



Evaluations of emotions: Distinguishing between affective, behavioral and cognitive components



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ABSTRACT

People cultivate attitudes toward various targets, including emotions. As any attitude object, attitudes toward emotions are likely constructed of affective (e.g., how much do I like or dislike emotion X ?), behavioral (e.g., whether and how will I act in response to emotion X ?), and cognitive (e.g., how good or bad do I think emotion X is?) components. We argue that existing measures of attitudes toward emotions (i.e., Attitudes Toward Emotions scales, ATE; Harmon-Jones et al., 2011) tap the affective and behavioral components. We advocate the importance of assessing the cognitive components of attitudes toward emotion. In four studies ($N = 783$), we establish the validity of the Evaluations of Emotions (EVE) scales and show that they are distinct from the ATE. As we predicted, ATE scores were more strongly associated with the perceived pleasantness of the target emotion, whereas EVE scores were more strongly associated with the perceived utility of the emotion (Studies 1–3). Furthermore, EVE (but not ATE) scores were linked to the perceived utility of anger, which in turn, was linked to the motivation to experience anger during an economic task (Study 4). We discuss possible implications of our findings for understanding meta-emotion and emotion regulation.

1. Introduction

Attitudes toward emotions reflect how people generally evaluate emotions (Harmon-Jones, Harmon-Jones, Amodio, & Gable, 2011). People differ in their attitudes toward emotions and such differences, in turn, are linked to what people want to feel and to how they regulate their emotions (Harmon-Jones et al., 2011; Markovitch, Netzer & Tamir, 2016). Attitudes, however, are not a unidimensional concept. Instead, they include affective, behavioral and cognitive components (Eagly & Chaiken, 1993). We argue that such complexity also characterizes attitudes toward emotions. We further argue that existing measures of attitudes toward emotions (i.e., Attitudes toward Emotions Scale, ATE; Harmon-Jones et al., 2011) capture primarily the affective and behavioral components. However, to better understand attitudes toward emotions and their implications, it is also necessary to assess the cognitive component of such attitudes. Therefore, we propose a measure of attitudes toward emotions (i.e., the Evaluations of Emotions Scale, EVE), designed to capture the cognitive component. We proceed to show that the EVE scales are theoretically and psychometrically distinct from the ATE, and that the two types of scales are differentially linked to affective and cognitive judgements of emotion (i.e., those

pertaining to pleasantness and utility, respectively), potentially underlying different paths to emotion-related behavior.

1.1. Components of attitudes

Attitudes are a tendency to evaluate a target object with some degree of favor or disfavor, and are based on emotional reactions, behaviors toward, and cognitive evaluations of the attitude object (Eagly & Chaiken, 1993). Although these three components are often inter-related, they are distinct (Abelson, Kinder, Peters, & Fiske, 1982; Breckler & Wiggins, 1989).

The affective component is related to how people feel about the attitude object (Eagly & Chaiken, 1993). It can reflect a general liking or disliking, or more specific affective reactions toward the object. With respect to attitudes toward emotion, the affective component is likely related to the extent to which one likes or dislikes the target emotion. The behavioral component is related to how people behave toward the attitude object (Eagly & Chaiken, 1993). Approaching the object is typically associated with more positive attitudes toward it, whereas avoiding the object is typically associated with more negative attitudes. With respect to attitudes toward emotion, the behavioral component is

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likely related to whether people approach or avoid the target emotion. The cognitive component is related to how people think about the attitude object (Eagly & Chaiken, 1993). This component reflects beliefs that people hold about the object and the attributes they associate with it. The more people associate an object with positive attributes, the more positive their attitudes toward it. With respect to attitudes toward emotion, the cognitive component is likely related to the extent to which one thinks positive or negative thoughts about the emotion, or associates it with positive or negative attributes.

1.2. Attitudes toward emotions

Emotions are evaluative states. However, emotions can also be the object of evaluation. Various constructs related to evaluations of emotions have been proposed and assessed in the literature. Emotion norms (Eid & Diener, 2001), desired emotions (e.g., Tamir, Bigman, Rhodes, Salerno, & Schreier, 2015), and ideal affect (Tsai, Knutson, & Fung, 2006) refer to personally and culturally relevant evaluations about the desirability of emotions and affective states. These motivational constructs are likely informed by evaluations of emotions, but they are not entirely equivalent to them.

Harmon-Jones et al. (2011) were the first to focus on evaluations of emotions per se, by directly assessing attitudes toward emotions. They introduced the Attitudes toward Emotion (ATE) scales to measure people's attitudes toward five discrete emotions (i.e., joy, sadness, anger, fear, and disgust). They found that people differ in their attitudes toward discrete emotions, and that these differences are linked to emotion-related behavior. In a series of studies, they showed that more positive (or more negative) attitudes toward an emotion were related to attempts to increase (or decrease) experiences of that emotion. For example, individuals with more negative attitudes toward fear were more motivated to avoid fearful stimuli after viewing a fear-inducing film clip.

The research by Harmon-Jones et al. (2011), using the ATE, was critical in highlighting the importance of studying attitudes toward emotions. However, as reviewed above, such attitudes are not homogeneous constructs. Instead, they are likely comprised of three distinct components. We argue that the ATE taps primarily the affective and potentially the behavioral components of attitudes toward emotions. The affective component is targeted by items that refer to how much people like or enjoy the emotional experience (e.g., *I like how it feels when I am furious*), or stimuli that elicit the emotion (e.g., *I like conversations that make me feel happy*). The behavioral component is targeted by items that describe behaviors that regulate the emotional experience (e.g., *I do things just because they scare me*). Nonetheless, we argue that the ATE does not contain items tapping the cognitive component of attitudes toward emotions.

As the different components of attitudes might carry different theoretical and pragmatic implications (e.g., Millar & Tesser, 1986; Trafimow & Sheeran, 1998), it is important to also assess the cognitive component of attitudes toward emotions. This, therefore, was the goal of the current investigation. We sought not only to develop and validate a measure of attitudes toward emotions that taps the cognitive component of such attitudes, but also to demonstrate that this component is conceptually distinct from the other components, and may underline distinct motivational outcomes.

