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Desired Sadness, Happiness, Fear and Calmness in Depression: The Potential Roles of Valence and Arousal

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Prior research has shown that clinically depressed individuals are somewhat more motivated to feel sadness and less motivated to feel happiness than nondepressed individuals are. However, what underlies these patterns is not yet clear, as people may be motivated to experience positive (vs. negative) valence, high (vs. low) arousal, or discrete emotions. To test these possibilities, we assessed the motivation to experience emotions that capture different combinations of positive and negative valence and high and low arousal (i.e., sadness, happiness, fear and calmness) in 36 clinically depressed and 36 nondepressed college students (76% females, M_{age} = 24.5). We measured desired emotions by selections of emotional music clips and by the self-reported desirability of emotions. We found that both depressed and nondepressed individuals desired calmness the most across measures, and this desire was stronger among depressed individuals. We replicated prior findings, such that across measures, depressed individuals were relatively more motivated to feel sadness than nondepressed individuals were. Furthermore, whereas nondepressed individuals were motivated to listen to music clips and experience emotions that were positive (vs. negative) in valence, this was not necessarily the case among depressed individuals. Compared to nondepressed individuals, depressed individuals desired music that was relatively lower (vs. higher) in arousal, but reported a relatively stronger desire for negative (vs. positive) emotions. We discuss the implications of these findings for understanding motivated emotion regulation in depression.

Keywords: depression, emotion regulation, motivation, sadness, happiness

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Depression has been consistently linked to deficits in emotion regulation (Aldao et al., 2010; Joormann & Stanton, 2016; Joormann & Vanderlind, 2014). Some evidence suggests that such deficits pertain not only to the means with which people regulate their emotions, but also to the goals they seek to attain when doing so. The extent to which people are motivated to experience certain emotions reflects their goals in emotion regulation (Tamir, 2016). Studies have demonstrated that depressed individuals want to feel relatively more sadness and less happiness than nondepressed individuals do (Arens & Stangier, 2020; Millgram et al., 2015, 2019; Yoon et al., 2020). What underlies such motivations, however, is still unclear, partly because research to date has focused exclusively on sadness and happiness. Yoon and colleagues (2020) have recently suggested that selections of sad music in depression may be driven by a desire for affective states that are lower in arousal, yet the role of arousal and valence in desired emotions in depression has not yet been tested systematically. This investigation, therefore, goes beyond sadness and happiness, to explore desired emotions that differ in valence and arousal in depression.

Desired Emotions in Depression

Depression is characterized by persistent unpleasant emotions, such as sadness, and by diminished pleasant emotions, such as happiness (American Psychiatric Association, 2013). Sustained negative affect in depression has been linked, in part, to difficulties in emotion regulation (Joormann & Stanton, 2016; Joormann & Vanderlind, 2014; Liu & Thompson, 2017). Emotion regulation deficits in depression have been linked to the means used to regulate emotions (i.e., emotion regulation strategies). Depressed individuals use more putatively maladaptive and less adaptive emotion regulation strategies, compared to nondepressed individuals (Joormann & Vanderlind, 2014; Rottenberg, 2017). For instance, rumination and avoidance, which are considered less adaptive emotion regulation strategies, were more prevalent in depression, whereas the opposite was true for acceptance and reappraisal, which are considered more adaptive strategies (Aldao et al., 2010). Depression has been associated with a less adaptive selection of emotion

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regulation strategies, rather than impaired abilities to implement them (Liu & Thompson, 2017). This pattern is also consistent with studies on the regulation of positive affect, suggesting that depressed (vs. nondepressed) individuals tend to suppress positive emotions (Beblo et al., 2012). They are also more likely to use strategies that dampen positive emotions and less likely to use strategies that amplify positive emotions (Feldman et al., 2008; Werner-Seidler et al., 2013).

Emotion regulation deficits in depression have been linked not only to the means, but also to the ends in emotion regulation (i.e., how motivated people are to experience certain emotions). Depressed individuals appear to be less motivated than nondepressed individuals to experience happiness and more motivated to experience sadness (for a review, see Millgram et al., 2020). For instance, although all participants reported that they wanted to feel more happiness than sadness, depressed participants reported wanting to feel less happiness and more sadness compared to nondepressed participants (Millgram et al., 2015). Furthermore, depressed participants were more likely than nondepressed to select sad images and sad music, even though they expected such stimuli to make them feel sad. Indeed, approximately 60% of depressed participants selected sad over happy or neutral music, compared to only 24% of nondepressed participants. These patterns have since been replicated elsewhere (e.g., Arens & Stangier, 2020; Yoon et al., 2020).

Desired emotions in depression have been linked to the maintenance of unpleasant emotional experiences both in the laboratory (Millgram et al., 2015) and in daily life (Millgram et al., 2019), and have been prospectively linked to clinical symptoms. Such findings suggest that desired emotions in depression could potentially contribute to deficits in emotion regulation and to psychological ill-being. However, what underlies the motivation to experience sadness and happiness in depression is still poorly understood.

Desired Arousal, Valence or Discrete Emotions?

Sadness and happiness are discrete emotional states with unique characteristics, yet they also capture broader underlying affective characteristics. According to the circumplex model of affect (Russell, 1980), emotional states vary along two dimensions—namely, valence (i.e., pleasure–displeasure) and arousal (i.e., low to high energy). Sadness, for instance, is an emotional state that typically involves negative valence and moderately low arousal, whereas happiness is an emotional state that typically involves positive valence and moderately high arousal (Posner et al., 2005; Russell, 1980). People differ in their motivation to experience discrete emotional states (Ford & Tamir, 2014) as well as broader affective dimensions. For instance, Affect Valuation Theory (Tsai et al., 2006) suggests that compared to individuals in certain East Asian countries, individuals in certain Western countries value emotional states characterized by higher arousal, such as excitement. In contrast, individuals in certain East Asian countries value emotional states characterized by relatively lower arousal, such as calmness.

In depression, motivation to experience sadness may reflect the desirability of sadness per se, affective states of relatively low arousal, or affective states of negative valence. Similarly, motivation to experience happiness may reflect the desirability of happiness per se, affective states of moderately high arousal, or affective states of positive valence. Yoon and colleagues (2020) suggested that depressed individuals select sad music because it is low in arousal. To test this possibility, in one study, they used the music-selection task (see Millgram et al., 2015). Depressed and nondepressed participants listened to happy, neutral, and sad music clips and selected the clip they most wanted to listen to. Replicating Millgram and colleagues (2015), depressed participants were more likely than nondepressed to select sad over happy music. Participants reported reasons for their selections in an open-ended format. Each response was categorized by the authors. Based on this analysis, the authors concluded that depressed participants chose sad music because they found it relaxing, which the authors interpreted as capturing a desire for low levels of arousal.

In another study, depressed and nondepressed participants listened to happy, sad, and fearful music clips that were either high or low in arousal, as well as to neutral clips (Yoon et al., 2020). On each trial, participants listened to a pair of music clips from different categories and selected the one they wanted to listen to. On average, depressed (vs. nondepressed) participants selected more low-arousal clips and fewer high-arousal clips. In another investigation, when depressed and nondepressed participants were able to freely select music clips to listen to in their daily lives, depressed participants' favorite songs had a slower tempo (i.e., lower arousal) than nondepressed participants' favorite songs (Yoon & Rottenberg, 2021). Taken together, these results point to the possibility that motivation for sadness and happiness in depression may reflect the desirability of more basic affective qualities (e.g., arousal).

