Journal of Emotion and Psychopathology
2025, Vol 1, Issue 2, 403-411
https://doi.org/10.55913/joep.v1i2.32

Differences in Emotion Regulation Difficulties in Partially Hospitalized Sexual Minority Patients with Eating Disorders

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Abstract

Prior research indicates that emotion regulation (ER) difficulties may contribute to or maintain eating disorders (EDs), and that sexual minorities (SM) are at elevated risk for both phenomena. However, limited research has examined the dimensional variability of ER in SM individuals with EDs. Patients from an ED partial hospitalization program (N = 344) completed surveys of ED symptoms and ER difficulties at treatment admission. SM patients with EDs reported greater difficulties in ER compared to non-clinical SM participants from a previous study (ps < .001). Patients with EDs that identified as a SM demonstrated greater difficulties compared heterosexual patients across all ER dimensions (ps < .018); however, the effect sizes were smaller when comparing SM patients to heterosexual patients with EDs. ER difficulties were significantly associated with more severe ED symptoms across all dimensional scores. However, DERS Clarity was the only ER dimension that demonstrated a significant interaction effect with sexual orientation (p = .048), such that difficulties identifying one's emotions was only significantly associated with ED symptom severity in heterosexual patients (p = .027). Findings help provide additional context regarding ER difficulties in SM patients with EDs.

Keywords: eating disorders, emotion regulation, sexual orientation, partial hospitalization, health disparities

Introduction

Research shows that emotion regulation (ER) difficulties may contribute to the development and maintenance of eating disorders (EDs; Brockmeyer et al., 2014). This is consistent with the biosocial model for ER in EDs, which posits that difficulties modulating emotional experiences may increase risk for ED behaviors to avoid or escape aversive emotions (Linehan & Chen, 2005). Treatments informed by this framework, such as dialectical behavior therapy (DBT), were designed to enhance emotional coping strategies, and have been successful in reducing both ED symptoms (Ben-Porath et al., 2014; Brown et al., 2018) and ER difficulties in ED samples (Ben-Porath et al., 2014; Brown et al., 2020). Patients that identify as a sexual minority (SM) are at increased risk for EDs (Calzo et al., 2017), ER difficulties, and mood-related disorders (Hatzenbuehler, 2008). One model that explains this disparity is the tripartite minority stress model (Convertino et al., 2021), which theorizes that minority stressors (e.g., stigma, discrimination) contribute to body dissatisfaction and disordered eating in SMs, conferring risk for EDs. Thus, emotion dysregulation may be a salient concern for SM clients with EDs, which

*Corresponding Author: Tiffany A. Brown ✉ tiffanybrown@auburn.edu
Received: 12 September 2022 | Revision Received: 20 January 2023 | Accepted: 23 February 2023
Published by Black Swan Psychological Assessments Pty Ltd
www.emotionandpsychopathology.org

existing cognitive-behavioral models for EDs do not emphasize. Although previous literature highlights the importance of ER difficulties, which can be exacerbated by experiences of stigma in SM populations (Convertino et al., 2021), the relationship between ER difficulties and ED symptoms in SMs remains poorly understood; clarifying this relationship may inform clinical practice.

To our knowledge, only two studies have examined ER in SM samples with ED symptoms, and both used the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), which includes six dimensions of ER (Nonacceptance, Goals, Impulse, Awareness, Strategies, and Clarity[1]). Most of these emotion regulation dimensions map on to experiential (i.e., feelings) and behavioral (i.e., flight response) channels (Preece et al., 2018). Donahue and colleagues (2020) found that SM patients reported greater global difficulties in ER than heterosexual patients—however, the authors did not examine the relationships between different facets of ER and eating pathology across sexual orientations. Understanding whether disparities are global or more specific could have important implications for developing broad-based or more targeted ER treatments for SM individuals. For example, greater disparities in DERS Goals or Strategies may indicate the need for increased dosage of ER skills training, while greater disparities in DERS Awareness and Clarity may necessitate targeting skills to improve alexithymia (i.e., difficulty or an inability to identify and describe experiences of emotion). A second study by Gillikin and colleagues (2021) found that in a non-clinical sample, all DERS subscales except for Awareness were elevated in SM individuals and that Nonacceptance, Goals, Strategies, and Impulse, mediated the relationship between sexual orientation and ED symptoms. Thus, some evidence suggests that emotional awareness and clarity may be less related to eating pathology for SM individuals, though this has yet to be explored in a clinical population given that Donahue and colleagues (2020) only examined global ER difficulties.

