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UNDERSTANDING AND PROMOTING TREATMENT-SEEKING FOR EATING DISORDERS AND BODY IMAGE CONCERNS ON COLLEGE CAMPUSES THROUGH ONLINE SCREENING, PREVENTION AND INTERVENTION

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Abstract

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Statement 2: Contributors

Sarah Ketchen Lipson conducted the analyses and drafted the initial manuscript. Megan Jones, Dawn Eichen, and Ellen Fitzsimmons-Craft provided the Healthy Body Image data, helped in the analysis and interpretation of those data, and provided substantive contributions to all sections of the manuscript. C. Barr Taylor and Denise Wilfley oversaw all Healthy Body Image program implementation and were instrumental in providing feedback about the overall paper and its implications. Daniel Eisenberg oversaw all Healthy Bodies Study implementation and data collection and was instrumental in providing feedback about the overall paper and its implications. All authors contributed to making revisions and all authors have approved the final manuscript.

Statement 3: Conflict of Interest

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While there have been important recent advances in the development of effective universal prevention and intervention programs, it is not yet clear how to engage large numbers of students in these programs. In this paper, we report findings from a two-phase pilot study. In the first phase, we used a population-level, online survey to assess eating disorder symptom level and habits/attitudes related to service utilization (N=2,180). Using validated screening tools, we found that roughly one in three students have significant symptoms of eating disorders or elevated weight concerns, the vast majority of whom (86.5%) have not received treatment. In the second phase, we referred students to online prevention and selective/indicated intervention programs based on symptom classification (N=1,916). We find that program enrollment is highest for students in the indicated intervention (18.1%) and lowest for students in the universal prevention (4.1%). We find that traditionally-emphasized barriers such as stigma, misinformation, and financial limitations do not appear to be the most important factors preventing treatment-seeking. Rather students report not seeking help for reasons such as lack of time, lack of perceived need, and a desire to deal with the issue “on my own.” Findings offer insight into the treatment-seeking habits and attitudes of college students, including those barriers that may be overcome by offering online programs and those that persist despite increased access to and convenience of relevant resources.

Keywords

eating disorders; college students; prevention; treatment-seeking

1. INTRODUCTION

1.1. Background

Colleges and universities represent an ideal setting to implement population-level intervention/prevention programs for eating disorders (EDs). On U.S. campuses, the prevalence of EDs is high—roughly 14% of female and 4% of male students screen positive for clinically significant EDs (Eisenberg, Nicklett, Roeder, & Kirz, 2011)—and the college years coincide with typical age of onset for EDs (Hudson, Hiripi, Pope Jr, & Kessler, 2007). Campuses typically have a wealth of human and organizational resources, offering numerous channels through which to maximize the impact of population-level prevention and treatment approaches.

Unfortunately, this opportunity is largely missed. In college populations, the prevalence of diagnosable EDs is more than three times higher than rates of treatment (Eisenberg et al., 2011). Left untreated, EDs typically become more severe and refractory to treatment (Becker et al., 2004; Fichter, Quadflieg, & Hedlund, 2006).

Efforts to understand and increase treatment-seeking for EDs and other mental health conditions have typically focused on minimizing personal and perceived stigma, improving knowledge about available treatment options, increasing access, and addressing barriers emphasized by traditional theories of health behavior (Becker, Arrindell, Perloe, Fay, & Striegel-Moore, 2010; Biddle, Donovan, Sharp, & Gunnell, 2007; Evans et al., 2011). Despite these efforts, rates of treatment utilization remain low; the treatment gap is wide: 80% of students with clinically significant symptoms do not receive care (Eisenberg et al.,

2011). This is not surprising given that prior research has revealed that students with untreated symptoms do not have negative attitudes preventing help-seeking, rather the decision to seek treatment does not appear to be a sufficiently urgent or salient priority to engender help-seeking behavior (Eisenberg et al., 2011). As such, “many of the students who simply do not see an urgent need may be very open to counseling once the initial link is established” (Eisenberg et al., 2011, 706). Importantly, lack of perceived need has also been found to be a key barrier in non-college populations (Cachelin & Striegel-Moore, 2006).

