



When you don't like what you feel: Experiential avoidance, mindfulness and meta-emotion in emotion regulation

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ABSTRACT

The present study explores the role of (1) “experiential avoidance” (being non-accepting towards mental events) and (2) “mindful awareness” (being attentive in the present moment) in the prediction of well-being. These established constructs are newly complemented with (3) “meta-emotions” (emotional reactions about one’s own emotions) that allow for a meaningful differentiation of processes in experiential avoidance. Psychometric properties of the newly developed Meta-Emotion Scale (MES) are presented. Psychological well-being is strongly predicted by all three facets. Of the six MES subscales, substantial predictive power could be confirmed for “contempt/shame”, “suppression”, “tough control” and “interest”, whereas “anger” and “compassionate care”, unexpectedly, exerted little influence in our non-clinical sample. The role of meta-emotions in emotion regulation is discussed.

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1. Introduction

Emotion regulation has been conceived as processes that serve to intensify, dampen, or maintain the behavioural, cognitive, experiential, or physiological aspects of emotion depending on an individual’s goals (Gross & Thompson, 2007). In this field of research, habitual suppression of emotion has been found to be associated with a less favourable balance of negative and positive affect, less life satisfaction, self-esteem, and psychological well-being (Gross & John, 2003).

Research on mindfulness offers a distinct but related perspective on emotion regulation. In this domain, the dimension spanning non-acceptance of mental events to acceptance is investigated. Experiential avoidance (EA; Hayes, Strosahl, Wilson, et al., 2004) is defined as unwillingness to experience feelings, thoughts and sensations as well as attempts to alter them. Accumulating evidence supports its central role in psychopathology (e.g., Zvolensky, Feldner, Leen-Feldner, & Yartz, 2005). Mindfulness as its beneficial counterpart is purposefully and non-judgmentally paying attention in the present moment (Kabat-Zinn, 1990). “Being non-judging/accepting” and “awareness/attentiveness in the present moment” are central facets of mindfulness that are emphasized in a variety of measures and negatively predict psychological symptoms (e.g., Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Brown & Ryan, 2003).

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The conceptual relationship between mindfulness and EA is much debated. Despite considerable overlap in underlying processes, the most salient differences in the constructs are the divergent theoretical contexts from which they are drawn (Eastern philosophy and functional contextualism, respectively; see Block-Lerner, Salters-Pedneault, and Tull (2005) for a discussion).

EA and mindfulness represent constructs that influence the experience of emotions. The central processes are yet to be nailed down (Dimidjian & Linehan, 2003). Most studies on mindfulness have focused solely on the effectiveness of interventions, but it is not clear why people avoid thoughts and emotions in the first place.

1.1. “Meta-emotion”: emotion as regulation of emotion

We argue that the investigation of emotional reactions about one’s emotions, i.e., “meta-emotions” (Gottman, Katz, and Hooven (1997) coined the term to describe parental emotions on emotional displays of their child), illuminates processes in (non-)acceptance of emotions. Meta-emotions can be conceived as a subclass of “secondary emotions” (Greenberg, 2002) which is a temporal concept (a secondary emotion like anxiety follows a primary emotion like anger in time) but also implies that primary emotions can be the “object” of secondary emotions (i.e., anxiety about the angry self). Thus, emotions like anxiety, anger, or compassion become meta-emotions if their object is the emotional self (the “meta”-aspect indicated henceforth with the prefix ^m).

As emotions, meta-emotions go beyond “meta-cognitions” (Wells & Cartwright-Hatton, 2004) and might produce vicious

circles and rebound effects (Wegner, 1994). Approaches investigating “meta-mood-experiences” (Mayer & Stevens, 1994; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995), again, explore cognitions about mood (e.g., “clarity”, “attention”, “acceptability”) with the exception that “shame about one’s mood” is part of the “acceptability”-factor in Mayer and Stevens’ (1994) approach.

Several examples in clinical psychology can be conceived as meta-emotional experiences (“affect phobia”, Williams, Chambless, & Ahrens, 1997; “fear of fear”, Reiss, Peterson, Gursky, & McNally, 1986); however, these are concepts confined to a single emotion (fear) within a wide array of possible emotion-about-emotion phenomena.