Given the current gaps in the ED literature, the purpose of the present study was threefold. First, we sought to compare ER difficulties in a sample of SM patients with EDs to a non-clinical comparison sample of SM-identifying participants (Gillikin et al., 2021). For our second aim, we will compare dimensions of ER difficulties in patients with EDs between sexual orientations. For our final and exploratory aim, we will examine whether different dimensions of ER difficulties are associated with greater eating pathology and whether this relation is moderated by sexual orientation. For our first aim we hypothesized that SM patients with EDs will present with greater difficulties in ER compared to a non-clinical comparison sample of SM-identifying participants. For our second aim, we hypothesize that SM patients will present with greater difficulties across ER dimensions compared to heterosexual patients. Given that extant literature suggests that some dimensions of emotion regulation difficulties may mediate the relations between SM identity and ED symptoms in a non-clinical comparison sample (Gillikin et al., 2021), we expect that sexual orientation will moderate the association between different emotion regulation dimensions and ED symptom severity in a clinical sample of patients with EDs.

Methods

Participants and Procedures

Participants (N = 328) were adolescent and adult patients presenting for treatment at a partial hospitalization program for EDs (see Table 1 for sample characteristics). Data for the present study represent a subset of data used in a previous study of SM and non-SM patients with EDs (Donahue et al., 2020). Diagnoses were made by one of three staff psychiatrists using semi-structured interviews (see Brown et al., 2018 for details). All participants provided informed consent and study procedures were approved by the Institutional Review Board.

[1] Nonacceptance: to experience negative secondary emotions or not accept emotional distress.
Goals: challenges maintaining goal-oriented behaviors when experiencing negative emotions.
Impulse: difficulty inhibiting behaviors when negative emotions are experienced.
Awareness: attending to and acknowledging negative emotions.
Strategies: believing one is incapable of effectively regulating negative emotions or down-regulating.
Clarity: the extent to which one can recognize and identify the emotions they are experiencing.

Table 1. Patient Demographics Across Groups

	Heterosexual (n = 277)	Sexual Minority (n = 67)	χ^2/t	p
	M (SD)/n (%)	M (SD)/n (%)		
Age	21.23 (8.42)	20.99 (7.69)	.22	.42
BMI [a]	19.77 (4.03)	21.12 (4.68)	-2.37	.01
Gender Identity			21.60	<.001
Cisgender Female	249 (89.9)	50 (74.6)		
Cisgender Male	21 (7.6)	8 (11.9)		
Transgender/Gender Expansive	3 (1.1)	9 (13.4)		
Unknown/Not Reported	4 (1.4)	-		
Sexual Orientation			330.23	<.001
Exclusively Gay	-	10 (14.9)		
Mostly Gay	-	6 (9)		
More Gay	-	4 (6)		
Equally Gay & Heterosexual	-	26 (38.8)		
More Heterosexual	-	21 (31.3)		
Mostly Heterosexual	44 (15.9)	-		
Exclusively Heterosexual	233 (84.1)	-		
ED Diagnosis			7.85	.10
Anorexia Nervosa – Restriction Type	118 (42.6)	23 (34.3)		
Anorexia Nervosa – Binge/Purge Type	41 (14.8)	7 (10.5)		
Bulimia Nervosa	42 (15.2)	18 (26.9)		
Avoidant Restrictive Food Intake Disorder	19 (6.9)	2 (3)		
Other Specified Feeding or ED	56 (20.2)	17 (25.4)		
Missing Diagnosis	1 (0.4)	-		
Comorbid Diagnoses				
Mood Disorder	101 (37.6)	42 (62.7)	13.67	<.001
Anxiety Disorder	124 (46.1)	44 (65.7)	8.22	.004
Substance Use Disorder	38 (14.1)	17 (25.4)	4.96	.026
Alcohol Use Disorder	35 (13)	11 (16.4)	.53	.47
Missing Comorbidities	8 (3)	-		
Race			9.25	.10
Caucasian	219 (79.1)	45 (67.2)		
Asian	14 (5.1)	10 (14.9)		
Black	5 (1.8)	1 (1.5)		
Native Hawaiian/Pacific Islander	2 (0.7)	-		
Native American/Alaskan Native	1 (0.4)	1 (1.5)		
Other	35 (12.6)	10 (14.9)		
Unknown/Not Reported	1 (0.4)	-		
Ethnicity			0.19	.66
Hispanic/Latinx	51 (18.4)	14 (20.9)		
Non-Hispanic/Latinx	224 (80.9)	53 (79.1)		
Unknown/Not Reported	1 (0.4)	-		

