

Optimal Well-Being After Major Depression

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Abstract

Can people achieve optimal well-being and thrive after major depression? Contemporary epidemiology dismisses this possibility, viewing depression as a recurrent, burdensome condition with a bleak prognosis. To estimate the prevalence of thriving after depression in United States adults, we used data from the Midlife Development in the United States study. To count as thriving after depression, a person had to exhibit no evidence of major depression and had to exceed cutoffs across nine facets of psychological well-being that characterize the top 25% of U.S. nondepressed adults. Overall, nearly 10% of adults with study-documented depression were thriving 10 years later. The phenomenon of thriving after depression has implications for how the prognosis of depression is conceptualized and for how mental health professionals communicate with patients. Knowing what makes thriving outcomes possible offers new leverage points to help reduce the global burden of depression.

Keywords

depression, emotion, epidemiology, happiness

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Contemporary epidemiology views depression as a recurrent, burdensome condition with a bleak prognosis (Moussavi et al., 2007). Such views assume that optimal well-being is rarely achieved after a history of depression. Long-term follow-up studies in psychiatric samples suggest poor long-term outcomes, including many treatment-refractory cases, low rates of remission, and high rates of relapse and recurrence (Insel & Charney, 2003; Judd et al., 2000; Mueller et al., 1999; Trivedi et al., 2006). According to the World Health Organization (WHO), depression is the leading source of disability worldwide (WHO, 2017).

In light of the bleak prognosis for depression, current practice guidelines for depression argue for a cautious symptom-management approach (Gelenberg et al., 2010). In contrast, surveys indicate that patients place less value on symptom reduction as an outcome and more value on achieving optimal psychological and social well-being, or thriving (Zimmerman et al., 2006). Depressed patients are particularly likely to value elements of thriving more than the absence of distress or symptoms, the traditional targets of depression treatment

(Holtforth, Wyss, Schulte, Trachsel, & Michalak, 2009). Estimating how common thriving after depression is in the general population is important to presenting a balanced view of long-term outcomes in depression and to aligning practice guidelines with patient values.

Interestingly, population-based studies indicate a more favorable long-term course for depression than do clinical samples, providing additional motivation for estimating the prevalence of thriving after depression. For example, in three population-based studies, 40% to 60% of people with a single episode of major depressive disorder never experienced a recurrence, even after being questioned several decades later (Eaton et al., 2008; Mattisson, Bogren, Horstmann, Munk-Jørgensen & Nettelbladt, 2007; Moffitt et al., 2010). Although thriving, or elevated well-being, was not measured directly in these studies, it can be expected that some persons who

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had nonrecurrence of depression over many decades were thriving.

The possibility of thriving after depression has been overlooked for several reasons (Rottenberg, Devendorf, Kashdan, & Disabato, 2018), including the strength of the prevailing view in epidemiology, outcome studies failing to incorporate measures of functioning or well-being into their designs (McKnight & Kashdan, 2009), and overrepresentation of chronic forms of depression in clinical studies (Monroe & Harkness, 2011). Therefore, the present study provided a first, direct estimate of thriving after depression using a 10-year follow up of a representative sample of the United States population. To provide a conservative estimate of thriving, we required a person to (a) have a study-documented history of major depression in the year of study entry, (b) be free of the major symptoms of depression at the time of follow up, and (c) report a superior profile of psychological well-being, defined as a profile that exceeded cutoffs met by the top 25% of nondepressed adults in the United States. Finally, we examined what predicted thriving after depression at the 10-year follow up, focusing on the severity of initial depression and the level of initial well-being as potential predictors.

Method

Sample

Data for the current study were extracted from Wave 1 and Wave 2 of the Midlife Development in the United States (MIDUS) study (1995–1996; 2004–2006; MIDUS: <http://midus.wisc.edu/scopeofstudy.php>), a nationally representative sample of middle-aged (25–74 years), non-institutionalized, English-speaking adults recruited via a random-digit-dialing procedure (Brim, Ryff, & Kessler, 2004). At Wave 1, all respondents participated in a 30-min phone interview ($N = 3,487$) and most completed the self-administered questionnaires ($n = 3,043$). In this investigation we focused on those participants who both met major depression criteria ($n = 502$) and completed Wave 1 questionnaires ($n = 418$), including a well-being battery. Analyses of thriving concerned depressed persons from Wave 1 who were retained in the Wave 2 sample 10 years later ($n = 309$; 38.5% attrition) and who had follow-up well-being data ($n = 239$). Attrition analyses found no association between non-retention and Wave 1 age, sex, education level, household income, depression severity, or anxiety severity (see Supplemental Material available online).