These findings also raise several novel questions. First, conclusions regarding the desirability of arousal in the first study were based on self-reported introspections and subjective categorizations. The validity of such conclusions rests on the assumption that participants are consciously aware of the reasons behind their choices, and that "relaxation" implies lower arousal and nothing else. Second, some of the findings were inconsistent with the author's predictions. For instance, in Study 2, depressed participants selected low arousal sad clips over low arousal happy clips, indicating that the motivation to listen to sad music in depression cannot be explained solely by the desirability of low arousal. Third, in Study 1, depressed participants selected sad music over neutral music, although both types of music are low in arousal, replicating previous studies (e.g., Arens & Stangier, 2020; Millgram et al., 2019). Taken together, these findings are consistent with the possibility that depressed individuals may be more motivated than nondepressed individuals to experience sadness, per se. The current investigation attempted to address some of the issues above, by examining the motivation to experience discrete emotions that vary in valence and arousal.

Assessing the Desirability of Emotions That Vary in Valence and Arousal

We operated under the assumption that emotions can be represented in certain locations of a two-dimensional circumplex (e.g., Barrett & Russell, 1999; Russell, 1980). Sadness prototypically captures negative valence and moderately low arousal. This implies that although people can potentially conceptualize positively valenced or high-arousal states as sad, such instances tend

to be relatively uncharacteristic. Similarly, happiness prototypically captures positive valence and moderately high arousal. Although one could potentially conceptualize negatively valenced or low-arousal states as happy, such instances are relatively uncharacteristic.

Yoon and colleagues (2020) assessed selections of sad, happy, and fearful music clips that were either low or high in arousal. In this investigation, rather than use sad stimuli that are either low in arousal (i.e., characteristic of sadness) or high in arousal (i.e., uncharacteristic of sadness), we assessed selections of stimuli that are equally characteristic of target emotions that systematically capture different combinations of valence and arousal. We assessed selections of stimuli that induce sadness (negative valence, low arousal), happiness (positive valence, high arousal), fear (negative valence, high arousal) and calmness (positive valence, low arousal).

So far, studies of motivated emotion regulation in depression focused primarily on two discrete emotions. This investigation moves beyond such research by assessing discrete emotions from each quadrant of the circumplex, offering initial insight into the potential role of valence and arousal. Greater desirability of two emotions that share levels of valence (e.g., sadness and fear) or arousal (e.g., sadness and calmness), could speak to the potential roles of valence or arousal in driving desired emotions.

To date, desired emotions have been assessed either by self-report or by behavioral measures. Self-report measures assess desired emotions directly, by having participants rate them explicitly (e.g., "To what extent do you want to feel sad?"; Tamir & Ford, 2012). Behavioral measures assess desired emotions indirectly, by providing participants means to regulate emotions and assessing the direction in which they employ such means. For instance, one could infer in which direction people want to change their emotions, by measuring which type of stimuli (e.g., sad vs. happy music clips) people select (Millgram et al., 2015; Yoon et al., 2020). Self-report measures may be subject to social demand, but have high face validity. In contrast, behavioral measures are less subject to demand, but may capture factors other than desired emotions, such as familiarity with music, preferences for music genres, and so forth. Using both self-report and behavioral measures of desired emotions can help establish validity and capture complementary aspects of desired emotions (Millgram et al., 2015, 2019; Tamir & Ford, 2012).

In this investigation, therefore, we included both self-report and a behavioral measure of the motivation to experience emotions. We sought to replicate existing research by measuring desired sadness and happiness (Millgram et al., 2015, 2019; Tamir & Ford, 2012). We also sought to extend existing research by measuring desired fear and calmness. Following Yoon and colleagues (2020), our behavioral measure involved selections of emotional music clips. We also included music clips from the same standardized emotional music clips dataset (Eerola & Vuoskoski, 2011) and used the Extended Music Selection task (EMST; Yoon et al., 2020). On each trial, depressed and nondepressed participants listened to a pair of music clips and selected the clip they wanted to listen to. Our work is novel in that it moves beyond desired sadness and happiness, contrasting stimuli that vary systematically in valence and arousal.

We had several predictions. First, in terms of between-subjects comparisons, we expected to replicate previous findings that depressed participants have a relatively stronger desire for sadness and a weaker desire for happiness than nondepressed participants do. We had no a priori predictions regarding desired fear and calmness.

Second, in terms of within-subjects comparisons, we expected desired emotions in depression to vary across the four target emotions. If the motivation to experience sadness in depression is driven by a relative underlying desire for negatively valenced states, depressed participants would select sad and fearful (i.e., negatively valenced) music over happy and calm (i.e., positively valenced) music. If the motivation to experience sadness is driven by a relative desire for low arousal states, depressed participants should select sad and calm (i.e., low arousal) music over happy and fearful (i.e., high arousal) music. If the motivation to experience sadness in depression is driven by a relative desire for sadness, per se, depressed participants would select sad music over happy, fearful or calm music. We predicted the latter. Finally, we tested the extent to which participants' self-reported desired emotions were associated with their selections of musical clips.

Method

This investigation was preregistered (https://aspredicted.org/J51_FTS).

Participants

The recruitment occurred in two phases. In the first phase, participants were prescreened based on their score on the Beck Depression Inventory II (BDI-II; Beck et al., 1996), administered online several weeks prior to the study[1] to a large sample of students (N = 442). Participants who scored either 16 or above, or 6 or below on the BDI-II were invited to participate in the study (see Demiralp et al., 2012; Pe et al., 2015). In the second phase, in order to examine if participants met eligibility criteria, two trained clinical psychology graduate students individually administered the Structured Clinical Interview for *DSM–IV* Axis I Disorders (SCID-I; First et al., 1997; Ford & Tamir, 2014). The SCID-I was administered by phone and demographic information was also collected. Participants were considered depressed (n = 36, $M_{\text{BDI-II}}$ = 28.28, SD = 7.65) if they scored 16 or above on the BDI-II and were diagnosed with a current major depressive disorder (MDD) or current dysthymic disorder. We excluded participants who had a Bipolar I or II diagnosis or any psychotic disorder. Participants were considered nondepressed (n = 36, $M_{\text{BDI-II}}$ = 1.89, SD = 1.86) if they scored 6 or below on the BDI-II and had no history of mental health disorders, excluding specific phobias. A total of 105 students were screened over the phone and 72 students, who met inclusion criteria after the administration of the SCID-I were invited to participate. To assess the reliability of the diagnoses, each interviewer listened and provided independent diagnoses of 10% of randomly selected interviews he or she did not personally conduct (5% of depressed participants and 5% of nondepressed). The evaluators agreed on 93% of diagnoses, $\kappa = .76$, $p < .001$. To ensure data integrity, during the initial phone call, the interviewers explained the importance of the experiment. Experimenters

[1] Due to ethical review board instructions, we omitted the item "suicidal thoughts" from the screening procedure.

encouraged each participant to participate and adhere to instructions. Participants were asked to explicitly confirm their willingness to complete the experiment, and to do so in a quiet place, without any interruptions. We also included two attention checks in the experiment to test participants' attention while completing the study. Data from one nondepressed participant who failed one attention check were excluded from the analyses. There were no delays in response. Participants were informed that they can quit the experiment at any time, but no participant quitted the study and as a result, we had no missing data. Based on an a priori power analysis, we set the sample size to 70, in order to detect a small effect size of $\eta_p^2 = .02$ in a within-between interaction, with power = .80 and $\alpha = .05$.