Note. ED = Eating Disorder; BMI = body mass index.

[a] Three heterosexual and one sexual minority patients were missing BMI data at admission.

Measures

Sexual Orientation was assessed dimensionally on a 7-point scale. Individuals who identified as "exclusively gay (1)" to "more straight (5)" were categorized as a SM, consistent with previous ED studies (Donahue et al., 2020; see Table 1).

Gender Identity was assessed in two parts. First participants were asked what sex they were assigned at birth and in a second question what gender they identify as. Participants who had gender identities consistent with their sex assigned at birth were identified as cisgender.

Emotion Dysregulation was assessed using the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), which assesses six dimensions: Nonacceptance, Goals, Impulse, Awareness, Strategies, and Clarity. Higher scores indicate greater difficulties in ER across dimensions. Internal consistency across dimensional scores were adequate for the current study (SM α = .84 − .91; heterosexual α = .87 − .92).

Eating Pathology was assessed using the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 2008), with higher scores indicating greater ED symptoms. Internal consistency for the global score was excellent for the present study (SM α = .95; heterosexual α = .97).

Statistical Analysis

No participants were missing DERS data, 1.2% (n = 4) were missing EDE-Q data. Little's MCAR test was not significant, χ^2 (8, N = 344) = 4.61, p = .798. Given that little data (<1.3%) was missing and what data was missing was MCAR, list-wise deletion (Allison, 2001) was used for regression analyses. The analytical sample only included cisgender heterosexual and SM participants (N = 328). Single sample *t*-tests were used to compare scores across DERS dimensions and total score between patients that identified as a SM to a non-clinical SM sample (see Supplement for Gillikin and colleagues [2021] sample characteristics). Multivariate analysis of variance was used to determine group differences in DERS dimensional scores, covarying for age and BMI, which was used as a proxy for ED diagnosis. For our third exploratory aim, hierarchical linear regression models examined the associations between DERS dimensions, age, and sexual orientation with EDE-Q Global Scores. DERS subscales and sexual orientation were entered in step 1. The interaction effects between sexual orientation and DERS subscale scores were added in step 2. Tolerance values for all models were initially below accepted values and thus, variables were z-scored prior to being entered into regression models. Final tolerance and VIF values (all > .69 and < 1.46 respectively) did not indicate any concerns with multicollinearity.

Results

Preliminary Analyses

Patients that identified as a SM (n = 58) presented for treatment with significantly higher BMIs (p = .01) compared to heterosexual patients (see Table 1). Gender differences were also found with patients that identified as a SM were less likely to identify as cisgender female and more likely to identify as transgender/gender expansive (ps < .001). Moreover, differences in comorbid diagnosis were found based on sexual orientation for mood, anxiety and substance use disorder (ps < .026), with sexual minority patients being more likely to present with a comorbid diagnosis. Patients did not differ based on ED diagnosis, age, race, or ethnicity (ps > .08).

