Impacts of Repeated Retrieval of Positive and Neutral Memories on Posttrauma Health: An Investigative Pilot Study

Ateka A. Contractor[1], Brett A. Messman[1], Preston Gould[1], Danica C. Slavish[1], & Nicole H. Weiss[2]

University of North Texas[1], University of Rhode Island[2]

INTRODUCTION

- Trauma and posttraumatic stress symptoms (PTSS) impact encoding of, retrieval of, consolidation of, and alterations in trauma and positive memories (e.g., Bomyea et al., 2017; Contractor et al., 2018; Ono et al., 2016).
- Evidence indicates that positive memory processes play a role in the etiology and maintenance of PTSS and related posttrauma health indicators (Contractor, Banducci, et al., 2020; Contractor, Jin, et al., in press).
- Evidence suggests beneficial impacts of positive memory retrieval on improved affect, cognitions, PTSS, and ability to retrieve additional positive memories as indicated by the Positive Memory-Posttraumatic Stress Disorder Model (*Figure 1*; Contractor, Banducci, & Weiss, 2022).

STUDY AIMS AND HYPOTHESES

- We aimed to examine differential impacts of retrieving positive vs. neutral memories on posttrauma indicators across 4 experimental sessions.
- We hypothesized that individuals who engaged in repeated retrieval of positive vs. neutral memories from baseline to 4th experimental session would report:
  - less PTSS severity [H1]
  - less depression severity [H2]
  - more positively-valenced affect [H3]
  - less negatively-valenced affect [H4]
  - less hedonic deficits [H5]
  - less negative affect interference [H6]
  - less posttrauma cognitions [H7]
  - more retrieval of positive specific memories [H8]
  - less retrieval of negative specific memories [H9]

METHOD

- 35 trauma-exposed participants (M_{age} = 30.97 [SD_{age} = 10.40], 71.4% female, 57.1% white, 85.7% not-Hispanic/Latinx) were randomly assigned to a positive or neutral memory task condition (*use QR code to see more details*).
- Participants completed a baseline questionnaire and 4 weekly experimental sessions facilitated by an experimenter virtually; each session was separated by 6-8 days.
- Study outcomes were measured repeatedly at baseline and each experimental session, and included:
  - PTSS severity: PTSD Checklist for DSM-5 (PCL-5; Weathers, Litz, et al., 2013)
  - Depression severity: Patient Health Questionnaire-9 (PHQ-9; Kroenke & Spitzer, 2002)
  - Affect valence: 12-Point Affect Circumplex (12-PAC Scales; Yik et al., 2011)
  - Hedonic deficits and negative affect interference: Hedonic Deficit and Interference Scale (HDIS; Frewen et al., 2012)
  - Posttrauma cognitions: Posttraumatic Cognitions Inventory-9 (PTCI-9; Wells et al., 2019)
  - Count of positive and negative specific memories: Autobiographical Memory Test (AMT; Henderson et al., 2002; Williams & Broadbent, 1986) *Measured only at baseline and the 4th experimental session*
- We conducted mixed between-within subjects ANOVAs.

RESULTS

- **Table 1** presents descriptive information on study outcome measures.
- No interaction effects were significant (**Table 2**).
- There were significant main effects of time on PTSS and depression severity, posttrauma cognitions, positively-valenced and negatively-valenced affect, negative affect interference, and number of retrieved negative specific memories (**Table 2**).

DISCUSSION

- Findings suggest that individuals who retrieve positive or neutral memories repeatedly may report less PTSS and depression severity, fewer posttrauma cognitions, improved affect, and fewer negative memories.
- Results provide an impetus to examine impacts of and mechanisms underlying memory interventions (beyond a sole focus on negatively-valenced memories) in trauma clinical work.

