantly significant possible result. It is a developmental sequence that could possibly be interrupted at any point. Davis and Smith (2018), like Rohde, Stice, and Marti (2015), concluded that risk factors for the later development of eating disorders can be identified in elementary or middle school.

Goldschmidt, Wall, Zhang, Loth, and Neumark-Sztainer (2016) followed 1,902 young people over a 10-year period starting in 7th grade (age 13). They found that although for over half of participants, overeating and binge eating decreased over time, those with greater psychological challenges (depressive

symptoms, body dissatisfaction, and low self-esteem) in late adolescence and early adulthood were more likely to have persistent eating disorder symptoms. Overeating was more likely to resolve itself among participants over time than was binge eating, although some earlier overeaters became later binge eaters.

2.6 Eating Disorder Risk for Gifted Students

There is no reason to suspect that gifted students are at lower risk for eating disorders than other students. Gifted students may experience a greater risk, especially during adolescence, which is already a high-risk time for the development of eating disorders. Fear of fatness and avoidance of fatness through dietary restraint, including dieting and fasting, all put individuals at greater risk for eating disorders. To date, there is very little researcher literature on the experiences of gifted adolescents. In 1991, Garner wrote, “Gifted adolescents may be more vulnerable to the development of both *anorexia nervosa* and *bulimia nervosa* because those youngsters possess many of the traits that have been identified as risk factors for these eating disorders” (p. 61), but others have not followed up by investigating gifted adolescents’ experiences of their food, eating, body and weight. The current study is a much-overdue response to Garner’s suggestion.

3. Method

This Institutional Review Board (IRB) approved study investigated the question, “What are the experiences of gifted adolescents concerning their eating restraint, shape, and weight concern?” In order to explore this research question, this study was designed to gather data directly from adolescent gifted students with an online survey that included a well-validated instrument, the Eating Disorder Examination-Questionnaire called the EDE-Q containing four subscales of eating restraint, eating concern, shape concern, and weight (Fairburn & Beglin, 1994). The EDE-Q has been widely-used enough that Berg, Peterson, Frazier and Crow (2012) were able to conduct a review of the reliability and validity literature on it based on 10 studies. They concluded that there is a robust test-retest reliability of on the four subscales of the EDE-Q. Additionally, EDE-Q’s validity in determining whether a person has an eating disorder was confirmed.

3.1 Survey Design

An online survey is an ideal method for allowing secondary gifted students privacy, autonomy, and confidentiality of responses. This online survey of 28 questions (Appendix A) was constructed using Qualtrics© survey software with five sections. First was a sliding scale containing four questions on “How happy are you with your weight, shape, eating, and eating restraint?” The scale represented a happy face J to an unhappy face L and representative faces in between. Next there were 12 questions on feelings pertaining to weight, shape, eating, and eating restraints with a range of seven responses from feeling concerns “every day” to “no days” with responses in between. The third section had eight questions about risk behaviors (e.g., throwing up) experienced in the last month with responses representing frequency. This section had seven questions on emotions tied to satisfaction with responses

ranging from “not at all” to “markedly”. The last section invited open-ended responses from participants.

3.2 Participants

In this Midwest state, the department of education lists 462 teachers or coordinators as “gifted education contacts”. An email was sent to all middle school and high school contacts. While the majority of these contacts listed appeared to work in middle school and high school settings, some contacts had changed, some emails were wrong, and some educators were responsible for both elementary and secondary students. Consequently, some emails bounced back as incorrect and others were forwarded to the correct recipient. Eventually, as a result of this outreach email, 462 gifted and talented education contacts were invited to recruit participants in the study by forwarding the survey link to parents of their gifted adolescent students. There were 23 female and 6 male respondents, with one participant defined as “other” for their gender. The participant age range was from 10 years of age to over 18 years, with 22.6% as an average age of 15 years. The 10-year-old was clearly an outlier with respect to the population of respondents, however, her sisters were taking the survey and she chose to respond. All participants were from the same U.S. state and were identified as Talented and Gifted (TAG) according to their school districts. There were an estimated 28,752 identified grade 7-12 (2020) gifted students in this state at the time of this study.

