RESEARCH PAPER



Self-Compassion as a Means to Improve Job-Related Well-Being in Academia

Aljoscha Dreisoerner^{1,3} · Anamarija Klaic² · Rolf van Dick¹ · Nina M. Junker^{1,4}

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Abstract

Working in academia entails many challenges including rejections by journals, competition for funding or jobs, and uncertain job outlooks (for non-tenure staff), which can result in poor mental health and well-being. Previous studies have suggested self-compassion as a resource for mental health and well-being, but to date no study has been published that has tested interventions targeting self-compassion in academia. In this weekly diary study, 317 academics from Germany, Switzerland, and the US were asked to recall a negative event and were then randomly assigned to either a self-compassionate writing intervention, a three good things intervention, or an active control intervention, respectively. They also completed two surveys on four consecutive Thursdays measuring state positive and negative affect and job-related well-being (i.e., job satisfaction and work engagement). Using multi-level regression modelling, results showed that participants in the self-compassion condition reported more job satisfaction and work engagement due to experiencing less negative affect. Academics in the three good things condition showed no such effects. Results indicated that self-compassion in academia is a resource that enables emotion-oriented coping during difficult times or in challenging situations that may benefit academics' job-related well-being. The study highlights both the importance of discussing well-being in academia and ways to strengthen it.

Keywords Self-Compassion · Positive Psychology Interventions · Affect · Job-related Well-being · Academic Staff

Aljoscha Dreisoerner and Anamarija Klaic contributed equally to this paper and are presented as shared first authors alphabetically.

Anamarija Klaic a.klaic@psychologie.uzh.ch

- ¹ Institute of Psychology, Goethe University, Frankfurt am Main, Germany
- ² Department of Psychology, University of Zurich, Zurich, Switzerland
- ³ The Stress of Life (SOLE) Processes and Mechanisms underlying Everyday Life Stress, University of Vienna, Vienna, Austria

⁴ Department of Psychology, University of Oslo, Oslo, Norway

1 Introduction

Mental health issues and low well-being in academia are extremely common with estimates showing that up to 42% of academic employees report physical and psychological health symptoms (Kinman & Jones, 2008). Academics are under pressure to obtain funding, publish articles, and provide teaching and supervision, which may result in high workload and job-related stress (Evans et al., 2018; Levecque et al., 2017). Furthermore, the profession entails frequent rejection, anxiety due to fixed contracts or uncertain job outlooks, burnout, and loneliness (Day, 2011; Jaremka et al., 2020). Since many of the reasons for poor well-being or mental health problems in academia can only be changed by the system and over time, academic employees need to be able to cope with these challenges in the here and now. However, intervention studies targeting well-being in academia are rare (González-Rico et al., 2018; Guthrie et al., 2018; Plotnikoff et al., 2015).

In this paper, we argue that academics require strategies that help them cope with the emotional reality of the many challenges mentioned above. Prolonged and frequent experience of negative emotions negatively affects not only job performance, but also well-being (Ashkanasy & Dorris, 2017; Cropanzano & Dasborough, 2015). Recent calls have been made to investigate "soft outcomes" in the academic work context such as job satisfaction, exhaustion, and work engagement (Han et al., 2020; Klaic et al., 2018; Levecque et al., 2017). In accordance with the occupational stress literature (Bakker & Demerouti, 2007) and affective events theory (Weiss & Cropanzano, 1996), we investigate job satisfaction and work engagement as two indicators of job-related well-being. Job satisfaction refers to being content with one's current work situation, while work engagement refers to experiencing a high amount of energy and motivation for one's own job. Since emotions play a vital role in the process of dealing with negative work events, we argue that becoming more self-compassionate can help academics cope with these problems by reducing the experience of negative emotions following negative events.

Self-compassion refers to taking a kind and understanding attitude to the self during failures, perceived inadequacy or general suffering (Neff, 2003). To demonstrate the potential of self-compassion for academics, we present a study that tests a self-compassionate writing intervention as a strategy for improved emotion-oriented coping (Carver et al., 1989). In our study, we also evaluate a potential mechanism of self-compassion on job-related wellbeing through decreased negative affect (Inwood & Ferrari, 2018). By testing this proposed mediation, we make a theoretical contribution arguing how negative emotions serve as the underlying mechanism to some of the problems associated with working in academia. We further compare the self-compassion intervention to an avoidance-oriented coping strategy (Carver et al., 1989), using a popular positive psychology intervention called three good things (Seligman et al., 2005) wherein individuals name three positive things that happened to them during the day. Finally, our study draws upon and extends the affective events theory of Weiss & Cropanzano (1996), which provides a theorical basis for the importance of including affect in explaining the effects of work events on job-related well-being.