The final sample included 72 participants: 36 depressed participants (77.78% females, $M_{age} = 24.31$) and 36 nondepressed participants (75% females, $M_{age} = 25$). The sample included only students, most of them were undergraduate students. A similar percentage of participants worked in each group (61.11% in the depressed group, 58.33% in the nondepressed group). Participants received either course credit or the equivalent of ~$23 for participating. The study was approved by the Hebrew University Committee for the Use of Human Subjects in Research ethical review board. Additional demographic and clinical characteristics are presented in Table 1.

Materials

Music Clips

Following Yoon and colleagues (2020), music clips were selected from Eerola and Vuoskoski (2011) standardized emotional music clips. To select music clips, we began by identifying 48 clips based on the standardized ratings. These included 12 sad clips (i.e., negative valence, low arousal), 12 happy clips (i.e., positive valence, high arousal), 12 fearful clips (i.e., negative valence, high arousal) and 12 calm clips (i.e., positive valence, low arousal). We conducted a pilot test ($N = 55$) to confirm that the music clips induce expected emotions in participants selected from the same population as our target participants. In the pilot, participants listened to all 48 clips in a random order and rated the extent to which each clip made them feel sadness, happiness, fear and calmness (1 = *not at all*, 9 = *extremely*). They also rated each clip in terms of valence (1 = *very negative*, 9 = *very positive*), and arousal (1 = *high sleepiness*, 9 = *high wakefulness*). Based on the pilot test's results, we selected 12 music clips, three for each emotion (see Table 2). Each clip is between 13 and 25 seconds long.[2] Sad music clips induced significantly stronger levels of sadness than other clips, $F(2.76, 148.83) = 116.51$, $p < .001$, $\eta^2 = .68$, $ps < .001$. Happy music clips induced significantly stronger levels of happiness than other clips, $F(2.3, 124.34) = 174.5$, $p < .001$, $\eta^2 = .76$, $ps < .001$. Fearful music clips induced significantly stronger levels of fear than other clips, $F(2.12, 113.7) = 190.24$, $p < .001$, $\eta^2 = .78$, $ps < .001$. Finally, Calm music clips induced significantly stronger levels of calmness than other clips, $F(2.11, 113.7) = 190.24$, $p < .001$, $\eta^2 = .78$, $ps < .001$.

In addition, we found a main effect of valence, $F(2.47, 133.13) = 127.53$, $p < .001$, such that sad and fearful clips were significantly more negative than happy and calm clips, $ps < .001$. We also found a main effect of arousal, $F(2.57, 138.58) = 77.24$, $p < .001$, such that sad and calm clips were significantly lower in arousal than happy and fearful clips, $ps < .001$. Even though sad clips induced some level of fear, they induced significantly higher levels of sadness than fear. Similarly, the fear clips induced significantly higher levels of fear than sadness. Therefore, each category of music clips captures stimuli that induce the target emotion more strongly than other emotions.

Music Selection Task

We adapted the Extension Music Selection Task (EMST) used by Yoon and colleagues (2020) and used the twelve selected music clips. On each trial, participants listened to a pair of music clips, and then selected the clip they wanted to listen to. Participants listened to a total of 54 unique pairs of music clips presented in a random order. Each music clip was compared separately to each of the music clips from other emotional categories. Thus, each condition appeared equally nine times (e.g., there were 9 unique comparisons between sad and calm music clips). After they listened to all of the comparisons, participants were instructed to listen again to each of the 12 music clips and to rate the extent to which each clip made them feel sadness, happiness, fear and calmness (1 = *not at all,* 9 = *extremely*). They also rated each clip in terms of valence (1 = *very negative,* 9 = *very positive*), and arousal (1 = *high sleepiness,* 9 = *high wakefulness*).

Self-Reported Desired Emotions

Following previous studies (e.g., Kim et al., 2015; Millgram et al., 2015), participants rated the degree to which they generally wanted to experience various emotions (1 = *not at all*, 7 = *extremely*). To assess desired sadness, we averaged across ratings of *sad*, *downhearted,* and *depressed* ($\alpha = .89$). To assess desired happiness, we averaged across ratings of *happy*, *joyful,* and *lighthearted* ($\alpha = .78$). To assess desired fear, we used the average ratings of *scared*, *worried,* and *jittery* ($\alpha = .79$) and to assess desired calmness, we averaged across ratings of *calm*, *relaxed,* and *serene* ($\alpha = .88$).[3]

Procedure

Participants who were eligible to participate were invited to complete the study online within 1 week of the clinical interview. After providing informed consent, participants completed the music selection task and then rated the self-reported desired emotions. At this point, participants also completed several additional

[2] Information on the twelve selected music clips from Eerola and Vuoskoski (2011) database: music clip no. 4 ($M_{happiness} = 6$, $M_{valence} = 6.71$ $M_{arousal} = 7.23$), music clip no. 246 ($M_{happiness} = 5.45$, $M_{valence} = 6.55$, $M_{arousal} = 5.71$), music clip no. 260 ($M_{happiness} = 6.09$, $M_{valence} = 6.91$, $M_{arousal} = 7.25$), music clip no. 298 ($M_{sadness} = 4.88$, $M_{valence} = 3.66$, $M_{arousal} = 4.18$), music clip no. 56 ($M_{sadness} = 4.70$, $M_{valence} = 3.30$, $M_{arousal} = 4.21$), music clip no. 36 ($M_{sadness} = 5.45$, $M_{valence} = 2.96$, $M_{arousal} = 4.96$), music clip no. 319 ($M_{fear} = 5.32$, $M_{valence} = 4.20$, $M_{arousal} = 6.48$), music clip no. 307 ($M_{fear} = 5.96$, $M_{valence} = 3.71$, $M_{arousal} = 6.82$), music clip no. 248 ($M_{fear} = 5.93$, $M_{valence} = 3.95$, $M_{arousal} = 7.05$), music clip no. 66 ($M_{calmness} = 6.52$, $M_{valence} = 6.02$, $M_{arousal} = 4.45$), music clip no. 88 ($M_{calmness} = 6.41$, $M_{valence} = 5.95$, $M_{arousal} = 4.16$), music clip no. 90 ($M_{calmness} = 5.55$, $M_{valence} = 6.13$, $M_{arousal} = 5.20$).

[3] Participants also rated the extent to which they wanted to feel pleasant and unpleasant in daily life. We added these items for exploratory purposes and they were not included in the analyses.

