2022

Values Engagement as a Predictor of Eating Disorder Severity in Female Adolescents with Eating Disorders

Julie M. Petersen
Utah State University, julie.petersen@aggiemail.usu.edu

Jennifer L. Barney
Utah State University, jen.barney4@aggiemail.usu.edu

Tyson S. Barrett
Utah State University, tyson.barrett@usu.edu

Tera S. Lensegrav-Benson
Utah State University

Benita Quakenbush-Roberts
Utah State University

Michael P. Twohig
Utah State University, michael.twohig@usu.edu

Recommended Citation

Utah State University
MERRILL-CAZIER LIBRARY

Values engagement as a predictor of eating disorder severity in a residential sample of female

adolescents with eating disorders

Abstract

Values are freely chosen life directions and/or qualities of being that can motivate behavior change. There is nascent support for the utility of values work as a part of the therapeutic process across treatments, particularly in third wave therapy approaches (e.g., acceptance and commitment therapy). However, therapeutic values work is underresearched in clinical samples of youth. The aim of the present study is to examine the role of the two distinct values processes (engagement and obstruction), body image inflexibility, alongside other common comorbid symptoms of eating disorders (anxiety, depression) in a sample of female adolescents with eating disorders attending a residential eating disorder treatment program. Participants (N = 75) were patients at a residential eating disorder treatment facility and completed a battery of measures at time of admission. Correlational analyses and multiple regression were performed. Results found correlations between eating disorder severity, values engagement, values obstruction, body image flexibility, anxiety, and depression in the expected directions. Regression results found body image inflexibility, progression towards values, and anxiety as significant predictors of eating disorder severity (adjusted $R^2 = .54$). This study points to the importance of emphasizing values engagement in youth with eating disorders, highlighting a potential treatment target for future research.

Keywords: adolescent, acceptance and commitment therapy, feeding and eating disorders, female, residential treatment

Values engagement as a predictor of eating disorder severity in residential sample of

female adolescents with eating disorders

Eating disorders are a serious problem among adolescents, with prevalence ranging from 1-14%, depending on the sample and symptom presentation (Glazer et al., 2019; Karekla, Nikolaou, & Koushiou, 2020; Marzilli, Cerniglia, & Cimino, 2018). The initial onset of eating disorders is commonly in adolescence (Ward, Rodriguez, Wright, Austin, & Long, 2019); one study found 9-41% of female youth endorsed symptoms of eating disorders (e.g., body shape disturbance, disordered eating behavior, influence of weight/shape on self-esteem; Ackard, Fulkerson, & Neumark-Sztainer, 2007). Disordered eating behaviors are associated with concerns related to weight, a broad range of mental health problems, and impaired daily functioning (Marzilli et al., 2018; Olsen, Koch, Skovgaard, & Strandberg-Larsen, 2020). More specifically, adolescents with eating disorders reported disruptions across all domains of life, including social engagement, physical health, and general and health-related quality of life (Fiske et al., 2014; Swanson et al., 2014)

When considering disrupted functioning in adolescents with eating disorders, it is possible that values, freely chosen life directions that one desires to move towards, may be an important tool in treatment and recovery. Typically acting as a positive reinforcer, values are intrinsically motivating and rewarding (Cameron, Reed, & Gaudiano, 2014). Values are not a specific goal or a destination, but a quality that one wishes to bring to daily life (LeJeune & Luoma, 2019). They cut across domains of life (e.g., relationships, work) and can be used to shape healthier, more functional ways of living (Luoma, Hayes, & Walser, 2007). Valuing can be theoretically understood as two processes: how well one is pursuing their values (i.e., engagement in valued living) and how often values are hindered (i.e., obstruction of valued

living; Carvalho et al., 2018). Engagement in valued living might involve an individual choosing

to do what is most meaningful to them (e.g., spending time with family, taking a risk in their

career) in the service of a chosen value (e.g., kindness, family, adventure). Alternatively,

obstruction of valued living involves internal or external barriers or disruptions to pursuing

chosen values (e.g., staying at home for fear of crowds instead of supporting loved ones and

attending a graduation; Smout et al., 2014). Thus, these two constructs are closely related, but

not exact opposites (i.e., the absence of engagement in valued living does not necessarily

indicate obstruction).

Engagement in valued living has established positive correlations with life satisfaction

(Çekici, Sünbül, Malkoç, Gördesli, & Arslan, 2019) and resilience (Ceary, Donahue, & Shaffer,

2019). However, engagement in valued living is typically lower in clinical populations. For

example, individuals with traumatic brain injury report decreased pursuit of values (Pais,

Ponsford, Gould, & Wong, 2019). Values engagement was also negatively associated with

suicidal ideation and interpersonal needs in a sample of psychiatric inpatients (Roush,

Cukrowicz, Mitchell, Brown, & Seymour, 2018). In another study, values engagement

moderated the association between posttraumatic stress symptoms and impairment in trauma-

exposed individuals (Donahue, Huggins, & Marrow, 2017). On the other hand, obstruction of

valued living predicted stress, depression, and anxiety in individuals with chronic pain (Carvalho

et al., 2018). With this in mind, values are suggested to enhance exposure therapy for

posttraumatic stress disorder (Thompson, Luoma, & LeJeune, 2013), treatment motivation in

dialectical behavior therapy for borderline personality disorder (Cameron et al., 2014),

behavioral management of diabetes (Gregg, Callaghan, Hayes, & Glenn-Lawson, 2007), and

medication adherence in individuals with comorbid bipolar and substance use disorders

(Gaudiano et al., 2017). Overall, preliminary evidence suggests that low pursuit of values may contribute to functional impairment and increased mental health concerns (e.g., anxiety, depression) in adults.

