



OPEN Emotional regulatory flexibility mitigates effects of school-related stress

Orly Harel^{1,5}, Alla Hemi^{2,5} & Einat Levy-Gigi^{1,3,4}✉

Educators often experience burnout due to their demanding work and its inherently stressful nature. Previous research has demonstrated the buffering effects of emotional regulatory flexibility on the development of clinical symptoms in various populations that are repeatedly exposed to stress as part of their occupational routine. This study is the first to explore whether regulatory flexibility moderates the relationship between school-related stress exposure and burnout in educators. Eighty-nine educators (80.9% female; $M_{\text{age}}=48.18$, $SD=7.32$) completed a performance-based paradigm evaluating regulatory flexibility and were assessed for stress exposure and burnout. Consistent with our predictions, increased school-related stress exposure was associated with a greater sense of burnout. Furthermore, greater regulatory flexibility was associated with lower levels of burnout. Importantly, regulatory flexibility moderated the relationship between school-related stress exposure and burnout. Specifically, for educators with low regulatory flexibility, we found a strong positive relationship between school-related stress exposure and burnout. This relationship was attenuated for educators with high regulatory flexibility, suggesting that regulatory flexibility serves as a protective factor against burnout among educators. These results highlight the potential for developing interventions targeting emotional regulatory flexibility to alleviate burnout in this population.

Keywords Emotional regulatory flexibility, School-related stress exposure, Burnout, Educators

Can emotional regulatory flexibility mitigate effects of school-related stress?

Educators are exposed to significant levels of work-related stress. Their stress is multifaceted, involving heavy workloads, stringent time constraints, and challenging classroom dynamics¹. Moreover, previous studies indicate that educators are also exposed to various crises and potentially traumatic situations (e.g., verbally or physically violent incidents between students or against the school staff) as well as to continuous stress while providing social-emotional support to students and their families who are experiencing stressful and traumatic incidents (e.g., death or illness in the family, immigration-related trauma²). Finally, educators may be exposed to violence, neglect, abuse, and suicidal thoughts and attempts by students and their families^{3–6}.

One common and well-documented consequence of chronic stress and trauma exposure is burnout^{7,8}. Burnout, defined by the pervasive experience of physical and mental exhaustion, significantly impacts professionals in various fields, particularly those engaged in continuous interpersonal interactions, such as caregivers, police officers, medical doctors, and educators⁹. Moreover, duty-related stress and trauma exposure are major contributors to burnout¹⁰. Numerous studies have consistently shown that individuals who regularly face stress and trauma as an integral part of their occupational routine tend to experience heightened levels of burnout compared to those working in less stressful environments¹¹.

Taken together, these findings support the notion that educators, due to their unique stress exposure, may be particularly vulnerable to developing burnout. Indeed, growing evidence indicates that educators report elevated burnout levels, emotional exhaustion, reduced professional efficacy, and increased depersonalization^{12,13}. Moreover, recent research indicates that burnout can have severe consequences, with 35–49% of educators reporting heightened levels of burnout, and 19–30% of new teachers leaving the profession annually¹³. This concerning trend underscores the urgent need to identify protective factors that can mitigate the impact of occupational stress. One promising candidate is regulatory flexibility, which may serve as a psychological buffer against the negative effects of chronic stress in educational settings^{14,15}.

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Whereas emotion regulation refers to how individuals influence their emotional experiences and expressions, allowing for adaptive responses to various situations¹. Emotional regulatory flexibility refers to adjusting emotion regulation strategies based on contextual demands and personal needs^{16–18}. This flexibility is essential for effective emotion regulation, enabling individuals to select and implement the most appropriate strategies for different emotional experiences⁴. Emotional regulatory flexibility includes various dimensions—such as context sensitivity, strategy repertoire, and feedback responsiveness⁷. In the present study, we focus on a specific aspect: the ability to choose between engagement (reappraisal, i.e., attending to emotional information while reinterpreting its negative meaning) and disengagement (distraction, i.e., diverting attention away from emotional information by generating neutral, unrelated thoughts) in response to aversive emotional situations of varying intensity. We refer to this ability as regulatory flexibility throughout the paper. This approach aligns with Sheppes' validated paradigm¹⁸, which isolates adaptive strategy selection under varying emotional demands. Empirical work in occupational cohorts (e.g., firefighters, healthcare workers) demonstrates that this binary operationalization robustly predicts resilience to stress-related outcomes like PTSD and burnout^{17,19}.