1.1 Academia in a Mental Health Crisis

Academia is a challenging work environment that often contributes to poor mental health and well-being (El-Ghoroury et al., 2012; Klaic et al., 2018). For example, Evans et al.

(2018) showed that graduate students were six to seven times more likely to experience anxiety or depression than the general population. Furthermore, about 30 to 50% of all doctoral students never finish their dissertation (Elgar, 2003; Stubb et al., 2012). Low well-being can also constitute a problem for more senior researchers. For example, a study in the UK reported that the majority of university staff finds their job stressful and that levels of burnout are higher than those of the general population and comparable to other high-risk groups such as doctors (Kinman & Jones, 2008).

Awareness about mental health and well-being in academia is increasing (Jaremka et al., 2020). Some countries and universities have recognized the seriousness of the impact of working conditions on the mental health and well-being of academic staff (Woolston, 2019). Nevertheless, studies on mental health and well-being in academia are still relatively scarce and there is a need to investigate interventions for *improving* mental health and well-being in academia.

1.2 Affective Events Theory

Challenges in academia such as project failures, rejections, or experiencing uncertainty exemplify negative work events that can trigger negative emotions (Levecque et al., 2017). Affective events theory is a conceptual framework developed by Weiss & Cropanzano (1996) that explains how events at work trigger affective reactions like positive or negative emotions, which in turn influence work attitudes (e.g., job satisfaction) and affective-driven behavior (e.g., work engagement). In the past 20 years, the theory has gathered considerable support (Ashkanasy & Dorris, 2017; Ghasemy et al., 2021; Wegge et al., 2006).

Academia entails many challenging work characteristics such as high competition, contingent employment, and conflicting role requirements (Goastellec et al., 2013; Levecque et al., 2017; Reevy & Deason, 2014; van der Weijden et al., 2016) and thus opportunities for negative events to arise that can be studied through a lens of affective events theory. Academic staff at universities may show deterioration in mental health and well-being, because they do not possess effective strategies to cope with difficult situations at work. Thus, interventions to improve coping with negative work events may be needed. As such, we extend affective events theory by proposing that interventions at work aimed at improving jobrelated well-being such as self-compassion and three good things may be valuable strategies that help people cope with negative work events.

1.3 Self-Compassion for Improved Emotion-Oriented Coping

We propose self-compassion as an emotion-oriented coping strategy for academics. Selfcompassion involves extending compassion to the self in times of failure, perceived personal inadequacy, or overall suffering and consists of three components: Self-kindness, common humanity, and mindfulness (Dreisoerner et al., 2021; Neff, 2003). Self-kindness implies treating the self with kindness and understanding rather than with harsh self-criticism. Common humanity involves remembering that setbacks and personal shortcomings are universal experiences rather than isolated events. Mindfulness means becoming aware of and acknowledging personal shortcomings or failures and their affective reality without over-identifying with the experience and taking a stance of self-pity. Meta-studies have shown that self-compassionate people are more satisfied with their lives and experience more positive emotions, meaning, and optimism (Ferrari et al., 2019; Zessin et al., 2015) and less depression and anxiety (MacBeth & Gumley, 2012). Experimental studies have shown that self-compassion interventions can motivate people to try again after failure (Breines & Chen, 2012) and serve as a buffer against negative affect in the face of stressors (Johnson & O'Brien, 2013). A meta-analysis based on eight studies showed that positive and negative affect mediated the relationship between self-compassion and health-promoting behaviors (Sirois et al., 2015). Work on the effects and mechanisms of self-compassion on work-related outcomes such as job performance, work behaviors, and well-being is ongoing. We therefore propose that self-compassion influences work-related outcomes such as job satisfaction and work engagement by decreasing negative affect. In other words, self-compassion improves emotional regulation (Terry & Leary, 2011), which then likely influences job attitudes and behaviors.

1.4 Positive Psychology Interventions as Avoidance-Oriented Coping

An alternative way of coping that many people use involves mental activities directed at disengaging from and avoiding the stressor (Carver et al., 1989). Optimism, positive thinking, and gratitude can be forms of mental disengagement when these strategies are used to focus on something other than the stressor. Instead of acknowledging the stressor or accepting responsibility, academics could "count their blessings" or focus on their strengths instead. This sentiment reflects parts of the positive psychology movement (Seligman & Csikszentmihalyi, 2000), which emerged as a response to the traditional focus of psychology to treat mental illness. Positive psychology interventions aim at enhancing strengths and resources such as optimism and gratitude in order to promote well-being (Keyes, 2007; Rashid, 2009).

