

# Beliefs About the Values of Happiness and Depressive Feelings in an Acute Psychiatric Treatment Sample

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People hold diverse beliefs about the feeling and value of emotions; for instance, some people believe they should only feel happy and never feel depressed. Interestingly, previous studies have demonstrated that these beliefs are associated with increased depression. This raises questions about how such beliefs operate in a clinical setting; however, little research has been conducted on treatment-seeking individuals. We examined beliefs about the values of happiness and depressive feelings and their relationship to treatment outcomes in 289 adult patients admitted in an intensive cognitive-behavioral therapy-based psychiatric partial hospital program in the U. S. Beliefs related to happiness and depressive feelings were significantly reduced after treatment, suggesting that they are amenable to change. Moreover, a decrease in the belief that depression should never be experienced was uniquely associated with decreased depressive symptoms after treatment, even after accounting for demographic and treatment-related variables. Our findings support the idea that beliefs about the values of emotions, especially about feeling depressed, are potential targets for depression treatment.

**Keywords:** depression, belief, emotion

## Introduction

*Beliefs about goodness/badness of emotions*—i.e., whether an emotion should be valued or desired—are fundamental to a person's general beliefs about emotions (Ford and Gross, 2019). Previous studies examining various community samples have shown that beliefs about the values of experiencing happiness (believing that feeling happy is extremely important) are paradoxically associated with greater depression (e.g., Gentzler et al., 2019; Mahmoodi Kahriz et al., 2020). Elevated depressive symptoms are also associated


with the devaluation of negative emotions (Bastian et al., 2012). In addition, emotion beliefs have been addressed in various treatments. For instance, acceptance and commitment therapy (ACT) and mindfulness approaches both involve accepting one's own uncomfortable experiences as a key to coping with struggles (Hayes et al., 2011). Dialectical behavioral therapy (DBT) focuses on functions and myths of emotions (Linehan, 2018).

Although there has been substantial research into emotion beliefs as a significant depression correlate and clinical attention to those beliefs in treatments, no study has examined whether these beliefs can be modulated by clinical intervention or are associated with depression improvement. Here, we examined this topic in treatment-seeking adult patients admitted to a partial hospitalization program (PHP) in the U. S. Furthermore, we evaluated beliefs about the values of both happiness and depressive feelings. Previous studies found that beliefs about emotions are domain-specific (Schroder et al., 2016) and that a meta-analysis (Yoon et al., 2018) found that negative thoughts/feelings towards depressive feelings

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have a stronger relationship with depressive symptoms than attitudes towards positive feelings, while both relationships were significant. Thus, examining treatment-seeking patients' beliefs about their feelings of depression seems particularly relevant.

Based on previous research, we hypothesized that (1) beliefs about the values of happiness (valuing happiness; hereinafter happiness belief) and depressive feelings (devaluing feeling depressed; hereinafter depression belief) would decrease via cognitive behavioral therapy (CBT)-based treatments. (2) Greater pre-and-post treatment changes in these beliefs would predict greater changes in depressive symptoms. Additionally, we explored whether happiness and depression beliefs change differently via treatment (i.e., depression improvement).

## Methods

### Participants and Treatment

Data were collected from patients admitted to a PHP at a psychiatric hospital in New England, between September 2019 to March 2020. A total of 289 patients agreed to participate in the assessments, and their data were used in the current study. The PHP, an intensive day treatment for adults, is designed to teach patients adaptive skills through CBT-based groups (e.g., CBT, DBT, ACT, and mindfulness) and individual therapies as well as case-management and medication management. Most patients stay in the treatment for about two weeks. In our sample, the average length of stay was 12.3 days, including weekends and holidays. See Forgeard et al. (2018) for detailed information about the PHP. Data were collected via Research Electronic Data Capture (REDCap), a secure web application for research databases. This study was approved by the Institutional Review Board of the hospital (#2010P001047).

### Measures

Supplementary Material A presents the internal consistencies of each measure.

#### Emotion beliefs measures

##### *Valuing Depression Scale (VDS)*

To measure beliefs about the values of depressive feelings, we de-

veloped a single-factor and five-item self-report scale based on previous research (Yoon et al., 2018).

##### *Modified Valuing Happiness Scale (mVHS)<sup>1)</sup>*

We measured beliefs about happiness value using four items extracted from the VHS (Mauss et al., 2011). For both VDS and mVHS, participants were asked to rate the extent to which they agree with each item on a six-point Likert-type scale (1 = strongly disagree, 6 = strongly agree). Higher scores indicate stronger endorsement of "devaluation" of depressive feelings and "valuation" of happiness. Based on exploratory factor analysis with the items of VDS and mVHS, we removed one item of mVHS with low factor loading, and thus the three-item-mVHS was used for the analyses. Supplementary Material B details the information about VDS and mVHS, as well as the exploratory factor analysis results.

#### Depression

Depression symptom severity was measured using the patient Health Questionnaire-9 (PHQ-9; see Kroenke et al., 2001), a nine-item self-report questionnaire designed to measure 9 symptoms of major depressive episode on a four-point Likert scale (i.e., 0 = not at all, 3 = nearly every day). Higher scores indicate higher levels of depression.