There have been important recent advances in the development of effective universal prevention and intervention programs; one meta-analysis found that over half of ED prevention programs reduced risk factors while nearly one-third reduced current or future eating pathology (Stice, Shaw, & Marti, 2007). That said, it is not yet clear how to engage large numbers of students in these programs. There is some evidence that individuals at high-risk for eating pathology are more likely to engage in universal prevention programs than individuals at low-risk (Stice et al., 2007) but there are many unanswered questions in terms of how to engage students across the ED risk spectrum. As such, there is a crucial need to understand students’ treatment-seeking attitudes and behaviors.

1.2. Present Study

In this paper, we report findings from a two-phase pilot study designed to understand: (1) why students with significant untreated ED symptoms do not seek help (i.e., to identify salient treatment barriers), and (2) engagement in universal intervention and prevention programs. We paired the Healthy Bodies Study (HBS), a population-level survey (phase 1) with the Healthy Body Image (HBI) program, a group of evidence-based online programs for individuals across the ED risk and diagnostic spectrum (phase 2) (Wilfley, Agras, & Taylor, 2013; Jones, Kass, Trockel, Glass, Wilfley, & Taylor, 2014). The group of HBI programs included an indicated intervention program for students with clinical/subclinical symptoms, a selective intervention for high-risk students, and a prevention program for low-risk students (*see 2.1*). In this way, HBI is able to reach >90% of students making it close to a universal effort in the sense that nearly all students were offered a tailored program (i.e., there is an HBI program appropriate for all students, with the exception of those who meet criteria for probable anorexia nervosa). Each HBI program addressed known universal risk factors such as the thin ideal, positive body image, and healthy weight regulation (Stice, 2002).

2. METHODS

2.1. Study Administration

During the 2014 spring semester, HBS was administered to a random sample of undergraduate and graduate students on two U.S. campuses. One university (“University A”) is a large, public university in the Southwest, and the other (“University B”) is a medium-sized, private university in the Midwest. Both campuses offer free, in-person mental health services, including specialized ED resources. To be in the random sample, students had to be at least 18 years old; there were no other exclusion criteria. To begin, 11,828 students—8,000 from University A and 3,828 from University B—were randomly selected from

registrar databases and were recruited to participate via email. All students at both institutions, regardless of HBS participation, were entered into a drawing for one of two \$500 prizes. In total, 2,180 students completed HBS (response rate=18.4%). The survey took approximately 15 minutes to complete and was administered using Qualtrics' survey software. Items assessed a range of measures related to EDs and service utilization (*see 2.2*).

An embedded algorithm within HBS was used to classify students according to ED symptoms and students were then offered either a clinical referral or free access to an HBI program. The symptom classifications were as follows: clinical referral, clinical/subclinical, high-risk, and low-risk. Students with a body mass index ≤ 18.5 and "highly elevated weight concerns", as defined below, were identified as likely cases of anorexia nervosa (N=22) and received a clinical referral. Consistent with DSM-5 standards, clinical/subclinical criteria were: (a) purging six or more times in the last three months; and/or (b) bingeing (accompanied by loss of control) six or more times in the last three months. As part of a separate national trial of HBI, campuses were randomized such that students with clinical/subclinical symptoms at University A (N=276) received the HBI indicated intervention while students with clinical/subclinical symptoms at University B received a clinical referral (N=242). Students with "elevated weight concerns", as defined below, were classified as high-risk (N=477). All other students were classified as low-risk (N=1,163). On the last page of HBS, students who received a clinical referral were presented with a message containing information about available ED treatment options and were encouraged to utilize these resources; these students were not invited into the second phase of the study. Students in the clinical/subclinical, high-risk, and low-risk groups were presented with a message about their assigned HBI program (indicated intervention, selective intervention, or prevention, respectively) and were told to expect a follow-up email about enrollment. Students invited into the indicated intervention were offered a \$40 participation incentive. All research was approved by the Institutional Review Boards at participating institutions.