Positive psychology-based interventions vary widely in length, content, and how they are delivered, but they usually focus on one or multiple character strengths. For example, in the three good things exercise, participants complete a repeated writing task where they write down three things that made them happy during that day (Seligman et al., 2005). Emmons and McCullough (2003) used a slightly different design and asked participants to "count their blessings"—and write down five things that they were grateful or thankful for. Emmons and McCullough found that across three studies, participants in the experimental group reported higher positive affect than a control group.

A crucial point for the effectiveness of these exercises may be whether they are used as an avoidance-oriented coping strategy or as a resource to promote well-being with no particular focus on a stressor. Combined, the evidence suggests that positive psychology interventions may increase positive affect via a mechanism of mental disengagement and reorientation.

2 Current Study

Based on the evidence and predictions from affective events theory (Weiss & Cropanzano, 1996) discussed above we suggest that an intervention designed to increase self-compassion may enhance job satisfaction and work engagement by reducing negative affect. In addition, we suggest that the three good things intervention may increase job satisfaction and work



Fig. 1 Multi-Level Model and Expected Effects of the Self-Compassion and the Three Good Things Intervention on Job Satisfaction and Work Engagement via Negative and Positive Affect Note Hypotheses 1 and 2 refer to the effect of the self-compassion and the three good things intervention on negative and positive affect, respectively. Hypothesis 3 refers to the mediation effect of the selfcompassion intervention on job satisfaction (3a) and work engagement (3b) via reduced negative affect. Hypothesis 4 refers to the mediation effect of the three good things intervention on job satisfaction (4a) and work engagement (4b) via increased positive affect.

engagement by increasing positive affect. To investigate these suggested effects, we conducted a weekly diary study over four weeks with academics from Switzerland, Germany, and the US. We randomized these into one of three conditions (self-compassion intervention, three good things condition, and a control group) and measured their positive affect, negative affect, job satisfaction, and work engagement. Figure 1 illustrates the conceptual model and the expected effects in this study. We predicted that:

Hypothesis 1 Individuals who received the self-compassion intervention would report less negative affect after recalling a negative work event than individuals in the control group.

Hypothesis 2 Individuals who received the three good things intervention would report more positive affect after recalling a negative work event than those in the control group.

Hypothesis 3 Individuals who received the self-compassion intervention would indirectly experience (a) higher job satisfaction and (b) higher work engagement mediated by reduced negative affect.

Hypothesis 4 Individuals who received the three good things intervention would indirectly experience (a) higher job satisfaction and (b) higher work engagement mediated by increased positive affect.

3 Method

3.1 Participants

To achieve sufficient power in a multilevel mediation modeling framework, a cluster size of 100 has been recommended (Hox & Maas, 2001; McNeish, 2017). We therefore aimed to recruit at least 100 participants. We recruited 389 people working in higher education from Germany, Switzerland and the US to participate in this study (252 women, 137 men, Mage=36.5 years, SD=9.1). Seventy-two registered for the study but never provided any data, leaving a sample for data analysis of N=317. Participants who completed any part of the intervention were analyzed in the final data set. The majority of participants had a Master's or Bachelor's degree (65%), thus representing junior researchers and PhD students, while the second largest group indicated having a PhD (35%), thus representing lecturers, senior scientists/researchers/postdocs, research associates, and assistant/associate/adjunct/ full professors. Participants worked in the natural sciences (24%), social sciences (42%), engineering (6%), economics (19%), and medicine (9%).

3.2 Procedure

Data collection took place at 13 measurement points. First, individuals were invited to participate in a study directed at staff members at various universities. At time point 1 (t_0), participants registered themselves for study participation. Following the completion of registration, participants were randomly assigned to either the self-compassion condition, the three good things condition or the control condition.

Then, on the mornings, afternoons, and evenings of each Thursday, participants received three questionnaires for four consecutive weeks $(t_1, t_2, t_3, and t_4)$. The first questionnaire was sent in the morning between 7am and 11am measuring positive and negative affect (e.g., t_{1a}); the second questionnaire was sent around noon between 11am and 3pm asking participants to complete writing exercises that were different according to the assigned condition. The last questionnaire was sent in the afternoon between 4pm and 7pm measuring again positive and negative affect, job satisfaction, and work engagement (e.g., t_{1c}).

All three conditions had two parts (see instructions in the Appendix). In the first part, participants in all groups were asked to recall a negative work event that occurred in the past seven days. In the second part, each condition differed. In the self-compassion condition, we told participants to write a paragraph in which they should express compassion for themselves. We guided them using the three components of self-compassion—self-kindness, common humanity, and mindfulness (Neff, 2003). In the three good things condition, we told participants to think about other, more positive matters rather than the negative event they had just described, and to list three positive things about aspects of their lives that went well during the last week. Lastly, in the control group, we told participants that the goal of their assignment was to focus their attention on other things and away from the negative situation. We then asked them to list three objects in their immediate environment. We estimated compliance to each condition by dividing the number of completed entries for the second part of the writing intervention by the total number of participants in each condition. Compliance was high in all conditions (74% in the self-compassion condition, 82% in the three good things condition, and 78% in the control condition).

