

# Teachers' Emotion Regulation Skills Facilitate Implementation of Health-related Intentions

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**Objectives:** Many teachers report high levels of job-related stress. Successful outcomes in stress-management trainings depend on participants actively engaging in skill-building exercises. However, despite good intentions to engage in such exercises on a regular basis, many participants ultimately fail to do so. The present study seeks to understand whether general emotion regulation (ER) skills moderate the relation between the intention to engage in skill-building exercises and actually engaging in these exercises. **Methods:** ER skills, the intention to engage in autonomous skill-building exercises, and the extent to which individuals actually engaged in such exercises were assessed in a sample of 119 teachers participating in stress-management train-

ing. **Results:** ER skills significantly moderated the association between the intention and engagement in skill-building practice. The greater the ER skills, the more coupled was the relation between the intention and actual practices. **Conclusion:** Findings are consistent with the hypotheses. Thus, skill-building trainings should support participants scoring low in ER skills in effectively coping with aversive affective states cued through skill-building exercises.

**Key words:** stress-management training; health-behavior; intention-behavior-gap; emotion regulation; adaptively cope with stress; engaging in health-related intention

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Research indicates that teachers experience high levels of job-related stress.<sup>1,2</sup> Such elevated stress levels are negatively associated with work-related motivation,<sup>3</sup> engagement,<sup>4</sup> commitment to teaching,<sup>5,6</sup> interpersonal interaction,<sup>7,8</sup> and work performance in general.<sup>19</sup> Moreover, stress impairs teachers' well-being<sup>10</sup> and their physical<sup>11-13</sup> and mental health.<sup>10,14</sup> In a German sample of 949 teachers, Unterbrink et al<sup>15</sup> found that only 26% of teachers teach until they reach retirement age, compared to 54% of other employees in public services. Similar findings have been reported in many other countries.<sup>16,17</sup> Finally, it is of note that health behavior of teachers may significantly influence health and health behavior of

their students.<sup>18</sup>

Fortunately, stress can be reduced significantly through stress-reduction trainings.<sup>19</sup> For example, Affect Regulation Training (ART)<sup>20,21</sup> is a standardized training developed to enhance participants' abilities to respond to stress and other challenging affective states.<sup>22</sup> However, empirical evidence suggests that the outcome of such trainings depends on the extent to which participants engage in and actively apply the stress-management skills taught in these programs.<sup>23,24</sup>

Research findings indicate that engaging participants in regular skill training is a challenging task and even participants who have decided to practice relevant skills often fail to do so.<sup>25-27</sup> However, engaging in these skill-building practices is necessary for effectively reducing stress. Thus, to improve the efficacy of stress-reduction trainings, research needs to clarify why participants do not act in accordance with their intentions and how successful intention implementation can be facilitated.

Deficits in effective emotion regulation (ER) skills have been proposed as a relevant hindrance to effective intention implementation of health behav-

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ior.<sup>28-30</sup> ER refers to the set of processes by which people seek to monitor, evaluate, and redirect the spontaneous flow of their emotions in accordance with their needs and goals.<sup>31-33</sup> Emotions cue action tendencies, which may either facilitate or impede an intended behavior.<sup>34</sup> In the context of stress-management skills practice, aversive affective states may interfere with scheduled skills practice in various ways. First, stress is associated with the individual appraising the demands of the current situation as exceeding available coping capacities.<sup>35</sup> Internal and/or external pressure to engage in skills practice (in addition to the other tasks that require coping skills) is likely to be perceived as an additional demand, burdening already over-taxed resources. Consequently, one's intention to engage in skill-building exercises may cue aversive emotions, such as fear and anxiety of being overwhelmed by the demands of the situation. Additionally, emotions such as anger, sadness, shame, or guilt might be elicited depending on how the individual appraises the anticipated inability to cope with the demands. The action tendencies cued by these emotions may impede the implementation of the intention to engage in skill-building practice if the individual is unable to utilize adaptive ER skills to reduce the intensity or duration of these feelings.

