Received: 24 March 2021 | Revised: 6 September 2021 | Accepted: 5 October 2021

DOI: 10.1002/smi.3101

SHORT COMMUNICATION

WILEY

It's worth the trouble: Stressor exposure is related to increased cognitive reappraisal ability

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Funding information
Deutsche Forschungsgemeinschaft, Grant/Award Number: CRC1193/C07
Open Access funding enabled and organized by Projekt DEAL.

Abstract

Recent theories propose moderate (compared to high or no) stressor exposure to promote emotion regulation capacities. More precisely, stressful situations are expected to serve as practice opportunities for cognitive reappraisal (CR), that is, the reinterpretation of a situation to alter its emotional impact. Accordingly, in this study, we expect an inverted U-shaped relationship between exposure to daily hassles and performance in a CR task, that is, best reappraisal ability in individuals with a history of moderate stressor exposure. Participants (N = 165) reported the number of daily hassles during the last week as indicator of stressor exposure and completed the Script-based Reappraisal Test (SRT). In the SRT, participants are presented with fear-eliciting scripts and instructed to either downregulate negative affect via reappraisal (reappraisal-trials) or react naturally (control-trials). Two measures indicate CR ability: (1) reappraisal effectiveness, that is, the difference between affective ratings in reappraisal- and control-trials and (2) reappraisal inventiveness, that is, the number of valid and categorically different reappraisal thoughts. Multiple regression analyses revealed positive linear, but not quadratic, relationships of exposure to daily hassles and both indicators of CR ability. Potential benefits of stressor exposure for emotion regulation processes are discussed.

KEYWORDS
cognitive reappraisal, daily hassles, emotion regulation, resilience, stressor exposure

1 | INTRODUCTION

Some experience with stressful situations may be useful for everyday life. Accordingly, recent theories suggest that a certain degree of stressor exposure enables individuals to improve emotion regulation abilities (Crane et al., 2019; Seery & Quinton, 2016). More precisely, the Systematic Self-Reflection Model (Crane et al., 2019) implies that individuals learn from stressful events by applying self-reflective practices, for example, self-awareness, the identification of situational triggers, and cognitive reappraisal (CR), that is, the regulation of emotions via reinterpretation of a situation (Gross & John, 2003).

As the use of CR has been connected to various mental health outcomes, it seems particularly important to investigate how individuals may profit from stressful experiences. For instance, individuals who frequently apply CR report increased interpersonal functioning and well-being (Gross & John, 2003). The use of CR in response to daily stressors is also associated with increased positive and decreased negative affect (Troy et al., 2019). Similarly, coping via positive reappraisal after traumatic events was found to contribute to posttraumatic growth (Prati & Pietrantoni, 2009). In contrast, individuals experience increased levels of depression when they apply CR frequently but ineffectively (Ford et al., 2017) or in controllable situations (Troy et al., 2013).

The relationship between stressor exposure and CR ability has recently been described as an inverted U-shaped function (cf. Hypothesis 1 in Crane et al., 2019; Seery & Quinton, 2016). Accordingly, moderate prior stressor exposure in contrast to no stressor exposure would enhance the ability to reappraise current stressful situations as individuals have had various opportunities to reflect and practice CR. On the other hand, high levels of stressor exposure would rather lead to stress sensitisation by depleting an individual's cognitive resources (Hammen, 2005). As a consequence, individuals might establish other emotion regulation strategies, for example, distraction (Murphy & Young, 2018) or react with more dysfunctional cognitive processes, for example, worry and rumination (Brosschot et al., 2006). A similar U-shaped relationship has been found between exposure to lifetime adversity and mental health, as individuals with a moderate stressor exposure, in contrast to no and high exposure, reported fewer stress-related symptoms and higher life satisfaction (Seery et al., 2010). Additionally, moderate stressor exposure in childhood has been shown to protect adults from developing depressive symptoms in reaction to current stressful events (Shapero et al., 2015).