Previous studies revealed that individuals with high regulatory flexibility adaptively choose disengagement strategies when dealing with high-intensity situations and engagement strategies in low-intensity situations¹⁸. Most importantly, studies revealed that regulatory flexibility moderates the relationship between exposure to traumatic events and the propensity to develop PTSD symptoms over time. Specifically, in a study of on-duty firefighters, it was found that those with low regulatory flexibility displayed a positive relationship between traumatic exposure and PTSD severity. Hence, more exposure was associated with greater PTSD severity. On the other hand, those with high regulatory flexibility did not exhibit such a relationship^{17,20}.

A recent study on educators revealed that regulatory flexibility significantly moderates the relationship between stress exposure and the tendency to develop depressive symptoms²¹. Specifically, in educators with low regulatory flexibility, a positive association existed between school-related stress exposure and depressive symptoms. However, no such connection was found in educators with high regulatory flexibility, where symptom severity remained low, regardless of the experienced school-related stress.

These findings suggest that regulatory flexibility may protect professionals from the adverse outcomes of continuous stress exposure. However, this is the first study to examine the complex moderating effect of school-related stress exposure and regulatory flexibility on the tendency to develop burnout. Studies have found that higher regulatory flexibility is associated with lower emotional exhaustion^{22,23}. Similarly, greater regulatory flexibility was found to protect employees from the adverse consequences of continuous stress²⁴.

The current study focuses on educators working in both primary and secondary school settings. While middle and high school students are older and developmentally different from younger children, prior research indicates that the types and severity of stressful and potentially traumatic events educators encounter are remarkably consistent across educational levels. Specifically, most incidents, such as exposure to violence, neglect, family-related crises, or emotional distress among students, are not inherently tied to the age of the children but rather reflect broader systemic and psychosocial challenges. Consequently, both primary and secondary school teachers report comparably significant levels of stress²⁵.

Based on previous findings, we predicted that regulatory flexibility would serve as a protective factor for educators in the relationship between exposure to school-related stress and a sense of burnout. Consequently, educators with greater regulatory flexibility are expected to be better equipped to manage and cope with the stressors inherent in their profession and will demonstrate lower levels of burnout, regardless of the degree of school-related stress they experience.

Method

Participants and procedure

Eighty-nine educators (50% school counselors, 50% class teachers; 80.9% females; $M_{\text{age}} = 48.18$, $SD = 7.32$) from distinct public schools in central Israel—62% elementary, 21% middle, and 17% high schools—all serving communities with similar socioeconomic characteristics—volunteered to participate in this study. An a-priori power analysis using G*Power²⁶ indicated a need for 77 participants to detect a medium effect size (Cohen's $f = 0.15$) with a significance level of 5% (α) and a power of 80% ($1 - \beta$). To account for potential technical failures and data loss, we increased the sample size by 15% to a total of 89 volunteer participants. Participants provided written informed consent. Then, they completed an electronic task assessing their regulatory flexibility, followed by self-report questionnaires assessing their stress exposure and burnout levels. The Participants were not compensated for their participation. All the research and the methods were conducted following the Declaration of Helsinki. The Bar-Ilan University ethics committee approved the study (Approval number – 35).

Measures

The Emotion Regulation Task (based on Sheppes et al.¹⁸) consists of two phases. In the initial practice phase, the experimenter provided information about the different regulatory strategies, after which participants completed two supervised practice trials per strategy with feedback from the experimenter. In the second experimental phase, participants were shown sixty negative emotional pictures from the International Affective Picture System (IAPS²⁷). Half of the pictures had low negative intensity ($M_{\text{arousal}} = 4.9$; $M_{\text{valence}} = 2.7$), while the other half had high negative intensity ($M_{\text{arousal}} = 6.4$; $M_{\text{valence}} = 1.71$). For each picture, they were required to choose whether to implement distraction or reappraisal to reduce their level of distress (For a detailed description of the task, see¹⁷). The study was conducted by a well-trained school counselor during an online Zoom meeting. The task was administered according to the established protocol developed and validated by Sheppes et al. (see¹⁷). The only revision made involved the specific stimuli used; several pictures from the original task were replaced with pictures from the same IAPS collection. Importantly, the old and new pictures shared similar characteristics.

