

A Meta-Analysis of the Effects of Mindfulness Practice on Posttraumatic Growth

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Aim of this Study:

- Summarize the effectiveness of Mindfulness practice on Posttraumatic Growth across all existing studies using meta-analysis.

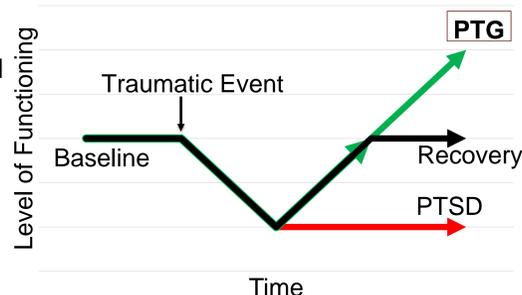
Abstract

- Initial evidence suggests that mindfulness practices stimulate posttraumatic growth; however, the degree of influence is largely unknown.
- Initial search yielded 2407 articles. 9 studies met the inclusion criteria for meta-analysis and 17 for a systematic literature review.
- The pooled effect size for impact of mindfulness on PTG was estimated at $\hat{\mu} = 0.44$, $P < 0.01$, a medium effect.

Introduction

- Posttraumatic growth (PTG) is defined as a positive change in psychological and spiritual development following a trauma (Figure 1).
- There is some evidence that mindfulness practices stimulate positive growth; however, the degree of influence is still largely unknown.
- Mindfulness refers to a collection of meditative practices around development of individual's awareness and introspection.
- This project summarizes results of a meta-analysis to produce a generalized conclusion about the effects of mindfulness on PTG.

Figure 1: Conceptual Model of PTG



Methods

Literature Search:

- Databases Searched: *Pubmed, Google Scholar, PsycINFO, Psychology and Behavioral Science Collection and Science Direct.*
- PTG Keyword: *post-traumatic growth, PTGI, benefit finding, stress-related growth, positive adjustment, transformation, thriving, personal growth, post adaptation and positive life change*
- Mindfulness keywords: *mindfulness, MBSR, acceptance and commitment therapy, or a MeSH term "Mind-Body Relations, Metaphysical."*

Additionally, an extensive review was conducted of reference lists of relevant studies and review articles extracted from the database searches.

Data Preparation

- Data from full-text articles were extracted by one author (T.N.) and verified by another (S.H.) prior to analysis.
- Effect size was calculated with Hedge's g , with Hedge's g_{av} for single group designs (Lakens, 2013).

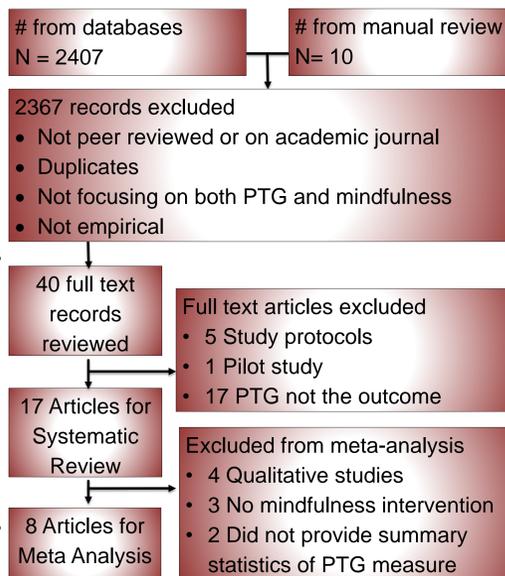
Inclusion Criteria and Figure 2: Article Flowsheet

Inclusion Criteria for Literature Review:

- Primary focus on Mindfulness AND PTG
- peer reviewed or on academic journals (excluding books, dissertations, etc.)
- empirical studies, excluding textbooks and explanatory articles
- written in English
- published within the last ten years
- Study protocols or pilot studies excluded.

Inclusion Criteria for Meta-Analysis:

- quantitative studies
- PTG measured as an outcome
- Mindfulness-focused interventions