2.2. Measures

In HBS, weight concerns were assessed using the Weight Concerns Scale (WCS) (Killen et al., 1994; 1996). Scores range from 0–100. In the present study, scores ≥ 59 were classified as "highly elevated weight concerns" and scores ≥ 47 as "elevated weight concerns". Students who did not score ≥ 47 but indicated they were "very afraid" or "terrified" of gaining three pounds and/or that weight was "more important" or the "most important thing" in their life were also identified as having "elevated weight concerns" (Jacobi, Abascal, & Taylor, 2004). Our cut-off values and algorithms were based on our prior research in college populations (Jacobi et al., 2004; Taylor et al., 2006). A receiver operating characteristic (ROC) analysis found that using a WCS cut-off point of 59, sensitivity and specificity for DSM-5 diagnoses were as follows: anorexia nervosa (0.90, 0.99), bulimia nervosa (0.82, 0.88), binge eating disorder (0.78, 0.82), subthreshold bulimia nervosa (0.68, 0.84), subthreshold binge eating disorder (0.72, 0.78), and purging disorder (0.55, 0.95). Scores on the WCS of ≥ 47 have previously been found to have a sensitivity of 0.79 and a specificity of 0.67 for identifying new partial- or full-syndrome EDs (Jacobi et al., 2004) and thus anyone who scored ≥ 47 and did not meet a subclinical or clinical diagnosis was considered at risk.

ED symptoms were assessed using the Eating Disorder Examination-Questionnaire (EDE-Q) (Fairburn, Cooper, & O'Connor, 2008). Global scores range from 0–6. In the present study, scores ≥ 4 were classified as a positive EDE-Q screen, this cut-off has been determined to be clinically meaningful (Wilfley et al., 2000) and has been used as a cut-off in previous studies with undergraduates students (e.g., Luce, Crowther, & Pole, 2008). That said, other studies have used lower thresholds (e.g., Machado et al., 2014; Rø, Reas, & Stedal, 2015).

Treatment barriers were measured using a single survey item: “Which of the following reasons are most important in explaining why you have not received counseling or therapy for your eating and/or body image concerns?” Students were instructed to select up to three reasons from a list: “I worry about what others will think of me”; “Issues related to eating and body image are normal in college/graduate school”; “I’m not sure how serious my needs are”; “I don’t know what resources are available to me”; “I don’t have time”; “I prefer to deal with issues on my own”; “I get a lot of support from other sources, such as family and friends”; “The problem will get better without counseling or therapy”; “I worry I will be pressured to lose weight”; “I worry I will be pressured to gain weight”; “There are financial reasons (too expensive, insurance won’t cover what I need)”; “People providing services aren’t sensitive enough to cultural diversity”; “People providing services aren’t sensitive enough to sexual or gender identities”; “I worry that my visit will be documented on my academic or medical record”; “I worry that someone will notify my parents (or that they will see my visit on their insurance)”; “I worry that people providing services will judge me”; “I haven’t had the chance to go but I plan to”; “I have not had a need for counseling or therapy”; and “other”. The barriers question was asked only of students who (1) reported no past-year treatment and (2) positive ED screen (defined as a score of ≥ 47 on the WCS and/or ≥ 4 on the EDE-Q). No students in the low-risk group screened positive for EDs, thus these students were not asked about barriers.

We also examined additional survey measures of traditionally-emphasized treatment barriers, namely levels of personal stigma, knowledge of ED treatment options, and knowledge of ED symptoms. To measure personal stigma, students were asked to “indicate how true [they] believe the following statement to be”: “I would think less of a person with an eating disorder” (response options were: “completely true”, “mostly true”, “somewhat true”, and “not true”). With regard to the additional measures of knowledge, students were asked “how much [they] agree or disagree with the following statements”: (1) “I know the signs and symptoms of an eating disorder” and (2) “I know where a [name of school] student could go on campus to receive support for problems related to eating and/or body image” (response options for both items were: “strongly agree”, “agree”, “neither agree nor disagree”, “disagree” and “strongly disagree”).