Meta-emotions elucidate processes in EA/mindfulness in meaningful ways: first, as emotions, they embed a judgment (cognitive appraisal) that is in contrast to the definition of mindfulness by Kabat-Zinn (1990). Whereas negative meta-emotions (e.g., ^manger, ^manxiety) reflect EA and non-acceptance, positive meta-emotions (e.g., ^mcompassion, ^minterest) support acceptance of one’s emotions with possible positive effects on well-being (Neff, 2003) but still involve a valenced appraisal.

Second, the quality of meta-emotions provides information on regulatory processes operating on the target emotion. For example, being angry about one’s anxiety will influence the experience of that anxiety, and this process differs from experiencing compassion about being anxious. ^mAnxiety about one’s emotions depicts threat and uncertainty with the accompanying action tendency (e.g., Lazarus, 1991), whereas ^manger involves the perception of blocked goals and the motivation to attack, etc. Perceived control in handling the target emotion is different in ^manxiety compared to ^manger; it is also different in ^mcompassion compared to ^minterest.

We argue that recurrent meta-emotions reflect an important part of a person’s emotion regulation with impact on the individual’s psychological well-being (PWB). PWB is related to but distinct from “subjective well-being” that is more hedonic in character (Keyes, Shmotkin, & Ryff, 2002; see also “hedonic” and “eudaimonic” well-being; Ryan & Deci, 2001). PWB as “perception of engagement with existential challenges of life” (Keyes et al., 2002) is more readily compatible with a mindfulness/acceptance-frame where (negative) emotions are allowed/accepted. Negative meta-emotions indicate that this “engagement” does not run smoothly.

Apart from ^manxiety, few empirical data on emotion-about-emotion phenomena are available. Whelton and Greenberg (2005) found self-contempt to be associated with depressive symptoms. Leahy (2005) reported that people who expect others to invalidate their feelings stick to a positive view of worrying (not to get hurt). If people expect validation, they should experience less guilt and shame about their emotions.

On the positive side, Neff (2003) has shown positive correlations between “self-compassion”, mindfulness, and well-being. Gilbert and colleagues (2006) have investigated “self-warmth” which is conceived as interpersonal strategy that is projected onto the self.

In this study, we investigated the relative contribution of the above-mentioned factors to well-being: (1) “experiential avoidance” is conceived as an important metacognitive frame for handling mental events in a judging/non-accepting way with negative impact on well-being; (2) we expected a positive contribution of “mindful awareness” as “being attentive in the present moment”; and (3) with the newly developed Meta-Emotion Scale (MES) we included emotion-about-emotion experiences in the model to further illuminate ongoing processes in emotion regulation. We expected factors to emerge that represent discrete emotional reactions about one’s emotions (interest-about-emotions, anger-about-emotions, etc.) and explain additional variance in well-being. Whereas negative meta-emotions should reveal

negative correlations, the opposite was expected for positive meta-emotions.

2. Study 1: development of the Meta-Emotion Scale and predictive power regarding psychological well-being

Factor structure and psychometric properties of the MES were explored in a non-clinical sample.

2.1. Method

2.1.1. Participants

Sample A: Out of 339 students attending a course on communication skills (spring 2005) at the Medical University Innsbruck, 334 agreed to participate in this study earning no credits for participation (age mean = 22.37, SD = 2.81; Min = 19, Max = 42; 54.1% female; 36.3% single, 11.1% lived alone). After giving informed consent, subjects completed questionnaires during the course.

2.1.2. Measures

Meta-Emotion Scale (MES): A pool of meta-emotion experiences was generated through interviews with three clinical psychologists, four lay people and three patients (“What sort of negative and positive emotional reactions to your own emotions do you know from your own experience/your work with patients?”). Forty items were phrased which are rated from 1 = “is not at all true for me” to 6 = “is completely true for me”. Items included negative meta-emotions like anger, contempt, anxiety, sadness, shame or guilt, and positive meta-emotions like interest and compassionate care. Participants were instructed to rate statements “not as they think they should react but as their actual experiences are” (Table 1).

Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004): This scale measures EA as the unwillingness to get or stay in contact with internal experiences. The German translation of Sonntag (2005 personal communication) was back-translated and corrected for problematic phrases. Cronbach’s alpha of the English original is acceptable with .70 (Hayes et al., 2004).

Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003; German translation, Heidenreich & Michalak, personal communication): This 15-item scale measures awareness in everyday contexts and shows connections to dispositional affectivity, well-being, quality of life, etc. (German version alpha = .83; Ströhle, 2006).

Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985; German version, Sölva, Baumann, & Lettner, 1995): This commonly used scale consisting of five items assesses global life satisfaction on a cognitive-judgmental basis and has good internal reliability, test-retest reliability and validity.

Scales of Psychological well-being (SPWB; Ryff, 1989; German version, Staudinger, Lopez, & Baltes, 1997): This scale consists of 18 items with every three items comprising six subscales (autonomy, environmental mastery, personal growth, positive relationships, purpose in life, self-acceptance); it is well-established and has acceptable psychometric properties.

2.2. Results

2.2.1. Exploratory factor analysis

Two items were eliminated because of undue skewness or kurtosis. With the remaining 38 items, principal axis factor analysis (PFA) was performed (SPSS 15 for Windows, SPSS, IL: Chicago) and was favoured over principal components analysis (PCA), because of its advantages when higher-order factor rotations are performed (Floyd & Widaman, 1995). Varimax rotation was used to get maximum independence of (discrete emotion) factors, and

Table 1
Principal axis factor analysis with Varimax rotation for the Meta-Emotion Scale (MES) (descriptives and factor loadings; $n = 334$).

	M	SD	F
<i>1. ^mAnger</i>			
15. I often think my emotional reaction is wrong	2.80	1.34	.74
3. I repeatedly get angry about my emotional reactions	3.11	1.43	.73
5. Sometimes I could get really mad at myself about the way I react emotionally	2.54	1.42	.73
27. Repeatedly, I am irritated by my stupid emotional reactions	2.59	1.35	.66
<i>2. ^mCompassionate care</i>			
9. When I am sad or anxious, I do myself something good to make things easier for myself	4.05	1.17	.78
11. I indulge myself when I feel bad	3.45	1.25	.71
2. When I feel stressed and I experience negative emotions, I treat myself with compassion	3.49	1.16	.65
24. When I experience strong negative emotions, I comfort and encourage myself	3.77	1.17	.65
22. I am kind to myself when I feel burdened by my emotions	3.19	1.13	.65
7. In stressful situations, I try to treat myself in a similar caring fashion as I would treat people who are close to me	3.75	1.32	.58
4. I downright cajole myself when I experience major emotional burden	3.78	1.36	.47
<i>3. ^mInterest</i>			
23. I learn through my feelings	4.42	1.15	.76
18. Negative emotions provide me with interesting information about myself	4.40	1.22	.74
28. Time and again, my thoughts and emotions are fascinating and important to me	4.25	1.23	.74
16. My thoughts and my feelings are an inexhaustible source of information about myself	4.02	1.35	.71
13. Again and again, I discover new forms of experiences in myself	3.98	1.33	.66
<i>4. ^mContempt/shame</i>			
21. I cannot forgive myself for a long time when I have done something wrong	3.43	1.39	.67
17. When I feel guilty because I have made a mistake, I am quite unforgiving with myself	3.61	1.40	.61
12. When I am ashamed about my emotional reactions, I can hardly think of anything else	3.38	1.44	.53
14. Repeatedly, there are situations when I excoriate myself	3.22	1.47	.48
20. When I cannot live up to my own expectations in everyday life, I do not put myself down (inversely coded)	3.99	1.34	.44
<i>5. ^mTough control</i>			
1. When I am sad or anxious, I become demanding of myself	3.41	1.37	.71
8. When I see my emotions as inappropriate, I get very strict with myself	3.66	1.47	.66
26. I place high demands on myself to gain control over my feelings	3.24	1.42	.56
6. I repeatedly force myself to pull myself together	3.39	1.45	.54
19. When talking to myself in my thoughts, I am often harsh with myself	2.88	1.28	.48
<i>6. ^mSuppression</i>			
25. I cannot come to grips with strong emotions	2.47	1.26	.62
10. I fight strongly against my emotions	2.23	1.20	.60

Note: Items with factor loadings >0.40 are depicted. Non-validated English translation of the German version that has been back-translated and corrected for problematic phrases.

eight factors with eigen values >1 could be extracted. However, a six-factor solution based on the scree plot was favoured (Floyd & Widaman, 1995), and explained 56.1% of the variance. It was more interpretable than the eight-factor solution, and 28 items with loadings >0.40 were finally retained (Table 1; one item with theoretically problematic content within factor 1 was dropped).

