Published in final edited form as:
Br J Health Psychol. 2008 February ; 13(Pt 1): 67–71. doi:10.1348/135910707X251144.

Emotional Approach Coping and Self-efficacy Moderate the Effects of Written Emotional Disclosure and Relaxation Training for People With Migraine Headaches

Christina A. Kraft, **Mark A. Lumley**, **Pamela J. D'Souza**, and **John A. Dooley**
Wayne State University, Detroit, MI

Abstract

Objectives—We tested whether emotional skills and headache management self-efficacy (HMSE) moderated effects of written emotional disclosure (WED) compared to control writing and a different intervention, relaxation training (RT).

Design/Methods—Undergraduates with migraine headaches reported emotional approach coping (EAC) and HMSE; were randomized to WED, RT, or control; and assessed on health measures at baseline and 3-month follow-up.

Results—Greater EAC predicted improvement following WED compared to RT and control, whereas low HMSE predicted improvement following both WED and RT, compared to control.

Conclusions—Emotional skill may specifically—and low health management self-efficacy may generally—predict positive responses to WED.

Written emotional disclosure (WED) has modest benefits for people with health problems, but personality differences likely moderate its effects. Also, comparing WED to another intervention can test whether moderators are specific to WED or general to various interventions. Relaxation training (RT) may be an ideal comparison intervention.

We hypothesized that having emotional skills predicts benefits of WED, but may be irrelevant for RT. In contrast, being low in self-efficacy to manage health problems may predict benefits of both interventions. We tested these two moderators on the effects of WED, RT, and neutral control writing in young adults with migraine headaches.

Methods

Participants and Procedures

Ninety undergraduates (80 women; age *M*=21.4; 59% European American, 19% African American, 22% other) reporting migraines at least once per month, came individually to the lab, had a diagnostic interview to confirm migraines, and completed baseline moderator and health measures. They were randomized into groups and conducted four, 20-minute lab sessions over two weeks. Follow-up assessments were scheduled at 1 and 3 months.

The WED group was instructed to write about facts and feeling about a stressful experience, and to try to write about the same topic repeatedly, create a narrative, and relate the stressor to their lives. The RT group listened to 20-minute sections of an audiotape that trained participants

Correspondence and reprint requests should be addressed to: Mark A. Lumley, Ph.D. Department of Psychology Wayne State University 5057 Woodward Avenue, 7th Floor Detroit, Michigan, 48202 USA Phone: 313-577-2838 FAX: 313-577-7636 mlumley@wayne.edu.

in progressive muscle relaxation, applied relaxation, deep breathing, and autogenic techniques. The time management control (TMC) group wrote unemotionally about their activities for the past week, past 24 hours, next 24 hours, and next week.

Measures

Moderators were the 8-item Emotional Approach Coping Scale (EAC; Stanton, Kirk, Cameron, & Danoff-Burg, 2000) and the 25-item Headache Management Self-Efficacy Scale (HMSE; French et al., 2000). Outcome measures were headache frequency (number of days in the last month with a headache), pain severity rated on the McGill Pain Questionnaire-short form (Melzack, 1987), functional and emotional disability rated on the 25-item Headache Disability Inventory (Jacobson, Ramadan, Aggarwal, & Newman, 1994), and negative and positive affect for the past month rated on the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988).

Data Analytic Approach

Eight-two participants (91%) provided outcome data (58: both follow-ups; 17: 1-month only; 7: 3-month only); 8 dropped without follow-up. Groups did not differ in who lacked complete follow-up data (11 WED, 10 RT, 11 TMC). We analyzed the final available outcomes using intent-to-treat analyses (replacing the eight missing outcomes with baseline values). To test moderation, we examined interaction terms (moderator times group) predicting outcome change scores (follow-up minus baseline) and compared two groups at a time.

Results

EAC was unrelated to HMSE (r=−.02). Table 1 presents standardized betas from interaction terms for each pair of groups, and betas from regressions relating moderators to outcomes for each group separately.

Higher EAC predicted some improvement on all measures in WED, whereas EAC was unrelated to outcomes, or predicted less improvement, in the RT and control groups. Moderated regressions showed that EAC significantly moderated the effects of WED versus controls on headache frequency and disability, and marginally on pain severity and negative affect. Similarly, EAC moderated the effects of WED versus RT on headache frequency and positive affect. The RT and control groups did not differ in how EAC predicted outcomes. (The emotional processing and expression subscales correlated r=.56, p<.001 and had similar patterns of moderation.)