Regulatory flexibility is calculated in a similar way as in previous studies that used the same task^{17,28}; First, we calculate the proportions of distraction strategy choice for low-intensity pictures and high-intensity pictures separately (i.e., the number of trials in which the participant chose distraction in low/high-intensity conditions divided by the total number of trials in the condition). Second, we subtract the proportion of distraction choice for low-intensity pictures (reflecting maladaptive behavior) from the proportion of distraction choice for high-intensity pictures (reflecting adaptive behavior). This results in a number ranging from -1 to 1 , with higher scores reflecting higher levels of regulatory flexibility.

Flexibility was calculated by subtracting the proportion of distraction in low-intensity conditions from the proportion of distraction in high-intensity conditions¹⁷. For instance, if a participant selects distraction for 80% of high-intensity trials and only 20% of low-intensity trials, their flexibility score would be as follows: $0.80 - 0.20 = 0.60$. This positive score reflects the participant's ability to adaptively switch strategies based on emotional intensity. The flexibility score reflects context-sensitive strategy selection rather than intrinsic strategy adaptiveness. Distraction in high-intensity contexts and reappraisal in low-intensity contexts align with Sheppes' validated intensity-contingent model¹⁸ which associates this pattern with occupational resilience in high-stress professions¹⁷.

School-Related Stress Exposure⁴ is a 10-item questionnaire. Each item describes a common school-related stress incident (e.g., "A parent being physically or verbally violent towards the staff"). The participants rate the frequency of their exposure to each of these incidents on a Likert scale ranging from 1 (not exposed) to 6 (exposed at least a few times in a representative month). The total score is the average of the ratings for each item, resulting in total scores ranging from 1 to 6. Higher scores represent higher levels of school-related stress exposure. The reliability of the scale in this study was $\alpha = 0.81$.

The Maslach Burnout Inventory (MBI²⁹) consists of three scales: emotional exhaustion (9 items, e.g., "I feel frustrated by my job"), depersonalization (5 items, e.g., "I do not really care what happens to some patients"), and personal accomplishment (8 items, e.g., "I have accomplished many worthwhile things in this job"). The participants are asked to rate each item on a Likert scale ranging from 0 "never" to 6 "every day". The total score for burnout is computed as the average of the scores for each item after reversing responses for personal accomplishment items because high ratings of these items refer to low levels of burnout. Total scores range from 0 to 6. The reliability of the scale in this study was $\alpha = 0.84$.

Statistical analyses

Data were analyzed using the statistical software SPSS version 28. Descriptive statistics and correlations were calculated between all variables in the present study. A moderation analysis was conducted using Hayes's PROCESS macro³⁰. School-related stress exposure was entered as an independent variable, regulatory flexibility was entered as a moderator, and burnout was entered as a dependent variable. Age and gender were entered as covariates.

Results

There were no differences in trauma exposure, clinical symptoms, and regulatory flexibility as a function of school type or role (all $ps > 0.05$). Correlations between all study variables were calculated; school-related stress exposure was positively associated with burnout, $r(87) = 0.30$, $p = .004$. No significant correlations emerged between school-related stress exposure and regulatory flexibility, $r(87) = 0.05$, $p = .679$, or between emotional flexibility and burnout, $r(87) = -0.13$, $p = .239$. Age was not significantly correlated with any of the study variables ($r(87) = 0.09$, $p = .410$ for age and exposure, $r(87) = -0.05$, $p = .619$ for age and regulatory flexibility, and $r(87) = -0.05$, $p = .619$ for age and burnout).