Several factors could be designated with discrete emotion words. Unexpectedly, though, two factors did not clearly represent basic emotional reactions. For example, ^mtough control consists of items that were expected to relate to anger and contempt; however, its main thrust is better conceived as a strict control of emotions. Descriptives and internal consistency of subscales are given in Table 2.

Table 2
Descriptives and Cronbach's alpha for the subscales of the Meta-Emotion Scale, AAQ and MAAS in sample A ($n = 334$; alpha for clinical sample C in brackets).

	Mean	SD	Alpha (sample C)	Second-order factor loadings	
				(1)	(2)
MES					
"Anger"	2.76	1.16	.86 (.86)	.74	-.16
"Compassionate care"	3.64	0.86	.82 (.83)	-.13	.50
"Interest"	4.21	1.00	.85 (.82)	-.06	.76
"Contempt/shame"	3.53	1.01	.77 (.78)	.73	-.11
"Tough control"	3.32	1.08	.83 (.77)	.78	-.01
"Suppression"	2.35	1.10	.76 (.77)	.64	-.29
(1) "Negative meta-emotions"	3.00	0.88	.91 (.91)		
(2) "Positive meta-emotions"	3.93	0.78	.85 (.87)		
MAAS	4.33	.69	.85		
AAQ	28.90	6.49	.59		

Note: AAQ, acceptance and action questionnaire; MAAS, mindful attention and awareness scale; and MES, Meta-Emotion Scale. Second-order factors extracted with principal axis factor analysis with Varimax rotation.

Second-order PFA was performed on subscales and produced two factors with eigen values >1 explaining 67.2% of the variance. They were named “negative meta-emotions” (nMES; combining four factors) and “positive meta-emotions” (pMES; combining two factors) and were additionally analyzed (Table 2).

2.2.2. German version of AAQ

Psychometric properties of the German version of AAQ and MAAS are given in Table 2 ($r = -.41^{***}$ between the two). PCA of the AAQ revealed three factors with eigen values >1 ($eigen_{F1} = 2.329$; $eigen_{F2} = 1.288$; $eigen_{F3} = 1.116$) explaining 52.6% of the variance and allowing the expected one-factor solution; however, like the English version it has low alpha (Zvolensky et al., 2005).

2.2.3. Predictive strength of mindfulness measures in PWB

To explore the predictive strength of the MES, we calculated bivariate correlations of subscales with well-being measures and found the expected negative and positive associations (Table 3). This was followed by regression analyses. After AAQ and MAAS had been entered, meta-emotions were expected to explain significant additional portions of variance in well-being. First, we entered MES scores as combined subscales of nMES and pMES into the regression (Table 4a). The AAQ explained 30%, MAAS scores explained 7%, and meta-emotions explained an additional 11% of the variance in SPWB (SWLS: AAQ 30%, MAAS 0%, MES plus 7%).

To explore meta-emotion patterns, we also entered the six MES subscales into regression analyses (Table 4b). In this model, explained variance rises to 53% for SPWB (AAQ 30%, MAAS, plus 7%, MES plus 15%) and to 40% for the SWLS (AAQ 30%, MAAS 0%,

MES plus 10%). Multicollinearity analysis did not indicate reasons for concern.

2.3. Discussion

In study 1, incremental validity of meta-emotions in differentiating EA/mindfulness was investigated. Our results underscore the predictive strength of EA and mindful awareness in well-being. We also confirmed the predictive strength MES scores over and above that of AAQ and MAAS. Overall explained variance is substantial.

Of the six MES-factors, most depict discrete emotional content (^manger, ^minterest and ^mcompassionate care), although ^mcontempt/shame represents the co-occurrence of two very different emotional qualities. The two remaining factors do not depict distinct emotional content: ^msuppression can be perceived as related to anxiety/uncontrollability; however, anxiety is not the prominent emotional tone in this factor. ^mTough control is characterized by tight self-discipline that is not confined to any one single emotional quality (but negative valence) and might represent non-acceptance with high perceived control. The status of these factors within meta-emotion experiences is not yet clear and needs further investigation.