However, previous research mainly revealed detrimental effects of chronic stressor exposure on CR ability. For example, in a neuroimaging study (Kim et al., 2013), adults who experienced childhood poverty showed difficulties to decrease amygdala activation during an experimental CR task. Similarly, women who were exposed to sexual trauma were less successful at deliberately downregulating affective responses to negative pictures than non-traumatised control subjects (New et al., 2009). To our knowledge, only one study (Schweizer et al., 2016) explicitly investigated enhancing effects of stressor exposure on CR. Adolescents completed a questionnaire on childhood adversities and subsequently worked on a CR task. Results indicated that individuals with moderate exposure to childhood adversity were most effective at downregulating negative affect towards aversive film footage.

We argue that most of the previous studies did not find enhancing effects of stressor exposure on CR due to a focus on extreme groups (e.g., traumatised vs. non-traumatised) or linear detrimental effects only. Based on theoretical considerations (Crane et al., 2019; Seery & Quinton, 2016) and the promising results provided by Schweizer et al. (2016), we propose that the investigation of potential stressor-related benefits would require various degrees of stressor exposure and the inclusion of non-linear analyses. Furthermore, dynamic resilience theories (Crane et al., 2019; Seery & Quinton, 2016) suggest that the improvement of emotion regulation strategies would not be limited to childhood but also occur as a reaction to more recent mundane stress experiences, often referred to as daily hassles (Kanner et al., 1981). Consequently, we expect moderate exposure to daily hassles, compared to minimal exposure, to enhance CR ability by offering more opportunities to practice. High levels of daily hassles, on the other hand, have been associated with decreased executive functions (Brand et al., 2000), which in turn may impede the improvement of CR.

As another extension of previous research, this study includes two measures of CR ability: reappraisal *effectiveness* (RE) and reappraisal *inventiveness*. RE, also referred to as reappraisal success (see Ochsner et al., 2004), is mostly operationalised as the difference between affective responses after individuals either reappraise or passively perceive emotional stimuli. Reappraisal inventiveness, on the other hand, is defined as the ability to create multiple and categorically different reappraisal thoughts (Weber et al., 2014). High reappraisal inventiveness was expected to support the emotion regulation process, as individuals have better access to suitable reappraisal thoughts.

Previous studies provided evidence for beneficial outcomes of an inventive CR style. For example, high reappraisal inventiveness has been associated with less depressive life experiences in men (Perchtold et al., 2019). Furthermore, a series of electroencephalogram studies revealed individuals with high reappraisal inventiveness to show more left-lateralized prefrontal brain activity during reappraisal generation (Papousek et al., 2017), which in turn predicted lower ratings of chronic stress in women (Perchtold et al., 2018). Although in the latter study reappraisal inventiveness predicted less perceived chronic stress, it remains unclear how stressor exposure influences reappraisal inventiveness, as stressor perception and stressor exposure differently affect health variables (Chmitorz et al., 2020; for an overview, see Hobfoll et al., 1998; Seery & Quinton, 2016). Reappraisal inventiveness was found to heavily rely on executive functions (Fink et al., 2017; Rominger et al., 2018). Moderate stressor exposure was in turn associated with improved executive functions (Henderson et al., 2012), which may manifest in better CR ability.

While both, RE and reappraisal inventiveness, have been associated with benefits for mental health (McRae et al., 2012; Perchtold et al., 2019), each construct seems to independently contribute to the CR process (Zeier et al., 2019). This study includes both measures of CR ability, thereby providing information on process-specific (reappraisal inventiveness) and outcome-specific (RE) effects of stressor exposure. We expect a similar enhancing effect of moderate exposure to daily hassles on both CR measures, as more practice opportunities would likely facilitate access to previously generated reappraisal thoughts and improve the implementation of reappraisal ideas.