Second, many elements of stress-reduction trainings involve aversive experiences for participants. For example, systematically monitoring or consciously observing stress symptoms likely will enhance awareness of such symptoms, and may subsequently result in a temporary or sustained increase in emotional anguish associated with these symptoms. Similarly, attempts to reduce stress symptoms (eg, through progressive muscle relaxation) may take time to lead to satisfactory results, which will vary depending on the individual and stress intensity. Thus, it is possible that this experience may elicit negative emotions if the results do not meet the participant's expectations. Finally, addressing the problems causing elevated stress levels through active problem-solving involves becoming aware of distressing or aversive life circumstances, which may activate memories of unsuccessful attempts to cope with these problems in the past. Together, these processes cue challenging affective states (such as fear, anxiety, frustration, anger, feelings of uncertainty, hopelessness and helplessness) that are associated with problematic action tendencies (eg, avoidance, self-accusation, resignation) that are likely to interfere with the initiation or maintenance of skill-building exercises. Thus, it can be hypothesized that the ability to cope with such affective states and the availability of effective ER skills is crucial for successful implementation of one's intentions.

Synthesizing other theories of ER<sup>36-40</sup> Berking et al have proposed a model of ER which defines ER as the interplay of the following skills: (1) the ability to be aware of emotions; (2) the ability to identify and correctly label emotions; (3) the ability to

identify what has caused and helps to maintain a present emotion; (4) the ability to actively modify emotions in an adaptive way; (5) the ability to accept and tolerate negative emotions when necessary; (6) the ability to approach and confront situations likely to trigger negative emotions; and (7) the ability to provide compassionate self-support in distressing situations. According to the ACE model, unsuccessful ER occurs when participants: (1) try to apply ER skills but are unable to do so successfully; (2) have never developed these ER skills, and thus, are unable to even try to apply them; or (3) have access to these ER skills but do not try to apply them. Preliminary support for the validity of the model comes from several studies in clinical and non-clinical populations.<sup>41-47</sup>

Although various authors have acknowledged the assumed relevance of adaptive ER for successful implementation of one's intentions, to date, research has yet to clarify empirically if ER skills indeed facilitate the implementation of one's intentions.<sup>28,29,48-52</sup> The present study aims to address this gap in the literature by testing the hypothesis that successful application of the ER skills moderates the association between the intention to engage in skill-building practice in a stress reduction training and the extent to which participants actually start to engage in their skill-building practice.

## METHODS

### Participants and Procedure

To clarify to what extent ER skills moderate the association between the intention to engage in skill-building exercises and the extent of which individuals actually do so, we assessed ER skills in 119 individuals participating in stress-management training. We assessed ER skills shortly before the first session of the training. At the end of the first session we asked to what extent participants intended to engage in the skill-building exercises suggested in the training on their own accord (T1). One week later we assessed to what extent they had actually engaged in the proposed exercises (T2).

The training was based on Affect Regulation Training (ART),<sup>20,21</sup> which is a highly structured program developed to enhance participants' abilities to adaptive to stress and other challenging affective states. Several studies provide evidence for the efficacy of this intervention.<sup>20,21,53</sup> Participants of the program are taught a set of 7 skills (progressive muscle relaxation, breathing relaxation, non-judgmental perception of emotions, acceptance and tolerance of emotions, compassionate self-support, identification of the causes of one's emotional reaction, and active modification of emotions) and requested to engage in skill-building exercises on a daily basis. The first training session took 3 hours and focused on enhancing participants' ability to relax with the help of muscle and breathing relaxation and mindfulness-based techniques.<sup>21</sup> At the end of the session, the importance of engag-

**Figure 1**  
**Study Flow Shows the Inclusion/**  
**Exclusion of Participants to Each Assessment**



ing in daily skills-building practice was discussed with participants. Subsequently, participants were provided with a MP3 file that would guide them through their daily relaxation exercises (taking about 20 minutes).

Participants were recruited between February 2012 and July 2013 from a sample of 228 teachers who participated in a stress-management program in the context of a health promotion program for teachers of the federal state North Rhine-Westphalia in Germany (Bildung und Gesundheit; BuG).