Whereas bivariate correlations of meta-emotions with well-being met our expectations, the patterns changed for the subscales in multiple regressions: posited effects were confirmed for ^mcontempt/shame, ^msuppression, and ^minterest, but ^mtough control (negative valence) was positively associated with well-being. Thus, it appears that there could be beneficial effects of non-acceptance, which is contrary to contemporary theorizing, but is corroborated by another study of our group (Mitmansgruber, Beck, & Schübler, 2008) with experienced paramedics (see below).

Table 3
Bivariate correlations (Pearson) between MES subscales and well-being.

MES	2	3	4	5	6	SWLS	SPWB
Anger	-.15**	-.15**	.56***	.55***	.54***	-.40***	-.41***
Comp. care	-	.39***	-.19***	-.09	-.20**	.28***	.28***
Interest		-	-.11*	-.06	-.26***	.20**	.30***
Contempt/shame			-	.60***	.46***	-.48***	-.50***
Tough control				-	.51***	-.29***	-.32***
Suppression					-	-.44***	-.55***

Note: MES, Meta-Emotion Scale; SWLS, satisfaction with life scale; and SPWB, scales of psychological well-being.

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 4
Multiple regression (enter) with experiential avoidance, mindful awareness, and (a) positive and negative meta-emotions or (b) meta-emotion subscales as predictors (standardized beta-weights) on well-being ($n = 334$ medical students; variables entered as depicted).

(a)	AAQ		MAAS		MES		R^2				
					nMES	pMES					
SWLS	-.39***		-.03		-.27***	.13*	.37***				
SPWB – Sum	-.25***		.26***		-.26***	.23***	.49***				
SWLS: $R^2 = .30$ for step 1 ($p < .001$); $\Delta R^2 = .00$ for step 2 (ns); $\Delta R^2 = .07$ for step 3 ($p < .001$); SPWB – Sum: $R^2 = .30$ for step 1 ($p < .001$); $\Delta R^2 = .07$ for step 2 ($p < .001$); $\Delta R^2 = .11$ for step 3 ($p < .001$)											
(b)	AAQ		MAAS		MES				R^2		
					Anger	Con-tempt	Tough control	Suppr.		Comp. care	Interest
SWLS	-.35***		-.02		-.06	-.24**	.11	-.17*	.12*	.01	.40***
SPWB – Sum	-.21***		.27***		.01	-.23***	.14*	-.28***	.08	.15**	.53***
SWLS: $R^2 = .30$ for step 1 ($p < .001$); $\Delta R^2 = .00$ for step 2 (ns); $\Delta R^2 = .10$ for step 3 ($p < .001$); SPWB – Sum: $R^2 = .30$ for step 1 ($p < .001$); $\Delta R^2 = .07$ for step 2 ($p < .001$); $\Delta R^2 = .16$ for step 3 ($p < .001$)											

Note: AAQ, acceptance and action questionnaire; MAAS, mindful attention and awareness scale; MES, Meta-Emotion Scale; pMES, positive meta-emotions; nMES, negative meta-emotions; SWLS, satisfaction with life scale; and SPWB, scales of psychological well-being.

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

3. Study 2: CFAs and convergent and discriminant correlations

To investigate the validity of the factor structure in the MES, CFAs with two independent samples were performed on the remaining 28 items, and correlations with related measures were explored.

3.1. Method

3.1.1. Participants

Sample B: 222 medical students doing a course on communication skills participated in this study earning no credits for participation. After giving informed consent, participants completed questionnaires (mean age = 22.8, SD = 3.8; Min = 19, Max = 50; 58.6% female; 3.2% married or stable relationship, 18.6% living alone). Complete MES data sets amenable to CFA were available from 213 students.

Sample C: 297 inpatients in a psychosomatic clinic in Germany gave informed consent and completed assessment at admission (mean age = 45.0; SD = 11.4; 81.9% female; 46.4% married or stable relationship, 28% living alone). Reported main problems were somatic/psychosomatic disorders (23.5%; e.g., diabetes, chronic pain syndromes), affective disorders (20.1%), anxiety disorders (15.4%), and eating disorders (13.3%). About 268 patients provided complete MES data sets.