In adolescent populations, little research on values exists, particularly for adolescents with eating disorders. One study found that obstruction of valued living moderated the relationship between minority stress and substance misuse in a sample of LGB+ adolescents (Weeks, Renshaw, Galliher, & Tehee, 2020). In another study, behavioral inconsistency with values was linked to experiential avoidance in a small sample of children (N = 7; 11-12 years old) with learning disorders and/or attention-deficit/hyperactivity disorder (Murrell & Kapadia, 2011). Additionally, adolescent participants from two trials of acceptance and commitment therapy (ACT; one for obsessive-compulsive disorder and one for interpersonal skills) reported an increase in valued living following treatment, along with broad improvements across other outcomes (Bernal-Manrique, García-Martín, & Ruiz, 2020; Shabani et al., 2019). It is possible that adolescents with eating disorders may have lowered values engagement in their daily lives as disordered eating behaviors consume their attention instead of values (e.g., choosing to exercise excessively instead of spending time with friends/family). It could also be that valued activities are restricted by outside forces (e.g., loss of privileges), thus increasing the power of disordered eating.

Eating disorders in adolescents and adults also have known associations with anxiety, depression, and general psychological inflexibility. Previous research has established that anxiety and depression are both positively correlated with eating disorder symptoms (Hughes et al., 2013; Morgan-Lowes et al., 2019). Additionally, general psychological inflexibility, rigid rule-following in response to internal experiences (e.g., thoughts and feelings) instead of pursuing

chosen values, is theoretically and empirically understood as a contributor to eating disorder symptoms across age groups (Bond et al., 2011; Merwin et al., 2010). Studies support strong negative correlations between general psychological flexibility and eating disorder symptoms (Koushiou, Loutsiou, & Karekla, 2020; Sarno, 2020). Furthermore, some recent studies have focused on body image inflexibility, a specific form of psychological inflexibility defined by how behavior is affected by thoughts or feelings about body image (Sandoz, Wilson, Merwin, & Kellum, 2013). Body image inflexibility is specific to the context and taxonomic presentation of disordered eating, as opposed to the broader range of general psychological inflexibility, and thus is particularly advantageous to explore in eating disorder populations. For example, body image inflexibility predicted quality of life and risk of eating disorders at post-treatment in a mixed sample of adolescents and adults receiving eating disorder treatment at the same residential facility as the present study (Bluett et al., 2016).

Similarly, it is thought that engagement and obstruction in valued living are also related to anxiety, depression, and general psychological inflexibility in adults and adolescents. While the research in this area is nascent and growing, previous studies indicate that anxiety and depression are associated with disrupted valued living (Carvalho et al., 2018; Roush et al., 2018). Furthermore, forms of psychological inflexibility are highly implicated in the pursuit and/or obstruction of valued living, as improved psychological flexibility—both general and body image—would theoretically aid an individual in choosing their values (i.e., increased engagement in valued living) and breaking down barriers to their values (i.e., reduced obstruction of values) in the face of challenging internal or external experiences (Mac Neil & Hudson, 2018).

However, no research yet examines the combination of these four processes in adolescents: values, anxiety, depression, and body image inflexibility. The bulk of previous research on disordered eating focuses on general psychological inflexibility. However, because of the critical impact of body image in disordered eating, we chose to focus on body image inflexibility over general psychological inflexibility. Thus, the aim of the present study is to examine the role of values processes (values engagement and obstruction), body image inflexibility, alongside other common predictors of eating disorder severity (e.g., anxiety, depression) in a clinical sample of female adolescents with eating disorders attending a residential eating disorder treatment program. Because previous research has established the importance of values engagement and obstruction in a range of adult clinical samples, we predicted that values engagement and obstruction would be significant predictors of eating disorder severity, along with body image inflexibility, anxiety, and depression.

Methods

Setting

All data were collected at [removed for masked review], a for-profit residential treatment facility for female adolescents (ages 11-17) and adults (aged 18 and older) struggling with eating disorders and co-occurring mental and physical health conditions. Only data from the adolescents are reported in this document. The present study utilizes data from the pre-treatment point only.

Participants

All participants included in the current study (N = 75) were admitted to [removed for masked review] adolescent residential treatment unit between November 2015 and June 2020. Participants comprise a consecutive sample in which all individuals admitted to the facility were

eligible (i.e., no exclusion criteria); within the aforementioned time period, seven adolescents

declined participation. Reasons for declined participation were not collected. At admission, the

masters or doctoral level clinician, registered dietitian, and a nurse practitioner conducted an

unstructured group clinical interview (i.e., one client meets with the three staff members at the

same time) after which participants were diagnosed with an eating disorder as defined by the

Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5; American

Psychiatric Association, 2013). Diagnoses were then reviewed and approved by a doctoral level

clinical psychologist (i.e., the clinical director) based on the intake reports generated by each

member of the integrated treatment team. Participant descriptive statistics are presented in Table

1.