To assess the hypothesis that flexibility moderates the relationship between exposure to school-related stress and burnout, we employed Hayes's PROCESS macro³⁰. The results are presented in Table 1. The general model was significant ($R^2 = 0.16$, $F(5, 83) = 3.16$, $p = .012$). Core analyses revealed a significant main effect of school-related stress exposure. Specifically, higher levels of stress exposure were associated with higher levels of burnout. Additionally, a significant main effect of regulatory flexibility emerged, indicating that higher levels of regulatory flexibility were associated with lower levels of burnout. Moreover, consistent with our hypothesis, there was a significant interactive effect of exposure to school-related stress and regulatory flexibility on levels of burnout. This interaction accounted for an additional 4.61% of the variance beyond the main effects explanation. To interpret this interactive effect, we computed bootstrapping confidence intervals (95%), evaluating the magnitude of the relationship between stress exposure and burnout for participants with low and high levels

Predicting variables	β	S.E.	t value	95% CI	
				Low	High
School-related stress exposure	0.24	0.07	3.25**	0.09	0.39
Regulatory flexibility	-0.17	0.08	-2.06*	-0.33	-0.01
Stress exposure * Regulatory flexibility	-0.18	0.09	-2.06*	-0.35	-0.01
Age	-0.04	0.08	-0.49	-0.19	0.11
Gender	0.02	0.08	0.21	-0.13	0.17

Table 1. The moderating effect of regulatory flexibility on the relationship between School-Related stress exposure and burnout among educators (Standardized estimated coefficients, standard errors, and 95% confidence Intervals). Note. CI = Confidence Interval. * $p < .05$, ** $p < .01$.

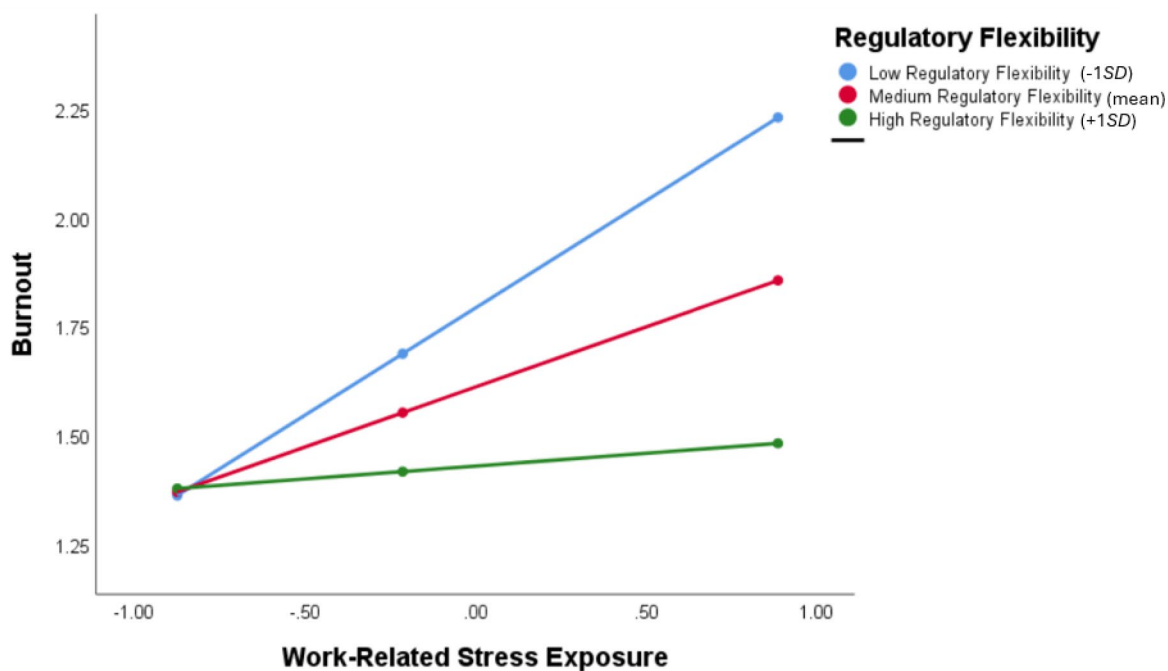


Fig. 1. The Moderating Role of Regulatory Flexibility in the Relationship Between School-Related Stress Exposure and Burnout Among Educators.

of regulatory flexibility (Fig. 1). As predicted, for educators with low levels of regulatory flexibility ($-1SD$), the results revealed a significant positive correlation between stress exposure and levels of burnout ($B=0.49$, CI 95% [0.21, 0.78], $t(87)=3.48$, $p<.001$). A similar positive correlation was found for educators with average levels of regulatory flexibility (mean), $B=0.28$, CI 95% [0.12, 0.44], $t(87)=3.38$, $p=.001$. However, for participants with high levels of regulatory flexibility ($+1SD$), no such association was observed ($B=0.07$, CI 95% [-0.18, 0.31], $t(87)=0.54$, $p=.59$).