3.3 Procedure

An invitation email to TAG educators in each district included four research-based statements highlighting the severity and importance of disordered eating (Arcelus et al., 2011; Mond et al., 2014; Whitaker, 1992). Subsequently, those teachers or coordinators of gifted students in their districts were asked to forward the Qualtrics survey link (Appendix A) to the parents of the middle school and high school gifted students. Parents, then, were asked to share this survey with their gifted child or children. By this method, researchers were able to gain parental consent, from emails or from U.S. Postal Service as a hard copy to the researchers. Next, the gifted students sent the completed surveys back to the researchers, again via email or postal mail. The time frame of this study was approximately six months from the beginning of the initial communication to district educators until researchers received the completed confidential surveys through Qualtrics. A total of 30 responses were received. Considering the difficulty of getting this survey to the TAG teachers or coordinators, reaching the gifted adolescents, and securing parental consent, we were happy with this response rate. In this study, no direct benefit or compensation was provided.

4. Results

The EDE-Q (Fairburn & Beglin, 1994) scores were calculated (Table 2) for the group of respondents in this study and their scores are compared below to established community norms. Qualitative comments (Table 1) regarding eating habits and attitudes were reviewed, analyzed, and are presented below. While most participants did not offer qualitative responses, some comments were positive such as “I feel fine

about my body”, “I am very happy about my eating habits”, and “I think I’m happy with the way I look. My body has changed a lot recently, but I am happy with the way I look”. However other comments were concerning such as “I barely tolerate myself”. Table 1 represents examples of internal struggles with body image, social isolation, perceived lack of support, focus on controlling food, issues with food, image, eating, weight, and shape. All names represented in Table 1 are pseudonyms.

Table 1. Narrative Comments on Weight, Shape, or Feelings about Eating

Concerning Comments of Adolescents from Survey Data

Erin reflects, “I’m not the skinniest girl in the world, nor do I come from a skinny family, so when I was younger I just kinda ate whatever I wanted. Lately I’ve been losing weight and since coming out as gay I’ve been trying to lose as much as possible”.

Jennifer says, “I’m in recovery from anorexia, but I still struggle to an extreme every day. Whether with wanting to lose weight or feeling like I HAVE to maintain or gain weight to make everyone else happy. There are days I don’t eat so the next day I eat till I feel sick because I “have” to make up for it. I “have” to be the poster child in recovery. I have to make everyone happy”.

Kim “I know I have an eating disorder, I have since around seven years old. It started with binge eating, I had no one to talk to and was very alone so I turned to food. In middle school I began restricting calories. I would eat a max of 300 calories a day. I was working out excessively. Whatever food I did eat was most likely thrown up. I still have issues with food, but I’m trying. I actually did a presentation in class on eating disorders. I would love to take part in this study. I am not happy with my body or shape. I have had issues with eating and my control over it my whole life. Thanks!”

Megan: summarizes, “I....think about it more than I should. I know, technically, I am within normal weight for my age, but it doesn’t...stop. Every time after I eat I look at my stomach in the mirror and go No. No this isn’t good enough. I know in my subconscious that the food I eat has to go somewhere but it doesn’t shake the feeling”.

Sophie states, “It is really hard to get my mind off of food and the way I look a lot. It is a struggle”.

The EDE-Q instrument is divided into four subscales (i.e., Restraint, Eating Concern, Shape Concern, and Weight Concern) and also offers a global score (i.e., a combination) of the four subscales. Gifted adolescent survey participants scored significantly higher in the Eating Concern subscale of the EDE-Q compared to established community norms (Table 2). This indicates greater concern among gifted student participants compared to community norms regarding their eating.

Table 2. EDE-Q Results Compared to Community Norms

	Restraint Subscale Mean (SD)	Eating Concern Subscale Mean (SD)	Shape Concern Subscale Mean (SD)	Weight Concern Subscale Mean (SD)	Global Score Mean (SD)
Gifted Survey Participants N=30	1.7 (2.84)	1.84 (1.88)*	2.26 (2.25)	2.23 (1.88)	2.01 (2.22)
Norms from Fairburn & Beglin, 1994 N=241	1.25 (1.32)	0.62 (0.86)	2.15 (1.60)	1.59 (1.37)	1.56 (1.21)
Norms from Mond et al. 2006 for their youngest group, 18-22 year olds N=1186	1.29 (1.41)	0.87 (1.13)	2.29 (1.68)	1.89 (1.60)	1.59 (1.32)

* $p < .01$ comparing study participants to Fairburn & Beglin, 1994 norms and also to Mond et al. 2006 18-22 year old norms using a two-tailed independent samples t-test, assuming equal or unequal variances

The Eating Concern subscale consists of responses to questions 7, 9, 19, 20, and 21 in the EDE-Q, which are as follows:

7. Has thinking about food, eating, or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?

9. Have you had a definite fear of losing control over eating?

19. Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)?