1.3. Measuring the cognitive component of attitudes toward emotions

The cognitive component of an attitude is based, in part, on associations between the attitude object and valence attributes. Such associations are best captured by the semantic differential scale, which has often been used to measure attitudes (Himmelfarb, 1993). The scale was developed by Osgood, Suci and Tanenbaum (1957) to measure the connotative meaning of a concept. For each attitude object, the scale introduces a series of bipolar adjectives (e.g., bad-good). Each of the

adjective pairs ranges on a 7-point scale from the negative attribute (“1”, e.g., bad) to the positive attribute (“7”, e.g., good). The adjectives used in semantic differential scales are general and abstract, rather than tailored to fit a specific attitude object.

Semantic differential scales can be used to assess affective components of attitudes, if they include adjectives that refer to hedonic experiences (e.g., pleasant-unpleasant). However, they can also be used to assess cognitive components of attitudes, to the extent that they include adjectives that are evaluative, but not necessarily hedonic (e.g., good-bad; useful-harmful). Therefore, to assess the cognitive component of attitudes toward emotions, we constructed a measure based on semantic differential scales, using adjectives that capture positive or negative attributes. We expected our scale to capture the cognitive component of attitudes toward emotions, and we further expected it to be related, yet distinct, to other components of attitudes, as captured by the ATE.

1.4. Perceived pleasantness and utility

The components of attitudes may be differentially linked to perceptions and behaviors toward the attitude objects. The affective component of attitudes is more closely associated with pleasure related aspects, whereas the cognitive component is more closely related to utilitarian behaviors and appraisals (e.g., Millar & Tesser, 1986; Trafimow & Sheeran, 1998). Such distinction should apply to attitudes toward emotions. Accordingly, the affective component of attitudes toward emotions may be associated with hedonic judgments. For instance, the affective component may be linked to judgments of how pleasant or unpleasant the target emotion is. In contrast, the cognitive component of attitudes toward emotions may be linked to utilitarian judgments. For instance, it may be linked to judgments of how useful or harmful the target emotion is (see Chow & Berenbaum, 2012).

This differentiation could ultimately lead to different emotion-related behaviors. People may be motivated to experience emotions for hedonic or instrumental reasons (Tamir, 2016). When people regulate emotions for hedonic reasons, they are guided by how pleasant or unpleasant an emotion is. In contrast, when people regulate emotions for instrumental reasons, they are guided by how useful or harmful an emotion is. To the extent that the cognitive component of attitudes toward emotions is linked to utilitarian judgments, it may underlie instrumental motivation in emotion regulation.

1.5. The current investigation

In the current investigation, we sought to show that attitudes toward emotions involve more than one component. We hypothesized that the cognitive component of such attitudes is distinct from the other components. Furthermore, we tested whether affect-based attitudes toward emotion are more strongly related to the perceived pleasantness of emotions, whereas cognition-based attitudes toward emotions are more strongly related to the perceived utility of emotions. Finally, we tested the predictive validity of the cognitive component of attitudes toward emotions, by assessing links to instrumental motivation in emotion regulation. To accomplish these aims, we developed and validated a scale designated to capture the cognitive component of attitudes toward emotions (i.e., the EVE). In Study 1, we tested whether scores on the new scale is psychometrically distinct from the existing scale (i.e., the ATE), using an exploratory factor analysis. In Study 2, we verified this distinction using a confirmatory factor analysis. In Studies 1–3, we tested our hypothesis that the ATE is more strongly and consistently linked to perceived pleasantness of the target emotion, whereas the EVE is more strongly and consistently linked to perceived utility of the target emotion. In Study 4, we tested whether the EVE, but not the ATE, would be related to instrumental motivation in emotion regulation.

2. Study 1

In Study 1, we administered the ATE and EVE scales, focusing on the emotions captured by the existing ATE scales (i.e., happiness, sadness, anger, fear, and disgust; Harmon-Jones et al., 2011). First, we submitted the responses on the ATE and EVE scales to an exploratory factor analysis, to test whether EVE scales assess an aspect of attitudes toward emotions which is distinct from the one assessed by the ATE. Second, to examine the conceptual hypothesis as well as the construct validity of EVE scales, we tested whether the attitude components captured by the two scales are differentially associated with perceived pleasantness and utility of emotions.

2.1. Method

2.1.1. Participants

Participants were 314 Americans from the general population, who were recruited online via Amazon's Mechanical Turk (www.MTurk.com; Litman, Robinson, & Abberbock, 2017) ($M_{\text{age}} = 33.98$; 50% female): 76.4% of participants were Caucasians, 8% Asians, 9.2% African-Americans, 6.1% Hispanic and 0.3% American Indian. Participants received \$1 for their participation. Seventeen participants were omitted from the analyses for failing to pass attention checks (see Oppenheimer, Meyvis, & Davidenko, 2009). Because people who complete the survey quickly are likely to be inattentive, we decided to exclude participants who took less than a quarter of the average time ($M = 11.85$, $SD = 48.37$) to complete the survey, this resulted in the exclusion of 20 participants. Four other participants were omitted from the analysis for taking more than an hour to complete the questionnaire.

2.1.2. Materials

2.1.2.1. Attitude toward emotion scales (ATE). Participants completed the attitude toward emotion scales (Harmon-Jones et al., 2011). Participants rated their agreement on a 5-point Likert-type scale (1 = never; 5 = always) with items measuring attitudes toward five emotions. Scales assessed attitudes toward happiness (five items;

Table 1
Descriptive Statistics and Correlations of Attitudes Emotions Scales (Study 1).

	M (SD)	1	2	3	4	5	6	7	8	9
EVE happiness	6.28 (0.87)	1								
EVE fear	4.45 (1.49)	−0.05	1							
EVE anger	3.21 (1.40)	−0.12*	0.51**	1						
EVE sadness	3.81 (1.40)	−0.07	0.54**	0.52**	1					
EVE disgust	3.59 (1.38)	−0.17**	0.57**	0.45**	0.38**	1				
ATE happiness	4.54 (0.69)	0.54**	0.06	−0.07	−0.05	−0.08	1			
ATE fear	1.87 (0.84)	−0.17**	0.18**	0.23**	0.08	0.12*	−0.16**	1		
ATE anger	1.67 (0.76)	−0.25**	0.12*	0.32**	0.08	0.10	−0.37**	0.30**	1	
ATE sadness	2.18 (0.76)	−0.19**	0.25**	0.25**	0.37**	0.16**	−0.22**	0.25**	0.23**	1
ATE disgust	1.54 (0.61)	−0.34**	0.14*	0.14*	0.09	0.03	−0.41**	0.35**	0.36**	0.25**

* $p < .05$.