Table 1
Demographic and Clinical Characteristics

Criteria	Depressed	Nondepressed	Group comparison
Social anxiety disorder	$n = 10$ (27.78%)	0	
Panic disorder	$n = 6$ (16.67%)	0	
OCD	$n = 4$ (11.11%)	0	
Agoraphobia	$n = 4$ (11.11%)	0	
Specific phobia	$n = 4$ (11.11%)	0	
Anorexia nervosa	$n = 3$ (8.33%)	0	
Binge eating	$n = 1$ (2.78%)	0	
Psychiatric medication	$n = 11$ (30.36%)	0	
Psychological treatment	$n = 10$ (27.78%)	0	
Age	$M = 24.31$	$M = 25$	$t(70) = 0.79$, $p = .44$
Income[a]	$n_{\text{below average income}} = 22$ (61.11%)	$n_{\text{below average income}} = 20$ (55.56%)	$\chi^2(1) = 1.07$, $p = .30$
Education	$n_{\text{BA students}} = 32$ (88.89%)	$n_{\text{BA students}} = 31$ (86.11%)	$\chi^2(3) = 4.67$, $p = .20$
Gender	$n_{\text{women}} = 28$ (77.78%)	$n_{\text{women}} = 27$ (75%)	$\chi^2(1) = 0.08$, $p = .78$
Rewarded with money	$n = 32$ (88.89%)	$n = 33$ (91.67%)	$\chi^2(1) = 0.16$, $p = .69$

[a] The income variable is a categorical variable with three response options: below average income, average income and above average income. The reported values represent the number of participants in the group whose income is below average.

questionnaires that are not directly relevant to the current investigation.

Results

Manipulation Check

We first tested whether music clips induced the intended emotional reactions in both depressed and nondepressed participants. To do so, we ran a series of repeated-measures ANOVAs, with group (depressed, nondepressed) as a between-subjects factor, music type (sad, happy, fear, and calm) as a within-subject factor and emotional reaction (sadness, happiness, fear, and calmness) as the predicted variable.[4] As expected, we found a significant effect for music type, in all the analyses, Fs $\geq$ 90.59, ps $< .001$, $\eta_p^2 \geq .56$, such that across groups, each type of music induced the target emotion more intensely than other types of music. We also found a significant Group $\times$ Music type interaction, $F(2.71, 189.61) = 5.53$, $p = .001$, $\eta^2 = .07$ when predicting happiness, such that compared with nondepressed participants, depressed participants reacted with less happiness to the happy music clips (nondepressed: $M = 6.75$, $SE = .31$; depressed: $M = 4.91$, $SE = .31$). Groups did not differ in their emotional reactions to sad, fearful or calm music clips, Fs < 3.77. A separate test confirmed that the music clips also had the intended effects on valence and arousal, Fs $\geq$ 60.36, ps $< .001$, $\eta_p^2 \geq .46$ (for mean ratings of emotional experiences, valence and arousal as a function of music type and group, see Table S1 in the online supplementary materials).

Differences in Musical Selections

To test whether depressed and nondepressed participants differed in their selections of music clips, we first calculated percent of choice for each emotion. Percent of choice was calculated as the percent of times the target emotion (e.g., sad clips) was selected out of all the comparisons that included that emotion (e.g., percent of choices of sad clips in sad–happy, sad–fearful and sad–calm pairings). To test our first hypothesis that depressed individuals would be relatively more likely to select sad music clips and less likely to select happy music clips compared to nondepressed, we ran a repeated-measures ANOVA. Percent of choices of the target emotion served as the predicted variable, group (depressed, nondepressed) served as the between-subjects factor and emotion (sad, happy, fear and calm) served as the within-subject factor.

As shown in Table 3, we found a main effect for emotion, $F(2.38, 166.57) = 20.47$, $p < .001$, $\eta_p^2 = .23$, such that on average, participants selected more calm than sad clips ($M_{\text{Calm}} = 68.7\%$, $SE = 2.8\%$, $M_{\text{Sad}} = 44.6\%$, $SE = 2.4\%$, $p < .001$), more calm than happy clips ($M_{\text{Happy}} = 52.3\%$, $SE = 2.9\%$, $p = .001$) and more calm than fearful clips ($M_{\text{Fear}} = 34.1\%$, $SE = 3.1\%$, $p < .001$), suggesting that calmness was the most desirable emotion in our sample. In addition, consistent with our prediction, we found a significant Emotion $\times$ Group interaction, $F(2.38, 166.57) = 5.54$, $p = .003$, $\eta_p^2 = .07$. Follow-up Bonferroni corrected tests for multiple comparisons indicated that depressed participants were more likely to select sad music clips ($M_{\text{Sad}} = 51.49\%$, $SE = 3.4\%$), compared to nondepressed participants ($M_{Sad} = 37.7\%$, $SE = 3.4\%$), $p = .005$, whereas nondepressed participants were more likely to select happy music clips ($M_{\text{Happy}} = 62.96\%$, $SE = 4.1\%$), compared to depressed participants ($M_{Happy} = 41.67\%$, $SE = 4.1\%$), $p < .001$. Depressed and nondepressed participants did not differ with respect to selections of fearful or calm music (ps $\geq .244$). These results are depicted in Figure 1.

To test our second hypothesis, that depressed participants would select more sad clips than happy, fearful or calm ones, we ran follow-up Bonferroni corrected tests for multiple comparisons and compared selections of sadness, happiness, fear, and calmness in each group. Contrary to our prediction, depressed participants chose more calm clips than any other clips ($M_{Calm} = 71.91\%$, $SE = 3.9\%$), ps $< .01$, selected an equivalent number of sad and happy clips, and selected more sad than fearful clips ($M_{\text{Fearful}} = 34.77\%$, $SE = 5.3\%$), $p = .014$. Nondepressed participants selected an equal number of happy and calm clips ($M_{Calm} = 65.43\%$, $SE = 3.9\%$), and more so than sad and fearful clips, which did not

[4] In all analyses, when Mauchly's sphericity test was violated, Huynh-Feldt correction was used.

Table 2
Means and Standard Deviations of Affective Reactions to Each Category of Selected Music Clips, Based on Pilot Testing (N = 55), (1 = Not at All, 9 = Extremely)

	Category of selected music clips			
Affective reactions	Sad	Happy	Fearful	Calm
Sadness	5.02 (1.44)	1.59 (1.11)	2.21 (1.16)	2.56 (1.24)
Happiness	1.42 (.71)	5.85 (1.64)	1.85 (.98)	3.82 (1.74)
Fear	4.31 (1.38)	1.07 (.23)	5.75 (1.97)	1.31 (.73)
Calmness	3.13 (1.66)	2.25 (1.18)	1.25 (.63)	6.19 (1.54)
Arousal	4.44 (.19)	6.72 (.17)	6.79 (.18)	4.59 (.18)
Valence	3.3 (.15)	6.72 (.16)	3.93 (.16)	6.04 (.16)

differ (M_{Fearful} = 33.46%, SE = 5.3%), $ps < .01$. Table 4 presents additional information on pairwise comparisons.

Differences in Self-Reported Desired Emotions

To test whether depressed and nondepressed participants differed in their self-reported desired emotions, we ran similar repeated-measures ANOVA as reported above, predicting self-reported desired emotions. Table 5 summarizes the results.