Procedures

All parts of the current study were approved by a university institutional review board. At

the time of intake, parents or legal guardians of each client were informed about the current

study and given details regarding what their adolescent's participation would entail. Parents and

clients were informed that participation in the study was completely voluntary and that their

choice to participate or not would have no impact on the clinical treatment being provided. All

clients whose parents provided initial consent were then asked for their individual assent to

participate before completing the online self-report assessment battery within the first three days

following their intake. The assessment battery included demographic information, assessment of

eating disorder symptom severity, and a variety of assessment measures related to comorbid

psychopathology (e.g., anxiety, depression), therapeutic processes (e.g., values), and targeted

treatment outcomes.

Measures

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 2008). The EDE-Q was utilized to assess eating disorder symptom severity and includes 28 self-report items that assesses core attitudinal features and behaviors indicative of eating disorder psychopathology. Each item is answered on a 7-point Likert scale (0 = *No days*; 6 = *Every day*) indicating how often the respondent engaged in a disordered eating behavior or experienced an eating disorder related cognition over the last 28 days. Example items include "Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?" and "Have you had a strong desire to lose weight?" Due to researcher error, item 8 ("In the past 28 days, how has thinking about shape or weight made it very difficult to concentrate on things you are interested in?") and item 25 ("In the past 28 days, how dissatisfied have you been with your weight?") were unintentionally omitted. However, missing data on the EDE-Q is notoriously common (Kelly, Cotter, Lydecker, & Mazzeo, 2017) and guidelines for handling missing data points indicate that valid totals can still be computed for the EDE-Q if a majority of the items are completed (Fairburn & Beglin, 2008). In the current study, internal consistency of the EDE-Q was excellent (α = .92).

Body Image Acceptance and Action Questionnaire (BI-AAQ; Sandoz, Wilson, Merwin, & Kellum, 2013). The BI-AAQ was used to assess body image related psychological inflexibility (i.e., body image inflexibility). The BI-AAQ includes 12-items rated on a 7-point Likert scale (1 = *Never true*; 7 = *Always true*), with higher scores indicating greater levels of inflexibility. Example items include "Feeling fat causes problems in my life" and "When I start thinking about the size and shape of my body, it's hard to do anything else." The BI-AAQ has demonstrated good psychometric properties when utilized with both clinical (Lee, Smith,

Twohig, Lensegrav-Benson, & Quakenbush-Roberts, 2017) and nonclinical samples (Sandoz et al., 2013). In the current study the BI-AAQ demonstrated good internal consistency (α = .90).

Valuing Questionnaire (VQ; Smout et al., 2014). The VQ was used to assess how consistently participants have been living with their self-determined values. The VQ is a 10-item self-report measure and items are rated on a 7-point Likert scale (0 = *Not at all true*; 6 = *Completely true*) with regard to how much each statement was true for them during the previous week. The VQ generates two subscales: Progress (i.e., values engagement: the enactment and perseverance in living consistently with one's values) and Obstruction (i.e., the extent to which various disruptions such as avoidance of unwanted experiences, distraction, and inattention to values have gotten in the way of valued living). These two subscales typically have a negative correlation where scores indicative of psychological health are represented with high Progress scores accompanied by low Obstruction scores. An example item from the Progress subscale is "I continued to get better at being the kind of person I want to be." An example item from the Obstruction subscale is "I spent a lot of time thinking about the past or future, rather than being engaged in activities that mattered to me." In the current study, internal consistency of both the VQ Progress (α = .88) and VQ Obstruction (α = .80) scores was good.

Beck Depression Inventory, 2nd Edition (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a widely used measure of depression severity and is composed of 21-items related to various affective, cognitive, and physical symptoms frequently associated with depression. Items are rated from 0-3 with regard to severity, and a total score (0-63) is calculated by summing item scores such that higher scores indicate greater levels of depression. Example items participants are asked to rate include "Loss of pleasure," "Sadness," and "Guilting feelings." The psychometric properties of the BDI-II are well established among adolescents (Wang &

Gorenstein, 2013), as well as clinically significant eating disorder samples (Fuss, Trottier, & Carter, 2015; Udo, McKee, & Grilo, 2015). Internal consistency in the current sample was excellent ($\alpha = .91$).

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The BAI is a widely used self-report measure of anxiety symptom severity composed of 21 items rated on a 4-point Likert scale (0 = *Not at all* to 3 = *Severely*) with regard to how distressing symptoms had been during the past month. Example items participants are asked to rate include "Numbness or tingling," "Difficulty in breathing," and "Fear of worst happening." The psychometric properties of the BAI are well established (Beck et al., 1988; Fydrich, Dowdall, & Chambless, 1992) and the BAI demonstrated excellent internal consistency in the current sample ($\alpha = .91$).

Statistical analyses

All analyses were conducted with R in RStudio, version 3.5.2 (R Core Team, 2019; RStudio Team, 2019). The following packages were used in analyses: tidyverse (Wickham, Francois, Henry, & Müller, 2015), furniture (Barrett & Brignone, 2017), lm.beta (Behrendt, 2014), and psych (Revelle, 2018).

General descriptive statistics and correlations were calculated for all measures for the entire sample and diagnostic groups. A multiple linear regression model was created with the following predictors of eating disorder severity (total EDE-Q): body image inflexibility (BI-AAQ), progression towards values (VQ-Progress), obstruction of values (VQ-Obstruction), anxiety (BAI), and depression (BDI-II).