** $p < .001$.

$\alpha = 0.90$), fear (six items; $\alpha = 0.91$), anger (five items; $\alpha = 0.83$), sadness (five items; $\alpha = 0.80$), and disgust (six items; $\alpha = 0.78$). Ratings for each emotion were averaged (after reverse scoring relevant items), to index attitudes toward each emotion (see Table 1).

2.1.2.2. Evaluations of emotion scales (EVE). Participants rated their evaluations of happiness, fear, anger, sadness, and disgust on a 7-point semantic differential scale (1 = negative evaluation adjective; 7 = positive evaluation adjective), focusing on five evaluative dimensions: bad-good, harmful-useful, foolish-wise, worthless-

valuable, and redundant-necessary.² Ratings of each emotion were averaged across the five evaluative dimensions to index the overall evaluation. The Cronbach alpha reliabilities of happiness, fear, anger, sadness and disgust were 0.88, 0.93, 0.93, 0.92, and 0.92, respectively.

2.1.2.3. Perceived pleasantness of emotion. Participants rated the extent to which they found the discrete emotion pleasant in general, using a 5-point scale (1 = not at all; 5 = a lot). To assess the pleasantness of happiness, we averaged across ratings of pleasantness of *happy*, *joyful* and *cheerful* ($\alpha = 0.86$). For pleasantness of fear, we averaged across ratings of *fearful*, *worried* and *scared* ($\alpha = 0.81$). For pleasantness of anger, we averaged across ratings of *angry*, *irritated* and *mad* ($\alpha = 0.87$). For pleasantness of sadness, we averaged across ratings of *sad*, *blue* and *melancholic* ($\alpha = 0.63$). For pleasantness of disgust, we averaged across ratings of *disgusted*, *repulsed* and *grossed out* ($\alpha = 0.86$).

2.1.2.4. Perceived utility of emotion. Participants rated the extent to which they found different emotions useful in general (1 = not at all; 5 = a lot). All the discrete items that were included in the measure of 'perceived pleasantness' were included in this measure. We averaged ratings across the relevant items for each target emotion. The Cronbach alpha reliabilities for happiness, fear, anger, sadness and disgust were 0.90, 0.85, 0.86, 0.74, and 0.90, respectively.

2.1.3. Procedure

Participants were randomly assigned to complete the attitudes scales (i.e., ATE and EVE) first and the pleasantness and utility scales second, or the other way around. The two scales within each scale type were presented at a random order. The order of the items within each scale was also random. Finally, participants reported their demographic information.

2.2. Results

2.2.1. Descriptive statistics

Table 1 presents descriptive statistics of the ATE and EVE scales.

2.2.2. Exploratory factor analysis of ATE and EVE scales

The 25 items of the EVE scales and the 28 items of the ATE scales were factor analyzed using principal component analysis with Varimax

² Our selection of adjectives was guided by prior literature, adapted to the emotional context. 'Bad-good' is often included in semantic differential scales, as it reflects global evaluations (Himmelfarb, 1993). We picked 'harmful-useful', 'foolish-wise', and 'worthless-valuable' as they have been used in prior research to capture cognitive evaluations (e.g., Trafimow & Sheeran, 1998). Finally, we opted not to use 'pleasant-unpleasant', to avoid a confound between hedonic and non-hedonic aspects of value. Instead, we included 'redundant-necessary' as an evaluative term that is independent of hedonic connotations (e.g., Osgood, 1964).

Table 2
Factor loadings for exploratory factor analysis with Varimax rotation of attitudes scales items.