Figure 1. Updated Positive Memory-Posttraumatic Stress Disorder (PTSD) Model (Contractor, Banducci, & Weiss, 2022)
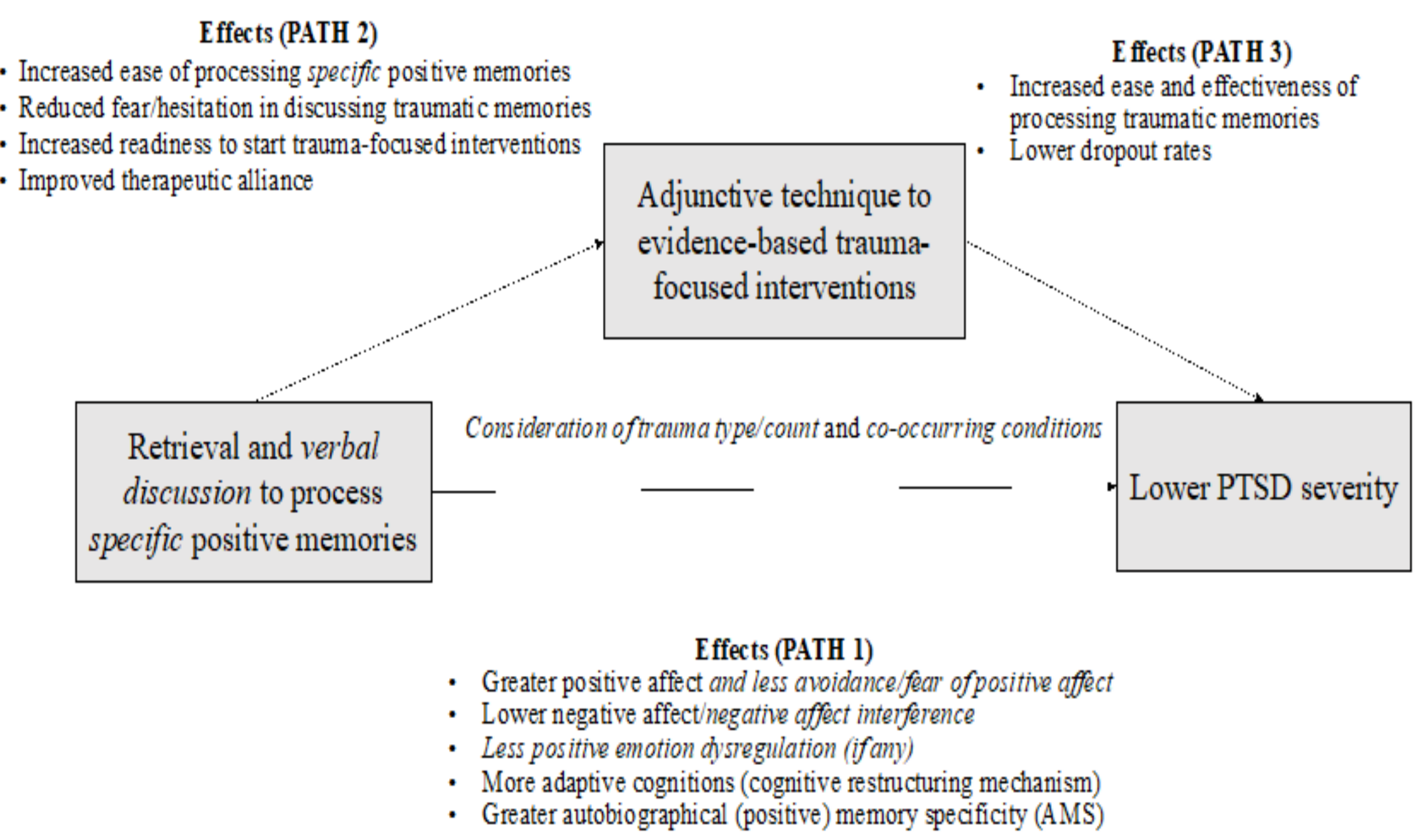
Note. Italicized content indicates updates to the original Positive Memory-PTSD Model.