2 | METHOD

2.1 | Participants

Participants were recruited via flyers and letters in Mainz, Germany. We conducted telephone screenings with 229 prospective participants to assess study eligibility and excluded 29 individuals with acute or chronic disease, 32 individuals with current or anamnestic mental disorders, and two non-fluent German speakers before testing. A total of 166 participants aged 18–30 completed the study. One participant had to be excluded from all analyses due to missing values in all questionnaires, yielding a final sample of 165 participants (51% female; age: $M = 24.78$, $SD = 3.33$; for a detailed description of socio-economic status and demographic data, see Tables A1 and A2 of Appendix I). Sample size was determined a priori via power analysis using G*Power, yielding a minimum sample size of $N = 158$ for on an effect size of $f^2 = 0.10$ based on the results of Schweizer et al. (2016), an alpha error set to 0.05, and a statistical power of 0.95 for multiple regression analysis to detect R^2 increase of two tested predictors (stressor exposure, quadratic stressor exposure) and four predictors in total. The study was conducted in accordance with the Declaration of Helsinki and approved by the ethics committee of the department of psychology, JGU Mainz (ID: 2017-JGU-psychEK-003).

2.2 | Measures

2.2.1 | Exposure to daily hassles

Participants completed the Mainz Inventory of Microstressors (MIMIS; Chmitorz et al., 2020) to indicate exposure to daily hassles. The MIMIS contains a list of 58 daily hassles (e.g., noisy environment, traffic jam, caretaking). For each stressor, participants are asked to retrospectively rate the frequency ('On how many days during the last week did the situation occur?') on an 8-point Likert scale (0–7 days) and severity ('To what extent did you find the situation stressful?') on a 5-point Likert scale (0 = 'not at all stressful' and 4 = 'extremely stressful'). As indicated by previous research (Chmitorz et al., 2020; Seery & Quinton, 2016), stressor severity ratings are likely confounded with mental health measures, for example, emotion regulation ability and may therefore reveal spurious correlations. Therefore, we limited our main analyses to the stressor frequency scale of the MIMIS (for analyses with stressor severity, see Appendix II). The sum of all 58 ratings served as indicator of total stressor exposure. In a validation study (Chmitorz et al., 2020), the frequency scale of the MIMIS was highly correlated with daily hassle counts measured via ecological momentary assessment (EMA; $r = 83$), indicating high external validity.

2.2.2 | Reappraisal inventiveness and effectiveness

A shortened version of the Script-based Reappraisal Test (SRT; Zeier et al., 2019) was used to experimentally assess individual reappraisal inventiveness and RE scores. At the beginning of each trial of the SRT, participants are presented with a script describing a fear-eliciting situation for 20 s (for an overview of all scripts, see online supplement of Zeier et al., 2019). We decided to focus on fear, due to the high probability of occurrence in everyday life (Scherer et al., 2004). After participants imagine themselves being in the situation, they proceed to an ideation phase lasting 45 s. In this phase, participants are instructed to either 'think about the situation in a less negative way' and 'generate as many categorically different reappraisal thoughts as possible' (reappraisal-trials) or to 'react naturally without active emotion regulation' (control-trials). Concurrently, participants click on a button on the centre of the screen with each novel thought. In a next step, participants indicate affective valence and arousal states on a 9-point scale (1 to 9) of the Self-Assessment Manikins (SAM; Bradley & Lang, 1994), with high scores indicating negative affect and high levels of arousal. Finally, participants type in all thoughts that occurred during the ideation phase in a recording phase lasting 90 s.

In this study, the SRT included five reappraisal- and five control-trials presented in randomised order. In contrast to the SRT introduced in Zeier et al. (2019), we reduced the number of trials and slightly shortened the duration of the ideation phases to 45 s to avoid fatigue effects. A validation study of the SRT suggests only minimal loss of information, as 76% of all reappraisal ideas are generated within the first 45 s (see online supplement of Zeier et al., 2019). Two practice trials preceded the main experiment. To check whether participants forgot reappraisal ideas within a trial, we correlated the number of button clicks during the ideation phases ($M = 3.44$, $SD = 1.19$) with the number of entries during the recording phase ($M = 3.36$, $SD = 1.10$). Similar to our recent study (Zeier et al., 2019), a high correlation (r (163) = 0.87, $p < 0.001$) indicated only minimal memory effects.