Scale	Emotion	Item	Item text	1	2	3	4	5	6	7	8	9	10	11
ATE	Happiness	3	I prefer to hang around with people who make me happy	0.85	−0.02	−0.04	0.05	0.01	0.06	−0.06	0.14	−0.09	−0.10	0.13
ATE	Happiness	4	I really like feeling happy	0.85	−0.06	−0.03	−0.04	−0.01	0.06	−0.09	0.24	−0.05	−0.06	0.06
ATE	Happiness	5	I like conversations that make me feel happy	0.83	−0.06	−0.06	0.03	−0.05	0.04	−0.06	0.26	−0.09	−0.03	0.07
ATE	Happiness	2	I like experiencing joy	0.83	−0.02	−0.01	0.06	0.03	−0.01	−0.11	0.21	−0.03	−0.13	0.14
ATE	Happiness	1	I do not really enjoy the moments in my life when I am happy (R)	− 0.55	0.01	0.01	−0.14	0.07	−0.01	0.24	−0.11	0.17	0.20	0.08
ATE	Fear	2	I do things just because they scare me	−0.05	0.84	0.01	0.02	0.04	0.07	0.18	0.01	0.07	0.18	0.12
ATE	Fear	3	I like being scared	−0.09	0.82	0.07	0.02	0.05	0.05	0.18	−0.01	0.08	0.28	0.12
ATE	Fear	5	I dislike being scared (R)	0.05	− 0.81	−0.03	0.01	−0.07	−0.03	0.04	0.09	−0.08	0.04	0.36
ATE	Fear	1	I like to do things that scare me	0.02	0.80	0.03	0.06	0.08	0.08	0.17	−0.09	0.10	0.14	0.02
ATE	Fear	6	I dislike doing things that scare me (R)	0.08	− 0.80	0.01	−0.02	−0.09	−0.01	0.05	0.09	−0.03	0.05	0.34
ATE	Fear	4	I seek out things that scare me	−0.07	0.79	0.06	−0.05	0.11	0.09	0.16	0.04	0.11	0.19	0.13
EVE	Disgust	4	Worthless vs. Valuable	0.04	0.03	0.86	0.12	0.12	0.22	−0.01	−0.07	0.07	0.01	0.06
EVE	Disgust	3	Foolish vs. Wise	−0.04	0.03	0.86	0.10	0.16	0.17	0.01	0.01	0.03	−0.01	0.04
EVE	Disgust	5	Redundant vs. Necessary	−0.01	0.03	0.84	0.09	0.12	0.26	0.01	−0.03	0.09	0.03	0.02
EVE	Disgust	2	Harmful vs. Useful	0.03	0.01	0.83	0.12	0.18	0.26	0.03	−0.15	0.03	−0.03	0.01
EVE	Disgust	1	Bad vs. Good	−0.21	0.09	0.66	0.22	0.21	0.18	0.09	−0.07	−0.02	−0.06	−0.08
EVE	Sadness	4	Worthless vs. Valuable	0.11	0.02	0.15	0.85	0.18	0.17	−0.01	−0.03	0.19	0.01	0.01
EVE	Sadness	2	Harmful vs. Useful	0.05	0.02	0.15	0.83	0.22	0.20	−0.01	−0.06	0.14	−0.04	−0.02
EVE	Sadness	1	Bad vs. Good	−0.06	0.05	0.10	0.79	0.17	0.19	0.08	0.03	0.16	−0.04	−0.04
EVE	Sadness	3	Foolish vs. Wise	0.01	0.03	0.13	0.77	0.19	0.21	0.02	0.01	0.15	0.18	0.06
EVE	Sadness	5	Redundant vs. Necessary	0.11	−0.07	0.13	0.74	0.24	0.21	−0.01	−0.05	0.14	0.09	0.04
EVE	Anger	3	Foolish vs. Wise	−0.10	0.12	0.11	0.16	0.85	0.11	0.09	0.03	0.06	0.05	0.02
EVE	Anger	2	Harmful vs. Useful	−0.01	0.13	0.17	0.20	0.82	0.14	0.14	−0.01	0.03	−0.01	−0.03
EVE	Anger	4	Worthless vs. Valuable	0.07	0.05	0.19	0.21	0.82	0.25	0.11	−0.06	0.11	0.02	0.01
EVE	Anger	5	Redundant vs. Necessary	0.04	0.08	0.20	0.21	0.76	0.24	0.07	−0.01	0.09	0.07	−0.02
EVE	Anger	1	Bad vs. Good	−0.13	0.07	0.19	0.29	0.73	0.16	0.14	−0.09	0.07	0.09	−0.02
EVE	Fear	4	Worthless vs. Valuable	0.08	0.06	0.27	0.19	0.18	0.82	−0.02	0.01	0.11	0.04	0.01
EVE	Fear	5	Redundant vs. Necessary	0.07	0.03	0.25	0.19	0.23	0.79	0.02	−0.05	0.09	0.16	0.01
EVE	Fear	3	Foolish vs. Wise	0.06	0.12	0.21	0.20	0.20	0.78	0.01	0.03	0.12	0.09	0.09
EVE	Fear	2	Harmful vs. Useful	0.07	0.06	0.33	0.24	0.20	0.77	0.03	−0.03	0.06	0.03	−0.01
EVE	Fear	1	Bad vs. Good	−0.08	0.10	0.23	0.28	0.13	0.71	0.13	0.05	0.04	0.01	−0.07
ATE	Anger	2	I like the feeling of power I get from expressing my anger	−0.06	0.11	0.01	0.02	0.16	0.07	0.85	−0.05	0.16	0.05	−0.08
ATE	Anger	1	I like the feeling of increased energy I get from expressing my anger	−0.08	0.11	0.07	0.04	0.15	0.05	0.83	−0.12	0.11	0.09	−0.06
ATE	Anger	3	I like it when I feel like yelling at someone	−0.15	0.17	0.04	−0.08	0.12	−0.01	0.81	−0.02	0.11	0.10	0.01
ATE	Anger	5	I like how it feels when I am furious	−0.18	0.12	0.01	0.11	0.01	0.04	0.71	−0.02	0.02	0.19	0.03
EVE	Happiness	3	Foolish vs. Wise	0.10	0.03	−0.14	−0.07	−0.03	−0.07	0.02	0.83	−0.11	−0.16	0.01
EVE	Happiness	5	Redundant vs. Necessary	0.22	−0.01	−0.03	0.01	−0.04	0.04	−0.11	0.80	−0.05	−0.01	0.04
EVE	Happiness	2	Harmful vs. Useful	0.28	−0.11	−0.11	0.01	0.01	0.03	−0.09	0.77	−0.05	−0.20	0.01
EVE	Happiness	4	Worthless vs. Valuable	0.43	−0.07	−0.01	−0.01	−0.02	−0.03	−0.02	0.77	0.01	−0.11	0.02
EVE	Happiness	1	Bad vs. Good	0.48	−0.17	0.01	−0.05	−0.07	0.07	−0.11	0.54	0.01	−0.28	−0.06
ATE	Sadness	1	I like it when movies make me feel sad, the sadder the better	−0.14	0.08	0.08	0.10	0.02	0.10	0.09	−0.04	0.79	0.19	−0.04
ATE	Sadness	6	If a book, movie, or TV show makes me cry, I know I've really enjoyed it	0.07	−0.07	0.01	0.16	0.07	0.06	0.07	−0.01	0.79	0.07	0.02
ATE	Sadness	4	I find myself reading sad books	−0.24	0.18	0.06	0.08	0.05	0.03	0.23	−0.07	0.70	0.06	0.17
ATE	Sadness	5	I can enjoy a conversation even though it makes me sad	−0.02	0.14	0.12	0.21	0.14	0.11	0.06	−0.01	0.62	0.01	0.03
ATE	Sadness	2	If someone describes a movie as a real “tear jerker,” I am sure to avoid it because I don't like feeling sad (R)	0.01	−0.05	0.04	−0.06	−0.08	0.01	0.24	0.09	− 0.61	0.06	0.42
ATE	Sadness	3	I like thinking about sad things	−0.27	0.21	−0.04	0.19	−0.04	0.08	0.22	−0.08	0.58	0.13	0.03
ATE	Disgust	1	If I hear something disgusting, I will listen to it again on purpose	−0.07	0.20	0.01	0.02	0.06	0.08	0.11	−0.21	0.05	0.81	−0.17
ATE	Disgust	2	If I see something disgusting, I will look at it again on purpose	0.05	0.14	0.01	0.06	0.01	0.15	0.10	−0.15	0.06	0.80	−0.26
ATE	Disgust	4	If I smell something disgusting, I will smell it again on purpose	−0.10	0.11	−0.06	0.01	0.08	0.06	0.06	−0.09	0.07	0.69	0.01
ATE	Disgust	6	If I feel something disgusting, I will feel it again on purpose	−0.42	0.11	0.01	0.01	0.08	0.02	0.13	−0.14	0.13	0.68	0.08
ATE	Disgust	5	I like doing things that I find disgusting	−0.35	0.14	0.01	0.10	−0.04	−0.04	0.10	−0.02	0.13	0.52	0.14
ATE	Disgust	3	I do not enjoy doing things that I find disgusting (R)	0.23	−0.07	0.04	0.01	0.06	0.03	−0.15	−0.05	0.03	−0.29	0.66
ATE	Anger	4	I dislike how it feels when I am angry (R)	0.32	−0.09	0.04	0.09	−0.27	0.03	−0.41	0.13	0.05	0.05	0.43
% of explained variance				22.2	14.2	7.4	5.6	5.0	4.2	4.1	3.1	2.9	2.6	2.2

Notes. (R) represents reversed item. Factor loadings > 0.50 are in boldface.