We found a main effect for emotion, $F(1.61, 112.62) = 432.8$, $p < .001$, $\eta_p^2 = .86$, such that across groups, all participants desired more calmness ($M_{Calmness}$ = 6.34, SE = .12) than sadness ($M_{Sadness}$ = 1.61, SE = .12), $p < .001$, and fear (M_{Fear} = 1.86, SE = .11), $p < .001$. Similarly, all participants desired more happiness than sadness and fear ($M_{Happiness}$ = 6.07, SE = .11), $ps < .001$. We also found a main effect for group, $F(1, 70) = 6.12$, $p = .016$, $\eta_p^2 = .08$, such that overall, depressed participants had stronger desires for all emotions (M = 4.07, SE = .06) than nondepressed participants did (M = 3.87, SE = .06). In terms of between-subjects comparisons, we found an Emotion × Group interaction, $F(1.61, 112.62) = 3.66$, $p = .038$, $\eta_p^2 = .05$. Follow-up Bonferroni corrected tests for multiple comparisons indicated that, consistent with previous findings, depressed participants reported a stronger desire for sadness (M_{Sadness} = 1.97, SE = .17), compared to nondepressed participants ($M_{Sadness}$ = 1.25, SE = .17), $p = .003$. Depressed participants also reported a stronger desire for fear (M_{Fear} = 2.09, SE = .16) compared to nondepressed participants (M_{Fear} = 1.63, SE = .16), $p = .045$. Depressed and nondepressed participants did not differ with respect to desired happiness or calmness, $ps \geq .165$. In terms of within-subject comparisons, both depressed and nondepressed participants reported a stronger desire for calmness than sadness (Depressed: M_{Calmness} = 6.3, SE = .17. Nondepressed: M_{Calmness} = 6.38, SE = .17), $ps < .001$ and a stronger desire for calmness than fear, $ps < .001$. Similarly, both groups reported a stronger desire for happiness than sadness (Depressed: $M_{\text{Happiness}}$ = 5.92, SE = .15, Nondepressed: $M_{\text{Happiness}}$ = 6.22, SE = .15), $ps < .001$, and stronger desire for happiness than fear, $ps < .001$. Nondepressed participants also reported a stronger desire for fear than sadness, $p = .042$. These results are depicted in Figure 2.

Table 3
Results of a Repeated-Measures Analysis of Variance, Testing for Differences Between Depressed and Nondepressed Participants in Selection of Sad, Happy, Fearful, and Calm Music

Source of variation	SS	MS	F	η_p^2	p
Emotion	4.58	1.92	20.47	.23	<.001
Group	<.001	<.001	1.86	.03	.177
Error	.001	<.001			
Emotion × Group	1.24	.52	5.54	.07	.001
Error	15.65	.08			

Note. SS = sum of squares; MS = mean squares.

Associations Between Musical Selections and Self-Reported Desired Emotions

Table 6 presents Spearman correlations[5] between selections of sad, happy, fearful, and calm music clips and self-reported desired sadness, happiness, fear, and calmness. Selections of sad music clips were positively correlated with self-reported desired sadness, $r_s(72) = .44$, $p < .001$. However, associations between selections for music clips and self-reported desires pertaining to other emotions were less consistent. This suggests that although there is some convergent validity with respect to sadness, it is less clear whether the two measures capture the same underlying construct with respect to other emotions.

Discussion

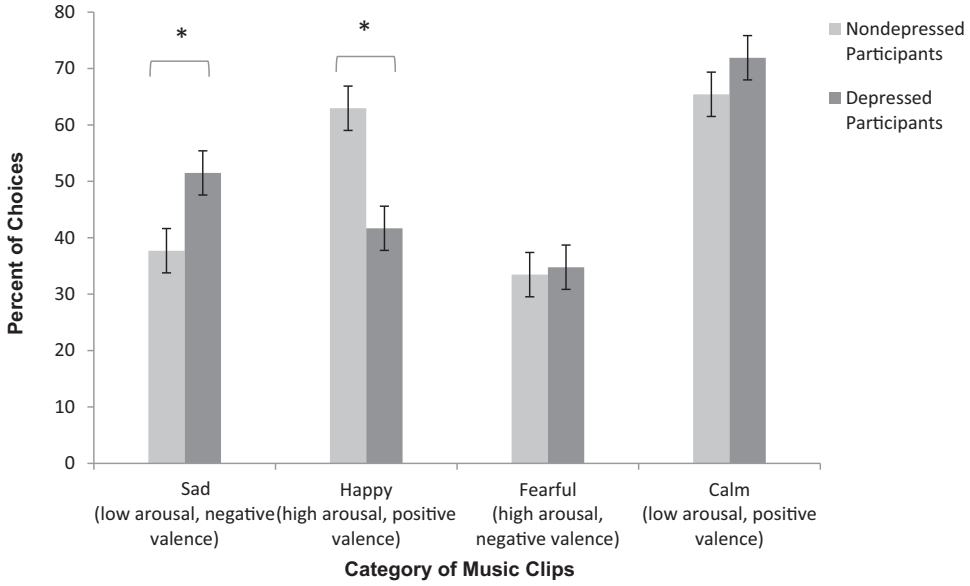
Depressed individuals often fail to effectively regulate their emotions (Aldao et al., 2010; Joormann & Stanton, 2016; Joormann & Vanderlind, 2014). Given that emotion regulation is a process in which people actively pursue desired emotions, it is important to understand which emotions depressed individuals desire. Whereas prior work has focused primarily on desired sadness and happiness, in this investigation we also examined desired fear and calmness, allowing us to compare desires for discrete emotions that vary in both valence and arousal. Replicating recent findings (Millgram et al., 2015, 2019; Yoon et al., 2020), our results show that compared to nondepressed individuals, depressed individuals have a greater desire for sadness, both when listening to music, and when explicitly rating desired emotions.

Our results suggest that in addition to a unique desire for sadness, emotional desires in depression may vary as a function of valence and arousal. When examining selections of music clips, depressed individuals selected low arousal music (i.e., sad and calm clips), whereas nondepressed individuals selected positively

[5] Not all the variables in the table were normally distributed, so we used Spearman instead of Pearson correlations.

Figure 1

Percent of Choices of Sad, Happy, Fearful, and Calm Music Clips by Depressed and Nondepressed Participants



Note. Error bars represent ±1 standard error of the mean (* $p < .05$).

valenced music (i.e., calm and happy clips). In contrast, when examining explicit desired emotions, depressed individuals had a stronger desire for negatively valenced emotions (i.e., sadness and fear), compared to nondepressed individuals, but were impartial to arousal levels.

What Do Depressed Individuals Want to Feel?

Emotion regulation is initiated and directed by what people want to feel (Tamir, 2016, 2021). Accordingly, some have suggested that to understand emotion regulation deficits in depression, it may be important to identify what depressed people want to feel (for a review, see Millgram et al., 2020). Research addressing this question focused primarily on sadness and happiness. In this investigation, we built on Yoon and colleagues (2020) to test whether and to what extent emotional desires in depression are driven by desires for more basic affective characteristics.

Our findings offer several contributions. First, we went beyond sadness and happiness, to explore desires for other discrete emotions that differ in valence and arousal. Second, to understand emotional desires, we adopted a multimethod approach, by assessing both selections of music clips as well as self-reported desired emotions. We found that all participants wanted to experience more positive and less negative emotions overall. In terms of discrete emotions—both depressed and nondepressed participants desired calmness the most, both in music and in their self-reported desired emotions. Nonetheless, as expected, depressed and nondepressed participants differed in their desire for sadness. Although depressed participants had a relatively weak desire for sadness in absolute terms, they had a relatively stronger desire for sadness than nondepressed participants did, both in their music selections and in their self-reports. This consistent finding across measures suggests that depressed individuals may be less motivated to decrease sadness than nondepressed individuals are.