<div align="center">

Results

</div>

Descriptive statistics and correlations

Table 2 details the means and standard deviations of all variables for the entire sample and by eating disorder diagnosis. As expected, the sample reported elevated eating disorder severity. The sample on average reported moderate to severe levels of anxiety and severe levels of depression. The sample reported typical clinical levels of body image inflexibility and values progression and obstruction in line with past clinical samples (e.g., Smout et al., 2014).

Table 3 presents the Pearson correlations between BMI, duration of illness, and all measures for the entire sample. There were no significant correlations between BMI and other variables. Duration of illness was positively correlated with both obstruction of values and depression. Significant positive correlations were observed between all eating disorder subscales and anxiety, depression, and obstruction of values. A negative correlation was observed between eating disorder severity and all corresponding subscales with progress towards values. Additionally, anxiety and depression were both positively and negatively correlated with obstruction of values and progress towards values, respectively. Lastly, body image inflexibility was positively correlated with all measures except progress towards values, which was not significant. These correlations are all in the expected directions; variables highlighting psychopathology (e.g., obstruction of values, eating disorder severity) were negatively correlated with progress towards values—a process that would theoretically suggest healthier living (i.e., reduced psychopathology).

Research question

A multiple linear regression model was built to determine whether progression towards values (VQ-progress), obstruction of values (VQ-obstruction), body image inflexibility (BI-AAQ), anxiety (BAI), and depression (BDI-II) act as predictors of eating disorder severity (total EDE-Q). The final model was as follows: anxiety ($\beta = .27$, p = .04), body image inflexibility (β

= .38, p < .001) and progression towards values (β = -.38, p = .002) as significant predictors of eating disorder severity. Depression (BDI-II) and obstruction of values (VQ-obstruction) were not significant predictors. See Table 4 for full regression results.

Power analyses in G*Power were completed to test for sufficient power (Faul, Erdfelder, Lang, & Buchner, 2007). A total sample size of 75 was recommended to detect medium effects (f^2 = .132) in multiple linear regression using an alpha level of .05 and estimated power of 0.80. The present study therefore was sufficiently powered to detect medium, but not smaller effects.

Discussion

This study explored the relationships between eating disorder severity, values processes, body image inflexibility, anxiety, and depression in a sample of female adolescents with eating disorders. For the regression analyses, body image inflexibility, anxiety, and values progression were significant predictors of total eating disorder severity in the present sample. Both depression and values obstruction were not significant predictors, despite severe levels of depression in the participants. Previous research supports body image inflexibility as a predictor of total eating disorder severity; the present study adds to the literature by replicating this relationship in an adolescent sample (Bluett et al., 2016; Lucena-Santos, Carvalho, da Silva Oliveira, & Pinto-Gouveia, 2017). Additionally, although previous research has supported the involvement of both depression and anxiety in eating disorders (Hughes et al., 2013), the significance of anxiety in our model suggests that anxiety may be more relevant than depression in female adolescents with eating disorders—however, further research is necessary. Lastly, the importance of values progression as a predictor of total eating disorder severity is a unique finding. This study is the first to examine values processes as predictors of eating disorder severity in a clinical sample of adolescents. The significance of values progression (i.e.,

identifying values and actively working to move towards them) in this study is broadly in accordance with research underscoring the importance of values in enhancing well-being in adults (e.g., Serowik, Khan, LoCurto, & Orsillo, 2018)—further confirmatory research is needed to generalize these findings to youth.

Turning towards correlative analyses, anxiety, depression, and eating disorder severity were all correlated negatively with values progression, as expected. Because body image inflexibility and duration of illness were not correlated with values progression, it is possible that this finding is highlighting the unique importance of values progression in understanding eating disorders in youth. In other words, low values progression could be conceptualized as a uniquely impairing symptom of eating disorders that is separate from the other impairing internal experiences common in eating disorders (e.g., self-criticism, low self-esteem). On the other hand, anxiety, depression, body image inflexibility, duration of illness, eating disorder severity were all correlated positively with values obstruction. These results are broadly in line with previous research indicating that obstruction of values is related to psychopathology in youth (Murrell & Kapadia, 2011; Weeks et al., 2020). This is further bolstered by the positive correlation between duration of illness and values obstruction, highlighting how time spent in disordered eating may further values obstruction. There is little other research to compare these results with; however, the findings are broadly congruent with theoretical understandings of valued living, psychological inflexibility, and psychopathology in adolescents (Halliburton & Cooper, 2015).

In addition to the aforementioned results, the sample reported elevated anxiety and depression that was correlated with eating disorder severity, with depression also significantly correlated with duration of illness. These findings are documented in previous research on adolescents with eating disorders (Hughes et al., 2013; Morgan-Lowes et al., 2019). Body image

inflexibility was also positively correlated with anxiety, depression, and eating disorder severity. This finding is also consistent with prior work in adult and adolescent populations; in previous research, both general and body image inflexibility have been associated with eating disorder severity and symptoms, along with a wide range of other psychopathology (Merwin et al., 2010).