Table 3
Descriptive Statistics and Correlations among Attitudes Scales and Utility and Pleasantness Ratings (Study 1).

	M (SD)	Evaluations of Emotions Scales					Attitudes Towards Emotions Scales				
		Happy	Fear	Anger	Sadness	Disgust	Happy	Fear	Anger	Sadness	Disgust
Happiness utility	4.02 (0.99)	0.54**	−0.03	−0.06	−0.04	−0.08	0.54**	−0.14**	−0.24**	−0.16**	−0.28**
Fear utility	2.51 (1.00)	−0.13*	0.54**	0.33**	0.35**	0.40**	−0.01	0.09	0.12*	0.30**	0.13*
Anger utility	2.01 (0.90)	−0.11*	0.35**	0.50**	0.37**	0.27**	−0.06	0.16**	0.32**	0.25**	0.14**
Sadness utility	1.94 (0.84)	−0.10	0.27**	0.31**	0.43**	0.16**	−0.12*	0.13*	0.18**	0.37**	0.17**
Disgust utility	2.01 (0.97)	−0.14*	0.41**	0.26**	0.22**	0.45**	−0.06	0.13*	0.10	0.26**	0.20**
Happiness pleasantness	4.53 (0.78)	0.36**	0.04	−0.02	0.04	0.03	0.60**	−0.10	−0.29**	−0.02	−0.29**
Fear pleasantness	1.16 (0.45)	−0.32**	0.01	0.10	0.05	−0.02	−0.39**	0.34**	0.33**	0.19**	0.43**
Anger pleasantness	1.20 (0.55)	−0.35**	0.07	0.20**	0.09	0.04	−0.39**	0.25**	0.47**	0.20**	0.39**
Sadness pleasantness	1.29 (0.55)	−0.19*	−0.06	0.12*	0.16**	−0.04	−0.32**	0.22**	0.34**	0.26**	0.30**
Disgust pleasantness	1.12 (0.42)	−0.30**	0.01	0.10	0.07**	−0.01	−0.45**	0.25**	0.38**	0.18**	0.50**

For ease of illustration, the hypothesized correlations between attitudes scales and utility and pleasantness ratings are in boldface.

* $p < .05$.

** $p < .001$.

rotation using SPSS 21.0 (IBM Corporation, 2012).³ The analysis extracted 11 factors, as determined by eigenvalues greater than one, which explained 73.5% of the total variance. All items but one (ATE anger item 4) had primary loadings of over 0.50 on one of the factors, and none of the items cross-loaded on more than one factor. As can be seen in Table 2, ATE scales loaded on factors 1, 2, 7, 9 and 10 (labeled ATE happiness, fear, anger, sadness, and disgust factors), whereas EVE scale items loaded on factors 3, 4, 5, 6 and 8 (labeled EVE disgust, sadness, anger, fear, and happiness factors). Only two items did not load on their expected factor: item 3 in the ATE disgust subscale did not load on the “ATE disgust” factor; instead, it formed the eleventh factor. In addition, item 4 in the ATE anger subscale did not load on the “ATE anger” factor, or on any other factor (< 0.50). Importantly, however, our hypothesis that the EVE scales are distinct from the ATE scales and emotion-specific was supported.

2.2.3. Associations with perceived pleasantness and utility of emotions

In order to test whether the two scales were differentially associated with perceived pleasantness and utility of emotions, we ran a series of correlations between the attitudes toward emotions scales and perceived pleasantness and utility ratings. As hypothesized and shown in Table 3, ATE scales were more strongly correlated with pleasantness ratings, whereas EVE scales were more strongly correlated with perceived utility. To confirm that the differences between the correlation coefficients of the ATE and EVE scales with perceived pleasantness and utility were statistically significant, we compared them using Steigers Z method. The results show that, as expected, EVE scale scores for fear, anger, and disgust were more strongly correlated with the perceived utilities of the respective emotions than were ATE scale scores for the same emotions ($z_s = 6.96, 3.09, \text{ and } 3.483$; $p_s < 0.05$). However, there were two exceptions to our hypothesis. First, perceived utility of happiness was significantly correlated with both ATE and EVE scales. Second, correlations with perceived utility of sadness did not differ between ATE and EVE ($z = 1.08, p = .282$). As expected, ATE scale scores were more strongly correlated with perceived pleasantness for happiness, fear, anger, and disgust than EVE scale scores were ($z_s = 5.36, 4.71, 4.39, \text{ and } 6.84$; $p_s < 0.05$). Correlation with pleasantness of sadness also did not differ between ATE and EVE ($z = 1.60, p = .109$).⁴

³ The results remain unchanged when using alternative methods, such as direct Oblimin, Quartimax, Equamax, and Promax.

⁴ Because the item ‘harmful-useful’ in the EVE scales semantically overlaps with the perceived utility scale, we repeated the analyses after omitting this item from the EVE. Results remained largely unchanged, $r_s(314) > 0.42, p_s < 0.001$.

2.3. Discussion

In Study 1, we found that the ATE and EVE scales capture distinct attitude components, which are differentially associated with perceived pleasantness and utility of emotions. An exploratory factor analysis on the ATE and EVE scales items revealed 11 factors which corresponded to the five attitudes toward happiness, fear, anger, sadness, and disgust, multiplied by the two attitude scales; with one additional factor containing a single diverging item. As expected, the items of the EVE subscales loaded on five emotion factors, with no item loading on more than one or on none of the expected factor. This suggests that the cognitive component of attitudes toward emotion may indeed be distinct from other components.