Trauma survivors who retrieve positive or neutral memories repeatedly may report less posttrauma distress and fewer negatively-valenced memories over time.
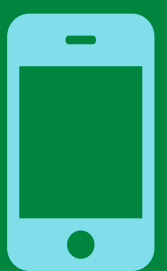
Table 1. Information on study outcomes between two study groups

	Positive Memory Task (n = 19)		Neutral Memory Task (n =16)	
	Mean (SD)			
	T0	T4	T0	T4
PTSS Severity	28.47 (23.38)	11.07 (14.15)	28.81 (21.22)	12.55 (11.17)
Depression Severity	10.37 (6.69)	6.64 (5.67)	9.69 (5.12)	5.64 (4.70)
Positively-valenced affect	61.53 (20.94)	81.64 (20.11)	66.81 (20.13)	69.36 (19.86)
Negatively-valenced affect	60.84 (32.77)	37.14 (9.86)	63.00 (25.68)	43.45 (17.04)
Hedonic deficits	18.16 (14.97)	21.07 (17.19)	21.93 (15.59)	17.91 (12.83)
Negative affect interference	43.68 (29.62)	21.57 (16.20)	51.00 (24.77)	34.64 (25.85)
Posttrauma cognitions	3.58 (1.43)	2.71 (1.22)	3.67 (1.14)	3.05 (1.09)
Count of positive specific memories	3.42 (1.61)	3.00 (1.61)	3.06 (1.29)	3.06 (1.29)
Count of negative specific memories	3.68 (1.63)	2.68 (2.24)	3.62 (1.86)	2.69 (2.24)

Note. T0 represents the baseline session; T4 represents Experimental Session 4; PTSS is posttraumatic stress symptoms.

Table 2. Summary of mixed between-within subjects ANOVA results

Dependent Variables	Main Effect of Condition		Main Effect of Time		Interaction Effect	
	F (df)	η_p^2	F (df)	η_p^2	F (df)	η_p^2
PTSS severity	<.01 (1, 22) p=.977	<.01	4.49 (2.49, 54.87) **p=.010**	0.17	0.69 (2.49, 54.87) p=.536	0.03
Depression severity	<.01 (1, 23) p = .949	<.01	3.16 (2.90, 66.61) **p = .032**	0.12	2.02 (2.90, 66.61) p = .122	0.08
Posttrauma cognitions	0.18 (1, 23) p = .680	0.01	2.49 (4, 92) **p = .049**	0.10	0.81 (4, 92) p = .521	0.03
Positively-valenced affect	3.30 (1,23) p = .083	0.12	6.18 (4, 92) **p < .001**	0.21	2.33 (4, 92) p = .062	0.09
Negatively-valenced affect	1.25 (1, 22) p = .276	0.05	9.00 (2.08, 45.69) **p < .001**	0.29	0.42 (2.08, 45.69) p = .670	0.02
Hedonic deficits	0.10 (1, 22) p = .760	<.01	2.59 (4, 88) **p = .042**	0.10	0.38 (4, 88) p = .820	0.02
Negative affect interference	3.08 (1, 23) p = .093	0.12	3.19 (2.93, 67.37) **p =.030**	0.12	0.14 (2.93, 67.37) p = .932	0.01
Count of positive specific memories	0.47 (1, 33) p = .498	0.01	1.04 (1, 33) p = .315	0.03	<.01 (1, 33) p = .985	<.01
Count of negative specific memories	<.01 (1,33) p = .955	<.01	4.25 (1, 33) **p = .047**	0.11	<.01 (1, 33) p = .947	<.01

Note. PTSD is posttraumatic stress disorder. Models estimated Type III sums of squares. Bold indicates significant results at p < .05; ηp2 is partial η2. ηp2 values of .01 are interpreted as small effects; values of .06 are interpreted as medium effects; and values of .14 or higher are interpreted as large effects (Cohen, 1988).

THE UNIVERSITY OF RHODE ISLAND

UNIVERSITY OF NORTH TEXAS