Reappraisal inventiveness in the SRT is assessed via two measures: *SRT-fluency*, that is, the total number of valid reappraisal thoughts, and *SRT-flexibility*, that is, the total number of categorically different reappraisal thoughts in the reappraisal-trials. Two graduate students independently applied the categorical rating system including 18 reappraisal categories (for an overview, see Appendix III) to obtain reappraisal inventiveness scores from the participants' valid reappraisal ideas, that is, thoughts that are intended to reduce fear and are related to the situation. SRT-fluency was calculated as total number of valid reappraisal ideas and SRT-flexibility as total number of categorically different reappraisal ideas. Inter-rater reliability was high for both, SRT-fluency ($ICC = 0.99$) and SRT-flexibility ($ICC = 0.95$). Furthermore, analyses of internal consistency, revealed good reliability for SRT-fluency (Cronbach's alpha = 0.81) and acceptable reliability for SRT-flexibility (Cronbach's alpha = 0.72) across all reappraisal-trials. RE-scores were calculated by subtracting the mean SAM-scores in the reappraisal-trials from the mean SAM-scores in the control-trials for valence and arousal, respectively. Thus, high RE-scores denote less negative affect (*RE-valence*) and less arousal (*RE-arousal*) in reappraisal-trials compared to control-trials. Cronbach's alphas for valence and arousal ratings showed good reliability across reappraisal-trials (valence: 0.85; arousal: 0.84) and control-trials (valence: 0.83; arousal: 0.81).

2.2.3 | Covariates

As depressive symptoms have been shown to impair CR (Greening et al., 2014), we decided to control for variance of depressivity in all analyses. Therefore, participants completed the German version of the Centre for Epidemiologic Studies Depression Scale (CES-D; Hautzinger et al., 2012). For the CES-D, participants are asked to rate 20 items based on how often they experienced depressive symptoms during the preceding 7 days on 4-point Likert scales (0 = 'rarely' and 3 = 'most of the time'), yielding sum scores of 0 to 60. The CES-D showed good reliability (Cronbach's alpha = 0.87) in a validation study (Hautzinger et al., 2012) as well as in the present study (Cronbach's alpha = 0.80). Additionally, participants rated the degree of immersion during the SRT ('How well could you imagine yourself being in the situations?') on a 5-point Likert scale (1 = 'very badly' and 5 = 'very well') after completing the experiment. The degree of immersion is also included as covariate in all regression analyses to ensure that variances in SRT measures are not merely a product of differences in the motivation or ability to imagine affective situations.

2.3 | Procedure

This study was part of a bigger project within the Collaborative Research Centre 1193 'Neurobiology of resilience'. Upon arrival, participants provided written informed consent and worked on a working memory and cognitive flexibility task for approximately 60 min, which are not in the scope of the present study. Subsequently, participants completed the SRT in approximately 30 min. Finally, participants filled in a battery of questionnaires, including the MIMIS and CES-D, for approximately 60 min. All questionnaires and the SRT were presented on computers with 24-inch monitors. After complete participation in the project, which also included a second day of testing, participants received 50 Euro as reimbursement.