Clinical implications

Overall, our model presents a preliminary theory for understanding eating disorders in female adolescents in residential care. First, it suggests that anxiety might be an especially important comorbidity to target during treatment. Moreover, the model highlights the need to target underlying processes of eating disorders, particularly body image inflexibility and values engagement. This model is thus consistent with the growing body of evidence supporting the use of ACT, a transdiagnostic intervention designed to target psychological inflexibility across a range of problem areas, for the treatment of eating disorders (Merwin et al., 2010). Lastly, the model suggests that it may be more important to focus on values identification and moving the adolescent towards their values, rather than values obstruction; encouraging values progression may help the adolescent connect to what is most meaningful and motivating to them. Perhaps the lack of values progression is contributing to eating disorder severity because fewer behaviors are dedicated to meaningful qualities and eating disorder symptoms are prioritized (e.g., skipping dinner with family to lose weight). It may be helpful to work on values identification and then guide the adolescent in using values as a guiding compass during difficult times (e.g., choosing the value of family and eating dinner in the face of gaining feared weight; choosing exercise for health or wellness over weight loss). When considering values progression with adolescents, it is also important to note the need for more research on best practices for values work with younger

populations. Youth are still developing and exploring different values and identities—adult methods of values identification and implementation may not be developmentally appropriate.

Limitations

The present study is cross-sectional and thus directional and/or causal conclusions cannot be drawn. Future research should look at different longitudinal and experimental designs to better understand the influence of values processes across development, especially in adolescents, and throughout the course of therapeutic interventions. This study also relies on the total EDE-Q, which is missing two items, as the sole measure of eating disorder severity; the results are thus limited in scope. This study also only measures body image inflexibility; a measure of general psychological inflexibility may have provided important adjunctive information. Additionally, this study is all based on self-report data and diagnoses were made from an unstructured clinical interview. It is possible that with alternative or additional data sources (e.g., parent report, structured clinical interview), that the results would vary— particularly considering the possible influence of common method variance amongst the self-report measures and potential response bias of participants.

Furthermore, the sample is all female, primarily white, and a residential population. As one example, it is possible that the internalized ideals about body image across gender identities may differ, leading individuals to engage in different behaviors depending on the targeted ideal (e.g., excessive cardiovascular exercise/restricted caloric intake to burn fat and lose weight among females targeting a "thin" ideal; excessive strength training, steroid use, and/or narrow dieting to target "muscular" ideals among males). With this in mind, the relationships between eating disorder severity and values engagement, anxiety, and body image inflexibility may look different in adolescents who do not identify as female; future research should explore how eating

disorder symptoms and values engagement or obstruction vary across gender identities and other diverse samples.

It would also be important for future research to explore the role of values in individuals with eating disorders being treated at lower levels of care or who are not yet in treatment. Individuals with eating disorders may conflate efforts to restrict eating and lose weight as in line with their values (i.e., ego-syntonic symptoms), making longitudinal assessment of valued living in both treatment and non-treatment seeking populations an important area of future focus in order to best understand trajectories of valued living among adolescents with disordered eating. Lastly, this study does not consider the social context of values, which previous research with adolescents has suggested is important (Benish-Weisman, Daniel, & McDonald, 2020). Future research should try to account for social and cultural contexts while measuring values engagement. For example, it may be beneficial to assess values in specific areas/domains (e.g., at school, with family) rather than broadly asking about the past week.

Conclusion

In conclusion, the present study highlights important mental health constructs in female adolescents with eating disorders. Our final model suggests that body image psychological flexibility and values progression are important in eating disorder severity, along with anxiety (an already established predictor of eating disorder severity). In all, this study presents preliminary treatment targets for future investigation and highlights the importance of implementing values work with younger clinical populations.

References

Ackard, D. M., Fulkerson, J. A., & Neumark-Sztainer, D. (2007). Prevalence and utility of DSM-IV eating disorder diagnostic criteria among youth. *International Journal of Eating Disorders, 40*(5), 409-417.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*: American Psychiatric Pub.

Barrett, T. S., & Brignone, E. (2017). Furniture for quantitative scientists. *R Journal, 9.*

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*(6), 893.

Beck, A. T., Steer, R. A., & Brown, G. (1996). Beck depression inventory–II. *Psychological Assessment.*

Behrendt, S. (2014). lm. beta: Add standardized regression coefficients to lm-Objects. *R package version 1.5, 1.*

Benish-Weisman, M., Daniel, E., & McDonald, K. L. (2020). Values and adolescents' self-esteem: The role of value content and congruence with classmates. *European Journal of Social Psychology, 50*(1), 207-223.

Bernal-Manrique, K. N., García-Martín, M. B., & Ruiz, F. J. (2020). Effect of acceptance and commitment therapy in improving interpersonal skills in adolescents: A randomized waitlist control trial. *Journal of Contextual Behavioral Science, 17*, 86-94.

Bluett, E., Lee, E., Simone, M., Lockhart, G., Twohig, M., Lensegrav-Benson, T., & Quakenbush-Roberts, B. (2016). The role of body image psychological flexibility on the treatment of eating disorders in a residential facility. *Eating Behaviors, 23*, 150-155.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle,
R. D. (2011). Preliminary psychometric properties of the Acceptance and Action
Questionnaire–II: A revised measure of psychological inflexibility and experiential
avoidance. *Behavior Therapy, 42*(4), 676-688.

Cameron, A. Y., Reed, K. P., & Gaudiano, B. A. (2014). Addressing treatment motivation in
borderline personality disorder: Rationale for incorporating values-based exercises into
dialectical behavior therapy. *Journal of Contemporary Psychotherapy, 44*(2), 109-116.

Carvalho, S. A., Palmeira, L., Pinto-Gouveia, J., Gillanders, D., & Castilho, P. (2018). The utility
of the valuing questionnaire in chronic pain. *Journal of Contextual Behavioral Science, 9*,
21-29.