20. On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight?

21. Over the past 28 days, how concerned have you been about other people seeing you eat?

These items are all scored on a 0-6 point scale, with 0=not at all or no days; 2=slightly or 6-12 days; 3-4=moderately or 13-22 days, and 6=markedly or every day. Survey participants are closer to slightly or 6-12 days out of the past 28, whereas community norms are closer to not at all or no days.

5. Discussion and Implications

The statistically significant difference between study participants and established community norms (Table 2) is consistent with narrative comments of the respondents (Table 1) regarding their distress around eating where additional comments reflected dissatisfaction with body image, social isolation, perceived lack of support, focus on controlling food, issues with food, image, eating, weight, and shape. Not all gifted adolescents are overly concerned about food, eating, body image, or weight. However, 20% of the students in this study shared negative attitudes about their body image and eating habits, indicating possible risk factors for mental and physical health challenges. Educators of gifted are well-positioned to help students and their families receive information about disordered eating through knowledge and awareness of the potential that their students may be suffering silently about these issues. Teachers and parents will want to pay special attention to student behaviors and attitudes in order to help them receive early and appropriate interventions.

Multiple risk factors have been identified among the participants in this study. Age alone is a known risk factor for disordered eating, as adolescents are more likely to experience eating disorders. Significantly, while this study was conducted prior to the Covid-19 pandemic, the authors believe that this information is more important than ever, as people with mental health challenges, including eating disorders, are often negatively impacted by unexpected and stressful situations. Students at risk are not likely to cope well with adjustments to teaching and learning environments, virtual communication, and online learning.

Therefore, at the end of the survey, we encouraged students and families to seek resources they may need, such as the in-school counselor or a private counselor. We highly recommended the National Eating Disorders website <https://www.nationaleatingdisorders.org/help-support> as a resource. They have a screening tool and a helpline number +1 (800) 931-2237 on their website, among other valuable resources. These resources are invaluable for educators, parents, and students themselves. Another helpful website is National Association of Anorexia and Associated Disorders (ANAD) to learn about eating disorder identification and recovery. See this website: <https://anad.org/education-and-awareness/about-eating-disorders/eating-disorders-statistics/>

6. Recommendations for Practice

School Personnel. Teachers, counselors, administrators, school nurses, dieticians, and other school personnel, including coaches, can help normalize body changes during adolescence through informal conversations, refraining from comments and comparisons about bodies, clothing, appearance, sexuality, and other issues related to body esteem. In addition, we encourage teachers to not ignore warning signs of possible eating disorders such as rapid weight loss or weight gain, sudden onset of food anxiety, baggy clothing, or submitting of written work that concerns food, eating, body, or weight issues. Educators can provide identification and early intervention by providing resources (including websites above) to

students whom they perceive to be at risk. They are in a unique position to provide support to ameliorate social isolation, facilitate peer support, and be aware of classroom and extra-curricular dynamics.

Parents and Guardians. Parents of teens, who are appropriately less involved in the school setting, are encouraged to not overlook changing behaviors and attitudes of their gifted teens including food, eating, body, or weight issues. Be observant of family meals or celebrations with eating opportunities where their child seems to exhibit control or avoidance of food. Importantly, refrain from making negative comments about their own bodies or eating behaviors. If they suspect their teen is developing an eating disorder we encourage them to engage in a crucial conversation to discuss their concerns and to offer support to reassure their child of their unconditional love. In addition, parents can educate themselves of characteristics of anorexia, bulimia, and binge eating disorders. They may consult helpful resources including books, articles, websites such as the National Eating Disorders website <https://www.nationaleatingdisorders.org>. Community professionals may include the school counselor, pediatrician, dietician, private counselor, or eating disorder specialist. These non-school related health professionals are often covered by health insurance.

Gifted Students. Gifted students with eating disorders are unlikely to recognize or address their own problematic eating or image behaviors or seek help from others. Therefore, teens would benefit from being open to conversations, care, and concern from others. Peers can provide timely support for their friends who have concerning issues with eating, body image, weight, and shape. Self-deprecating behaviors, while tempting for all teens, are particularly counter-productive with respect to developing body esteem. Finally, we encourage ongoing prevention, intervention, and encouragement from school, family, and friend support systems.