This finding also supports the discriminant validity of the EVE scale. As hypothesized, in most cases, ATE scales were more strongly correlated with perceived pleasantness, whereas the EVE scales were more strongly correlated with perceived utility. However, this was not always the case. This suggests that the mapping of affective and cognitive components of attitudes toward emotions to pleasantness and utility ratings, may depend on the target emotion.

3. Study 2

In Study 2, we sought to replicate our findings in Study 1, by collecting data from a new sample and submitting responses to a confirmatory factor analysis. We first tested the fit to the expected 10-factor model, in which each factor is comprised of attitudes toward the five specific emotions (i.e., happiness, fear, anger, sadness and disgust) in a specific scale (i.e., ATE and EVE). A second confirmatory factor analysis tested a 5-factor model, in which each factor represents a different emotion, regardless of scale. A third confirmatory factor analysis tested a 4-factor model, in which factors vary by valence (i.e., positive or negative) and scale (i.e., ATE vs. EVE). A fourth confirmatory factor analysis tested a 2-factor model, in which scores vary only by scale (ATE vs. EVE), but not emotions. A fifth confirmatory factor analysis tested a single factor solution. We hypothesized that the 10-factor model would show a better fit compared to the other four models. In addition, as in Study 1, we tested whether the two scales are differentially associated with perceived pleasantness and utility of emotion.

3.1. Method

3.1.1. Participants

Participants were 345 Americans from the general population, who were recruited online via Amazon’s Mechanical Turk (www.MTurk.com; Litman et al., 2017) ($M_{\text{age}} = 34$; 44.3% female): 75.7% of

participants were Caucasians, 13% Asians, 4.6% African-Americans, 4.9% Hispanic, 1.2% American Indian and 0.6% were Pacific Islander. Participants completed the questionnaire as part of a larger study, and received \$2 for their participation. Sixteen participants were omitted from analyses for failing to pass an attention check item. As in Study 1, six additional participants were excluded because they took less than a quarter of the average time ($M = 21.79$, $SD = 8.45$) to complete the survey. Two other participants were omitted for taking more than an hour to complete the questionnaire.

3.1.2. Materials

3.1.2.1. Attitude toward emotion scales (ATE). Participants completed the same scales as in Study 1. Attitudes were measured toward happiness, fear, anger, sadness and disgust (α s = 0.88, 0.91, 0.82, 0.78 and 0.84, respectively).

3.1.2.2. Evaluations of emotion scales (EVE). Participants completed the same scales as in Study 1. Attitudes were measured toward happiness, fear, anger, sadness and disgust (α s = 0.90, 0.92, 0.93, 0.93 and 0.93, respectively).

3.1.2.3. Perceived pleasantness of emotions. Participants completed the same scales as in Study 1. Perceived pleasantness was measured toward happiness, fear, anger, sadness and disgust (α s = 0.88, 0.86, 0.87, 0.76 and 0.92, respectively).

3.1.2.4. Perceived utility of emotions. Participants completed the same scales as in Study 1. Perceived utility was measured toward happiness, fear, anger, sadness and disgust (α s = 0.92, 0.87, 0.89, 0.82 and 0.90, respectively).

3.1.3. Procedure

Participants were randomly assigned to one of two survey orders. Half of them completed the scales in the following order: EVE scales, utility ratings, pleasantness ratings, and ATE scales.⁵ The other half of participants completed the scales in a reverse order. Within each scale, items were presented in a random order.

3.2. Results

3.2.1. Descriptive statistics

Table 4 presents descriptive statistics of the ATE and EVE scales.

3.2.2. Confirmatory factor analysis

To test whether the EVE scales assess distinct dimensions of attitudes toward emotions than those of the ATE scale, we conducted a confirmatory factor analysis using LISREL 8.51 (Jöreskog & Sörbom, 1993).⁶ We employed Variance-covariance matrices as inputs, and used the maximum-likelihood method. We submitted all items to a confirmatory factor analysis. We began by estimating the fit to the 10-factor model. We proceeded to test four alternative models.

3.2.2.1. A 10-factor model. The EVE items were allowed to load on the five factors of the EVE (i.e., EVE anger, happiness, sadness, disgust, and fear) and the ATE items on the five factors of the ATE (i.e., ATE anger, happiness, sadness, disgust, and fear). The fit indices for the 10-factor model showed a good fit and close to acceptable criteria (Kline, 1998), $\chi^2(1280, N = 342) = 3303.08$, $p < .001$, RMSEA = 0.07, 90% CI [0.06; 0.07], CFA = 0.88, Model AIC = 3605.08. Moreover, chi-square to degrees of freedom ratio for the model was acceptable, at 2.58. All path regression coefficients reached statistical significance ($p < .001$). These results suggest that the EVE dimensions were distinct

from the ATE dimensions and that ratings vary within each dimension by emotion (Fig. 1).

3.2.2.2. A 5-factor model. Next, we tested the fit of a 5-factor model, in which each factor represents a different emotion (e.g., anger factor included both EVE anger subscale items and ATE anger subscale items). Unlike the 10-factor model, the 5-factor model did not show an acceptable fit, $\chi^2(1315, N = 342) = 14,800.76$, $p < .001$, RMSEA = 0.17, 90% CI [0.17; 0.18], CFA = 0.52, Model AIC = 15,032.76. The ratio of chi-square to degrees of freedom for the model was 11.26. When comparing the 10-factor model to this model, the difference in chi-square demonstrated that the 10-factor model had a better fit than the 5-factor model, $X^2\Delta$ ($df = 35$) = 11,497.86, $p < .001$.

3.2.2.3. A 4-factor model. We tested a 4-factor model, in which one factor included all the negative emotions of the EVE scales (i.e., anger, sadness, disgust, and fear), a second factor included the same negative emotions of the ATE scales, a third factor included the positive emotion EVE scales (i.e., happiness), and the fourth factor included the same positive emotion ATE scale. The fit indices of the 4-factor model were inferior to those of the 10-factor model, $\chi^2(1319, N = 342) = 11,168.76$, $p < .001$, RMSEA = 0.15, 90% CI [0.45; 0.151], CFA = 0.55, Model AIC = 11,392.76. The ratio of chi-square to degrees of freedom for the model was unacceptable at 8.47. The difference in chi-square demonstrated that the 10-factor model had a better fit than the 4-factor model, $X^2\Delta$ ($df = 39$) = 7865.68, $p < .001$.

