

Happy asthma: Improved asthma control with a gratitude journal

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Clinical Implications

- Regularly recording entries in a gratitude journal may lead to improvement in asthma control, providing a potential complementary approach to address comorbid stress and depression.

TO THE EDITOR:

Higher rates of stress and depression are found in populations of asthmatic, as compared with age-matched adults.¹ Comorbid depression is linked with poorer asthma outcomes.² Although there is a reason to believe that a negative affective state is a consequence of chronic disease, there is increasing evidence that the relationship is bidirectional. Increased stress correlates with changes in inflammatory mediators and may influence the immune system via alterations in the balance of the autonomic nervous system, endocrine system, and hormone regulation.^{3,4} Stress and depression also influence adherence to asthma medications.⁵

Attempts to intervene on negative affect as a complementary treatment for asthma have been hindered by the heterogeneity of asthma phenotypes, selection of appropriate patients, difficulty identifying appropriate control/comparison groups, and selection

of relevant outcome measures. Interventions including psychotherapy, cognitive behavioral therapy, relaxation therapy, mindfulness, yoga, and antidepressants have been attempted. The use of antidepressants has shown promise, with reduction in symptoms and improvement in lung function, though larger studies are needed to confirm a clear treatment effect.⁶⁻⁸

The benefit of improving one's affective state, however, may be more broadly applicable even to those without clinical depression. The growing field of positive psychology has led to an improved understanding of the science of happiness, including in those without disorders of negative affect. The act of regularly recording people, places, or circumstances for which one is grateful, commonly referred to as keeping a "gratitude journal," improves happiness and sense of well-being.⁹ This approach has been applied to healthy individuals as well as patients with neuromuscular diseases and compared with controls. Both groups recording entries in a gratitude journal reported more gratitude, more positive moods, more optimism about the future, and better sleep. Patients with neuromuscular disorders also experienced improved physical symptoms.⁹ The impact of gratitude journaling has not been studied for asthma.

We enrolled 25 asthmatics in 2 allergy clinics in San Diego, California. Inclusion criteria required patients to be of age 18 or greater, a physician diagnosis of asthma, and an Asthma Control Test (ACT) score less than 22 to allow opportunity for improvement. To reduce potential confounding variables, patients were excluded from study enrollment if they experienced an asthma exacerbation or had any changes in their asthma medications in the last 30 days.

Participants were randomized 3:2 to a gratitude journaling condition versus a control, nonfocused journaling condition.

TABLE I. Clinical characteristics of the study population

	Gratitude (n = 15)	Nonfocused (n = 10)	P value
Sex, n (%)			<.05
Women	13 (87)	4 (40)	
Men	2 (13)	6 (60)	
Age (y)			1
Mean (SD)	51 (13)	51 (13)	
Median (min; max)	50 (34; 72)	56 (25; 70)	
Race/ethnicity, n (%)			.290
White/Non-Hispanic	12 (80)	8 (80)	
White/Hispanic	0	1 (10)	
Asian	3 (20)	1 (10)	
Atopic by skin testing or specific IgE, n (%) [*]	15 (100)	10 (100)	1
Medications at the time of enrollment, n (%)			
Inhaled corticosteroids	12 (80)	8 (80)	1
Omalizumab or mepolizumab	9 (60)	5 (50)	.622
Baseline FEV1% predicted			.109
Mean (SD)	88.1 (15.2)	80.5 (16.5)	
Baseline ACT score			.154
Mean (SD)	16.0 (4.1)	18.3 (3.6)	
Median (min; max)	15 (9; 22)	18 (11; 22)	

ACT, Asthma Control Test; FEV1, forced expiratory volume in 1 second; SD, standard deviation.