Aim 1: Differences in ER Difficulties between Clinical and Nonclinical SMs

Results from one sample t-tests demonstrate that SM patients with EDs demonstrated significantly higher scores on all DERS dimensional and total scores (ps < .001, ds = .90 – 1.50) compared to a nonclinical SM comparison group (Gillikin et al., 2021; see Table S1).

Aim 2: Differences in ER Difficulties across Sexual Orientations

Controlling for age and BMI, patients that identified as a SM presented with higher DERS total and dimensional scores than heterosexual patients, F (7,318) = 2.26, p = .029, Pillai's Trace = .048, partial η^2 = .048 (observed power = .84; see Table 2). Small to medium effect sizes were observed across DERS

dimensional and total scores as a function of sexual orientation (η^2s > .014, *p*s < .035) with sexual minority patients presenting with greater difficulties in emotion regulation across all DERS dimensions.

Exploratory Aim 3: ER Difficulties, Skills Use, and Eating Pathology across Sexual Orientation

Descriptive statistics and bivariate associations were examined prior to generating a series of hierarchical linear regression models (see Table S2). SM identity, age, BMI, and DERS (dimensional and total) scores were all significantly correlated with EDE-Q global scores (see Table 3). In all models, age did not significantly differ based on sexual orientation ($p = .415$); however, patients did significantly differ in EDE-Q Global, DERS total and dimensional scores (*ps* < .03; Cohens *ds* > .30).

Hierarchical regression analyses demonstrated that across all models, DERS dimensional and total scores were significantly associated with EDE-Q Global Score (*p*s < .001), while controlling for sexual orientation, BMI, and age. However, when adding interaction effects between DERS scores and sexual orientation at Step 2, significant interaction effects were found for DERS Clarity only ($p = .048$). Specifically, there was a significant interaction effect between sexual orientation and DERS Clarity, such that at low levels of DERS Clarity, SM patients presented with higher EDE-Q global scores than heterosexual patients ($p = .024$). However, at high levels of DERS Clarity, there were no significant differences between patients based on sexual orientation ($p = .756$). Despite this disparity, higher DERS Clarity scores were only significantly associated with EDE-Q scores for heterosexual patients ($p = .027$) and not SM patients ($p = .113$; see Figure S1).

Table 2. Multivariate Analysis of Variance by Sexual Orientation

Variables	Heterosexual		Sexual Minority		*F*	η^2	*p*
	M	*SD*	*M*	*SD*			
Covarying for BMI and age					*F* (7, 318) = 2.26, *p* = .029		
DERS Nonacceptance	17.65	7.13	21.44	6.68	11.30	.034	<.001
DERS Goals	17.59	5.21	19.61	4.45	6.45	.020	.012
DERS Impulse	16.37	6.58	19.49	6.77	8.70	.026	.003
DERS Strategies	23.93	8.49	28.46	7.84	11.42	.034	<.001
DERS Awareness	19.48	5.91	21.68	5.02	5.69	.018	.017
DERS Clarity	15.13	4.91	16.93	4.74	5.17	.024	.016
DERS Total	110.16	28.94	127.61	26.80	14.79	.044	<.001

Note. DERS = Difficulties in Emotion Regulation Scale; BMI = body mass index.