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Appendix

Appendix A

Qualtrics Survey

Title of Study: A Needs Assessment of Eating Disorders among Gifted Students

Investigators: omitted for blind review

The purpose of this study is to complete a needs assessment for eating disorder prevention or intervention. Gifted students in middle school and high school are invited to participate in this study to better understand issues related to weight, shape, and eating concerns.

Procedures. If you agree to participate, you will be asked to complete an online survey of 32 questions that will take about 20 minutes of your time. The first four questions are a sliding scale of how happy you are with weight, shape, and eating. The rest of the questions ask about your activities in the month that include items such as limiting food, concern about weight or shape, losing weight, or exercise to control weight. Some questions define your age, sex, and school. The final section invites open ended comments.

Risks. While participating in this study you may experience discomfort that relates to attitudes or habits that relate to eating, dieting, shape, or weight. However, there are no foreseeable risks in participation in this study.

Benefits. If you decide to participate in this study there is no compensation. The information in this study may help gifted students and society in general, to gain information on possible issues related to eating, dieting, weight, or shape.

Participant Rights. Your participation in this study is completely voluntary and you may skip survey questions or stop answering them at any time. This will not result in any consequence.

Confidentiality. All responses are anonymous and confidential. You will not be identified in any way. Reports or publications no will represent only group data. Only the researchers have access to the data.

Contacts and Questions. If you have questions about the survey, contact [authors].

If you have questions about the research process, contact irb@drake.edu or call 515-271-3472.

By starting this survey, you understand and voluntarily agree to participate in this study. Questions are welcome. Contact the researchers above.

Participant's Name _____

Date: _____

—

Please keep a copy of this form for your records.

How do you identify yourself?

Male

Female

Other

Your age? 10 11 12 13 14 15 16 17 18 18+

1. How happy are you with your weight on most days? [Sliding scale]

2. How happy are you with your shape on most days? [Sliding scale]

3. How happy are you about your eating on most days? [Sliding scale]

4. If you restrain your eating, how do you feel about it? [Sliding scale]

Please rank the following statements based on feelings around eating in the last month.

No	1-5	6-12	13-15	16-22	23-27	Every
Days	Days	Days	Days	Days	Days	Day

1. Have you been deliberately *trying* to limit the amount of food you eat to influence your shape or weight (whether or not you succeeded)?

2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence or shape or weight?

3. Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you succeeded)?

4. Have you tried to follow definite rules regarding your eating (for example, a calorie limit in order to influence your shape or weight (whether or not you have succeeded)?

	No	1-5	6-12	13-15	16-22	23-27	Every
	Days	Days	Days	Days	Days	Days	Day
5. Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?							
6. Have you had a definite desire to have a <u>totally flat</u> stomach?							
7. Has thinking about food, eating, or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?							
8. Has thinking about <u>shape or weight</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?							

No	1-5	6-12	13-15	16-22	23-27	Every
Days	Days	Days	Days	Days	Days	Day

9. Have you had a definite fear of losing control over eating?

10. Have you had a definite fear that you might gain weight?

11. Have you felt fat?

12. Have you had a strong desire to lose weight?

Questions 13-18: Please select the appropriate number in the drop-down box on the right. Remember that the questions only refer to the past four weeks (28 days).

13. Over the past 28 days, how many times have you eaten what other people would regard as an *unusually large amount of food* (given the circumstances)?

14. On how many of these times did you have a sense of having lost control over your eating (at the time you were eating)?

15. Over the past 28 days, on how many *DAYS* have such episodes of overeating occurred (i.e. you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?

16. Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?

17. Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?

18. Over the past 28 days, how many times have you exercise in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat, or to burn off calories?

For questions 19 and 20: Please select the appropriate number. Please note that for these questions that term "binge eating" means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

No	1-5	6-12	13-15	16-22	23-27	Every
Days	Days	Days	Days	Days	Days	day

19. Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)? Do not count episodes of binge eating.

20. On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight? Do not count binge eating.

For questions 21-28 please select the appropriate response to the right.

	Not at all	Slightly	Moderately	Markedly
21. How concerned are you over other people seeing you eat?				
22. Has your weight influenced how you think about (judge) yourself as a person?				
23. Has your shape influenced how you think about (judge) yourself as a person?				
24. How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?				
25. How dissatisfied have you been with our weight?				
26. How dissatisfied have you been with your shape?				

27. How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?

28. How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?

Please share any insight or thoughts on your feelings around your weight, shape, or feelings around eating. Please answer openly and honestly. Thank you for your reply.