Replicating previous studies (Arens & Stangier, 2020; Millgram et al., 2019; Yoon et al., 2020), we also found that compared to nondepressed participants, depressed participants were less motivated to experience happiness, although this pattern was found only in their musical selections and not in the self-report measure. This finding echoes, to some extent, the somewhat inconsistent patterns of desires for happiness in depression in the literature. For instance, in one study, depressed and nondepressed participants differed in self-reported desired happiness (i.e., depressed participants reported weaker desires), but did not differ in behavioral tasks, examining selections of pictures or of the direction of reappraisal (Millgram et al., 2015). Although additional research is necessary, it may be that the motivation to experience happiness in depression is more context-dependent than the motivation to experience sadness.

With respect to the desirability of valence and arousal, these varied across groups, and unexpectedly, across measures. Desires of nondepressed participants were driven primarily by valence. They selected positive music clips (i.e., calm and happy clips), desired positive emotional states (i.e., calmness and happiness), and were largely impartial to arousal levels. In contrast, selections of depressed participants were driven either mostly by arousal or by valence, depending on the measure. When examining musical selections, replicating previous studies (Yoon et al., 2020; Yoon & Rottenberg, 2021), depressed participants wanted to experience more low-arousal emotions (i.e., calm and sad clips). However, when examining self-reported desired emotions, depressed participants desired more positive (i.e., calmness and happiness) than negative (i.e., sadness and fear) emotions. Also, despite their weak absolute

Table 4
Percent of Choices of Sad, Happy, Fearful, and Calm Music Clips by Depressed and Nondepressed Participants in Each Pairwise Comparison

	Group				
	Depressed		Nondepressed		
Emotion pair	*M* (*SE*)	*p*	*M* (*SE*)	*p*	Group differences *t*(*df*), *p*
Sad-happy	M_{sad} = 56.2% (5.3%) M_{happy} = 43.8% (5.3%)	.245	M_{sad} = 30.2% (5.3%) M_{happy} = 69.8% (5.3%)	<.001	$t(70) = -3.48$, $p < .01$
Sad-fear	M_{sad} = 65.8% (5%) M_{fear} = 34.2% (5%)	<.01	M_{sad} = 55.1 (5%) M_{fear} = 44.9 (5%)	.32	$t(70) = -1.51$, $p = .136$
Sad-calm	M_{sad} = 33% (4.7%) M_{calm} = 67% (4.7%)	<.01	M_{sad} = 28.4% (4.7%) M_{calm} =71.6% (4.7%)	<.001	$t(70) = -.7$, $p = .486$
Happy-fear	M_{happy} = 44.4% (5.8%) M_{fear} = 55.6% (5.8%)	.34	M_{happy} = 74.1% (5.8%) M_{fear} = 25.9% (5.8%)	<.001	$t(70) = -2.27$, $p < .05$
Happy-calm	M_{happy} = 25.6% (4.5%) M_{calm} = 74.4% (4.5%)	<.001	M_{happy} = 45.1% (4.5%) M_{calm} = 54.9% (4.5%)	.28	$t(70) = -3.03$, $p < .01$
Fear-calm	M_{fear} = 25.6% (5.3%) M_{calm} = 74.4% (5.3%)	<.001	M_{fear} = 30.2% (5.3%) M_{calm} = 69.8% (5.3%)	<.001	$t(70) = -62$, $p = .536$

desires for negative emotions, depressed participants desired them more than nondepressed participants. Taken together, these findings suggest that both valence and arousal might play a role in desired emotions in depression.

Implications for Emotion Regulation in Depression, Limitations and Future Directions

We assessed desired emotions using two distinct measures that have complementary strengths and limitations. The behavioral measure of selections for music clips is less subject to social demand, but has somewhat lower face validity. In contrast, the self-report measure of desired emotions has high face validity, but is subject to social demand, and likely depends on what people are aware of and willing to report. Differences between the two measures may be due to differences in the measurement tools, but may also reflect differences in what depressed individuals think they desire emotionally and what they actually choose to engage with emotionally. This could lead to a situation where they think they want happiness (depressed individuals reported they want to feel mostly calmness and happiness), but select situations that are less likely to induce happiness (depressed individuals chose mostly calm and sad clips).

Differences between the measures may also be due to the fact that the behavioral measure involves choices between options and so may be driven by the desire to approach one emotion or avoid another, whereas the self-report measure assesses desires for specific emotions, independent of others. In prior research, selections of sad and happy music and self-reported desires for sadness and happiness showed largely consistent patterns (Millgram et al., 2015). However, to our knowledge, their convergent validity has not been tested directly. The present findings suggest that whereas selections of sad music and desired sadness might capture overlapping constructs, this may not necessarily be the case with other emotions. This further demonstrates the importance of assessing desired emotions using multiple measures.

To the extent that musical selections and self-reported desired emotions measure distinct constructs, it is important to further understand what each measure captures. Furthermore, it is important to identify which measure is a stronger predictor of emotion regulation in depression. In other words, when depressed individuals regulate their emotions, compared with nondepressed, are they more motivated to decrease arousal (as indicated by their musical selections), or are they less motivated to decrease negative emotions (as indicated by the self-report measure)? To answer this question, it may be necessary to assess associations between musical selections, self-reported emotional desires, and instances of motivated emotion regulation in depression.

Our findings nonetheless offer several insights. First, the finding that depressed individuals selected mostly calm clips in the behavioral task, and also reported explicitly stronger desires for calmness and happiness over other emotions, emphasizes that like nondepressed participants, depressed participants are hedonically motivated, in general. Although they are hedonically motivated, depressed individuals may be relatively less so than nondepressed individuals are. Also, the fact that across measures, depressed individuals had a stronger desire for calmness over all other emotions might have clinical implications. For instance, it raises the possibility that there may be benefits to cultivating calmness over happiness goals in depression.

Second, our findings show that depressed and nondepressed individuals differ in their selections of sad music, but also in their desired sadness, in general. Depressed individuals, therefore, may be less motivated than nondepressed to decrease sadness. To the extent

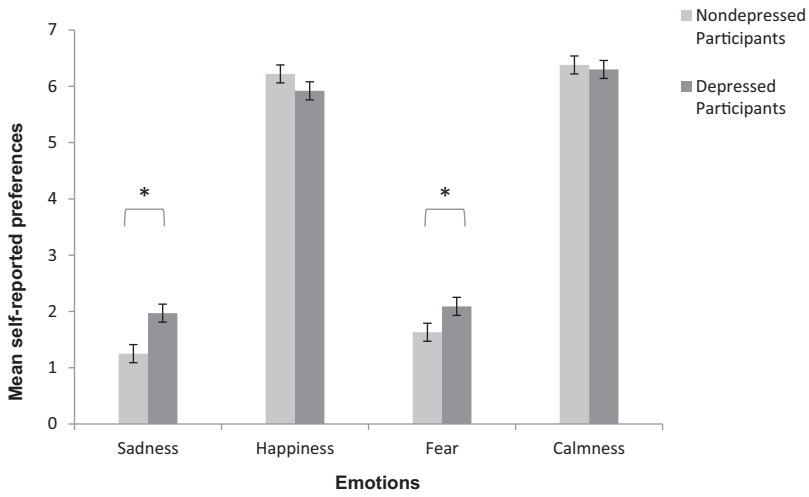
Table 5
Results From a Repeated Measures Analysis of Variance, Self-Reported Desired Emotions

Source of variation	SS	MS	*F*	η_p^2	*p*
Emotion	1,441.92	896.24	432.8	.86	<.001
Group	2.85	2.85	6.12	.08	.016
Error	32.66	.47			
Emotion × Group	12.19	7.58	3.66	.05	.038
Error	233.21	2.07			

Note. SS = sum of squares; MS = mean squares.