2.3. Analysis

We analyzed data from two sources: (1) HBS survey data and (2) HBI enrollment data. We merged HBS survey data with HBI enrollment data using a unique ID assigned to each student. Using HBS data, we conducted basic analyses to examine prevalence of ED symptoms and ED treatment rates (past-year and current “counseling or therapy for issues

related to eating and/or body image from a health professional (such as a psychiatrist, psychologist, therapist, social worker, nutritionist, or primary care doctor)"). We report these findings for the overall sample of HBS responders and by HBI program assignment and enrollment status. Enrollment in HBI was operationalized as a binary measure of whether students signed up for their assigned program. For the referral group, uptake of suggested resources (the closest equivalent of enrollment for this group) is unknown, thus these students were excluded from analyses by assignment and enrollment status. Next we examined barriers to treatment as reported by students with untreated ED symptoms. These findings are presented in three ways: (1) overall; (2) by HBI assignment; and (3) by HBI enrollment status. We report statistical significance between assigned groups (clinical/subclinical versus high-risk) and enrollees (students assigned to the clinical/subclinical or high-risk groups who enrolled) versus non-enrollees (students assigned to the clinical/subclinical or high-risk groups who did not enroll) using two-tailed chi-square tests. All analyses were conducted using Stata 12.

3. RESULTS

3.1. Sample Characteristics (Table 1)

The sample (N=2,180) was 64.7% female and 74.9% white. Just under half of students (48.1%) were undergraduates. Overall, 29.7% of students screened positive for an ED (WCS ≥ 47 and/or EDE-Q ≥ 4). On the WCS, 29.6% scored ≥ 47 while on the EDE-Q 3.8% scored ≥ 4 . There was substantial overlap across these measures: 97.6% of students with EDE-Q scores ≥ 4 also scored ≥ 47 on the WCS; 3.7% scored above the thresholds on both the WCS and EDE-Q. Among students with positive ED screens, 13.5% received treatment in the past year and 5.1% were currently in treatment. Only students who reported any past-year treatment were asked about current service utilization.

3.2. HBI Assignment and Enrollment (Table 1)

A total of 264 students were assigned to the referral group, 276 to the clinical/subclinical group, 477 to the high-risk group, and 1,163 to the low-risk group. Enrollment rates for HBI follow a pattern of symptom severity, whereby rates were highest for the clinical/subclinical group (18.1%) and lowest for the low-risk group (4.1%).

3.3. Treatment Barriers (Overall) (Table 2, column A)

Among students with untreated symptoms, the most commonly reported reasons for not seeking help were: "I have not had a need for counseling/therapy" (41.7%), "I prefer to deal with issues on my own" (27.6%), "I'm not sure how serious my needs are" (19.9%), and "I don't have time" (19.5%). Only small proportions of students with untreated symptoms reported traditionally-emphasized barriers such as stigma, lack of knowledge, and financial limitations. Just 4.1% reported "I worry about what others will think of me". When asked their level of endorsement with the statement "I would think less of a person with an eating disorder" (the additional measure of personal stigma) most students with untreated symptoms (64.6%) reported "not true" and only a very small proportion (4.0%) reported "completely true", providing further evidence of low levels of personal stigma. Importantly, there were no statistically significant differences in levels of personal stigma between

students who had and had not received ED treatment. Lack of knowledge was also not a commonly reported barrier among students with untreated symptoms: just 6.4% selected “I don’t know what resources are available”. Though only a small proportion of students with untreated symptoms reported lack of knowledge about available resources as one of the most important barriers to treatment, less than half of these students (35.8%) agreed or strongly agreed that they “know where [to] go on campus to receive support for problems related to eating and/or body image”. Relative to students with untreated symptoms, a significantly higher proportion of students with treated symptoms (65.1%) agreed or strongly agreed that they “know where [to] go on campus to receive support for problems related to eating and/or body image” ($p<0.001$). Additionally, most students with ED symptoms agreed or strongly agreed that they “know the signs and symptoms of an eating disorder”, though there were statistically significant differences by treatment status: 73.7% of those without treatment and 85.2% of those with treatment ($p<0.001$). Finally, 7.7% of students with untreated symptoms reported not seeking help for “financial reasons”.