3.3 Measures

Survey items were drawn from the existing literature to ensure construct validity. Questionnaires were available in English and German. When available, we used validated translations. For those measures without validated translations, we translated and back-translated items using two bilinguals. Since the study was time-consuming for participants with 13 measurement points in total, we followed the approach by Ohly and Schmitt (2015) regarding item reduction in diary studies to make participation less time-consuming and reduce dropout. We provide ranges of Cronbach's α for all measures to give an indication of reliability over measurement time points (t₁, t₂, t₃, and t₄).

3.4 Positive and Negative Affect

Positive and negative affect were measured with a reduced set of items from an affect measure by Feldman Barrett and Russell (1998). Affective states can be categorized either as *activating* or *deactivating*. We followed the example of Ohly and Schmitt (2015), who assessed positive affective states with one activating item (enthusiastic) and one deactivating item (at rest) and negative affective states with two activating items (worried, angered) and one deactivating item (exhausted) in their study. However, we wanted to keep both measures equal and thus included a third item for activating positive affective states (inspired). Thus, we originally measured both positive and negative affect with three items each.

We subsequently removed a deactivating positive affective state item (at rest) because it considerably worsened reliability scores (Cronbach's α between 0.59 and 0.78 with three items rather than 0.73 and 0.85 with two items), leaving a total of 5 items. Thus, participants rated their perceived positive and negative affect (daily questionnaire) on a 5-point scale, with responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Positive affect was assessed with the items "Today, I felt enthusiastic / inspired." (α between 0.73 and 0.85). Negative affect was assessed with the following items "Today, I felt angered / worried / exhausted." (α between 0.59 and 0.66).

3.5 Job Satisfaction

Job satisfaction was measured with the Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale (Bowling & Hammond, 2008). Participants rated their job satisfaction (3 items) on a 5-point scale, with responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item for job satisfaction is "All in all I am satisfied with my job" (α between 0.79 and 0.84).

3.6 Work Engagement

We measured work engagement with a reduced set of items from the Utrecht Work Engagement Scale–9 developed by Schaufeli et al. (2006). Participants rated their perceived work engagement (3 items) on a 5-point scale, with responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item for work engagement is "Today, I was immersed in my work." (α between 0.73 and 0.82).

3.7 Control Variables

In addition, we measured demographics (e.g., age, highest obtained degree, scientific field) and trait self-compassion (t_0 base questionnaire) to make sure that participants in the three different conditions were not significantly different on potentially confounding variables. For example, we measured trait self-compassion because there could be ceiling effects such that already highly self-compassionate participants could not benefit from more self-compassion or because there could be differences in trait self-compassion among the groups that may explain effects rather than the interventions (Raes et al., 2011).

We measured trait self-compassion with the Self-Compassion Scale Short-Form from Raes et al. (2011). Participants rated their perceived trait self-compassion using 12 items on a 5-point scale, with responses ranging from 1 (*never*) to 5 (*very often*). A sample item for trait self-compassion is "I try to be understanding and patient towards those aspects of my personality I do not like." (Cronbach's $\alpha = 0.85$).

3.8 Analytic Strategy

The dataset had a two-level structure, where measurement points were nested in individuals. To confirm this structure and to test whether a multi-level approach was necessary for further analysis, we specified models with random intercepts only to check the amount of variation on the between- and within-person level, respectively. We then tested our hypotheses by conducting multi-level mediation analyses in Mplus 8.4 (Muthén & Muthén, 2017) with dummy-coded variables for the interventions (1=intervention, 0=control). We used and adapted the syntax Preacher et al. (2010) published for 2-1-1 mediation models in multilevel structural equation modeling (ML SEM).

Since there were two intervention groups and one control group in the study, we created two dummy variables, one for the self-compassion intervention and one for three good things. These dummies were then regressed on the mediators, positive and negative affect, which in turn were regressed on the two outcomes, job satisfaction and work engagement. We used maximum likelihood estimation with robust standard errors (MLR) as these models are better equipped to handle non-normality in the residuals in the model (Muthén & Muthén, 2017).