All participants of the stress-management training were invited to participate in the present study and were informed that participation was voluntary and that they were able to drop out at any time without any adverse effects. Criteria for including participants were: (1) informed consent; (2) willingness to participate in the ART-training sessions; (3) willingness to engage in the skill-building exercises between the training sessions; and (4) willingness to complete the study questionnaires. Figure 1 describes the flow of participants throughout

**Table 1**  
**Moderated Multiple Regressions of Engaging in Skill-building Practice on Predictor Variables Intention and ER Skills**

Actual Engaging	B <sup>a</sup>	SEB <sup>b</sup>	β <sup>c</sup>	R <sup>2</sup>	R <sup>2</sup>	F
<b>Step 1</b>				.16***	.16***	22.72***
Intention	.58	.12	.40***			
<b>Step 2</b>				.19**	.02	3.24
Intention	.60	.12	.42***			
ER	.56	.31	.15			
<b>Step 3</b>				.22***	.03*	4.31*
Intention	.60	.12	.42***			
ER	.42	.31	.11			
Intention x ER	.34	.16	.18*			

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Note.**

N = 119

**a** B = unstandardized coefficients

**b** SEB = standard error of unstandardized coefficients

**c** β = standardized coefficients.

the study. Exclusion criteria for the study were: (1) not participating in the ART-trainings sessions (N = 62; these teachers completed the baseline questionnaire; for unknown reasons they did not appear in the first session); (2) not intending to engage in the skill-building exercises (N = 1); and (3) being unwilling to complete the study questionnaires (N = 46). Of the original sample, N = 119 met the criteria and were included in the study.

All participants had a university degree as the highest achieved level of education and all reported living in Germany. This sample represented an exclusively white population (which is representative of the German population) and, on average, participants were 44.5 years old (SD = 11.3; range: 24–62). The majority of participants were women (86.7%, N = 104).

### Measures

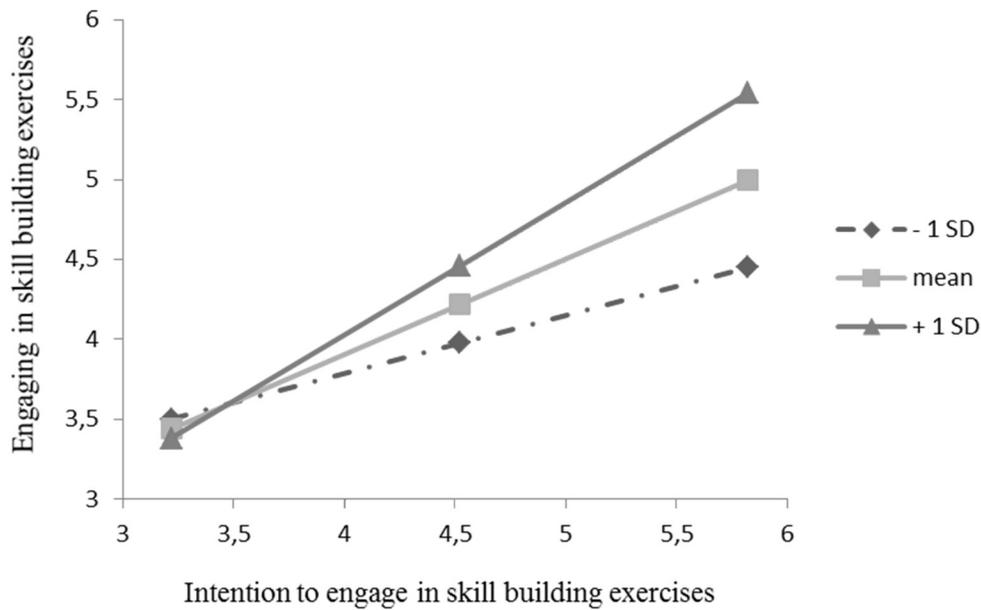
ER skills were assessed with the total score of the Emotion-Regulation Skills Questionnaire (ERSQ; German version).<sup>42</sup> The ERSQ is a self-report instrument with 27 items that utilizes a 5-point Likert-type scale (1 = not at all to 5 = almost always) to assess adaptive emotion-regulation skills.<sup>42</sup> Items are preceded by the stem: “Last week . . .” and include statements such as “... I was able to influence my negative feelings” or “... I could accept my emotions.” Completing the ERSQ takes about 5 to 15 minutes. In previous studies the total score (average of all items) significantly predicted indicators of mental health<sup>22,45,47,54–56</sup> and health-related behavior.<sup>43</sup> In the present study, a Cronbach’s  $\alpha = .94$  indicated very good reliability of the measure.