#### Statistical analyses

IBM SPSS Statistics (version 26.0) was used for statistical analyses. List-wise deletions were used for missing values.

First, to test whether patients' happiness and depression beliefs changed after an intensive treatment (H1), a repeated-measures Analysis of Variance (ANOVA) was conducted with endorsement scores as a dependent variable (DV), Time (pre-treatment, post-treatment) and Beliefs (happiness belief, depression belief) as within-subject factors.

Second, we performed a multivariate regression analysis to examine whether changes in each extreme emotion evaluation uniquely predicted pre-and-post treatment depression changes (H2). To examine pre-and-post treatment changes, we computed residualized change scores for each measure. Residualized gain scores are

1) Given that the PHP patients were to complete a large set of questionnaires, four items were selected to minimize the number of questions and, thus, the participant's burden.

recommended when variables at Time 1 likely influence variables in Time 2, as these orthogonalized gain scores account for the influence of early scores on later ones (Cohen et al., 2013). To make interpretation easier, we multiplied these scores by -1 so that larger and positive scores indicate greater changes in post-treatment. A multi-variate regression model was run with depression change scores as an outcome variable and changes in the VDS and mVHS as predictors. To further control for demographic variables, treatment days, and primary diagnosis, a hierarchical regression analysis was performed. In the regression models with depression change scores as an outcome variable, we first entered demographic variables and treatment days as predictors, and then entered the change scores of the VDS and mVHS in the second step.

## Results<sup>2)</sup>

The average age of the patients was 34.2 (55.7% female). Most patients identified themselves as white and heterosexual. Detailed demographic and clinical characteristics of patients are presented in Table 1. Results from correlational analysis (see Supplementary Material C) showed that both depression and happiness beliefs were significantly associated with depression symptom severity at discharge ( $r = .157$  for happiness belief,  $r = .247$  for depression belief), but not at admission ( $ps > .05$ ).

### Did extreme emotion beliefs change after treatment?

The results of repeated measures ANOVA showed a significant main effects of Time,  $F(1,217) = 22.64$ ,  $p < .001$ ,  $\eta^2 = .094$  and Beliefs,  $F(1,217) = 427.48$ ,  $p < .001$ ,  $\eta^2 = .663$ . Patients reported significantly lower scores across beliefs after treatment than admission, 3.05 (1.0; pre-treatment *mean* and *SD*) vs. 2.73 (.89; post-treatment),  $p < .001$ . Across time, the extent to which patients valued happiness was greater than they devalued depressive feelings, 3.48 (.99, happiness) vs. 2.25 (.93, depressive feelings).

To further examine the potential moderating role of clinical diagnosis in changes in emotion beliefs after treatment, we added diagnosis (major depressive disorder group (F32.X or F33.X), bipolar disorder group (F30.9 or F31.X), and other diagnosis) as a be-

**Table 1.** Demographic and Clinical Characteristics of the Sample

Characteristic	Frequency	Percentage (%)
Age (yr)/Mean (SD)	34.26 (14.38)	
Biological sex		
Female	161	55.7
Male	128	44.3
Race		
American Indian or Alaskan Native	2	0.7
Asian	9	3.1
Black or African American	8	2.8
White	260	90.0
Native Hawaiian or Pacific Islander	2	0.7
Other	9	3.1
Do not know	5	1.7
Sexual orientation		
Bisexual	34	11.8
Gay/Lesbian	17	5.9
Heterosexual	207	71.6
Queer	13	4.5
Other	7	2.4
Employment		
No	139	48.1
Part-time	40	13.8
Full-time	105	36.3
Clinical Diagnosis		
[F33.X] Major depressive disorder, recurrent	149	51.5
[F32.X] Major depressive disorder, single	26	9.0
[F31.X] Bipolar disorder	63	21.8
[F41.X] Other anxiety disorders	17	5.8
[F42.X] Obsessive-compulsive disorder	8	2.8
[F29] Unspecified psychosis	6	2.1
[F43.1] Post-traumatic stress disorder	5	1.7
Other	15	5.3
Pre-treatment measures/Mean (SD)		
Depression*	13.94 (6.42)	
Depression Belief	2.50 (1.14)	
Happiness Belief	3.54 (1.09)	
Post-treatment measures/Mean (SD)		
Depression*	7.25 (5.51)	
Depression Belief	2.12 (1.01)	
Happiness Belief	3.26 (0.94)	

*Note.* Clinical diagnosis by psychiatrists based on the International Classification of Diseases (ICD-10); Depression, Patient Health Questionnaire-9; Depression belief, valuing depression scale; Happiness belief, modified valuing happiness scale. \*Using a paired *t*-test, we found that patient's depression symptoms significantly improved after treatment,  $t(228) = 18.54$ ,  $p < .001$ ,  $d = 1.22$ .

2) Results from additional analyses are presented in Supplementary material D.