To test our two mediation hypotheses for the self-compassion intervention, the path coefficient of the self-compassion intervention dummy on negative affect was multiplied with the path coefficients of negative affect on job satisfaction and on work engagement (all coefficients on the between-level). To test our two mediation hypotheses for three good things, the path coefficient of the three good things dummy on positive affect was multiplied with the path coefficients of positive affect on job satisfaction and work engagement (all coefficients on the between-level). To test the significance of the indirect effects (H3a/b and H4a/b), we report one-tailed significance levels and 95% confidence intervals. Preliminary analyses were conducted using Stata 15 (StataCorp, 2017). All direct paths in the conceptual model with directional hypotheses were tested using one-tailed tests, all other analyses were conducted using two-tailed tests (e.g., correlations and within-level effects).

Assumptions for multi-level SEM (ML SEM) are normally distributed and homoscedastic level 1 residuals (with a mean of zero and the same variance across groups), level 2 residuals with a multivariate normal distribution with a mean of zero, and independence

Table 1Mean Scores (SD) forTrait Self-Compassion, Negativeand Positive Affect by Inter-vention Type, and p-Values of		Self- compas- sion (n=115)	Three good things $(n=102)$	Control (n=100)	F	р
Difference Tests	Age 35.2 37.1 37.3 (9.95) (8.43) (8.59)	37.3 (8.59)	1.80	0.17		
	Self-compassion	3.1 (0.70)	3.2 (0.69)	3.2 (0.65)	1.39	0.25
	Positive affect (pre)	2.8 (1.00)	2.8 (0.89)	2.7 (0.88)	0.48	0.77
	Negative affect (pre)	2.5 (0.85)	2.4 (0.76)	2.6 (0.90)	0.83	0.44

Note. Scores for negative and positive affect refer to measurements taken on the morning before the intervention started. *F* values refer to univariate ANOVA tests with intervention as a fixed factor and age, self-compassion, negative and positive affect as respective outcomes. *F*-tests are one-tailed by default.

between level 1 and level 2 residuals. In addition, just like in traditional regression modeling, ML SEM assumes linear relationships among variables and fixed predictors (Hox, 1998). Generally, ML SEM is quite robust to violations against normality of residuals as long as the cluster size is large enough (Maas & Hox, 2004). To inspect potentially influential outliers, we calculated Cook's distance D_i for each data point and visually inspected frequency plots (Cook, 1977).

Overall, the assumptions in the model were met, with small violations to homoscedasticity between negative affect and work satisfaction. We inspected two outliers ($D_i > 0.50$) in the three good things condition and one outlier in the control group ($D_i = 0.48$). Removing these three cases from the analysis had no meaningful effect on parameter estimates or significance levels and so they were kept in the dataset.

4 Results

4.1 Preliminary Analyses

We first checked if participants in the three conditions differed on any important demographics or trait variables such as age, trait self-compassion and pre-intervention positive and negative affect measured in the morning (see Table 1). Univariate analysis of variance (ANOVA) revealed no differences among study conditions suggesting that randomization was successful.

Before proceeding with hypothesis testing and to see if a multilevel approach was justified for further analysis, we tested models with only random intercepts to investigate how much variance was due to differences in persons (level 2) relative to total variance (ICC1, intraclass correlation) and how much variance was due to weekly fluctuations (level 1). If there was a high degree of dependence in the data (i.e., a higher ICC1), then traditional SEM models would have biased standard errors and lower power. Conversely, if weekly observations (level 1) were independent, then ICC1 would be zero and a traditional SEM framework would be appropriate (Bliese, 1998, 2000).

Model description	X ²	df	Δ_X^2	RMSEA [90% CI]	SRMR	CFI
Four-factor model	158.62	38	-	0.061 [0.051, 0.071]	0.041	0.964
Three-factor model: PA and NA as one factor	352.89	41	194.27***	0.094 [0.085, 0.104]	0.068	0.907
Three factor model: JS and WE as one factor	751.80	41	593.18***	0.143 [0.134, 0.152]	0.094	0.787
Two-factor model: PA and NA as one factor, and JS and WE as one factor	931.17	43	772.55***	0.156 [0.147, 0.164]	0.106	0.734
One-factor model	992.83	44	834.21***	0.159 [0.150, 0.168]	0.107	0.716

 Table 2 Comparison of Measurement Models for Study Variables

Note. PA: Positive affect, NA: Negative affect, JS: Job satisfaction, WE: Work engagement, Δ_X^2 : Satorra-Bentler scaled differences, RMSEA: Root mean square error of approximation, CI: Confidence interval, SRMR: Standardized root mean square residual, CFI: Comparative fit index. *N*=853;

*** p<.001

For afternoon positive affect, 65% of total variance was at the within-level (ICC1=0.35). For afternoon negative affect, 59% of total variance was at the within-level (ICC1=0.41). For job satisfaction 22% of total variance was at the within-person level (ICC1=0.78). For work engagement, 69% was at the within-level (ICC1=0.31). ICC1 values for all variables in our study were substantially larger than 0 indicating considerable dependence of measures in the same participant. Therefore, splitting the variance in two levels (within and between) was important for proper inference from the data making a multilevel approach was necessary (Bliese, 1998, 2000).