The intention to engage in skill-building practice was assessed with one item for which participants responded to a query of how often (in absolute data) they intended to do the MP3-exercises per week. Such single-item measures of health behavior intention have been used and shown to be valid in several studies.<sup>57,58</sup> Actual engagement in the skill-building exercises was assessed by one item asking participants to rate how often they actually engaged in the MP3 exercises in the past week. Responses were given on a scale from 0 (no times) to 8 (more than 7 times). Previous studies have shown single-item measures of health behaviors also to have validity.<sup>59</sup> Completing the one-item measures took 5 to 10 seconds per measure.

### Data Analyses Strategy

To test the hypothesis that general ER skills moderate the relation between intention and behavior, we followed the procedure recommended by Baron and Kenny<sup>60</sup> and tested the significance of the interaction (between intention to engage and general ER skills) on training behavior. This method allows the investigation of interaction effects between metric variables. A hierarchical regression analysis on engaging in skill-building practice was performed. In the first model, the assumed predictor, intention to engage in skill-building practice, was included. In a second model, the potential moderator variable (ER) was included. In the final model, the interaction term (intention x ER) was included. The interaction term was calculated using the product of the centered predictor and the centered moderator variable. If the third model yields

**Figure 2**  
**Plot of Moderator Analyses for the Relationship between Intention to Engage in the Skill-building Exercises and Reported Engaging Moderated by General ER Skills**



a significant increase in  $R^2$  and if the interaction term is significant, moderation is confirmed. For all statistical analyses significance level was set at  $p < .05$  (one-sided). SPSS 21.0 (Armonk, NY: IBM Corp) was used for all analyses.

**RESULTS**

Participants reported an average intention to engage in skills practice of  $M = 4.48$  ( $SD = 1.36$ ; range: 2-7) and an average actual engaging in skills practice of  $M = 4.17$  ( $SD = 1.88$ ; range: 1-9). The average ER skills value was  $M = 3.63$  ( $SD = .50$ ; range: 2.07-4.96). The intention measure correlated with

$r = .40$  ( $p < .001$ ) with the actual engaging measure. The ERSQ total score correlated with  $r = .08$  (ns) with the intention measure and with  $r = .12$  (ns) with the indicator of actual skills practice.

At Step 1 of the hierarchical multiple analysis, intention to engage in the skill-building exercises accounted for a significant proportion of the variance in engaging in skill-building practice,  $R^2 = .16$ ,  $F(1,117) = 22.72$ ,  $p < .001$ . At Step 2, general ER skills accounted for no additional incremental variance ( $\Delta R^2 = .02$ ; ns) of skills practice,  $\Delta F(2, 116) = 3.24$ . At the third and final step, the interaction between intention and general ER skills was

**Table 2**  
**Conditional Effect of Intention of Skill-building Exercises on Engaging in Skill-building Practice at Values of the Moderator ER (-1 SD, Mean, +1 SD)**

Moderator	B	SE for b	t	p
- 1 SD	.26	.12	2.21	.027
Mean	.43	.09	4.91	.000
+ 1 SD	.59	.12	4.96	.000

Note.  
 N =119  
 All variables are mean-centered.

tested. The analysis of this interaction yielded a significant predictor of engaging in skill-building practice ( $\beta = .18$ ;  $p < .05$ ). Entry of the interaction term accounted for a modest, yet statistically significant, additional incremental variance ( $\Delta R^2 = .03$ ;  $p < .05$ ) in engaging in skill-building practice,  $\Delta F(3, 115) = 4.31$  (Table 1).