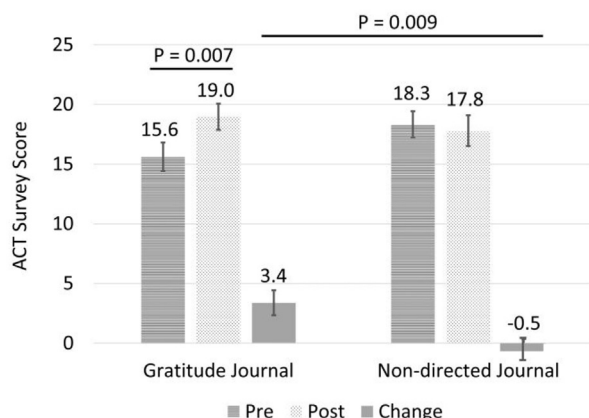


FIGURE 1. Mean ACT survey scores and mean change are depicted in the 2 journaling conditions. Participants in the gratitude journaling condition experienced a significant improvement in the ACT score as compared with the control condition ($P = .009$). ACT, Asthma Control Test.

More females were randomized to the gratitude condition ($P < .05$). Otherwise, there were no statistically significant differences in baseline patient characteristics (Table 1). Participants in the gratitude journaling condition were instructed to record 5 short entries per week regarding people, places, things, or circumstances for which they are grateful, taking a moment to reflect on each entry. Those randomized to the nonfocused journaling condition were instructed to record 5 short entries regarding life events whether positive, negative, or neutral. Measured endpoints included a change in the ACT survey score over the 4-week study period, change in forced expiratory volume in 1 second (FEV1) percent predicted, percent completion of journal entries, relative content of nonfocused journal entries (positive, negative, neutral), and participant feedback/experience survey data.

Of 15 participants in the gratitude journaling condition, 13 completed the poststudy ACT survey, versus all 10 participants in the nonfocused journaling condition. The mean ACT survey score increased by 3.4 ($P = .007$) in the gratitude condition (Figure 1). There was no significant change (-0.5 , $P > .05$) in the mean ACT survey score in the nonfocused journaling condition. Changes in ACT scores were significantly higher in the gratitude condition versus the nonfocused journaling condition ($P = .009$).

Of 15 participants in the gratitude journaling condition, 12 returned for poststudy spirometry, versus 9 of 10 participants in the nonfocused journaling condition. There was no significant change in mean FEV1 percent predicted ($+0.5$, $P > .05$) in the gratitude condition. Mean FEV1 percent predicted decreased by 3.4 ($P = .043$) in the nonfocused journaling condition. The change in FEV1 percent predicted was not significantly different between the 2 journaling conditions.

Participants in the gratitude condition completed 79% of journal entries versus 86% in the nonfocused journaling condition ($P > .05$). In accordance with the study design, all journal entries in the gratitude condition contained positive content. The self-reported content of journal entries in the nonfocused journaling condition was 56% positive, 33% negative, and 12%

neutral. A total of 86% of participants felt that journaling was not burdensome ($P > .05$).

In this 4-week pilot study, participants experienced clinically and statistically significant improvement in their asthma, as measured by the ACT survey, using a weekly gratitude journal. This intervention is easy to describe to patients in a short clinical visit, can be employed at home without the need for psychology referral, and confers no foreseeable adverse effects. Proposed mechanisms for improvement in happiness, sense of well-being, and physical symptoms with the use of a gratitude journal include shift in affect, improved positive coping strategies, and broadening and building resources to be used during stressful periods.¹⁰ In an asthmatic population, improved medication adherence may also contribute to improvement in physical symptoms.

Limitations of this study include a small sample size, short study duration, and predominance of female participants in the gratitude journaling condition. Subgroup analysis regarding which patients may benefit most from gratitude journaling cannot be assessed. Application of gratitude journaling to a population of asthmatics with clinical depression may yield more robust results. Short study duration prevents assessment of the durability of measured improvement with continued journaling or after discontinuation. Furthermore, lack of improvement in lung volumes may suggest improvement in perceived symptoms without a change in underlying disease processes.

Although cognizant of its limitations, this study provides new evidence that interventions directed at the mind-body connection may benefit asthma control. Using a gratitude journal as a complementary approach to standard pharmacologic therapy, patients may experience improvements in happiness, sense of well-being, and physical symptoms. Additional studies are required to confirm efficacy in a larger, diverse population, to identify patient subpopulations that may benefit most, and to determine the mechanisms of improved asthma control. This approach is highly scalable and may be applicable to any number of chronic symptomatic diseases.

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