Furthermore, we used confirmatory factor analysis (CFA) to establish discriminant validity of the four self-report scales (i.e., positive affect, negative affect, job satisfaction, and work engagement). For this purpose, we employed the lavaan package version 0.6-7 (Rosseel, 2012) of the R software (R Core Team, 2016). The results from the CFA revealed that a four-factor model, in which items associated with each construct loaded onto distinct factors, had an average fit, (χ^2 =158.62, *df*=38; RMSEA=0.06, SRMR=0.04; CFI=0.96). In this model, all item loadings from the items to their latent factors were significant at *p*<.05. To further establish discriminant validity, we compared the four-factor model to different alternative models (see Table 2). For each comparison, the original four-factor model provided superior fit. These results offer evidence of discriminant validity between the latent constructs. Table 2.

4.2 Multilevel Modelling

Figure 2 depicts a simplified path model for the hypothesized effects of the self-compassion intervention and three good things intervention. Table 3 presents the results of the multilevel path analysis.

Hypothesis 1 predicted reduced negative affect for participants in the self-compassion intervention compared to participants in the control group after experiencing a negative work event. As expected, the results indicated that participants in the self-compassion interven-



Fig. 2 Multi-Level Mediation Path Modelling Results of the Three Good Things and the Self-Compassion Intervention on Work Satisfaction and Work Engagement *Note*. Model shows unstandardized path coefficients. All tests are one-tailed.** p < .01.

Variable		Positive affect		Negative affect		Job satisfaction		Work engagement	
		b	SE	b	SE	b	SE	b	SE
Between-level									
	Intercept	3.01**	0.06	2.71**	0.07	4.34**	0.42	1.82**	0.27
	SC dummy	-0.03	0.09	-0.28**	0.09	-0.09	0.09	0.06	0.06
	TGT dummy	-0.03	0.09	-0.15	0.09	-0.02	0.09	0.06	0.06
	Positive affect					0.37**	0.10	0.63**	0.06
	Negative affect					-0.57**	0.10	-0.27**	0.06
Within-level									
	Positive affect					0.09**	0.02	0.51**	0.04
	Negative affect					-0.03	0.03	-0.17**	0.26
Indirect effects									
	SC via negative affect					0.16**	0.06	0.08**	0.03
	TGT via posi- tive affect					-0.01	0.04	-0.02	0.06
Between-level R ²		0.002		0.08		0.35		0.68	
Within-level R ²						0.04		0.35	

Table 3	Multilevel	Modelling	Results for Sel	lf-Compassion a	and Three Good	Things Condit	ions vs. Control
						0	

Note. N=1268 at the daily level; N=317 at the individual level (Self-compassion: n=115, Three good things: n=102; Control: n=100). SC: Self-compassion intervention, TGT: Three good things intervention. All-tests with specified hypotheses are one-tailed, all others are two-tailed

** p<.01

tion experienced reduced negative affect compared to those in the control group (b=-0.28, p<.01).

Hypothesis 2 predicted increased positive affect for participants in the three good things intervention compared to participants in the control group after experiencing a negative work event. Contrary to our expectations, however, participants in the three good things intervention did not report higher levels of positive affect (b=-0.03, p=.86).

Hypothesis 3 predicted (a) higher job satisfaction and (b) higher work engagement for participants in the self-compassion intervention due to the mediating effect of negative affect. For the hypothesized mediation of the self-compassion intervention, the results yielded positive and significant indirect effects of the self-compassion intervention on job satisfaction (indirect effect=0.16, 95% CI [0.06; 0.26]) and work engagement (indirect effect=0.08; 95% CI [0.03; 0.12]) via decreased negative affect. Since there were no significant direct effects of the self-compassion intervention on job satisfaction (b=-0.09, p=.33) and work engagement (b=0.06; p=.34), the results indicated an indirect-only mediation, in which the indirect path exists but the direct effect (c) does not (Zhao et al., 2010).

Hypothesis 4 predicted (a) higher job satisfaction and (b) higher work engagement for participants in the three good things intervention due to the mediating effect of positive affect. For the hypothesized mediation of three good things, there was no evidence for the link between three good things and positive affect, so the two hypothesized indirect effects were nonsignificant for both job satisfaction (indirect effect=-0.02; 95% CI [-0.07; 0.05]) and work engagement (indirect effect=-0.01; 95% CI [-0.12; 0.08]).