3.4. Treatment Barriers (by HBI Assignment) (Table 2, column B)

The most commonly reported barriers among students with untreated symptoms by HBI assignment were the same among students assigned to the clinical/subclinical versus high-risk group (and the same as in the overall sample of students with untreated symptoms), though there were significant differences in rates of endorsement by HBI assignment for the barrier “I have not had a need for counseling/therapy”: 23.5% of students assigned to the clinical/subclinical group versus 51.9% of students assigned to the high-risk group selected this reason ($p<0.001$). As in the overall sample of students with untreated symptoms, stigma, lack of knowledge, and financial limitations did not appear to be the most salient barriers to treatment among those assigned to the clinical/subclinical and high-risk groups. Though only a small proportion of students endorsed these barriers, there were two significant differences by HBI assignment. First, 6.1% and 2.2% of students with untreated symptoms in the clinical/subclinical and high-risk groups respectively selected “I worry about what others will think of me” ($p=0.04$). When asked their level of endorsement with the statement “I would think less of a person with an eating disorder” most students assigned to the clinical/subclinical group (64.1%) and high-risk group (67.2%) reported “not true”; there were no statistically significant differences in levels of personal stigma by HBI assignment. Second, 14.5% and 4.1% of students with untreated symptoms in the clinical/subclinical and high-risk groups respectively selected “there are financial reasons” ($p<0.001$). There were no statistically significant differences by HBI assignment in endorsement of the barrier “I don’t know what resources are available”. Relative to students assigned to the high-risk group, a slightly higher proportion of students assigned to the clinical/subclinical group agreed or strongly agreed that they “know where [to] go on campus to receive support for problems related to eating and/or body image”: 41.8% versus 36.1% ($p=0.03$). There were no significant differences in perceived knowledge of ED symptoms by HBI assignment.

3.5. Treatment Barriers (by HBI Enrollment Status) (Table 2, column C)

The most commonly reported barriers among students with untreated symptoms by HBI enrollment status were the same among enrollees and non-enrollees with untreated symptoms, though there were several notable differences in rates of endorsement by

enrollment status: 29.8% of enrollees versus 14.8% of non-enrollees selected “I’m not sure how serious my needs are” ($p=0.009$); 27.7% of enrollees versus 15.1% of non-enrollees selected “I don’t have time” ($p=0.03$); and 27.7% of enrollees versus 45.4% of non-enrollees selected “I have not had a need for counseling/therapy” ($p=0.02$). As in the overall sample of students with untreated symptoms, only a small proportion of enrollees and non-enrollees endorsed stigma, lack of knowledge, and financial limitations as important treatment barriers; there were no statistically significant differences for these barriers by HBI enrollment status. Furthermore, there were no statistically significant differences in the additional measures of personal stigma or knowledge by HBI enrollment status.

4. DISCUSSION

4.1. General Discussion

Our findings provide new understanding of the help-seeking attitudes and behaviors of college students with regard to ED services; students with untreated symptoms most commonly reported not seeking help for the following reasons: “I have not had a need for counseling/therapy”, “I prefer to deal with issues on my own”, “I’m not sure how serious my needs are”, and “I don’t have time”. These were the most commonly selected barriers in all three analyses (overall among students with untreated symptoms, by HBI assignment, and by HBI enrollment status).