3.1.2. Measures

Meta-Emotion Scale (see study 1).

NEO personality inventory revised (NEO-PI-R; Costa & McCrae, 1992; German version, Borkenau & Ostendorf, 1993): The scale assesses the dimensions neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness and is a standard instrument for personality assessment.

Positive Affectivity and Negative Affectivity Scale (PANAS; Watson, Clark, & Tellegen, 1988; German version, Krohne, Egloff, Kohlmann, & Tausch, 1996): Positive and negative emotions are assessed with varying time frames. In our study dispositional affectivity was investigated.

Beck Depression Inventory (BDI; Beck & Steer, 1987; German version, Hautzinger, Bailer, Worall, & Keller, 1994) and the Center of Epidemiological Studies – depression (CES-D; Radloff, 1977; German version, Hautzinger & Bailer, 1992) have been included to assess depressive symptoms. The brief symptom inventory (BSI; Derogatis, 1993; German version, Franke, 2000) assesses psychological symptoms over the past week combined to form global indices of symptom severity.

Meta-cognitions questionnaire (MCQ; Wells & Cartwright-Hatton, 2004; German version, Maier, 2004): The scale assesses meta-cognitions about worries on five subscales that are combined into a composite index for cognitions that foster pathological worrying.

3.2. Results

3.2.1. Confirmatory factor analysis

We performed CFAs of the six-factor-model using maximum-likelihood estimation (AMOS7.0; Arbuckle, 2006). Correlations have been allowed between factors with negative and positive valence, respectively, and between error-variables within factors. On sample B, the indices indicated acceptable fit with the data ($\chi^2 = 504.736$, $df = 327$, $p = .000$, $NFI = .806$, $CFI = .920$, $RMSEA = .051$). All items were significantly correlated with the respective factors (alphas of subscales from .70 to .88). We also tested the model in our clinical sample with acceptable resulting indices ($\chi^2 = 528.104$, $df = 323$, $p = .000$, $NFI = .797$, $CFI = .908$,

$RMSEA = .060$). All items were significantly correlated (alphas in brackets in Table 2).

In addition to these six first-order factors, we performed CFAs with two higher-order factors: negative and positive meta-emotions. Again, we found acceptable indices for this hierarchical model in patients ($\chi^2 = 636.274$, $df = 320$, $p = .000$, $NFI = .831$, $CFI = .907$, $RMSEA = .061$) and medical students ($\chi^2 = 508.223$, $df = 318$, $p = .000$, $NFI = .804$, $CFI = .914$, $RMSEA = .053$).

As both models seem to fit the data in two independent samples, factor structure will need further scrutiny.

3.2.2. Correlations with related measures

Finally, bivariate correlations of pMES and nMES with related constructs were calculated (Table 5) and mostly moderate correlations in the expected directions with mindfulness measures, negative and positive affectivity emerged: nMES was negatively related to extraversion, MAAS, and PA and positively related to neuroticism, AAO, NA, and psychological symptoms (reverse pattern for pMES).

3.3. Discussion

In study2, the factor structure of the MES was confirmed with acceptable fit in two independent samples, although it is not clear from the data whether the simple six-factor-model is preferable to the hierarchical model with two superordinate factors. Moderate correlations with related measures underscore the posited distinctness of meta-emotions from related constructs. Interestingly, expected positive correlations of nMES were found with all MCQ

Table 5

Zero-order correlations (Pearson) of MES scores with related scales.