In sum, Hypotheses 1, 3a, 3b were supported. Hypotheses 2, 4a, and 4b were not supported.¹

5 Discussion

Academic life is challenging. Facing constant evaluation, rejection of articles or proposals, failed experiments, and insecure job prospects are common experiences that contribute to low levels of well-being, mental health problems, or leaving academia due to burnout or attrition (Klaic et al., 2018; Levecque et al., 2017). In this study, academics from Germany, Switzerland, and the US took part in an intervention to either increase self-compassion as an emotion-oriented strategy or the three good things intervention as an avoidance-oriented strategy in order to cope with negative events at work. As the key result we showed that

¹ To test the robustness of our results, we also modeled our data using a linear mixed effects model with time and intervention as two fully-crossed factors. Results indicated significant time effects for positive affect (increasing overall) and negative affect (decreasing overall), and no significant time effects for job satisfaction and work engagement. Intervention had a significant influence on average negative affect, but not on positive affect, job satisfaction, or work engagement. No significant interactions of time and intervention were found. However, testing an interaction of time and intervention in this particular situation is greatly underpowered because no pre-measurements were obtained and changes from baseline from the intervention could not be observed. Post-hoc contrasts revealed that the self-compassion intervention had lower negative affect than the control group at t_0 , t_1 , and t_3 . Follow-up contrasts revealed no such differences between the three good things condition model which indicated direct effects of the self-compassion condition on negative effect, but not on job satisfaction and work engagement. Multi-level mediation and linear mixed modelling revealed no effects of the three good things condition on any study variables.

academics who learned to be more self-compassionate reported lower negative affect, which in turn increased job-related well-being.

Self-compassion means developing kindness, a shared sense of common humanity, and taking a balanced approach towards one's flaws or setbacks. The present study provides further evidence that high self-compassion relates to greater job-related well-being. When individuals learn to relate to themselves in a kinder and more understanding way, negative events and emotions become less threatening (Terry & Leary, 2011). Academics dealing with negative work events can use writing exercises that improve self-compassion to decrease negative affect after the event in order to become more satisfied and more engaged with their job (e.g., see instructions in the Appendix).

Participants in the three good things condition recalled a negative work event and then wrote about positive things instead. The exercise had originally been designed to increase optimism and foster gratitude (Seligman et al., 2005), but in the context of coping with negative experiences, it failed to improve positive affect and, indirectly, job-related well-being in the present study. Other studies also reported mixed evidence or null findings for the three good things intervention (e.g., Gander et al., 2013; Lyubomirsky et al., 2006). In the context of negative experiences, the result from the three good things intervention highlights an important aspect of human functioning. Not acknowledging or directly dealing with a negative event is an avoidance-based coping strategy. Avoidance-based coping (e.g., distraction) can be an adaptive strategy in the short-run (Achnak & Vantilborgh, 2021). In order to cope with the negative event or to seek help, unpleasant thoughts and emotions need to be acknowledged and processed (Wiebe, 2013).

5.1 Implications and Recommendations

The results of the current study have several theoretical implications. We used affective events theory (Weiss & Cropanzano, 1996) to explain why and how events at work influence job satisfaction and work engagement in a sample of academic staff. The results of the current study support the theory, as both positive and negative affect strongly predicted job satisfaction and work engagement. We extended affective events theory by showing that interventions at work aimed at improving job-related well-being may buffer the negative effects of negative work events. In addition, other studies suggested that self-compassion benefits employees from various occupations, such as doctors (Babenko et al., 2019), nurses (Vaillancourt & Wasylkiw, 2019), and managers (Pires et al., 2018). Our study results show that self-compassion similarly benefits academics.

Based on the current study, we derived three practical recommendations to employees working in higher education and to those supervising them. First and foremost, leaders can openly encourage conversations about well-being and mental health issues in academia. This might decrease the stigma associated with mental health problems (Sickel et al., 2014) and increase a sense of common humanity and shared identity, as most academics will face challenges during their career. Second, leaders and employees can bring up self-compassion as a potentially interesting and useful concept for their working lives and discuss how they might learn to become more self-compassionate. Self-compassion can be learned through formal programs such as Compassionate Mind Training (Matos et al., 2017) or Mindful Self-Compassion (Neff & Germer, 2013) or through self-administered interventions such as listening to guided meditations (e.g., Albertson et al., 2015), completing writing interven-

tions (e.g., Dreisoerner et al., 2021), or using smartphone-based interventions (e.g., Andersson et al., 2021). Third, our study highlights that approach-based coping (e.g., emotional- or problem-focused coping) is generally more effective than avoidance-based coping (see also Stanisławski, 2019). If academics are struggling with a stressor, facing the problem often works better than disengaging or avoiding the problem completely.