These reasons do not reflect traditionally-emphasized barriers; rather the decision to seek treatment does not appear to be sufficiently urgent or salient. In fact, less than 10% of students with untreated symptoms selected reasons that would suggest barriers of stigma (“I worry about what others will think of me”), lack of knowledge (“I don’t know what resources are available”), or financial limitations (“too expensive, insurance won’t cover what I need”). On the additional measure of personal stigma (“I would think less of a person with an eating disorder”), we found low levels overall and no significant differences between students who had and had not received ED treatment. Similarly, subjective knowledge of ED symptoms was high for both students with treated and untreated symptoms. However, students with prior ED treatment endorsed knowledge of where to seek treatment at higher rates than students with no prior ED treatment. It is important to note that HBS data are cross-sectional so causality cannot be inferred. It is possible that students with higher levels of knowledge were more likely to seek help or that knowledge increased as a result of students seeking help. Though knowledge appears lower among students with untreated symptoms, very few actually reported not seeking help due to being unaware of available resources, suggesting that subjective knowledge may not be a central determinant of treatment-seeking behavior.

In exploring HBI enrollment patterns, we found rates to be highest for the clinical/subclinical group and lowest for the low-risk group. In other words, students with greater need enrolled at higher rates than students with lower need. Students in the clinical/subclinical group may have enrolled at higher rates due to greater recognition of a need for help; importantly, enrollment for this group may also have been higher due to participation incentives or lower due to additional steps associated with the separate trial mentioned above.

Examining treatment barriers by HBI assignment, we found that over half of students with untreated symptoms in the high-risk group and less than one-quarter of students in the clinical/subclinical group reported not seeking help because they “have not had a need for counseling/therapy”. This makes sense given that students assigned to the high-risk group have lower symptom levels than those assigned to the clinical/subclinical group.

Examining barriers by HBI enrollment status, we found that a significantly higher proportion of enrollees than non-enrollees indicated lack of time as a primary barrier to treatment, suggesting that many students who enrolled in their assigned program did so despite not seeking ED therapy/counseling in the past due to time constraints. We also found that a significantly higher proportion of enrollees relative to non-enrollees reported not seeking help because they are “not sure how serious [their] needs are”. On the other hand, lack of perceived need was a significantly more salient barrier among non-enrollees: nearly half of non-enrollees compared to roughly one-quarter of enrollees selected “I have not had a need for counseling or therapy”. This suggests that lack of perceived need is different from ambiguity of need (i.e., questioning how serious needs are). For students who are ambiguous about their need for help, being linked to an online program may tip the decisional balance in favor of treatment, while this does not appear to be the case for students who do not perceive any need for treatment.

4.2. Implications

Findings from this study offer new insight into the ED treatment gap on college campuses and point to an urgent need for innovative approaches to narrow this gap. For most students with apparent unmet need, the decision to seek treatment does not appear to be sufficiently urgent to engender behavioral action. Current approaches to promote treatment-seeking (e.g., anti-stigma, gatekeeper trainings, policies to increase access) may not be accounting for the most salient barriers that actually prevent treatment-seeking behavior, namely that students are not seeking treatment because they do not think they need it. Efforts should concentrate on increasing perceived need and convincing students of their need for treatment. Our findings suggest that the focus, both in research and practice, should shift from anti-stigma campaigns and other common strategies to universal prevention initiatives that educate students about the severity of EDs and provide convenient and relevant options. Moving forward, mental health services researchers, campus practitioners, clinicians, and other stakeholders should consider ways to explicitly address lack of perceived need and ambiguity about the severity of need in help-seeking initiatives on campus. Lessons should be borrowed from other fields, including behavioral economics. In other health contexts in which individuals appear open to change but lack the urgency to act (e.g., for diet/exercise, use of preventative care), behavioral economics reminds us that individuals often do not act as expected based on apparent preferences, constraints, and knowledge (Camerer, 2003). In such situations, people often respond to subtle interventions that reframe the default choice, making it easier to commit to healthy choices (Thaler & Sunstein, 2008). Although behavioral economics has grown in prominence over the past two decades, its fundamental concepts have yet to permeate research on help-seeking for mental health. In light of the findings presented in this study, lessons from behavioral economics seem particularly relevant to addressing the ED treatment gap on college campuses.