3 | RESULTS

3.1 | Preliminary analyses

All analyses were conducted with SPSS version 27. Similar to our previous study (Zeier et al., 2019), SRT-fluency and SRT-flexibility were highly correlated ($r(163) = 0.89$, $p < 0.001$). To avoid redundancy, we only included SRT-flexibility in our main analyses (for results with SRT-fluency as dependent variable, see Table A1 of Appendix IV). Descriptive statistics and correlations of the main variables are presented in Table 1. As manipulation check regarding the instructions of the SRT, we conducted within-subjects *t*-tests for the affective ratings in both types of trials. Significantly less negative affect in reappraisal- ($M = 5.07$, $SD = 1.48$) compared to control-trials ($M = 5.55$, $SD = 1.48$), $t(164) = -6.09$, $p < 0.001$, $d = -0.48$, 95% CI [−0.64, −0.32] and significantly less arousal in reappraisal- ($M = 4.54$, $SD = 1.82$) compared to control-trials ($M = 4.86$, $SD = 1.79$), $t(164) = -3.45$, $p = 0.001$, $d = -0.28$, 95% CI [−0.49, −0.13], indicated overall effective emotion regulation.

3.2 | Regression analyses

Next, we conducted stepwise regression analyses with only stressor exposure at step 1 and stressor exposure and covariates (degree of immersion, depressiveness) at step 2 as predictors of SRT-flexibility, RE-valence, and RE-arousal to test for linear relationships (see Tables 2 and 3). While stressor exposure significantly explained variance of SRT-flexibility and RE-arousal, stressor exposure only significantly accounted for variance of RE-valence after the inclusion of the covariates at step 2. To test for the proposed U-shaped relationships, we included the quadratic term of stressor exposure at step 3. Adding quadratic stressor exposure did not lead to a significant change in the explained variance of all three CR variables suggesting linear rather than quadratic relationships. A visual inspection of the scatter plots (see Figure A1a,b of Appendix V) supported the result of linear effects of stressor exposure on all CR ability measures. We conducted follow-up analyses to ensure that our findings were not merely based on differences in affective reactivity, for example, as individuals with low stressor exposure may have reacted less

TABLE 1 Mean, standard deviation, range, and inter-correlations of main variables

	Correlation coefficients (*r*)					
Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1) Stressor frequency (MIMIS)	1	–	–	–	–	–
(2) Depressivity (CES-D)	0.12	1	–	–	–	–
(3) Degree of immersion	0.08	0.03	1	–	–	–
(4) SRT-flexibility	0.21**	0.01	0.11	1	–	–
(5) RE-valence	0.13	−0.23**	−0.03	0.03	1	–
(6) RE-arousal	0.16*	−0.08	−0.20*	0.17*	0.70**	1
	Descriptive Statistics					
M	78.79	9.11	3.50	13.28	0.48	0.31
SD	26.90	5.54	0.78	3.64	1.01	1.16
Min	16	0.00	1.00	5.00	−2.40	−3.40
Max	160	29.00	5.00	23.00	4.00	4.40

Note: N = 165.

Abbreviations: MIMIS, Mainz Inventory of Microstressors; SRT, Script-based Reappraisal Test; RE, Reappraisal effectiveness; CES-D, Centre for Epidemiologic Studies Depression Scale.

$^{*}p < 0.05$. $^{**}p < 0.01$.

TABLE 2 Summary of stepwise regression models predicting SRT-flexibility with only stressor exposure at step 1, including covariates at step 2, and quadratic stressor exposure at step 3

		Step 1			Step 2			Step 3		
Outcome variable	Predictor variables	*ß*	*t*	*p*	*ß*	*t*	*p*	*ß*	*t*	*p*
SRT-flexibility	Stressor exposure	0.21	2.73	0.007	**0.20**	**2.63**	**0.009**	−0.10	−0.30	0.764
	Depressivity	–	–	–	−0.01	−0.18	0.856	−0.01	−0.15	0.881
	Degree of immersion	–	–	–	0.10	1.27	0.205	0.09	1.20	0.233
	Quadratic stressor exposure	–	–	–	–	–	–	0.31	0.92	0.357
	R^2		**0.044**			**0.053**			**0.058**	
	F		**7.47**	**0.007**		**3.03**	**0.031**		**2.49**	**0.046**

Note: *N* = 165. Significant effects ($p < 0.05$) highlighted in bold. Degrees of Freedom: *df* = 1, 163 (Step 1); *df* = 3, 161 (Step 2); *df* = 4, 160 (Step 3).
Abbreviation: SRT, Script-based Reappraisal Test.