Discussion

The present study aimed to investigate the interactive effect of school-related stress exposure and regulatory flexibility on the sense of burnout among educators. The prevalence of burnout among educators is a concerning trend, with high burnout rates contributing to increased attrition and decreased job satisfaction within the profession¹³. Therefore, understanding factors that can mitigate the negative impact of work-related stress on educators is of utmost importance.

Consistent with previous research, our findings revealed a significant positive association between exposure to school-related stress and burnout among educators¹⁰. This aligns with the growing body of evidence highlighting the detrimental impact of work-related stress on various professionals, including educators^{12,31}.

In addition, aligning with our prediction, we found a significant negative association between regulatory flexibility and burnout, indicating that educators with higher regulatory flexibility experienced lower levels of burnout. This finding further supports previous findings that demonstrated the protective role of regulatory flexibility for professionals at higher risk of developing burnout over time²³. Hence, the capacity to adapt and switch between different regulatory strategies in response to situational demands can be beneficial and may reduce burnout.

Most importantly, our study demonstrated a moderating effect of regulatory flexibility in the relationship between school-related stress exposure and burnout. Specifically, increased school-related stress exposure was associated with a greater sense of burnout only among educators with low, but not high, regulatory flexibility. This suggests that increased regulatory flexibility buffers the negative impact of school-related stress on burnout. These findings are consistent with previous research highlighting the moderating role of regulatory flexibility in the relationship between stress exposure and adverse clinical outcomes, such as post-traumatic stress disorder symptoms^{17,20} and depression^{32–34}. Moreover, the current results extend previous findings by indicating that individuals with higher regulatory flexibility are better equipped to function and cope with stressful conditions and may be less vulnerable to burnout.

The findings of this study have significant practical implications for interventions and support systems aimed at reducing burnout among educators. Enhancing regulatory flexibility skills may serve as a potential target for interventions designed to mitigate the negative impact of work-related stress. Indeed, previous studies revealed that interventions focusing on promoting adaptive emotion regulation, such as cognitive behavioral therapy or mindfulness, were beneficial in reducing clinical symptoms⁷. For example, Acceptance and Commitment Therapy (ACT) explicitly targets psychological flexibility as its core therapeutic goal³⁵. By fostering mindfulness, acceptance, and values-driven action, ACT equips individuals with tools to adaptively regulate emotions across

diverse contexts¹⁶. Similarly, Cognitive Behavioral Therapy (CBT) has demonstrated efficacy in reducing burnout through cognitive restructuring and behavioral activation techniques³⁶.

Additionally, by recognizing the importance of regulatory flexibility in educators' well-being, educational institutions can prioritize initiatives that promote adaptive emotion regulation and provide support systems to help educators effectively navigate work-related stress. This is especially important due to the high turnover rates and the increasing percentage of educators who choose to quit their jobs due to burnout, potentially helping to retain talented educators in the field.

Finally, it is important to note that reducing burnout is crucial both on its own and for enhancing educators' mental health. Steinhardt et al.³⁷ suggested that burnout might represent a stage in the progression of depression. A recent study identified a similar mediating effect of burnout between work-related stress exposure and depressive symptoms in school counselors⁴. Additionally, intervention programs aimed at reducing burnout have been found effective in preventing depression³⁸. Taken together, these findings may suggest that developing prevention programs that target burnout reduction could significantly improve educators' mental health by lowering depressive symptoms.