Scale	Sample	nMES	pMES
AAQ	A, C	.50 ^{***} , .49 ^{***}	-.25 ^{***} , -.48 ^{***}
MAAS	A, C	-.40 ^{***} , -.62 ^{***}	.03, .32 ^{***}
MCQ	B	.51 ^{***}	.09
Cognitive confidence		.32 ^{***}	-.07
Positive beliefs		.19 [*]	.25 ^{***}
Cognitive self-consciousness		.27 ^{***}	.25 ^{***}
Uncontrollability/danger		.48 ^{***}	-.11
Need to control thoughts		.44 ^{***}	.03
NEO-PI-R	B		
Neuroticism		.54 ^{***}	-.27 ^{***}
Extraversion		-.20 ^{**}	.32 ^{***}
Openness to experience		.04	.39 ^{***}
Agreeableness		-.08	.20 ^{**}
Conscientiousness		-.08	.04
CES-D	B	.47 ^{***}	-.11
BSI	C		
GSI		.56 ^{***}	-.41 ^{***}
PSDI		.45 ^{***}	-.36 ^{***}
BDI	C	.61 ^{***}	-.47 ^{***}
PANAS	C		
Negative affectivity		.60 ^{***}	-.32 ^{***}
Positive affectivity		-.34 ^{***}	.51 ^{***}
SWLS	A, C	-.49 ^{***} , -.43 ^{***}	.29 ^{***} , .41 ^{***}
SPWB	A, C	-.53 ^{***} , -.45 ^{***}	.36 ^{***} , .53 ^{***}
Autonomy		-.23 ^{***} , -.28 ^{***}	.19 ^{**} , .34 ^{***}
Environmental mastery		-.56 ^{***} , -.47 ^{***}	.20 ^{**} , .44 ^{***}
Personal growth		-.23 ^{***} , -.07	.40 ^{***} , .48 ^{***}
Positive relationships		-.31 ^{***} , -.35 ^{***}	.20 ^{**} , .28 ^{***}
Purpose in life		-.13 [*] , .00	.05, .06
Self-acceptance		-.46 ^{***} , -.49 ^{***}	.30 ^{**} , .48 ^{***}

Note: Samples A (n = 334), B (n = 222), C (n = 297); pMES, positive meta-emotions; nMES, negative meta-emotions; AAQ, acceptance and action questionnaire; MAAS, mindful attention and awareness scale; MCQ, meta-cognitions questionnaire; NEO-PI-R, neo personality inventory; SWLS, satisfaction with life scale; SPWB, scales of psychological well-being; BSI, brief symptom inventory; CES-D, center of epidemiological studies – depression; BDI, beck depression inventory; and PANAS, positive affectivity and negative affectivity scale.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

subscales (aspects of pathological worry) whereas pMES was positively correlated with “positive beliefs” (about worrying) and “cognitive self-consciousness” (tendency to monitor one’s thoughts and focus attention inwards). Precisely these two dimensions are inconsistently associated with psychological dysfunction (Spada, Nikcevic, Moneta, & Wells, 2008). Supposedly, they could contribute to potentially beneficial cognitive approach behaviour.

4. General discussion

In the present study, meta-emotions were found to exert a powerful influence on well-being over and above EA/mindfulness. To maintain well-being, it might be as rewarding to minimize negative meta-emotions and to have an accepting stance towards one’s own emotions (i.e., mindfulness/acceptance and the “eudaimonic” perspective; Ryan & Deci, 2001) as to minimize negative emotions (the “hedonic” perspective).

Several MES subscales showed posited associations, but the low predictive strength of ^manger and ^mcompassionate care is noteworthy. Neff (2003) and Gilbert, Baldwin, Irons, Baccus, and Palmer (2006) confirm the role of self-compassion in well-being. Conversely, one might expect that anger about one’s emotions has some negative influence on PWB. Possibly, our medical students represent a sample with very special regulation strategies or lack the experience of substantial emotional stress.

Furthermore, it is intriguing that ^mtough control seemingly had a beneficial effect. This finding is in agreement with the results of our study with experienced paramedics (Mitmansgruber, Beck & Schüßler, 2008): besides expected associations (e.g., ^manger), high scores on ^mtough control as also high scores on ^mcontempt/shame and low scores on ^mcompassionate care were associated with increased well-being (overall explained variance 62%). This regulation pattern in paramedics might well reflect their role as helpers and indicates a possible beneficial effect for non-acceptance of emotions.

Our results also underscore the relative independence of meta-emotions from trait affectivity (which has still to be proven for EA; Zvolensky et al., 2005) and the usefulness of the non-collapsed six-factor model. This, together with variation of stressors and assessment methods as well as experimental variation, has to be further investigated in future studies to clarify causal direction and the benefits/downsides of distinct meta-emotion strategies in relation to PWB.

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