

A Laboratory Experiment on Loving-kindness Meditation and its Undoing Effect on Anger

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BACKGROUND

- ❑ The Broaden and Build (B&B) theory of positive emotions (PE) – PE broadens one's thought-action repertoire, unlike negative emotions (NE).
- ❑ The undoing hypothesis – PE can quell the lingering effects of NE psychologically and physiologically, whereby PE may undo/negate the consequences of NE. It can remedy the potentially damaging cardiac activity, by returning one's physiological responses to more moderate levels of activation (Fredrickson, 1998; Fredrickson & Levenson, 1998; Shiota et al., 2011).
- ❑ Speedy recoveries to one's baseline levels of cardiovascular activation upon experiencing the emotions **contentment and amusement** have been shown after fear was elicited (Fredrickson & Levenson, 1998; Fredrickson et al., 2000; Fredrickson & Branigan, 2005), demonstrating that the undoing hypothesis works with both a **low-arousal** and a **high-arousal** PE.
- ❑ Loving-kindness meditation (LKM) elicits and focuses on **low-arousal PE** (e.g. contentment, peace, calm).

LKM produces low-arousal PE, and allows individuals to experience mindfulness.

This allows individuals to become aware of their present thoughts and emotions, and respond less reactively.

Current Study

- ❑ To investigate if **meditative practices** such as **LKM** that also draw low-arousal PE can play a part in the undoing hypothesis (Fredrickson, 2000).
- ❑ To demonstrate the undoing of an approach-type NE, such as anger, instead of fear, which is an avoidant-type NE.
- ❑ **Aim:** To examine how PE elicited through LKM can return individuals' cardiovascular activity to their baseline levels after the experience of anger in an immediate setting.
- ❑ **Hypothesis:** Compared to individuals in the control condition, participants engaging in LKM will show a significantly faster return of their heart rate (HR) to their baseline levels after experiencing anger.

Pilot Study

- ❑ The participants' baseline HR was lower than the after-anger HR, with an increase of $M = 6.75$ [95% CI, 1.314 to 3.856], $t(11) = 5.133$, $p < .001$.

$M=73.917$,
 $SD=8.723$

$M=80.667$,
 $SD=10.254$

- ❑ After adjustment for the baseline HR, there was no statistically significant difference in the DV between the LKM ($M = 3.167$, $SD = 2.137$) and the control group ($M = 5.667$, $SD = 3.011$), $F(1, 9) = 3.244$, $p > .05$.

DISCUSSION

- ❑ Individuals who underwent LKM after experiencing anger returned to their baseline HR levels **faster** than those who did not undergo LKM. The hypothesis is **supported**.

Why did it work?

- ❑ Writing about an unpleasant event may increase one's cardiovascular rate (Pennebaker, 1989).
- ❑ LKM nurtures mindfulness, a concept that encourages individuals not to criticize or assess the legitimacy of a negative or unpleasant thought (Hamilton et al., 2006). Being mindful reduces the inclination to ruminate (Ramel, Goldin, Carmona, & McQuaid, 2004)

Based on Past Studies:

- ❑ The findings of this study reveal that LKM can indeed play a part in the undoing hypothesis, as inferred by Fredrickson (2000), and that the low arousal PE elicited through LKM can also undo the negative effects of an unpleasant emotion, with the same findings, that is the return of physiological arousal.
- ❑ This supports Fredrickson's (2000) prediction that the undoing effect can take place with other unpleasant emotions, such as anger.

METHOD

90 undergraduate female and male Psychology students (18-25) from HELP University were recruited.

Anger was induced via a combination approach (write about a time they felt angry, while an anger-inducing music clip, Refuse/Resist by Apocalyptica was played) (Tamir, Ford, & Gilliam, 2013).

Participants in the experimental group listened to the guided LKM for 9 minutes (Mindful Awareness Research Centre, 2016).

A Fitbit monitor watch was used to record the participants' baseline HR, HR after the anger induction, and HR after 9 minutes, with or without meditation.

IV (LKM, Control). DV (the minute the participants' HR returned to its baseline levels, which is characterized as the reduction of anger). Covariate (Baseline HR).

RESULTS

Actual Study

- ❑ Participants' baseline HR was lower than the after-anger HR, with an increase of 9.815 (95% CI, 8.542 to 11.088), $t(91) = 15.312$, $p < .001$.

$M=72.891$,
 $SD=8.112$

$M=82.707$,
 $SD=9.672$

- ❑ After controlling for the covariate, there was a statistically significant difference between the LKM ($M = 3.478$, $SD = 1.823$), and the control group ($M = 5.761$, $SD = 2.100$), $F(1, 89) = .263$, $p < .001$, in returning to their baseline HR levels.

FUTURE RESEARCH

- ❑ Utilize more advanced machines that are less intrusive to record the participants' HRs.
- ❑ Self-reports can be compared with the physiological measures, to identify if they do correlate with one another. **The emotional coherence hypothesis** states that emotions are assumed to have synchronized responses across various reactions, including physiological responses (Levenson, 2014), however, studies have found inconsistent results with regards to this (Evers et al., 2013).

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