Whereas the current study's findings advance the understanding of the relationship between school-related stress exposure, regulatory flexibility, and burnout, it may suffer several limitations. First, the cross-sectional design restricts causal interpretations, making it impossible to draw conclusions about the direction of the relationship between regulatory flexibility and burnout. While the current study focused on the widely acknowledged assumption that impaired emotion regulation precedes burnout^{7,8}, it is also plausible that heightened levels of burnout may, in turn, impair one's capacity for effective emotion regulation. Alternatively, the relationship between regulatory flexibility and burnout may be bidirectional, with each reinforcing the other over time. Moreover, as with any cross-sectional design, the observed association between regulatory flexibility and burnout may be influenced by a third variable that affects both constructs. For example, underlying traits such as neuroticism or chronic anxiety could simultaneously reduce regulatory flexibility and increase vulnerability to burnout^{39,40}. This explanation is less likely in the current study, which focused on functioning, actively employed educators. Nevertheless, future longitudinal studies are needed to clarify the temporal and potentially causal relationships among regulatory flexibility, stress exposure, and burnout, as well as the possible effect of other related variables such as neuroticism or chronic anxiety. Additionally, although we included age and gender as covariates, other demographic and contextual factors, such as years of teaching experience and school level, were considered but not included in the final model due to limited sample size and their lack of significant association with the main study variables. Future research with larger samples should examine these factors as potential covariates in the relationship between school-related stress, regulatory flexibility, and burnout.

Second, the majority of the sample was female. Even though this is consistent with the high percentage of women among Israeli educators (above 81%), a future study may aim to evaluate a larger number of male educators. Third, the current study focused on educators as one group. Future studies may assess individual differences within this population by comparing teachers and counselors or teachers in elementary, middle, and high schools since the nature and intensity of their school-related stress exposure may differ. Additionally, our operationalization aligns with Sheppes' intensity-driven switching paradigm, which predicts clinical and occupational resilience^{17,19}. While our paradigm operationalizes flexibility as context-sensitive switching between distraction and reappraisal, it is important to note that no strategy is universally adaptive or maladaptive. For instance, suppression—often labeled maladaptive—may preserve professional composure during parent-teacher conflicts⁴⁰. Similarly, reappraisal could prove counterproductive in high-intensity scenarios requiring rapid threat mitigation⁴¹. These nuances align with ecological models positing that regulatory success depends on person-context-strategy fit^{7,16}. While Sheppes' approach provides granular insight into context-sensitive selection, future studies could also integrate repertoire diversity assessments⁷ using ecological momentary assessment to capture flexibility's full complexity, as suggested in recent cross-cultural EMA work⁴².

While our findings establish regulatory flexibility as an individual-level protective factor, emerging ecological models of occupational resilience²¹ suggest institutional variables may critically shape its effectiveness. Future research should investigate how school climate metrics—such as administrative support quality, peer collaboration networks, and trauma-informed policy implementation—interact with flexibility to influence burnout trajectories. For instance, multilevel designs could compare educators in schools with robust mentorship programs versus those in under-resourced environments, testing whether flexibility's buffering effect depends on organizational infrastructure. Cross-cultural comparisons may further reveal whether the protective role of flexibility varies across educational systems with differing class sizes or crisis response protocols. Hybrid intervention trials could then assess whether combining individual flexibility training (e.g., ACT workshops) with systemic supports (e.g., workload equity policies) yields synergistic benefits—a hypothesis grounded in person-environment fit theory⁴³. Such investigations would advance both theoretical models of educator resilience and practical strategies for burnout prevention.

In conclusion, this study contributes to the existing literature by highlighting the protective role of regulatory flexibility in mitigating the relationship between school-related stress exposure and burnout among educators. The findings underscore the importance of promoting regulatory flexibility skills to enhance educators' ability to cope with work-related stress and reduce burnout. By understanding the factors contributing to burnout and identifying potential protective mechanisms, educational institutions can develop targeted strategies and interventions to support educators, improve their well-being and job satisfaction, and enhance retention rates in this important profession.

Data availability

For full transparency, the data supporting the findings of this study are available at the following link: <https://osf.io/k85qz>.

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Author contributions

OH: Investigation, Writing - Original Draft; AH: Data Curation, Formal Analysis, Visualization, Writing - Original Draft; ELG: Conceptualization, Writing - Review & Editing; Supervision.

Declarations

Conflict of interest

The authors have no conflict of interest to disclose.

Additional information

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