Figure 2

Self-Reported Desired Sadness, Happiness, Fear, and Calmness Among Depressed and Nondepressed Participants



Note. Error bars represent ±1 standard error of the mean (* $p < .05$).

that what people want to feel can set the direction of emotion regulation (Tamir, 2016, 2021), a relatively greater desire for sadness in depression could potentially explain certain maladaptive patterns of emotion regulation. For instance, if depressed (vs. nondepressed) individuals are less motivated to decrease sadness, they may be less likely to use strategies that effectively decrease sadness. Indeed, depressed individuals tend to use cognitive reappraisal, which is generally effective in decreasing negative emotions, less frequently than nondepressed individuals do (Aldao et al., 2010; Liu & Thompson, 2017).

Given that greater desire for sadness in depressed compared to nondepressed participants was found both when assessing musical selections and when measuring self-reported desired emotions, it seems unlikely that such motivations can be explained by a desired for lower arousal states. There may be other characteristics of sadness that render it relatively more desirable for depressed individuals. One possibility is that depressed individuals sustain their sense of self by feeling sad, which could render this emotion self-verifying and more authentic (e.g., Arens & Stangier, 2020; Giesler et al., 1996). Another possibility is that depressed individuals consider sadness more familiar and do not believe they deserve to feel any different (e.g., Wood et al., 2009).

Third, with respect to happiness, our findings suggest that depressed individuals select fewer happy music clips than nondepressed individuals. This could imply that, at least in some conditions, depressed individuals may be less motivated to experience happiness. Such decreased motivation, in turn, might lead depressed individuals to use emotion regulation strategies that dampen rather than savor positive affect (Feldman et al., 2008; Werner-Seidler et al., 2013). In the current study, a weaker desire for happiness in depression was reflected in musical selections, but not in self-reported desired emotions. One possibility is that such motivation may be driven primarily by a desire for lower arousal states. If so, compared to nondepressed individuals, depressed individuals may be less motivated to increase happiness, but potentially equally motivated to increase calmness. Although this option requires further testing, it suggests that there may be benefits in directing emotion regulatory efforts in depression toward calmness rather than happiness per se.

Table 6

Descriptive Statistics and Spearman Correlations Between Musical and Self-Reported Desired Emotions

		Correlations						
Variable	*M* (*SD*)	1	2	3	4	5	6	7
1. Percent of sad music clips selected	.45 (.21)	—						
2. Percent of happy music clips selected	.52 (.27)	−.82**	—					
3. Percent of fearful music clips selected	.34 (.26)	.06	−.28*	—				
4. Percent of calm music clips selected	.69 (.23)	−.03	−.09	−.78**	—			
5. Self-reported desired sadness	1.61 (1.05)	.44**	−.3*	.09	−.09	—		
6. Self-reported desired happiness	6.07 (.93)	−.26*	.18	−.19	.22	−.42**	—	
7. Self-reported desired fear	1.86 (.98)	.17	.09	.09	−.04	.52**	−.51**	—
8. Self-reported desired calmness	6.34 (1.00)	−.26*	.26*	−.26*	.21	−.41**	.39**	−.48**

* $p < .05$. ** $p < .01$.

More generally, replicating recent findings by Yoon and colleagues (2020), our findings raise the possibility that depressed individuals may be motivated to decrease levels of arousal. Whereas nondepressed individuals desire happiness more than sadness in both measures, depressed individuals do not show such tendency in behavioral measures. This pattern might be due to a decreased prohedonic motivation, combined with increased desirability of low arousal. If, under certain circumstances (e.g., when listening to music), depressed individuals are motivated to experience low to high arousal emotional states, they might regulate their emotions accordingly, increasing sadness but not fear, and decreasing happiness, but not calmness. Whether or not depressed individuals select music that is low in arousal or desire emotional states that are low in arousal, more generally, remains to be tested.

Our investigation has several additional limitations. First, to assess desired emotions in depression, we used a behavioral measure of musical selections and a self-report measure of desired emotions. However, because we focused on one particular behavior (i.e., the selection of musical stimuli), we could not assess whether the pattern of music selections extends to other forms of stimuli (e.g., pictures, movies). It is possible that arousal directs musical selections in depression, but not necessarily the desirability of other types of stimuli. In addition, selection of musical stimuli may or may not reflect desires for emotions, more broadly. This could be tested in future research.

Second, our investigation moves beyond existing studies by assessing discrete emotions from each quadrant of the circumplex, offering initial insight into the potential roles of valence and arousal. However, a stronger motivation to experience one specific emotion (e.g., sadness) could be driven either by the desirability of that specific emotion or by the desirability of the Valence × Arousal combination that it captures, yet our design could not distinguish between these options. In the future it would be useful to increase the range of emotions tested and identify the role of varying levels of arousal and valence. In particular, future investigations should include multiple affective states that capture each of the quadrants in the affective circumplex (for instance, to capture negative states low in arousal, future research could assess desires for sadness, boredom, and guilt). The use of multiple affective states that capture each of the quadrants in the affective circumplex would help us test whether depression is specifically linked to differential desirability of sadness per se or all low-arousal negative states. Also, we equated stimuli on levels of intensity by asking participants how sad or how happy the music made them feel, but it may be useful to test whether depressed and nondepressed individuals differ in the desirability of varying levels of intensity of the same emotion.

Third, depressed and nondepressed participants had similar reactions to sad music clips, but different reactions to happy music clips. It is possible, therefore, that depressed participants were less likely to select happy music because the happy music clips made them less happy, compared to nondepressed participants. To address this possibility regarding happy clips, future research could use different music clips that induce equivalent levels of happiness.

Fourth, in our study, participants had to select music clips from a given emotional music clips dataset. Thus, their choices don't necessarily reflect their musical selections in daily life. Future work would benefit from examining depressed individuals' desired emotions in daily life using freely chosen stimuli.

Fifth, our sample consists of relatively young adults (M_{age} = 24.5). Given older adults' general desire to avoid high arousal states (e.g., strength and vulnerability integration model; Charles, 2010), findings may not generalize to older samples. Future research should test emotional desires among older depressed and nondepressed individuals.

Finally, our study was designed to assess desired emotions in depression, but in the future, it would be important to understand how desired emotions inform emotion regulatory behavior. To do so, future research could either offer depressed and nondepressed participants opportunities to regulate reactions to emotional stimuli in the laboratory, or track emotion regulation in daily life, as people deal with naturally occurring emotions. Such research could also test whether emotional regulatory behavior is linked to musical selections, self-reported desired emotions, or both.

Conclusions

Our investigation assessed selections of music clips and self-reported desires for discrete emotions that vary by valence and arousal—namely, sadness, happiness, fear, and calmness. Our findings suggest that, compared to nondepressed individuals, desired emotions of depressed individuals are less strongly guided by positive valence. Whereas nondepressed individuals use positive valence as their compass, depressed individuals are less likely to do so consistently. Calmness was depressed individuals' most desired emotion as reflected in both measures. Furthermore, depressed individuals may have a greater desire for sadness than nondepressed individuals do. Such differential desires might contribute to emotion regulation deficits in depression.