[Correction added on 17 January 2022, after first online publication: The values in the first row of the Step 1 column of Table 2 have been revised from 0.01, 0.13, and 0.899.]

TABLE 3 Summary of stepwise regression models predicting RE-valence and RE-arousal with only stressor exposure at step 1, including covariates at step 2, and quadratic stressor exposure at step 3

		Step 1			Step 2			Step 3		
Outcome variable	Predictor variables	*ß*	*t*	*p*	*ß*	*t*	*p*	*ß*	*t*	*p*
RE-valence	Stressor exposure	0.13	1.73	0.085	**0.17**	**2.19**	**0.030**	0.42	1.24	0.217
	Depressivity	–	–	–	**−0.25**	**−3.33**	**0.001**	**−0.26**	**−3.35**	**0.001**
	Degree of immersion	–	–	–	−0.03	−0.43	0.669	−0.03	−0.37	0.714
	Quadratic stressor exposure	–	–	–	–	–	–	−0.26	−0.76	0.448
	R^2	–	0.018	–	–	**0.083**	–	–	**0.086**	–
	F	–	3.00	0.085	–	**4.84**	**0.003**	–	**3.76**	**0.006**
RE-arousal	Stressor exposure	**0.16**	**2.01**	**0.046**	**0.18**	**2.40**	**0.018**	0.32	0.95	0.343
	Depressivity	–	–	–	−0.10	−1.30	0.194	−0.10	−1.31	0.191
	Degree of immersion	–	–	–	**−0.21**	**−2.77**	**0.006**	**−0.21**	**−2.72**	**0.007**
	Quadratic stressor exposure	–	–	–	–	–	–	−0.14	−0.42	0.676
	R^2	–	**0.024**	–	–	**0.079**	–	–	**0.080**	–
	F	–	**4.04**	**0.046**	–	**4.58**	**0.004**	–	**3.46**	**0.010**

Note: *N* = 165. Significant effects ($p < 0.05$) highlighted in bold. Degrees of Freedom: *df* = 1, 163 (Step 1); *df* = 3, 161 (Step 2); *df* = 4, 160 (Step 3).
Abbreviations: RE, reappraisal effectiveness; SRT, Script-based Reappraisal Test.

strongly to the scripts of the SRT (see Tables A1 and A2 of Appendix VI). However, adding affective ratings from control-trials as covariate in the regression analyses did not influence the incremental predictive value of stressor frequency. In contrast to stressor exposure, the stressor severity scale of the MIMIS did not significantly explain variance of any CR ability measure (see Tables A2a,b of Appendix II).

4 | DISCUSSION

This study aimed at identifying an inverted U-shaped relationship between stressor exposure and CR ability. We expand previous research by focussing on exposure to daily hassles and including process- and outcome-related indicators of CR ability, that is, reappraisal inventiveness and RE. Results revealed a linear, but not quadratic, relationship: increased levels of recent stressor exposure were significantly associated with better CR ability. Furthermore, these findings could not be attributed to interindividual differences in depressivity nor the degree of immersion during the CR task. However, effects of stressor exposure on RE on a valence level were only found with the inclusion of depressivity as covariate, indicating a reciprocal suppression (Paulhus et al., 2004). The results revealed a small, but nonsignificant, positive correlation between stressor exposure and depressivity. Apparently, stressor exposure is only significantly related to RE on a valence level when controlling for the association between both predictors. Future studies should investigate the relationship between stressor exposure and depressivity to increase the interpretability of this suppressor effect.

Our findings partially fit the assumptions of previous research (Crane et al., 2019; Seery & Quinton, 2016), indicating that stressor exposure may improve CR ability under certain circumstances. When confronted with daily hassles, individuals might have more opportunities to practice CR and consequently profit from a more extensive repertoire and more effective implementation of reappraisal thoughts. To support the causal inference of stressor exposure leading to training effects of CR, future studies should assess daily hassles as well as the use of emotion regulation strategies via EMA.