Table 3. Hierarchical Linear Regression for Eating Disorder Symptoms

Variables	Adj. R^2	B	SE	*t*	*p*
DERS Nonacceptance Model					
Step 1	.302	$F(4,319) = 35.98, p < .001$			
SM Identity		.09	.21	.44	.66
Age		.005	.01	.52	.61
BMI		.08	.02	4.05	<.001
DERS		.78	.08	9.66	<.001
Step 2	.302	$F(5,318) = 28.92, p < .001$			
SM Identity		.16	.22	.72	.47
Age		.005	.01	.53	.60
BMI		.08	.02	3.9	<.001
DERS		.81	.09	9.20	<.001
DERS x SM Identity		-.20	.22	-.89	.37
DERS Goals Model					
Step 1	.228	$F(4,319) = 32.72, p < .001$			
SM Identity		.20	.21	.94	.35
Age		.02	.01	1.99	.048
BMI		.09	.02	4.76	<.001
DERS		.72	.08	9.04	<.001
Step 2	.365	$F(5,323) = 31.94, p < .001$			
SM Identity		.26	.22	1.17	.24
Age		.02	.01	2.03	.044
BMI		.09	.02	4.70	<.001
DERS		.75	.09	8.77	<.001
DERS x SM Identity		-.23	.23	-.98	.33
DERS Impulse Model					
Step 1	.283	$F(4,319) = 31.45, p < .001$			
SM Identity		.15	.21	.72	.47
Age		.02	.01	1.73	.09
BMI		.09	.02	4.43	<.001
DERS		.71	.08	8.79	<.001
Step 2	.287	$F(5,318) = 25.65, p < .001$			
SM Identity		.25	.22	1.11	.27
Age		.02	.01	1.81	.07
BMI		.09	.02	4.33	<.001
DERS		.77	.09	8.56	<.001
DERS x SM Identity		-.30	.21	-1.44	.15
DERS Total Model					
Step 1	.424	$F(4,319) = 60.41, p < .001$			
SM Identity		-.08	.19	-.42	.67
Age		.007	.009	.76	.45
BMI		.07	.02	4.20	<.001
DERS		.99	.07	13.43	<.001
Step 2	.427	$F(5,318) = 49.13, p < .001$			
SM Identity		.05	.21	.24	.81
Age		.007	.009	.82	.41
BMI		.07	.02	4.02	<.001
DERS		1.05	.08	13.01	<.001
DERS x SM Identity		-.33	.20	-1.65	.10

Variables	Adj. R^2	B	SE	*t*	*p*
DERS Strategies Model					
Step 1	.391	$F(4,319) = 51.23, p < .001$			
SM Identity		.02	.20	.09	.93
Age		.01	.009	1.54	.12
BMI		.08	.02	4.42	<.001
DERS		.92	.08	12.15	<.001
Step 2	.393	$F(5,318) = 41.10, p < .001$			
SM Identity		.08	.21	.38	.70
Age		.01	.009	1.57	.12
BMI		.08	.02	4.31	<.001
DERS		.95	.08	11.49	<.001
DERS x SM Identity		-.18	.21	-.86	.39
DERS Awareness Model					
Step 1	.181	$F(4,319) = 18.81, p < .001$			
SM Identity		.30	.23	1.31	.19
Age		.01	.01	1.22	.23
BMI		.09	.02	4.38	<.001
DERS		.49	.09	5.67	<.001
Step 2	.179	$F(5,318) = 15.13, p < .001$			
SM Identity		.34	.23	1.46	.15
Age		.01	.01	1.21	.23
BMI		.09	.02	4.38	<.001
DERS		.52	.09	5.54	<.001
DERS x SM Identity		-.18	.25	-.72	.48
DERS Clarity Model					
Step 1	.249	$F(4,319) = 27.81, p < .001$			
SM Identity		.25	.22	1.15	.25
Age		.01	.01	1.12	.26
BMI		.09	.02	4.36	<.001
DERS		.66	.08	8.02	<.001
Step 2	.256	$F(5,318) = 23.24, p < .001$			
SM Identity		.35	.22	1.59	.11
Age		.01	.01	1.17	.24
BMI		.08	.02	4.16	<.001
DERS		.73	.09	8.16	<.001
DERS x SM Identity		-.44	.22	-1.99	.048

Notes. SM = Sexual Minority; BMI = Body Mass Index; DERS = Difficulties in Emotion Regulation Scale. DERS data is standardized (*z* scores).

Discussion

The present study examined 1) whether a clinical sample of SM patients with EDs presented with greater ER difficulties than a non-clinical comparison sample of SM participants; 2) whether SM patients with EDs exhibited greater difficulties in ER compared to heterosexual patients with EDs; and 3) Whether ER difficulties, SM identity, and the interaction effects were associated with more severe ED symptoms.