Mental health assessment

At both waves, mental-health disorders were assessed with the Composite International Diagnostic Interview

Short Form (CIDI-SF), which was based on the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1986). The CIDI-SF assessed 12-month major depression, generalized anxiety disorder (GAD), panic disorder (PD), alcohol abuse and dependence, and drug abuse and dependence. The CIDI-SF for major depression, GAD, and PD assessments have good classification accuracy relative to the full CIDI instrument (93%, 99%, and 98%, respectively; Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). Participants met depression criteria if they reported having a period of at least 2 weeks (in the previous 12 months) of either depressed mood or anhedonia most of the day or nearly every day, and endorsed sufficient additional symptom criteria to qualify for a major depressive episode. The sensitivity of CIDI-SF classification for major depression is 89.6%, with a specificity of 93.9% (Kessler et al., 1998).

Depression-symptom severity was calculated for those with a depression diagnosis by totaling positive responses to CIDI-SF items. To address anxiety comorbidity, we summarized CIDI-SF GAD and PD diagnoses (1 = *anxiety disorder present*; 0 = *anxiety disorder absent*). To address the role of treatment, we asked participants about the number of times they sought professional help for emotional or mental health concerns over the prior 12 months. Professionals included psychiatrists, general practitioners or other medical doctors; psychologists, professional counselors, marriage therapists, or social workers; and ministers, priests, rabbis, or other spiritual advisors. We calculated a count variable based on the total number of sessions a participant reported using these services.

Well-being assessment

We focused on psychological well-being because it is a rich, complex, and accepted aspect of optimal human functioning that has spawned extensive research (Ryan & Deci, 2001). The MIDUS battery of well-being measures has established reliability and predictive validity (Keyes & Simoes, 2012) and possesses adequate normative data from a nationally representative sample of adults on which to base decisions (Rottenberg et al., 2018).

Specifically, we administered a battery of well-being at Wave 1 and Wave 2 to assess nine well-being facets. Six of the nine facets were assessed using an 18-item instrument (3 items per facet) at Wave 1 and a longer, 42-item instrument (7 items per facet) at Wave 2 (Ryff & Keyes, 1995). The well-being facets included (a) autonomy (acting with a sense of volition or willingness), (b) environmental mastery (self-direction and productivity), (c) personal growth (continual self-improvement), (d) positive relations with others (the

capacity to love and be loved), (e) purpose in life (an overarching life aim), and (f) self-acceptance (positive self-regard). All items were rated on a scale of 1 (*strongly agree*) to 7 (*strongly disagree*). Scale responses were averaged to determine each facet score. The remaining well-being facets were life satisfaction (g), assessed with 5 items (scored 0–10) that addressed satisfaction with life overall, work, health, relationship with spouse/partner, and relationship with children, and the frequency of past-month positive affect (h) and negative affect (i), each assessed with 6 items, scored on scales of 1 to 5, respectively.

To characterize well-being at Wave 1, each of the nine facet scores was standardized to unit variance and averaged together to create composite scores, with higher composite scores indicating higher well-being ($\alpha = .90$). The composite was then standardized to unit variance to enhance interpretability.

Classification of thriving after depression

At Wave 2, participants were classified as thriving after depression if they (a) had a depression diagnosis at Wave 1, (b) screened negative for all major symptoms of depression at Wave 2, and (c) at Wave 2, both scored > 50th percentile on at least eight of the nine well-being facets, relative to age and gender-matched sample means from the full national probability MIDUS sample at Wave 2 ($N = 1805$), and scored higher than the 84th percentile (i.e., at least 1 *SD* above the age- and sex-matched population means) on at least three of the nine well-being facets (Rottenberg et al., 2018). The eight-out-of-nine and three-out-of-nine thresholds reflect levels of well-being met by the top 25% of non-depressed persons in the MIDUS sample (see Supplemental Material).