Ceary, C. D., Donahue, J. J., & Shaffer, K. (2019). The strength of pursuing your values: Valued
living as a path to resilience among college students. *Stress and Health, 35*(4), 532-541.

Çekici, F., Sünbül, Z. A., Malkoç, A., Gördesli, M. A., & Arslan, R. (2019). The moderating role
of authenticity in the relationship between valued living and life satisfaction in
undergraduate students. *Journal of Education and Training Studies, 7*(3), 22-28.

Donahue, J. J., Huggins, J., & Marrow, T. (2017). Posttraumatic stress symptom severity and
functional impairment in a trauma-exposed sample: A preliminary examination into the
moderating role of valued living. *Journal of Contextual Behavioral Science, 6*(1), 13-20.

Fairburn, C. G., & Beglin, S. J. (2008). Eating disorder examination questionnaire. *Cognitive
Behavior Therapy and Eating Disorders*, 309-313.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical
power analysis program for the social, behavioral, and biomedical sciences. *Behavior
Research Methods*, *39*(2), 175-191.

Fiske, L., Fallon, E. A., Blissmer, B., & Redding, C. A. (2014). Prevalence of body

    dissatisfaction among United States adults: Review and recommendations for future

    research. *Eating Behaviors*, *15*(3), 357–365. doi:10.1016/j.eatbeh.2014.04.010

Fuss, S., Trottier, K., & Carter, J. (2015). An investigation of the factor structure of the Beck

    Depression Inventory-II in anorexia nervosa. *European Eating Disorders Review*, *23*(1),

    43-50.

Fydrich, T., Dowdall, D., & Chambless, D. L. (1992). Reliability and validity of the Beck

    Anxiety Inventory. *Journal of Anxiety Disorders, 6*(1), 55-61.

Gaudiano, B. A., Wenze, S. J., Weinstock, L. M., Tezanos, K. M., & Miller, I. W. (2017).

    Valued living and its relationship to medication adherence in patients with bipolar and

    comorbid substance use disorders. *The Journal of Nervous and Mental Disease, 205*(3),

    178.

Glazer, K. B., Sonneville, K. R., Micali, N., Swanson, S. A., Crosby, R., Horton, N. J., . . . Field,

    A. E. (2019). The course of eating disorders involving bingeing and purging among

    adolescent girls: Prevalence, stability, and transitions. *Journal of Adolescent Health,*

    64(2), 165-171.

Gregg, J. A., Callaghan, G. M., Hayes, S. C., & Glenn-Lawson, J. L. (2007). Improving diabetes

    self-management through acceptance, mindfulness, and values: a randomized controlled

    trial. *Journal of Consulting and Clinical Psychology, 75*(2), 336.

Halliburton, A. E., & Cooper, L. D. (2015). Applications and adaptations of Acceptance and

    Commitment Therapy (ACT) for adolescents. *Journal of Contextual Behavioral Science,*

    4(1), 1-11.

Henson, A., Ruglis, J., Sinacore, A., Fitzpatrick, M., & Lanteigne, D. (2020). Self-compassion

for youth in small city centres: A school-based pilot project. *Counselling and*

Psychotherapy Research, *21*, 719-728.

Hughes, E. K., Goldschmidt, A. B., Labuschagne, Z., Loeb, K. L., Sawyer, S. M., & Grange, D.

L. (2013). Eating disorders with and without comorbid depression and anxiety:

similarities and differences in a clinical sample of children and adolescents. *European*

Eating Disorders Review, 21(5), 386-394.

Karekla, M., Nikolaou, P., & Koushiou, M. (2020). Prevalence and correlates of eating disorders

in Greek-Cypriot adolescents and young adults. *The European Journal of Counselling*

Psychology, 8(1), 3-18.

Kelly, N. R., Cotter, E. W., Lydecker, J. A., & Mazzeo, S. E. (2017). Missing and discrepant

data on the Eating Disorder Examination Questionnaire (EDE-Q): Quantity, quality, and

implications. *Eating Behaviors, 24*, 1-6.

Koushiou, M., Loutsiou, A., & Karekla, M. (2020). Eating disorders among middle-school

students: The role of psychological inflexibility and self-esteem. *International Journal of*

School & Educational Psychology, 1-11.

Lee, E. B., Smith, B. M., Twohig, M. P., Lensegrav-Benson, T., & Quakenbush-Roberts, B.

(2017). Assessment of the body image-Acceptance and Action Questionnaire in a female

residential eating disorder treatment facility. *Journal of Contextual Behavioral Science,*

6(1), 21-28.

LeJeune, J., & Luoma, J. B. (2019). *Values in therapy: A clinician's guide to helping clients*

explore values, increase psychological flexibility, and live a more meaningful life: New

Harbinger Publications.

Lucena-Santos, P., Carvalho, S. A., da Silva Oliveira, M., & Pinto-Gouveia, J. (2017). Body-Image Acceptance and Action Questionnaire: Its deleterious influence on binge eating and psychometric validation. *International Journal of Clinical and Health Psychology, 17*(2), 151-160.

Luoma, J. B., Hayes, S. C., & Walser, R. D. (2007). *Learning ACT: An acceptance & commitment therapy skills-training manual for therapists*: New Harbinger Publications.

Mac Neil, B. A., & Hudson, C. C. (2018). Patient experience and satisfaction with acceptance and commitment therapy delivered in a complimentary open group format for adults with eating disorders. *Journal of Patient Experience*, *5*(3), 189-194.