3.2.2.4. A 2-factor model. We tested a 2-factor model, in which one factor included all EVE items and the other factor included all the ATE items. The fit indices for the 2-factor model showed a poor fit to the data, $\chi^2(1324, N = 342) = 15,111.11$, $p < .001$, RMSEA = 0.18, 90% CI [0.17; 0.18], CFA = 0.40, Model AIC = 15,325.11. The ratio of chi-square to degrees of freedom for the model was unacceptable at 11.41. The difference in chi-square demonstrated that the 10-factor model had a better fit than the 2-factor model, $X^2\Delta$ ($df = 44$) = 11,808.03, $p < .001$.

3.2.2.5. A single factor model. We tested a model in which both the EVE and the ATE loaded on a single factor. The single factor model did not show an acceptable fit, $\chi^2(1325, N = 342) = 22,698.50$, $p < .001$, RMSEA = 0.22, 90% CI [0.215; 0.22], CFA = 0.22, Model AIC = 22,910.49. The ratio of chi-square to degrees of freedom for the model was unacceptable at 17.13. The difference in chi-square demonstrated that the 10-factor model had a better fit than the 1-factor model, $X^2\Delta$ ($df = 45$) = 19,394.92, $p < .001$.

3.2.3. Associations with perceived pleasantness and utility of emotion

We ran a series of correlations as in Study 1. As hypothesized and shown in Table 5, ATE scales were more strongly correlated with perceived pleasantness ratings, whereas EVE scales were more strongly correlated with perceived utility ratings.⁷ As expected, Steigers Z comparisons showed that EVE scores for fear, anger, sadness, and disgust were more strongly correlated with perceived utilities of the respective emotions than were ATE scores for the same emotions (z s = 5.71, 5.60, 2.68, and 3.35; $ps < 0.05$). As in Study 1, happiness was highly and significantly correlated with both ATE and EVE scales. As expected, ATE scores were more strongly correlated with perceived pleasantness for happiness, fear, anger, sadness, and disgust than EVE scores were (z s = 4.08, 2.23, 3.39, 2.87 and 5.60; $ps < 0.05$).

⁷ As in Study 1, we repeated analyses with the EVE scale after omitting the 'harmful-useful' item. The associations between the EVE scales and perceived utility remained largely the same, $rs(345) > 0.39$, $ps < 0.001$.

⁵ We found no significant order effects.

⁶ The sample for this analysis included 342 participants, due to missing data.

Table 4
Descriptive Statistics and Correlations of Attitudes Scales (Study 2).

	M (SD)	1	2	3	4	5	6	7	8	9
EVE happiness	6.39 (0.86)	1								
EVE fear	4.01 (1.42)	-0.10	1							
EVE anger	3.21 (1.47)	-0.12*	0.54**	1						
EVE sadness	3.49 (1.41)	-0.08	0.50**	0.62**	1					
EVE disgust	3.37 (1.35)	-0.18**	0.43**	0.41**	0.34**	1				
ATE happiness	4.51 (0.67)	0.53**	0.04	-0.06	0.06	-0.01	1			
ATE fear	2.02 (0.94)	-0.10	0.10	0.08	0.04	0.01	-0.19**	1		
ATE anger	1.80 (0.81)	-0.16*	-0.06	0.09	-0.08	-0.14*	-0.31**	0.30**	1	
ATE sadness	2.24 (0.75)	-0.03	0.09	0.06	0.19**	0.04	-0.11*	0.32**	0.24**	1
ATE disgust	1.54 (0.67)	-0.17**	0.09	0.12*	0.08	0.03	-0.31**	0.42**	0.46**	0.42**

* $p < .05$.
** $p < .001$.