5.2 Limitations and Directions for Future Research

Our results indicate that self-compassion can be a useful resource for academics, but the present study is not without limitations. First, we asked participants to recall a negative event from the previous week. However, it could be that the negative event took place several days ago (e.g., Monday) from when the surveys were administered (i.e., Thursday). Thus, our interventions might have been more effective if they could have been administered on the day the negative event occurred. Ecological momentary assessment and other experience sampling methods are increasingly used in organizational behavior research to assess state variables as changes occur (Shiffman et al., 2008; Stone & Shiffman, 1994). Future research could apply self-compassion or other interventions in accordance with the ecological momentary assessment method to intervene right away when strains and challenges are most present.

Second, we measured several demographic variables as well as trait self-compassion to see if study conditions differed after randomization. It is possible that our measures were not exhaustive and that other "third" variables influenced study outcomes such as coping competencies, tendency to ruminate, or personality dimensions (e.g., neuroticism and extraversion; see for example Leszko et al., 2019). We assume that individuals who already have some coping competencies will differ in their reaction to negative work events compared to individuals who use maladaptive coping strategies (Matthews & Campbell, 1998). In the same vein, individuals who tend to ruminate may suffer more when encountering negative work events due to their inability to cope effectively in difficult situations. Future research could address such individual differences regarding adaptive and maladaptive coping strategies in response to negative work events.

Third, participants in our study were academic staff members from the US, Switzerland, and Germany. However, academic staff from other countries may experience different levels of work-related stress. They may also react differently to interventions. Most intervention studies designed to increase self-compassion have been conducted in Western and more individualistic countries (Ferrari et al., 2019), but an increasing number of studies demonstrate the effectiveness of self-compassion interventions in other, more collectivistic countries (e.g., Feliu-Soler et al., 2017; Wong & Mak, 2016). This suggests that individuals from various cultures can benefit from self-compassion. Furthermore, we highlighted the importance of our investigation by citing various studies that point out the importance of applying measures or interventions in order to stop the further deterioration of well-being in academia (Jaremka et al., 2020; Levecque et al., 2017; Woolston, 2019). However, in our study we specifically investigated job-related well-being and did not include other measures to capture well-being more generally. Future research could try to capture several dimension of well-being such as spiritual, social, and physical (see Linton et al., 2016).

6 Conclusion

The first step to addressing issues of poor mental health and low well-being in academia is to admit that they exist. High workload including time and resource limitations, rejections, competition for funding and jobs, job uncertainty, and role overload are among the most cited reasons why many academics experience high stress and low well-being (El-Ghoroury et al., 2012; Kinman & Jones, 2008; Levecque et al., 2017). Long-term change requires system-wide action in order to increase support and make job demands in academia more manageable. Senior management and immediate supervisors (such as PhD advisors) in academia have an obligation to provide good working conditions for their employees and supervisees. In the short run, however, academics can learn to be more accepting of their own flaws and to react with kindness rather than toxic contempt for themselves when they encounter a setback or a difficult work situation.

7 Appendix

Instructions Questionnaire at Noon.

Recall negative work event.

Doing research and teaching is a challenging endeavor: Competition for fixed-term contracts, pressure to publish, rejections or harsh feedback regarding research projects and oftentimes additional burden through teaching assignments are only a few examples for challenges in the academic workplace.

Please try to think of a moment at work in the last week which was very challenging for you as a researcher and/or teacher. This may be a disappointment or an annoying situation.

Please describe this experience in a few sentences.

Self-compassion intervention.

The goal of the following exercise is to develop compassion for oneself in difficult situations. Please use the space below to write a short paragraph by expressing self-compassion.

Try to be as friendly and understanding as possible and remember that you are not alone with your problem in academia. Write in a neutral way what feelings you expressed in that particular situation: anger, shame, anxiety, stress and so on. Be kind and understanding (i.e., the way you treat a good friend).

As soon as you finished, look at the paragraph you wrote and take in the consoling words for a moment.

Three good things intervention.

The aim of the following exercise now is to think about others, more positive matters instead of focusing on the negative situation you outlined before. Please write a few sentences about three good things that went well within the last week.

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Data Availability The data that support the findings of this study will be openly available in Figshare (https://figshare.com/) at https://doi.org/10.6084/m9.figshare.21561492.v1 after acceptance for publication.

Declarations

Competing Interests The authors have no relevant financial or non-financial interests to disclose.

Ethics Approval All applicable institutional ethics guidelines for the involvement of human participants in studies were followed.

Consent for Participation Informed Consent was obtained from all individual participants included in the study.

Consent for publication All authors read and approved the final manuscript for submission and publication.

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