Data analytic plan

Our analytic plan included descriptives on participant demographic and clinical characteristics at Wave 1 and proportions of those who met our a priori criteria for thriving at Wave 2. Logistic regression was used to ascertain the effects of age, sex, education, depression severity, and composite well-being measured at Wave 1 on the probability that participants achieve thriving at Wave 2. An additional logistic regression model tested whether significant results held after controlling for anxiety comorbidity and treatment at Wave 1. Multiple imputation by chained equations was used to account for missing data at both Wave 1 and Wave 2 within the regression model (mice R package; Buuren,

Groothuis-Oudshoorn, 2011; see Supplemental Material for additional details). Regression results were identical when listwise deletion was used as a missing-data strategy. Finally, a multivariate analysis of variance (MANOVA) was used to assess changes in the well-being facets as a function of depression level at Wave 2. Data, codebook, and syntax for our analyses are available at <https://osf.io/z5nhp/>. Data for the parent MIDUS study can be found at <http://midus.wisc.edu/data/index.php>.

Results

Participant demographics

At Wave 1, the sample contained 502 depressed individuals with a mean age of 42.95 years ($SD = 11.92$), of which 13.9% met criteria for generalized anxiety disorder, 21.9% for panic disorder, and 4.8% for alcohol or drug problems. This sample was 37.5% male, 69.9% White, and 47.4% married, and 24.5% reported having no children (Table 1).

Table 1. Characteristics of the Depressed Sample at Wave 1

Characteristic	
Gender (male)	37.5%
Race	
White	69.9%
Black and/or African American	4.6%
Other	5.6%
Education	
High school/GED or less	41.4%
Some college	35.3%
College or professional degree	23.3%
Employment status	
Worked full time	50.2%
Worked part time	7.8%
No work/worked less than 6 months	15.7%
Full-time student	1.8%
Number of biological children	
0	24.5%
1	18.3%
2	28.5%
3+	28.7%
Psychiatric characteristics	
Generalized anxiety disorder	13.9%
Panic disorder	21.9%
Alcohol or drug problems	4.8%
Depression severity (<i>M</i> , <i>SD</i>)	5.59 (1.03)
Mental-health treatment days (<i>M</i> , <i>SD</i>)	6.23 (15.46)

Prevalence of thriving after depression

Participants who were depressed at study entry varied in depression levels at follow up. About half reported no major symptoms of depression in the past year at follow up ($n = 116/239$; 48.5%). The other half met criteria for a major depressive episode in the past year ($n = 85/239$; 35.6%) or reported residual symptoms of depression ($n = 38/239$; 15.9%). Nearly 10% ($23/239$; 9.6%) of adults who were depressed at study entry met criteria for thriving at the 10-year follow up. At the follow-up date, about 1 in 5 adults who were depressed at study entry and who reported no depression symptoms at follow up met criteria for thriving ($23/116$; 19.8%). This prevalence is similar to that of nondepressed adults in the MIDUS study; 21% met all criteria for thriving at the 10-year follow up.

Prediction of thriving after depression

Logistic regression analyses demonstrated that higher well-being, but not depression severity at study entry, predicted which depressed adults would thrive 10 years later at follow up ($\chi^2 = 128.68$, $df = 1$, $p < .001$, odds ratio = 20.44) after controlling for age, sex, and education. Specifically, depressed participants reporting higher well-being at study entry (1 *SD* above the mean) had a 30% probability of achieving thriving 10 years later relative to those reporting lower well-being (1 *SD* below the mean), who had a 1% probability of achieving thriving. The full model explained 40.7% (Nagelkerke R^2) of the variance in thriving status at follow up and correctly classified 88.08% of cases. Finally, higher well-being continued to predict thriving 10 years later after controlling for treatment and copresent anxiety ($\chi^2 = 69.67$, $df = 1$, $p < .001$, odds ratio = 6.23).