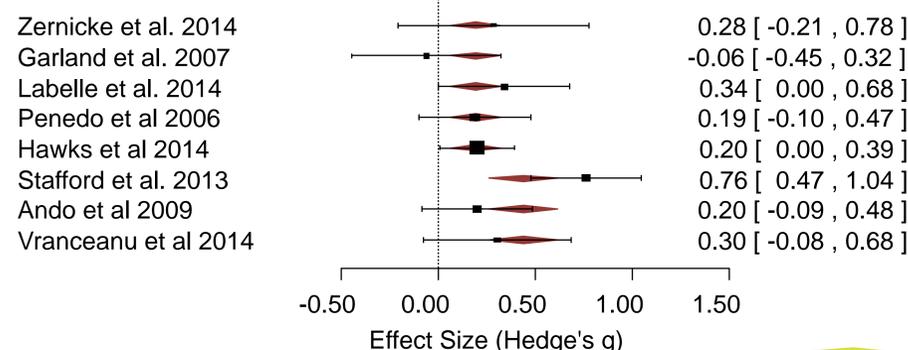


Study Characteristics

Study Name	Design	Type of Trauma	Total Sample	Type of Intervention	Duration	Intervention Group Size	Control Type
Zernicke et al. 2014	Randomized Controlled	Cancer	62	MBCR (Online)	8 Weeks	30	Waitlist
Garland et al. 2007	Non-Randomized	Cancer	104	MBCT	8 Weeks	60	Other Intervention
Labelle et al. 2014	Randomized Controlled	Cancer	136	MBSR	8 Weeks	75	Waitlist
Penedo et al 2006	Randomized Controlled	Cancer	191	CBSM	10 Weeks	107	Educational Seminar
Hawks et al 2014	Randomized Controlled	Cancer	410	ACT	6 Months	205	Usual Care
Stafford et al. 2013	1 Group	Cancer	36	MBCT	8 Weeks	N/A	N/A
Ando et al 2009	1 Group	Cancer	28	MBSR	2 Weeks	N/A	N/A
Vranceanu et al 2014	1 Group	Medical	16	3RP	8 Weeks	N/A	N/A

MBCR – Mindfulness Based Cancer Recovery. MBCT – Mindfulness Based Cognitive Therapy. MBSR – Mindfulness Based Stress Reduction. CBSM – Cognitive Behavioral Stress Management. ACT – Acceptance and Commitment Therapy. 3RP – Relaxation Response Resiliency.

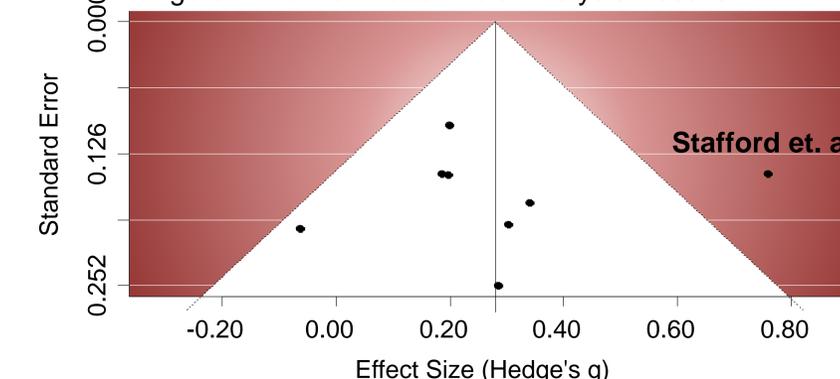
Figure 3: Forest Plot of Hedge's g Effect Size for Each Study and Study Design



Meta-Analysis Results

- Meta-analysis conducted with the Metafor package in R.
- A fixed effects model with fixed intercept was used.
- 3 variables were checked as moderators:
 - Study design (dummy coded: 1 = controlled vs. 0 = single group) was significant ($\beta = -0.24$, $p < 0.05$).
 - Sample size was not significant
 - Length of the intervention was not significant.
- The model, with all studies included, showed a pooled effect size of $\hat{\mu} = 0.44$, $P < 0.01$; this is a *medium effect*.
- Study design was a significant moderator, with controlled studies showing a pooled effect of $\hat{\mu} = 0.19$, a *small effect*, and single group design showing a pooled effect of $\hat{\mu} = 0.69$, a *medium effect*.
- A test of residual heterogeneity produced $QE(6) = 10.6$, $p = 0.1$, showing that there was marginal heterogeneity. However, the non-significant result suggests that the pooled effect size is a valid summary of the studies.

Figure 4: Funnel Plot of Meta-Analysis Results



Discussion

- This evidence supports the potency of mindfulness in stimulating Posttraumatic Growth.
- The meta-regression results show a medium effect of mindfulness practice in increasing PTG.
- There was nearly significant heterogeneity in effect sizes and a wide range of mindfulness interventions, intervention times and experimental design.
- The population for each study consisted of individuals with significant medical diagnoses as the traumatic event.
- Overall, these results suggest that this is a promising field of study, with further work needed to study these effects with different types of trauma (e.g. sexual assault, combat, disaster) with a greater number of randomized controlled trials.