Marzilli, E., Cerniglia, L., & Cimino, S. (2018). A narrative review of binge eating disorder in adolescence: prevalence, impact, and psychological treatment strategies. *Adolescent Health, Medicine and Therapeutics, 9*, 17.

Merwin, R. M., Timko, C. A., Moskovich, A. A., Ingle, K. K., Bulik, C. M., & Zucker, N. L. (2010). Psychological inflexibility and symptom expression in anorexia nervosa. *Eating Disorders, 19*(1), 62-82.

Morgan-Lowes, K. L., Clarke, P. J., Hoiles, K. J., Shu, C. Y., Watson, H. J., Dunlop, P. D., & Egan, S. J. (2019). The relationships between perfectionism, anxiety and depression across time in paediatric eating disorders. *Eating Behaviors, 34*, 101305.

Murrell, A. R., & Kapadia, V. (2011). Brief report on experiential avoidance and valuing in at-risk adolescents. *Behavioral Development Bulletin, 17*(1), 38.

Olsen, E. M., Koch, S. V., Skovgaard, A. M., & Strandberg-Larsen, K. (2020). Self-reported symptoms of binge-eating disorder among adolescents in a community-based Danish

cohort—A study of prevalence, correlates, and impact. *International Journal of Eating Disorders*.

Pais, C., Ponsford, J. L., Gould, K. R., & Wong, D. (2019). Role of valued living and associations with functional outcome following traumatic brain injury. *Neuropsychological Rehabilitation, 29*(4), 625-637.

R Core Team. (2019). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing.

Revelle, W. (2018). psych: Procedures for psychological, psychometric, and personality research. R package version 1.8.10. Retrieved from https://CRAN.R-project.org/package=psych

Roush, J. F., Cukrowicz, K. C., Mitchell, S. M., Brown, S. L., & Seymour, N. E. (2018). Valued living, life fulfillment, and suicide ideation among psychiatric inpatients: The mediating role of thwarted interpersonal needs. *Journal of Contextual Behavioral Science, 7*, 8-14.

RStudio Team. (2019). RStudio: Integrated Development for R. Retrieved from http://www.rstudio.com/

Sandoz, E. K., Wilson, K. G., Merwin, R. M., & Kellum, K. K. (2013). Assessment of body image flexibility: the body image-acceptance and action questionnaire. *Journal of Contextual Behavioral Science, 2*(1-2), 39-48.

Sarno, M. (2020). *Valued living and psychological flexibility as predictors of binge eating behavior.* Alliant International University,

Serowik, K., Khan, A., LoCurto, J., & Orsillo, S. (2018). The conceptualization and measurement of values: A review of the psychometric properties of measures developed

to inform values work with adults. *Journal of Psychopathology and Behavioral Assessment, 40*(4), 615-635.

Shabani, M. J., Mohsenabadi, H., Omidi, A., Lee, E. B., Twohig, M. P., Ahmadvand, A., & Zanjani, Z. (2019). An Iranian study of group acceptance and commitment therapy versus group cognitive behavioral therapy for adolescents with obsessive-compulsive disorder on an optimal dose of selective serotonin reuptake inhibitors. *Journal of Obsessive-Compulsive and Related Disorders, 22*, 100440.

Smout, M., Davies, M., Burns, N., & Christie, A. (2014). Development of the valuing questionnaire (VQ). *Journal of Contextual Behavioral Science, 3*(3), 164-172.

Swanson, S. A., Aloisio, K. M., Horton, N. J., Sonneville, K. R., Crosby, R. D., Eddy, K. T., Field, A. E., & Micali, N. (2014). Assessing eating disorder symptoms in adolescence: Is there a role for multiple informants? *International Journal of Eating Disorders*, *47*(5), 475–482. doi:10.1002/eat.22250

Thompson, B. L., Luoma, J. B., & LeJeune, J. T. (2013). Using acceptance and commitment therapy to guide exposure-based interventions for posttraumatic stress disorder. *Journal of Contemporary Psychotherapy, 43*(3), 133-140.

Udo, T., McKee, S. A., & Grilo, C. M. (2015). Factor structure and clinical utility of the Beck Depression Inventory in patients with binge eating disorder and obesity. *General Hospital Psychiatry, 37*(2), 120-125.

Wang, Y.-P., & Gorenstein, C. (2013). Psychometric properties of the Beck Depression Inventory-II: A comprehensive review. *Brazilian Journal of Psychiatry, 35*(4), 416-431.

Ward, Z. J., Rodriguez, P., Wright, D. R., Austin, S. B., & Long, M. W. (2019). Estimation of

eating disorders prevalence by age and associations with mortality in a simulated

nationally representative US cohort. *JAMA Network Open, 2*(10), e1912925-e1912925.

Weeks, S. N., Renshaw, T. L., Galliher, R. V., & Tehee, M. (2020). The moderating role of

psychological inflexibility in the relationship between minority stress, substance misuse,

and suicidality in LGB+ adolescents. *Journal of Contextual Behavioral Science, 18*, 276-

286.

Wickham, H., Francois, R., Henry, L., & Müller, K. (2015). Dplyr: A Grammar of Data

Manipulation.