Change in well-being over 10 years

Finally, we examined the magnitude of change in the well-being facets from study entry to follow up, using a repeated measures MANOVA with follow-up depression level (full depression, residual symptom, no symptom, thriving) as the between-subjects variable (see Table 2). This analysis yielded main effects of time, Wilks's $\Lambda = .62$, $F(9, 205) = 14.10$, $p < .001$, and depression level, Wilks's $\Lambda = .49$, $F(6.12, 599.35) = 6.12$, $p < .001$, which were both qualified with a time-by-depression-level interaction, Wilks's $\Lambda = .79$, $F(27, 599.35) = 1.85$, $p < .001$. Post hoc analyses of this interaction indicated that depressed individuals who went on to thrive exhibited larger increases in well-being over time than the other depression groups. In sum, depressed individuals who went on to thrive 10 years later were not only

higher in psychological well-being at study entry than other depressed counterparts, but also exhibited larger increases in well-being over time than other depressed counterparts.

Discussion

Using a representative sample of the United States population, we demonstrated that nearly 10% of people with depression attain optimal levels of well-being 10 years later. A history of depression reduced the probability of achieving a thriving state by approximately half, as 21% of nondepressed persons in the MIDUS sample met all criteria for thriving. Contrary to the assumption that extraordinarily good outcomes are rare in depression, a substantial number of individuals transitioned from clinical depression to optimal well-being over a decade.

Depression is a highly concerning mental-health syndrome for those affected. Clinicians and researchers increasingly view depression as a recurrent and burdensome condition with a bleak prognosis (Insel & Charney; 2003; Moussavi et al., 2007; Mueller et al., 1999; Trivedi et al., 2006). This study is the first careful analysis to show a portion of depressed individuals' transitions to optimal psychological functioning over the longer term. As such, these results have implications for how the prognosis of depression is conceptualized and for how clinicians communicate with their patients about it. Currently, practice guidelines for depression focus on symptom management (Gelenberg et al., 2010). These guidelines do not reference optimal functioning, implying that management of symptoms is the best outcome that can be realistically achieved by depressed patients. The present data demonstrate that highly favorable outcomes are also possible after depression. Faithfully communicating prognosis information to patients, including the full range of possible outcomes, is important to good physician-patient communication (Stewart, 1995; Zolnierok & DiMatteo, 2009) and patient education, both of which are associated with favorable outcomes in depression (Katon et al., 1995). Providing realistic hope concerning the prognosis of depression may itself be useful clinically, since hopelessness about the course of depression may diminish treatment adherence (DiMatteo, Lepper, & Croghan, 2000).

Longitudinal analyses demonstrated that psychological well-being at study intake predicted which depressed persons would be more likely to thrive 10 years later. In contrast, an index of depression severity was less predictive of outcome. These data add to prior findings that well-being indices provide incremental prediction of several health outcomes (Keyes & Simoes, 2012),

Table 2. Psychological Well-Being at Wave 1 and Wave 2 as a Function of Wave 2 Depression Level

Facet	Full depression			Residual symptom			No symptom			Thriving		
	<i>M (SD)</i>			<i>M (SD)</i>			<i>M (SD)</i>			<i>M (SD)</i>		
	W1	W2	<i>d</i>	W1	W2	<i>d</i>	W1	W2	<i>d</i>	W1	W2	<i>d</i>
Life satisfaction	6.30 (1.69)	6.57 (1.55)	0.15	7.19 (1.40)	7.12 (1.13)	-.05	6.97 (1.38)	7.50 (1.06)	.36**	7.85 (1.28)	8.90 (.59)	.73**
Positive affect	2.49 (.85)	2.66 (.80)	.20	2.86 (.64)	2.97 (.68)	.16	2.83 (.77)	3.40 (.64)	.75***	3.10 (.53)	3.79 (.38)	1.06***
Negative affect	3.35 (.90)	3.54 (.88)	.20	4.08 (.62)	4.24 (.52)	.25	3.97 (.75)	4.49 (.45)	.70***	4.33 (.44)	4.87 (.14)	1.16***
Autonomy	4.93 (1.27)	4.78 (1.07)	-.013	5.44 (1.08)	5.33 (.91)	-.10	5.25 (1.11)	5.18 (.91)	-.06	5.78 (1.07)	6.20 (.84)	0.38
Environmental mastery	4.11 (1.36)	4.18 (1.10)	0.05	4.89 (1.05)	4.87 (1.07)	-.02	4.69 (1.19)	5.26 (.87)	.47***	5.36 (.59)	6.62 (.36)	2.22***
Personal growth	5.49 (1.33)	4.87 (1.27)	-.055***	5.83 (1.31)	5.21 (1.12)	-.57**	5.84 (1.04)	5.38 (.93)	-.43***	6.42 (.86)	6.58 (.48)	0.16
Positive relationships	4.64 (1.50)	5.01 (1.04)	0.27*	4.78 (1.41)	5.36 (1.12)	.48**	4.66 (1.39)	5.46 (1.00)	.58***	5.70 (1.13)	6.56 (.36)	0.93***
Purpose in life	5.19 (1.33)	4.77 (1.10)	-.030*	4.99 (1.25)	5.08 (.95)	.07	5.19 (1.21)	5.19 (.89)	0	5.97 (.97)	6.52 (.36)	.55*
Self-acceptance	4.48 (1.37)	4.05 (1.48)	-.029*	4.84 (1.09)	4.65 (1.18)	-.17	4.86 (1.22)	5.13 (.99)	.22*	5.75 (.91)	6.63 (.38)	.99***