References

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, *30*(2), 217–237. https://doi.org/10.1016/j.cpr.2009.11.004

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

Arens, E. A., & Stangier, U. (2020). Sad as a matter of evidence: The desire for self-verification motivates the pursuit of sadness in clinical depression. *Frontiers in Psychology*, *11*, 238. https://doi.org/10.3389/fpsyg.2020.00238

Barrett, L. F., & Russell, J. A. (1999). The structure of current affect: Controversies and emerging consensus. *Current Directions in Psychological Science*, *8*(1), 10–14. https://doi.org/10.1111/1467-8721.00003

Beblo, T., Fernando, S., Klocke, S., Griepenstroh, J., Aschenbrenner, S., & Driessen, M. (2012). Increased suppression of negative and positive emotions in major depression. *Journal of Affective Disorders*, *141*(2–3), 474–479. https://doi.org/10.1016/j.jad.2012.03.019

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory manual* (2nd ed.). Psychological Corporation.

Charles, S. T. (2010). Strength and vulnerability integration: A model of emotional well-being across adulthood. *Psychological Bulletin*, *136*(6), 1068–1091. https://doi.org/10.1037/a0021232

Demiralp, E., Thompson, R. J., Mata, J., Jaeggi, S. M., Buschkuehl, M., Barrett, L. F., Ellsworth, P. C., Demiralp, M., Hernandez-Garcia, L., Deldin, P. J., Gotlib, I. H., & Jonides, J. (2012). Feeling blue or turquoise? Emotional differentiation in major depressive disorder. *Psychological Science*, *23*(11), 1410–1416. https://doi.org/10.1177/0956797612444903

Eerola, T., & Vuoskoski, J. K. (2011). A comparison of the discrete and dimensional models of emotion in music. *Psychology of Music*, *39*(1), 18–49. https://doi.org/10.1177/0305735610362821

Feldman, G. C., Joormann, J., & Johnson, S. L. (2008). Responses to positive affect: A self-report measure of rumination and dampening. *Cognitive Therapy and Research*, *32*(4), 507–525. https://doi.org/10.1007/s10608-006-9083-0

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. (1997). *User's guide for the Structured Clinical Interview for DSM–IV axis I disorders SCID-I: Clinician version*. American Psychiatric Publishing.

Ford, B. Q., & Tamir, M. (2014). Preferring familiar emotions: As you want (and like) it? *Cognition and Emotion*, *28*(2), 311–324. https://doi.org/10.1080/02699931.2013.823381

Giesler, R. B., Josephs, R. A., & Swann, W. B., Jr. (1996). Self-verification in clinical depression: The desire for negative evaluation. *Journal of Abnormal Psychology*, *105*(3), 358–368. https://doi.org/10.1037/0021-843X.105.3.358

Joormann, J., & Stanton, C. H. (2016). Examining emotion regulation in depression: A review and future directions. *Behaviour Research and Therapy*, *86*, 35–49. https://doi.org/10.1016/j.brat.2016.07.007

Joormann, J., & Vanderlind, W. M. (2014). Emotion regulation in depression the role of biased cognition and reduced cognitive control. *Clinical Psychological Science*, *2*(4), 402–421. https://doi.org/10.1177/2167702614536163

Kim, M. Y., Ford, B. Q., Mauss, I., & Tamir, M. (2015). Knowing when to seek anger: Psychological health and context-sensitive emotional preferences. *Cognition and Emotion*, *29*(6), 1126–1136. https://doi.org/10.1080/02699931.2014.970519

Liu, D. Y., & Thompson, R. J. (2017). Selection and implementation of emotion regulation strategies in major depressive disorder: An integrative review. *Clinical Psychology Review*, *57*, 183–194. https://doi.org/10.1016/j.cpr.2017.07.004

Millgram, Y., Huppert, J. D., & Tamir, M. (2020). Emotion goals in psychopathology: A new perspective on dysfunctional emotion regulation. *Current Directions in Psychological Science*, *29*(3), 242–247. https://doi.org/10.1177/0963721420917713

Millgram, Y., Joormann, J., Huppert, J. D., & Tamir, M. (2015). Sad as a matter of choice? Emotion-regulation goals in depression. *Psychological Science*, *26*(8), 1216–1228. https://doi.org/10.1177/0956797615583295

Millgram, Y., Joormann, J., Huppert, J. D., Lampert, A., & Tamir, M. (2019). Motivations to experience happiness and sadness in depression: Temporal stability and implications for coping with stress. *Clinical Psychological Science*, *7*(1), 143–161. https://doi.org/10.1177/2167702618797937

Pe, M. L., Kircanski, K., Thompson, R. J., Bringmann, L. F., Tuerlinckx, F., Mestdagh, M., Mata, J., Jaeggi, S. M., Buschkuehl, M., Jonides, J., Kuppens, P., & Gotlib, I. H. (2015). Emotion-network density in major depressive disorder. *Clinical Psychological Science*, *3*(2), 292–300. https://doi.org/10.1177/2167702614540645

Posner, J., Russell, J. A., & Peterson, B. S. (2005). The circumplex model of affect: An integrative approach to affective neuroscience, cognitive development, and psychopathology. *Development and Psychopathology*, *17*(3), 715–734. https://doi.org/10.1017/S0954579405050340

Rottenberg, J. (2017). Emotions in depression: What do we really know? *Annual Review of Clinical Psychology*, *13*(1), 241–263. https://doi.org/10.1146/annurev-clinpsy-032816-045252

Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, *39*(6), 1161–1178. https://doi.org/10.1037/h0077714

Tamir, M. (2016). Why do people regulate their emotions? A taxonomy of motives in emotion regulation. *Personality and Social Psychology Review*, *20*(3), 199–222. https://doi.org/10.1177/1088868315586325

Tamir, M. (2021). Effortful emotion regulation as a unique form of cybernetic control. *Perspectives on Psychological Science*, *16*(1), 94–117. https://doi.org/10.1177/1745691620922199

Tamir, M., & Ford, B. Q. (2012). Should people pursue feelings that feel good or feelings that do good? Emotional preferences and well-being. *Emotion*, *12*(5), 1061–1070. https://doi.org/10.1037/a0027223

Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology*, *90*(2), 288–307. https://doi.org/10.1037/0022-3514.90.2.288

Werner-Seidler, A., Banks, R., Dunn, B. D., & Moulds, M. L. (2013). An investigation of the relationship between positive affect regulation and depression. *Behaviour Research and Therapy*, *51*(1), 46–56. https://doi.org/10.1016/j.brat.2012.11.001

Wood, J. V., Heimpel, S. A., Manwell, L. A., & Whittington, E. J. (2009). This mood is familiar and I don't deserve to feel better anyway: Mechanisms underlying self-esteem differences in motivation to repair sad moods. *Journal of Personality and Social Psychology*, *96*(2), 363–380. https://doi.org/10.1037/a0012881

Yoon, S., & Rottenberg, J. (2021). Listening to the blues: An ecological momentary assessment of music choice in depression. *Emotion*, *21*(6), 1177–1187. https://doi.org/10.1037/emo0000911

Yoon, S., Verona, E., Schlauch, R., Schneider, S., & Rottenberg, J. (2020). Why do depressed people prefer sad music? *Emotion*, *20*(4), 613–624. https://doi.org/10.1037/emo0000573

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