Table 1

Descriptive statistics

Age *M*(SD)	15.17 (1.47)
Ethnicity N (%)	
White/Caucasian	67 (89.3)
Asian	2 (2.70)
Biracial	5 (6.76)
Diagnosis N(%)	
AN-R	42 (56.0)
AN-B/P	24 (32.0)
BN	7 (9.33)
BED	1 (1.33)
ARFID	0 (0)
OSFED	1 (1.33)
Duration of illness[a]	2.72 (1.70)
BMI	19.26 (2.93)

Note: AN-R = Anorexia Nervous Restrictive subtype; AN-B/P = Anorexia Nervosa Binge/Purge subtype; BN = Bulimia Nervosa, BED = Binge Eating Disorder; ARFID = Avoidant and Restrictive Feeding Intake Disorder; OSFED = Otherwise Specified Feeding Eating Disorder; BMI = Body Mass Index
[a] Years calculated based on self-reported age of onset

Table 2

Means and standard deviations for all measures for entire sample and by diagnosis

Measure M (SD)	Entire sample N = 75	AN-R n = 42	AN-B/P n = 24	BN n = 7	Other n = 2
1. EDE-Q	3.28 (1.67)	3.14 (1.68)	3.57 (1.57)	3.05 (2.10)	3.79 (NA)
2. EDE-Restraint	2.99 (1.98)	2.84 (1.92)	3.40 (2.06)	2.57 (2.40)	2.60 (0.57)
3. EDE-Eating Concerns	2.55 (1.63)	2.27 (1.54)	2.91 (1.69)	2.71 (2.00)	3.70 (0.99)
4. EDE-Weight Concerns	3.24 (1.87)	3.15 (1.92)	3.46 (1.77)	2.90 (2.21)	4.00 (NA)
5. EDE-Shape Concerns	4.20 (1.89)	4.02 (2.02)	4.53 (1.68)	4.00 (2.17)	4.91 (0.48)
6. VQ-O	16.23 (6.97)	15.32 (6.29)	17.45 (7.84)	16.71 (8.38)	19.00 (7.07)
7. VQ-P	13.33 (7.52)	13.81 (7.46)	12.38 (7.36)	13.43 (9.81)	14.50 (6.36)
8. BAI	21.83 (11.08)	20.38 (10.22)	26.28 (12.47)	15.50 (7.99)	21.00 (0.00)
9. BDI	29.16 (12.44)	27.35 (10.57)	33.54 (14.00)	24.29 (15.78)	31.50 (9.19)
10. BI-AAQ	53.95 (16.98)	50.33 (16.76)	58.21 (16.72)	60.14 (18.46)	57.00 (8.49)

Note: AN-R = Anorexia Nervous Restrictive subtype; AN-B/P = Anorexia Nervosa Binge/Purge subtype; BN = Bulimia Nervosa, Other includes Binge Eating Disorder, Avoidant and Restrictive Feeding Intake Disorder, and Otherwise Specified Feeding Eating Disorder. EDE-Q = Eating Disorder Examination Questionnaire; VQ-O = Valuing Questionnaire – Obstruction to valued living; VQ-P = Valuing Questionnaire – Progress in valued living; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BI-AAQ = Body Image Acceptance and Action Questionnaire.

Table 3

Correlations for duration of illness, BMI, and all measures in the entire sample

Measure	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
1. EDE-Q	—	—	—	—	—	—	—	—	—	—	—	—
2. EDE-Restraint	.91***	—	—	—	—	—	—	—	—	—	—	—
3. EDE-Eating Concerns	.89***	.83***	—	—	—	—	—	—	—	—	—	—
4. EDE-Weight Concerns	.90***	.73***	.68***	—	—	—	—	—	—	—	—	—
5. EDE-Shape Concerns	.92***	.73***	.74***	.85***	—	—	—	—	—	—	—	—
6. VQ-O	.50***	.49***	.53***	.43***	.37***	—	—	—	—	—	—	—
7. VQ-P	-.53***	-.48***	-.44***	-.53***	-.48***	-.60***	—	—	—	—	—	—
8. BAI	.53***	.45***	.52***	.45***	.51***	.45***	-.31**	—	—	—	—	—
9. BDI	.60***	.55***	.61***	.51***	.51***	.76***	-.64***	.66***	—	—	—	—
10. BI-AAQ	.56***	.47***	.49***	.45***	.60***	.36**	-.18	.39***	.41***	—	—	—
11. Duration of illness[a]	.13	.19	.21	.04	.03	.29*	-.15	-.04	.30*	.1	—	—
12. BMI	.09	.02	.11	.13	.09	.13	-.05	.002	.14	.16	.03	—

*p < .05, **p < .01, ***p < .001.
Note: EDE-Q = Eating Disorder Examination Questionnaire; VQ-O = Valuing Questionnaire – Obstruction to valued living; VQ-P = Valuing Questionnaire – Progress in valued living; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BI-AAQ = Body Image Acceptance and Action Questionnaire; BMI = Body Mass Index
[a] Years calculated based on self-reported age of onset

Table 4

Multiple regression analysis predicting total eating disorder severity using depression, anxiety, body image inflexibility, progress towards values, and values obstruction

Variable	B	SE	Beta	Adjusted R^2
BDI	.009	.02	.07	.53
BI-AAQ	.04	.01	.37***	
VQ-Progress	-.08	.02	-.35**	
BAI	.03	.02	.24*	
VQ-Obstruction	-.005	.03	-.002	

Note: VQ-P = Valuing Questionnaire – Progress in valued living; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BI-AAQ = Body Image Acceptance and Action Questionnaire.
***p<.001, **p<.01, *p<.05