Note: W1 = Wave 1; W2 = Wave 2; *d* = standardized mean change from Wave 1 to Wave 2 (i.e., Cohen's *d*).
p* < .05. *p* < .01. ****p* < .001; denotes significant change over time.

including depression (Keyes, Dhingra, & Simoes, 2010; Wood & Joseph, 2010). In light of such data, clinicians should consider collecting metrics of well-being, in addition to depression symptom severity, to better monitor and predict the progress of patients over the long term. These data also argue for the more routine inclusion of measures of well-being in treatment-outcome studies, given mounting evidence that well-being independently predicts outcomes, and given that it is a primary desideratum of many patients (Rottenberg et al., 2018; Wood & Joseph, 2010).

Our study was novel in documenting thriving after depression and in identifying at least one predictor of this outcome. Future work will likely identify other predictors of thriving, as well as identifying specific mechanisms and pathways that explain why some individuals are able to transition from depression to optimal well-being.

As an archival data source, Wave 2 of the MIDUS study provided a snapshot in time 10 years after study intake. It is possible that more than 10% of depressed individuals would transition to a state of thriving if a longer follow-up period were employed. Studies that obtain multiple follow-up measurements of well-being with a high degree of temporal resolution would also be useful to ascertain both the stability and the duration of periods of thriving after depression.

One strength of this study is that it operationalized thriving using rigorous cutoffs on a well-validated battery of psychological well-being measures. Our psychological well-being battery addressed many aspects of thriving. That being said, self-reports have limitations as a sole basis for classifying thriving (i.e., response bias), and future work should examine whether estimates of thriving converge across more objective assessments of optimal functioning, such as informant reports of functioning and behavioral sampling from daily life (Rottenberg et al., 2018). Finally, we estimated long-term depression outcomes in a probability sample representative of United States adults. Future work should examine rates of thriving after depression in nonpopulation samples and across nations.

Reexamining large, nationally representative samples can provoke novel insights into neglected life trajectories. In this case, we discovered a segment fraction of depressed persons who transitioned from depression to a level of well-being characteristic of the top quarter of the nondepressed population. More broadly, viewing well-being rather than symptomatic relief as an achievable goal represents a paradigm shift in thinking about psychopathology outcomes. Such a perspective can spark new questions regarding the ordinary magic of resilience, and inform efforts to develop tools, tactics, and strategies to raise the probability of thriving after

depression and other mental disorders. Ultimately, such work may afford new leverage points to reduce the global burden of depression.

Action Editor

Erin B. Tone served as action editor for this article.

Author Contributions

The report was conceived and designed by J. Rottenberg. The plan for statistical analyses was developed by A. Devendorf, V. Panaite, and D. Disabato. The data analysis was conducted by A. Devendorf, V. Panaite, and D. Disabato. Interpretation was provided by all authors. The first draft of the manuscript was written by J. Rottenberg. Critical manuscript revisions were made by all authors. J. Rottenberg had full access to all of the data in the study and takes full responsibility for the integrity of the data and the accuracy of the data analysis. All the authors approved the final manuscript for submission.

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Declaration of Conflicting Interests

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Supplemental Material

Additional supporting information can be found at <http://journals.sagepub.com/doi/suppl/10.1177/2167702618812708>

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