Plots of the simple slopes (Figure 2) of the interaction indicated that intention to engage in skill-building practice significantly predicted actually engaging in skill-building practice in all participants, including the high (+ 1 SD) ( $b = .59$ ,  $p < .001$ ), middle (mean) ( $b = .43$ ;  $p < .001$ ), and low (- 1 SD) ( $b = .26$ ;  $p < .01$ ) general ER skills conditions (Table 2).

## DISCUSSION

The present study aimed to test the hypothesis that the ability to cope with aversive emotions (ER skills) would moderate the association between the intention to engage in skill-building practice and the actual implementation (ie, behavior) of these intentions. Results indicated that the relation between the intention to engage in health-related exercises and engaging in skill-building practice was indeed moderated by ER. Individuals reporting greater ER skills demonstrated a stronger association between the intention to engage in skill-building practice and the extent of which they actually engaged in this practice than individuals reporting lower ER skills.

As such, our findings are consistent with the assumption that negative emotions cue action tendencies likely to interfere with the implementation of intentions,<sup>34,61,62</sup> and therefore, that the ability to adapt and cope with such emotions facilitates the implementation of health-related intentions. This has several important implications. First, our results point to the relevance of effective ER skills for the implementation of intention, and hence, to the importance of interventions enhancing such skills when working to facilitate behavioral change. More specifically, any interventions that involve independent skills training should clarify to what extent participants will be able to cope with the aversive affective states likely to be cued through the suggested exercises. If there is reason to believe that (some) participants will not be able to cope with these aversive states (which may interfere with the intended practice), one should look for ways to enhance participants' ability to cope with these emotions.

Paradoxically, interventions aiming to enhance ER skills usually require high self-regulation skills themselves.<sup>53,63</sup> Thus, individuals in a particular need for more effective ER skills are less likely to benefit from the ER skills-building program (at least if the latter involves independent skills practice). Therefore, when having these participants complete an ER skills-building training before they start practicing the behavioral change they intended to implement in the first place, one might

consider the following actions: (1) changing the focus from reducing aversive affects to increasing positive affect to trigger constructive cognitive and physiological responses;<sup>64</sup> (2) reducing the intensity of negative affective states likely to be cued by the skill-building exercises (ie, by starting with short resource-focused exercises); or (3) have trainers or co-participants provide significant support for the regular skills practice until the participant has learned how to cope with the negative emotions involved in such practice and can continue such practice.

In the context of teachers, such efforts might pay off in 2 ways. First, enhanced ER skills will help teachers to engage in any kind of training they need to engage in to cope with their job demands. Second, systematically enhancing teachers' ER skills help them to meet the aforementioned challenges of restoring and maintaining their work satisfaction, well-being, and mental health; on the other hand, dysfunctional ways of responding to aversive affective states lead to maintaining these problem areas.<sup>1,7,65,66</sup>

Limitations of the study include the exclusive use of an observational design, the exclusive use of self-reports, and the use of a specific sample; consequently, the generalizability of our findings requires careful consideration. With regard to the design, future studies should experimentally enhance ER skills in individuals with high/low ER abilities and evaluate the effects of such training on subsequent implementation of intention in randomized controlled trials. With regards to self-report assessment, it has been argued that their validity is limited as many processes relevant for ER are inaccessible through introspection.<sup>67</sup> However, there is a present lack of more valid methods assessing such intrapersonal phenomena such as emotions and emotion regulations.<sup>68</sup> Nevertheless, in addition to self-report, future research should also employ observer-based measures or biological indicators of ER (eg, skin conduction, heart rate or cortisol level) and use multi-trait/multi-method analytical approaches<sup>69</sup> to assess measurement invariance. Finally, future studies should test the moderating effect of ER skills on the implementation of intention in areas other than stress reduction with teachers to clarify to what extent findings and conclusions can be generalized to other target groups.

## Human Subjects Statement

All procedures followed internationally accepted ethical standards and were approved by the university institutional review board.

## Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

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