**Table 2.** Hierarchical regression analysis of predictors of treatment outcomes

Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$	$\Delta F$	<i>p</i>
Model 1						.012	.012	.357	.926
Treatment days	-.067	.094	-.051	-.721	.471				
Age	.017	.022	.057	.786	.433				
Biological sex	-.418	.582	-.051	-.717	.474				
Sexual orientation	-.487	.631	-.055	-.772	.441				
Race	-.688	1.058	-.046	-.651	.516				
Employment	-.035	.311	-.008	-.112	.911				
Diagnosis	-.034	.350	-.007	-.097	.923				
Model 2						.094	.082	9.135	<.001
Treatment days	-.044	.090	-.033	-.485	.628				
Age	.021	.022	.067	.950	.343				
Biological sex	-.527	.562	-.064	-.938	.349				
Sexual orientation	-.510	.614	-.058	-.830	.408				
Race	-.731	1.021	-.049	-.716	.475				
Employment	.028	.300	.006	.093	.926				
Diagnosis	-.061	.337	-.012	-.182	.856				
Depression belief*	1.036	.369	.206	2.811	.005				
Happiness belief*	.683	.359	.139	1.903	.058				

Note. \*Variables are residualized change scores; treatment days, the number of treatment days; biological sex (0 = female, 1 = male), race (0 = other, 1 = White); sexual orientation (0 = other, 1 = heterosexual); employment (-1 = not employed, 0 = part-time, 1 = full-time); diagnosis (-1 = bipolar disorders, 0 = other, 1 = depressive disorders).

tween-subject factor to the model. The main results remained significant,  $F(1, 215) = 13.45, p < .001, \eta^2 = .059$  for Time and  $F(1, 215) = 297.05, p < .001, \eta^2 = .580$  for Beliefs. The Time\*Diagnosis interaction was marginally significant,  $F(2, 215) = 3.02, p = .051, \eta^2 = .027$ . Bonferroni-corrected comparison analyses ( $\alpha = .008$ ) showed that emotion beliefs across emotion decreased after treatment in patients with major depressive disorders and bipolar disorders ( $p < .001$ ), but not in patients with other diagnosis ( $p = .994$ ).

**Did changes in extreme emotion beliefs predict greater changes in depression?**

As predicted, we found that changes in each extreme beliefs uniquely predicted changes in depressive symptoms after controlling for each other's impact on the treatment outcomes,  $B = .95, SE = .35, 95\% CI [.24, 1.65], t = 2.65, p = .009$  for depression beliefs and  $B = .74, SE = .34, 95\% CI [.05, 1.43], t = 2.13, p = .034$  for happiness beliefs. While controlling for the impacts of demographic information, treatment days, and primary diagnosis, beliefs about the values of depressive feelings remained as a significant predictor (Table 2).

**Discussion<sup>3)</sup>**

This study investigated the relationship between beliefs about the values of depressive feelings and happiness in treatment-seeking patients. We found that both happiness and depression beliefs were significantly reduced via intensive CBT treatment. Changes in emotion beliefs were significant only in patients with mood disorders and not in patients with other mental disorder. This may indicate that emotion beliefs are more relevant to mood-related disorders than other psychopathologies.

In addition, we found that greater changes in emotion beliefs predicted greater changes in depression after treatment. Particularly, beliefs about the values of depressive feelings remained a significant predictor of depression symptom reduction after accounting for the impact of demographic variables, treatment days, and primary diagnosis on depression improvement. These results are consistent with a previous meta-analysis showing that attitude towards depression-related emotions have a stronger relationship with depression symptoms than attitudes towards positive emo-

3) Further discussion is presented in Supplementary Material E.

tions (Yoon et al., 2018). However, research on beliefs about the values of emotions has centered on happiness valuation and rarely examined depressive feelings. Our study demonstrated the importance of examining beliefs about depressive feelings to better understand depression predictors. Further, our results suggest that helping individuals with mood-related difficulties devalue their depressive feelings less might be particularly important in their recovery from depression, even more than their beliefs about happiness.

This naturalistic study has several limitations. First, it did not include a control clinical group that did not receive treatment. This limited our ability to test whether changes in extreme beliefs were indeed caused by treatment. Second, the psychometric properties of our emotion beliefs scales were not thoroughly tested. We suggest future research to re-examine this topic with measurements that have been pre-tested in its validity and reliability in a psychiatric patient sample. Despite these limitations, this study significantly contributes to the literature by indicating that extreme emotion beliefs are important and amenable treatment targets.

#### Author contributions statement

Sunkyung Yoon, Assistant Professor at Sungkyunkwan University in South Korea, reviewed the literature, conducted data analysis, and wrote the first draft. Hans S. Schroder, Assistant Professor at the University of Michigan Medical School, reviewed the literature and provided feedback on the drafts. Thröstur Björgvinsson, Director of the Behavioral Health Partial Hospital Program at McLean Hospital and Associate Professor at Harvard Medical School, designed the data collection and provided feedback on drafts. All authors contributed equally to the manuscript.

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