Gender Differences in Vagal Tone Adaptation in an Expressive Writing Paradigm

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SHORT ABSTRACT

Research shows that writing about traumatic, stressful or emotional events is associated with improved health and well-being. We assessed the effects of a standard vs. meaning-making expressive writing format on autonomic nervous system function over time. Results indicate that heart rate and to a lesser degree, vagal tone, improved over time in both conditions but these results were moderated by gender. Men showed improvement in vagal tone for the standard but not the meaning-making condition.

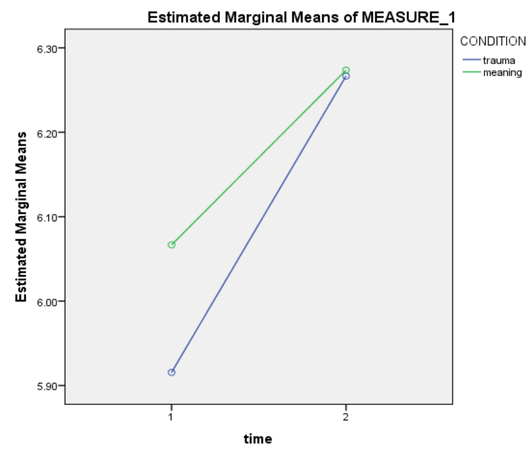
INTRODUCTION

An extensive body of literature shows that writing about traumatic or emotional experiences results in improved physical health and emotional well-being. In Pennebaker's (1997) expressive writing paradigm, participants are instructed to write about either traumatic emotional events or neutral topics over several sessions. Those assigned to the expressive writing condition typically display physical and psychological health improvements over time compared to the control condition (Pennebaker, 1997). In our replication, we added a meaning-making condition where subjects are asked to reinterpret and write about the traumatic event in positive terms. We also assessed the effects of expressive writing on vagal tone, heart rate, and respiration as an indication of the effects of stress on physical and psychological well-being over time.

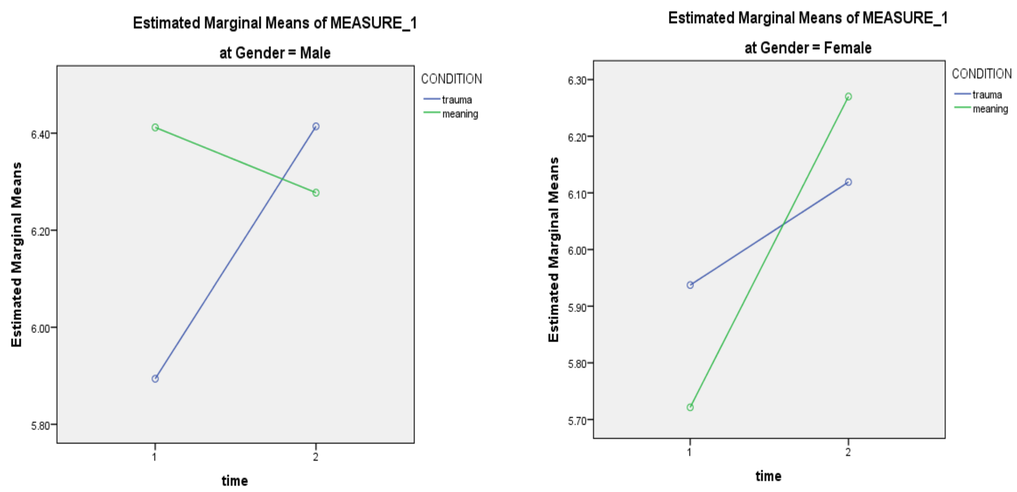
METHOD

Fifty subjects (25 males, 25 females), ranging in age from 18 to 44 years of age, with a mean age of 26.64 years (SD = 6.18) served as participants. Subjects were randomly assigned to one of the three experimental conditions: standard writing (n=24), meaning-making (n=26) condition. Subjects wrote for at least two sessions and most wrote for three sessions. Before the first session, subjects completed a demographic questionnaire. During each of the sessions, baseline physiological measures were taken while the participant viewed a neutral video (ocean) for three minutes. Next, participants were instructed to write continuously for 15 minutes after which participants again viewed the neutral video while post-writing physiological measures were recorded. Lastly, participants were asked a series of questions about the experience they elected to write about (e.g., “how traumatic was the experience you just wrote about?”).

RESULTS & DISCUSSION



A repeated-measures ANOVA comparing the first to the last writing sessions within-subjects and gender and condition between subjects showed a trend in improvement in vagal tone over time, $F(1, 45) = 3.430$, $p = .071$. Unlike our previous work, the main effect of condition was not significant, indicating there was no difference between the standard expressive and the meaning-making conditions, $F(1, 45) = .092$, $p = .764$.



However, there was a time x condition x gender cross over interaction, $F(1, 45) = 2.874$, $p = .097$ that approached significance. Males in the standard writing condition showed improved vagal tone over time whereas the males in the meaning-making condition did not. In contrast, women showed significant improvement in vagal tone over time in the meaning-making condition but less so in the standard writing condition.

The results of this study show that expressive writing results in improved heart rate and a trend towards improvement in vagal tone over time for both expressive writing conditions. However, it is likely that women may benefit more from a meaning-making expressive writing paradigm compared to the standard whereas the opposite may be true for men and they may benefit more from a standard expressive writing format.

SELECTED REFERENCES

1. Garnefski, N., & Kraaij, V. (2006). Cognitive emotion regulation questionnaire - development of a short 18-item version (CERQ-short). *Personality and Individual Differences, 41*, 1045-1053.
2. JWP Home Page. Retrieved Dec. 5 2011. *http: // homepage.psy.utexas.edu/ homepage/Faculty/Pennebaker/ Home 2000/ J WPhome.htm*.
3. Martin, R. C., & Dahlen, E. R. (2005). Cognitive emotion regulation in the prediction of depression, anxiety, stress and anger. *Personality and Individual Differences, 39*, 1249–1260.
4. Pennebaker, J. W., & Chung, C. K. (2007). Expressive Writing: Connections to Physical and Mental Health. *Oxford Handbook of Health Psychology*, pp. 1-31.
5. Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science, 8*, 162-166.

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