Lower HMSE predicted improvement on most outcomes in both WED and RT groups, but generally predicted the opposite in controls. Although WED and RT did not differ significantly in how HMSE predicted outcomes, HMSE moderated the effects of both WED and RT versus control on pain severity and negative affect.

Above analyses also controlling for variable follow-up time showed little change in effects. Analyses on available 1-month outcomes (n=75) showed weaker trends and fewer significant interactions. Analyses on available 3-month outcomes (n=65) showed more robust effects for HMSE (larger betas and two new marginal interactions for disability), but slightly weaker effects for EAC.

Discussion

Across multiple outcomes, EAC predicted greater improvement after WED but not after RT or control writing; thus, having emotional skills specifically predicted improvement following WED. This supports another study (Austenfeld, Paolo, & Stanton, 2006) and research on

alexithymia, which is similar to low EAC (Lumley, 2004). People with limited motivation or ability to process and express emotions may find WED unappealing, or struggle to identify stressors, disclose feelings, and generate cognitive or affective changes. Yet, EAC was less relevant for RT, which accords with clinical observations that RT is effective even for alexithymic people. In contrast, low HMSE predicted improvements on several outcomes for both active interventions (WED and RT) compared to controls, suggesting that feeling helpless to manage one's headaches is a general predictor of intervention success rather than a specific moderator of WED.

The modest main effects of WED in medical populations may be partly due to patients having less emotional awareness and processing skills than college students, for whom WED seems more effective. We need research on matching interventions to participant characteristics, such as prescribing WED specifically for those with sufficient emotional skills, but prescribing RT more generally.

Acknowledgments

This research was based on the master's thesis of the first author under the direction of the second author. This research and preparation of this manuscript were supported, in part, by a Clinical Science Award from the Arthritis Foundation, and by NIH grants AR049059 and AG009203. We thank Melanie Ramos, Tameka Roberson, and Barbara Stanislawski, and for their assistance in data collection.

References

Austenfeld JL, Paolo AM, Stanton AL. Effects of writing about emotions versus goals on psychological and physical health among third-year medical students. Journal of Personality 2006;74:267–286. [PubMed: 16451232]

French DJ, Holroyd KA, Pinell C, Malinoski PT, O'Donnell F, Hill K. Pereceived self-efficacy and headache-related disability. Headache 2000;40:647–656. [PubMed: 10971661]

Jacobson GP, Ramadan NM, Aggarwal SK, Newman CW. The Henry Ford Hospital Headache Disability Inventory. Neurology 1994;44:837–842. [PubMed: 8190284]

Lumley MA. Alexithymia, emotional disclosure, and health: A program of research. Journal of Personality 2004;72:1271–1300. [PubMed: 15509283]

Melzack R. The short-form McGill Pain Questionnaire. Pain 1987;30:191–197. [PubMed: 3670870]

Stanton AL, Kirk SB, Cameron CL, Danoff-Burg S. Coping through emotional approach: Scale construction and validation. Journal of Personality & Social Psychology 2000;78:1150–1169. [PubMed: 10870915]

Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality & Social Psychology 1988;54:1063–1070. [PubMed: 3397865]

Table 1

Relationships (Standardized Betas) of Emotional Approach Coping and Headache Management Self-Efficacy with Outcome Change Scores for Three Groups Separately (Left 3 Columns,) and Interaction Effects (Standardized Betas) Between Moderator and Group for Each Pair of Group Comparisons

	Within-Group Relationships			Between-Groups Comparisons		
Moderator **Outcome Measures**	**WED (*n* = 31)**	**RT (*n* = 28)**	**TMC (*n* = 31)**	**WED v. TMC**	**WED vs. RT**	**RT vs. TMC**
Emotional Approach Coping						
Headache frequency	−.41*	.22	.38*	1.28**	0.69*	−0.05
Pain severity	−.39*	.03	.07	0.70†	0.38	−0.09
Headache disability	−.28	.05	.35†	1.00*	0.39	−0.80
Negative affect	−.50**	.03	.01	0.75†	0.41	0.06
Positive affect	.19	−.38*	−.09	−0.50	−0.65*	−1.05
Headache Management Self-efficacy						
Headache frequency	.13	−.06	.14	−0.03	−0.19	−0.43
Pain severity	.22	.23	−.44*	−1.08**	0.13	1.58*
Headache disability	.11	.15	−.16	−0.42	0.03	0.77
Negative affect	.29	.45*	−.27	−0.89*	0.45†	1.93**
Positive affect	.04	−.35†	−.11	−0.22	−0.44	−0.96

† p < .10.

* p < .05.

** p < .01.