Consistent with our hypothesis, patients that identified as a SM with EDs presented with greater difficulties on all measured ER dimensions compared to a nonclinical SM comparison sample from Gillikin and colleagues (2021). This finding also mirrors findings from Brockmeyer and colleagues (2014), which found that participants with EDs presented with greater ER difficulties compared to the non-ED control group. Findings from our second aim also support our hypothesis that SM patients with EDs present with significantly greater difficulties in ER compared to heterosexual patients with EDs, though the effect sizes were smaller between heterosexual and SM patients than they were between SM patients and non-clinical SM comparison participants—extending previous findings on broad ER difficulties in SM patients with EDs (Donahue et al., 2020).

For our third aim, we examined the main and interaction effects across dimensions of ER and SM identity. We found that all measured ER dimensions and total scores were associated with ED symptom severity, collapsing across sexual orientation. However, there was a significant interaction effect between sexual orientation and DERS Clarity when predicting ED symptom severity. Our results suggest that SM patients with EDs present with greater uncertainty regarding the emotions they are experiencing, but that the difficulties with identifying emotions in SM patients are not associated with higher ED symptom severity, whereas in heterosexual patients, this difficulty is associated with ED symptoms severity. Our findings in part support previous findings from Gillikin and colleagues (2021), which suggests that there is a main effect of sexual orientation on ED symptom severity, but that this relation is not mediated by emotional clarity. Similarly, we found that emotional clarity was associated with ED symptom severity and sexual orientation in heterosexual patients but not in SM patients. Our findings may be due to the sample differences (clinical v. non-clinical) and thus associations previously observed at the community level may not be reflected in partial hospitalized patients.

Limitations

While the present study employed a clinical ED sample using validated measures and the inclusion of a non-clinical comparison sample, several limitations are of note. First, the sexual orientation assessment used dimensions such as “more” and “most”, which may be subjective and difficult to distinguish. Furthermore, we did not have power to examine differences across different sexual orientations and cannot generalize our findings to the broader SM community. Future studies should examine this phenomenon across different SM subgroups and gender identities as disparities have previously been found across identities. Additionally, our sample included primarily cisgender, white patients—limiting the generalizability of these findings to people from diverse gender and racial/ethnic backgrounds. Finally, the DERS only focuses on difficulties in regulating negative emotions and future work should also examine difficulties in emotion regulation for positively valanced emotions.

Conclusions

Results reinforce the importance of exploring ER in stigmatized groups and have implications for treatments that may target both ER and ED symptoms (e.g., DBT) and new emotion-focused interventions in SM populations (Pachankis et al., 2019). However, ER difficulties appear to be diffuse in SM patients with EDs and disparities in ER do not appear to contribute to ED symptom disparities between SM and heterosexual patients, though additional research is needed to confirm these findings.

Thus, other phenomenon should be investigated to identify what is driving symptom disparities between heterosexual and SM patients with EDs so that appropriate treatments can be selected to reduce ED symptoms in SM patients.

Additional Information

Supplementary Material

https://doi.org/10.17605/OSF.IO/S245V

Acknowledgements

We would like to highlight the efforts of the patients and staff at the University of California San Diego Eating Disorder Center for Treatment and Research

Funding

TAB receives funding through the Arlene and Michael Rosen Foundation; Dr. Wierenga and Kaye receive funding through the National Institutes for Mental Health.

Conflict of Interest

The authors have no conflicts of interest to report.

Ethical approval

All study procedures were approved by the Institutional Review Board at the University of California San Diego.

Data Availability

Data is available upon reasonable request from the corresponding author.

Author CRediT Statement

Denning was responsible for the manuscript conceptualization, formal analyses, writing the original draft and editing. DeBendetto and Anderson were responsible for reviewing and editing the manuscript. Kaye and Wierenga were responsible for project administration, funding acquisition, and reviewing and editing the manuscript. Brown was responsible for investigation, data curation, reviewing and editing the manuscript and supervision.

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