This study also provides important results as to which barriers may be overcome by offering online programs (like HBI) and which persist despite increased access and convenience. Our findings suggest that linking from a population-level survey to online intervention programs is a particularly promising approach for engaging students who report barriers reflecting ambiguity about need for treatment and lack of time. Many students, even those with clinically significant symptoms, are unsure if they need treatment and may need to be explicitly told that they need treatment. Additionally, for students who report not seeking help due to lack of time, an online program may be a particularly promising for initial engagement: students can do the program conveniently at their own pace and during times when other traditional treatment services may be unavailable (e.g., nights/weekends). In sum, providing convenient, online programs such as HBI may be an effective way of reaching the large proportion of students with untreated symptoms who appear open to treatment but are unsure about whether they truly need help. This is especially important in the context of early intervention before symptoms intensify.

4.3. Limitations

Findings from this study should be interpreted in the context of several limitations. The overall response rate for HBS was just under 20%. In several analyses, particularly those stratified by HBI enrollment status, the sample sizes were quite small. The transition between HBS and HBI was designed to be as efficient as possible for students. However, to ensure data could be linked, students had to wait to receive an email from HBI, a delay that may have reduced HBI enrollment. Every effort was made to invite students to enroll as soon as possible after completion of HBS (typically within one day of completing the HBS survey) but for a small number of students at University B there were delays of up to two weeks as the teams worked out the data linking processes in this pilot study. Furthermore, students had to provide consent before enrolling in HBI and for students in the clinical/subclinical group there were additional assessments associated with the separate trial. Thus, enrollment might be artificially lower than if HBI were offered as a clinical add-on that students could simply click to join. Again, students in the clinical/subclinical group may have enrolled at higher rates due to participation incentives, so our findings could overestimate engagement. Future research should look at enrollment rates across program types without this extra incentive.

5. CONCLUSION

This study provides important insight into the help-seeking attitudes and behaviors of college students and offers a promising approach to engagement and treatment-linkage by combining a population-level survey with a group of online prevention/intervention programs for individuals across the ED risk and diagnostic spectrum. Many challenges remain with regard to engagement, particularly in prevention programs. Prevention programs may need to more explicitly focus on issues that are both relevant to this group and known protective factors for EDs (e.g., relationships, resilience, wellness). Programs may need to be marketed differently to students to increase perceived helpfulness and relevance.

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Highlights

- In a random student sample, ~30% have eating disorder symptoms or weight concerns.
- The vast majority of students with symptoms (86.5%) have not received treatment.
- On average, students with untreated symptoms have low stigma and high knowledge.
- The most commonly reported treatment barriers imply lack of urgency/perceived need.
- Enrollment is highest in indicated intervention and lowest in prevention.

Table 1

Sample Characteristics: Overall and by HBI Assignment and Enrollment

	Overall (% sample)	Referral		Clinical/Subclinical		High-risk		Low-risk	
		Assigned	Enrolled (% assigned)	Assigned	Enrolled (% assigned)	Assigned	Enrolled (% assigned)	Assigned	Enrolled (% assigned)
N	2,180	264	50 (18.12%)	276	50 (18.12%)	477	24 (5.03%)	1,163	48 (4.13%)
Female	1,409 (64.66%)	167	46 (21.30%)	216	46 (21.30%)	332	18 (5.42%)	694	37 (5.33%)
Non-female	770 (35.34%)	97	4 (6.67%)	60	4 (6.67%)	145	6 (4.14%)	468	11 (2.35%)
White	1,632 (74.86%)	196	37 (18.32%)	202	37 (18.32%)	351	15 (4.27%)	883	37 (4.19%)
African American	107 (4.91%)	12	3 (18.75%)	16	3 (18.75%)	24	4 (16.67%)	55	2 (3.64%)
Latino/a	321 (14.77%)	31	11 (22.92%)	48	11 (22.92%)	81	4 (4.94%)	161	7 (4.35%)
Asian	333 (15.28%)	48	6 (18.18%)	33	6 (18.18%)	73	2 (2.74%)	179	5 (2.79%)
Other race/ethnicity	221 (10.14%)	23	4 (11.43%)	35	4 (11.43%)	56	4 (7.14%)	107	5 (4.67%)
Undergraduate	1,027 (48.13%)	108	34 (20.61%)	165	34 (20.61%)	202	9 (4.46%)	552	21 (3.80%)
Graduate	1,107 (51.87%)	150	16 (14.81%)	108	16 (14.81%)	263	15 (5.70%)	586	27 (4.61%)
ED positive	647 (29.68%)	152	34 (21.94%)	155	34 (21.94%)	340	20 (5.88%)	0	—
WCS 47	645 (29.59%)	152	33 (21.57%)	153	33 (21.57%)	340	20 (5.88%)	0	—
EDE-Q 4	83 (3.81%)	36	8 (24.24%)	33	8 (24.24%)	14	4 (28.57%)	0	—
ED tx, past-year (among ED positive)	87 (13.49%)	39	4 (18.18%)	22	4 (18.18%)	26	3 (11.54%)	0	—