Our results did not suggest a drop in CR performance at high levels of stressor exposure. The sample characteristics might help explain the linear increase in CR ability, as only healthy individuals who are less likely to encounter high levels of stressor exposure than individuals who suffer from mental disorders (Asselmann et al., 2017) took part in the current investigation. Furthermore, individuals with high stressor exposure may experience difficulties in applying CR in their everyday lives but still perform well in a laboratory setting. Accordingly, only small correlations were found between the habitual use of CR and experimental CR ability measures (Ford et al., 2017; Zeier et al., 2019). Finally, specific types of daily hassles (e.g., interpersonal tensions) seem to be more detrimental for mental health than others (Almeida, 2005). Similarly, certain stressor properties might have different effects on CR ability, with some stressors enabling individuals to practice CR and others providing little opportunity for improvement. As the effectiveness of CR highly depends on contextual factors (Ford & Troy, 2019), a follow-up investigation of moderating variables seems especially important. For example, CR, in contrast to disengagement strategies, was associated with increased cognitive resource expenditure (for an overview, see Sheppes, 2020). Consequently, the frequent experience of cognitively demanding stressors may be less beneficial for the improvement of CR ability. Although we assessed multiple types of stressors in this study, the sample size was not sufficient for such detailed analyses.

The results of this study are limited to two indicators of CR ability, that is RE and reappraisal inventiveness. For a more comprehensive picture, future studies may investigate further aspects of CR in relation to stressor exposure. For example, habitual CR and CR self-efficacy have both been connected to increased well-being (McRae et al., 2012; Ortner et al., 2017) and it has been proposed that high CR abilities may especially come into effect if individuals use CR frequently and with high self-efficacy beliefs (Ford et al., 2017; Perchtold et al., 2019). Three methodological limitations should also be noted. First, the cross-sectional design of this study does not warrant causal inferences regarding the main variables. In theory, individuals with high CR ability may have reported more daily hassles due to a better memory for stressful events (Mikolajczak et al., 2009). Although the frequency scale of the MIMIS showed high external validity in previous research (Chmitorz et al., 2020), future studies may assess stressor exposure via EMA to avoid retrospective biases. Second, we used a shortened version of the SRT with only five trials per condition to avoid fatigue. Although the experimental variables showed high internal consistency across scripts, a higher number of trials may increase reliability. Third, affective scripts are less frequently used in emotion regulation experiments than affective pictures (e.g., Ochsner et al., 2004) and the findings should therefore be replicated with other sets of stimuli.

In summary, stressor exposure appears to be positively related to CR ability. A better understanding of the differential effects of daily hassles on emotion regulation seems especially important for psychological intervention such as the Stress Inoculation Training (Meichenbaum & Deffenbacher, 1988). Thus, daily hassles may be turned into daily practice opportunities, in which individuals can learn how to regulate negative emotions more effectively.

ACKNOWLEDGEMENT

The current study received funding from the German Research Foundation (Deutsche Forschungsgemeinschaft) as part of the CRC1193/C07 on the 'Neurobiology of resilience' (Project C07).

Open Access funding enabled and organized by Projekt DEAL.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICS STATEMENT

The study was conducted in accordance with the Declaration of Helsinki and approved by the ethics committee of the department of psychology, JGU Mainz (ID: 2017-JGU-psychEK-003).

DATA AVAILABILITY STATEMENT

The data supporting this paper's findings can be located at: https://doi.org/10.17605/OSF.IO/UJVNH.

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How to cite this article: Zeier, P., Meine, L. E., & Wessa, M. (2022). It's worth the trouble: Stressor exposure is related to increased cognitive reappraisal ability. *Stress and Health*, *38*(3), 602–609. https://doi.org/10.1002/smi.3101