Notes: “Non-female” refers to students who reported their gender as “male”, “transgender”, “genderqueer/gender non-conforming”, or “other”. Students were able to select multiple racial/ethnic categories, thus the race/ethnicity categories are not mutually exclusive and sum to >100%. Referral uptake rates for the ‘referral’ group (i.e., the proportion of students who utilized suggested resources) are unavailable. “ED”=eating disorder. “ED positive” is defined as a score of 47 on the WCS and/or 4 on the EDE-Q.

Table 2

Barriers to Treatment-seeking Reported by Students with Untreated Eating Disorder Symptoms: Overall and by HBI Assignment and Enrollment (%)

	Column A		Column B		Column C	
	Overall (N=558)	Assigned Clinical/Subclinical (N=131)	Assigned High-risk (N=314)	p	Enrollees (N=47)	Non-enrollees (N=398)
I have not had a need for counseling/therapy.	41.68	23.48	51.91	<0.001	27.66	45.36
I prefer to deal with issues on my own.	27.60	26.72	22.93	0.39	23.40	24.12
I'm not sure how serious my needs are.	19.89	14.50	17.20	0.48	29.79	14.82
I don't have time.	19.53	16.79	16.24	0.89	27.66	15.08
I get a lot of support from other sources, such as family/friends.	9.68	3.82	12.74	0.004	6.38	10.55
There are financial reasons.	7.71	14.50	4.14	<0.001	10.64	6.78
The problem will get better without counseling/therapy.	7.35	5.34	6.37	0.68	2.13	6.53
I don't know what resources are available to me.	6.44	4.55	6.69	0.39	10.64	5.51
Other	5.56	3.05	7.01	0.11	0.00	6.53
Issues related to eating and body image are normal in college/graduate school.	5.20	3.05	5.41	0.28	10.64	4.02
I worry about what others will think of me.	4.12	6.11	2.23	0.04	6.38	3.02
I worry that people providing services will judge me.	3.23	1.53	2.23	0.63	2.13	2.01
I worry that my visit will be documented on my academic/medical record.	2.33	2.29	1.27	0.43	6.38	1.01
I haven't had the chance to go but I plan to.	1.97	3.82	0.64	0.01	2.13	1.51
I worry I will be pressured to gain weight.	1.43	0.00	0.96	0.26	4.26	0.25
I worry that someone will notify my parents.	1.25	2.29	0.32	0.05	0.00	1.01
I worry I will be pressured to lose weight.	1.25	1.52	1.27	0.84	0.00	1.50
People providing services aren't sensitive to cultural diversity.	0.90	0.76	0.96	0.85	2.13	0.75
						0.35

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	Column A		Column B		Column C	
	Overall (N=558)	Assigned Clinical/Subclinical (N=131)	Assigned High-risk (N=314)	p	Enrollees (N=47)	Non-enrollees (N=398)
People providing services aren't sensitive to sexual/gender identities.	0.18	0.00	0.00	—	0.00	0.00

Notes: Statistical significance based on two-tailed chi-square tests by assignment (clinical/subclinical versus high-risk) and enrollment (students assigned to the clinical/subclinical or high-risk groups who enrolled versus students assigned to the clinical/subclinical or high-risk groups who did not enroll).