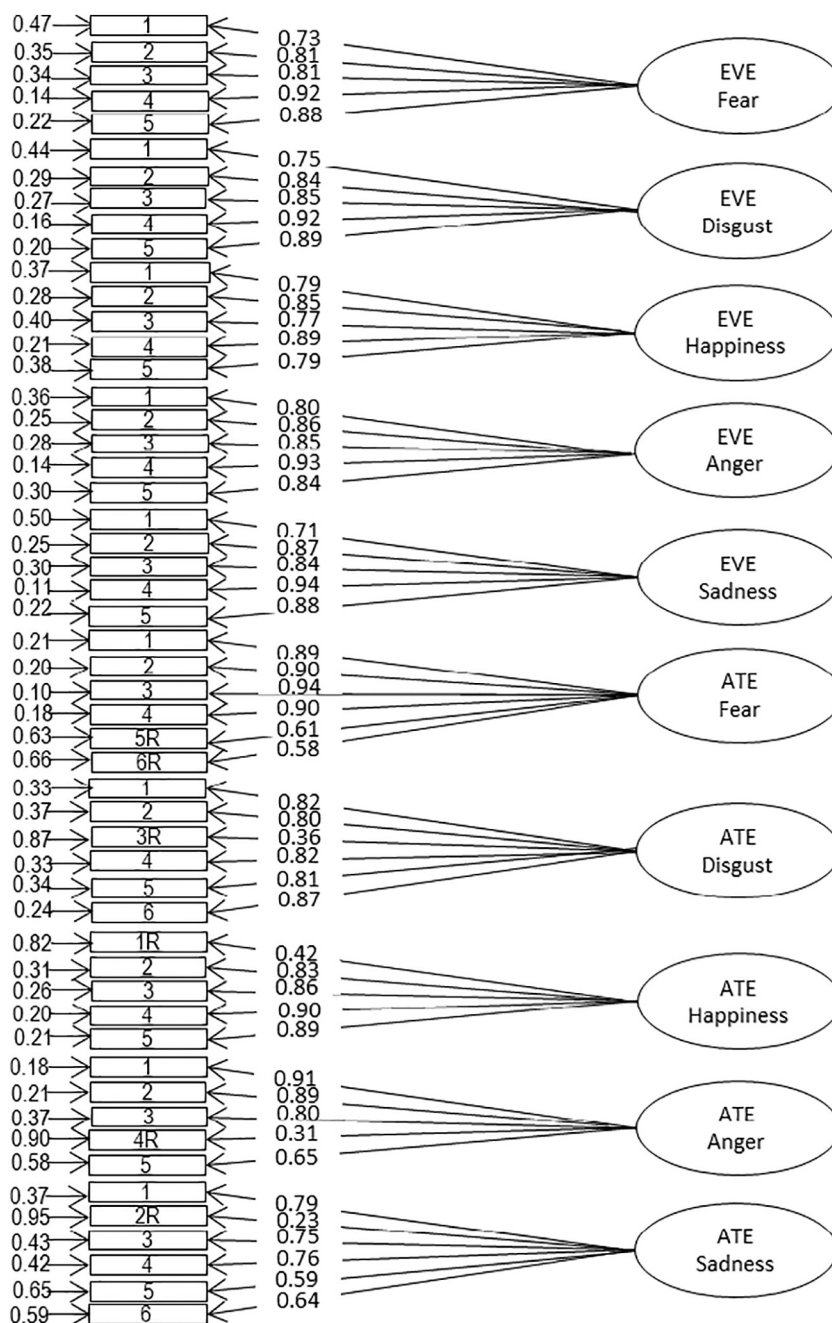


Fig. 1. The 10-factor model confirmatory factor analysis (Study 2)

Notes. The CFA loadings are standardized. “R” represents a reversed item. All item loadings are significant. Relationships between latent variables ranged from 0.00 to 0.65.

Table 5
Descriptive Statistics and Correlations among Attitudes Scales and Utility and Pleasantness Ratings (Study 2).

	M (SD)	Evaluations of Emotions Scales					Attitudes Towards Emotions Scales				
		Happy	Fear	Anger	Sadness	Disgust	Happy	Fear	Anger	Sadness	Disgust
Happiness utility	4.17 (0.94)	0.50**	−0.01	−0.05	0.02	−0.07	0.52**	−0.05	−0.20**	−0.07	−0.09
Fear utility	2.41 (1.03)	−0.04	0.53**	0.41**	0.34**	0.32**	0.04	0.17**	0.03	0.09	0.11*
Anger utility	2.09 (0.96)	−0.02	0.39**	0.51**	0.39**	0.25**	0.05	0.10	0.15**	0.13*	0.16**
Sadness utility	2.03 (0.93)	0.02	0.21**	0.32**	0.39**	0.15**	−0.01	0.16**	0.13*	0.22**	0.26**
Disgust utility	1.96 (0.96)	−0.09	0.34**	0.38**	0.29**	0.41**	0.02	0.05	0.09	0.14**	0.18**
Happiness pleasantness	4.49 (0.77)	0.46**	0.04	−0.03	0.05	0.01	0.62**	−0.10	−0.21**	−0.05	−0.22**
Fear pleasantness	1.26 (0.60)	−0.11*	0.12*	0.11*	0.07	0.04	−0.20**	0.28**	0.35**	0.29**	0.42**
Anger pleasantness	1.29 (0.64)	−0.06	0.12*	0.18**	0.09	−0.01	−0.16**	0.18**	0.41**	0.26**	0.31**
Sadness pleasantness	1.39 (0.67)	−0.11*	0.07	0.11*	0.13*	0.06	−0.21**	0.16**	0.27**	0.32**	0.37**
Disgust pleasantness	1.21 (0.57)	−0.09	0.10	0.12*	0.12**	0.04	−0.19**	0.16**	0.16**	0.27**	0.43**

For ease of illustration, the hypothesized correlations between attitudes scales and utility and pleasantness ratings are in boldface.

* $p < .05$.

** $p < .001$.

3.3. Discussion

In Study 2, we found that the EVE scales assess a distinct component of attitudes toward emotions, using a confirmatory factor analysis. The data was best captured by a 10-factor model, where scores vary both by scale and by target emotion. As in Study 1, we also found that the ATE scales were more strongly correlated with perceived pleasantness of emotions, whereas the EVE scales were more strongly correlated with perceived utility of emotions. As in Study 1, happiness utility was strongly correlated with both ATE and EVE scales, suggesting that the utility of happiness may contribute to both affective and cognitive components of attitudes toward happiness.

4. Study 3

In Study 3, we sought to expand the ecological validity of Studies 1–2, while ruling out the potential for carry-over effects. Therefore, we tested our hypotheses in a different sample population and a different culture. Whereas our samples in Studies 1 and 2 included American MTurk on-line participants, our sample in Study 3 included Israeli undergraduate students, who completed the study in the laboratory. Additionally, to rule out carryover or conceptual priming effects that may arise from completing both the attitude and the validation measures at the same time point, in Study 3 participants completed the questionnaires in separate sessions. In the first session, participants completed the ATE and EVE scales. In the second session, approximately a week later, they rated the perceived pleasantness and utility of emotions. We tested whether ATE scales are more strongly related to perceived pleasantness of emotions, whereas EVE scales are more strongly related to perceived utility of emotions. Due to various time constraints, we assessed attitudes only toward fear, anger and sadness.

4.1. Method

4.1.1. Participants

Participants were 70 undergraduate students ($M_{\text{age}} = 25.21$; 62.9% female). Participants completed the study as a part of a larger lab study and received \$14 for their participation. Three participants who did not complete the second part of the study were omitted from analysis. Another two participants were omitted from analyses because they failed to comply with the experimental instructions.

4.1.2. Measures

4.1.2.1. Attitudes toward emotion scales (ATE). Participants completed the ATE scales for fear, anger and sadness ($\alpha = 0.90, 0.84, \text{ and } 0.71$, respectively).

4.1.2.2. Evaluations of emotion scales (EVE). Participants completed the EVE scales for fear, anger, and sadness ($\alpha = 0.83, 0.87, \text{ and } 0.75$, respectively).

4.1.2.3. Perceived pleasantness of emotion. Participants rated the extent to which they found fear, anger and sadness pleasant ($1 = \text{not at all}$; $7 = \text{a lot}$), using the same items as in Studies 1–2 ($\alpha = 0.79, 0.85, \text{ and } 0.65$, respectively).

4.1.2.4. Perceived utility of emotion. Participants rated the extent to which they found fear, anger and sadness useful ($1 = \text{not at all}$; $7 = \text{a lot}$), using the same items as in Studies 1–2 ($\alpha = 0.80, 0.88, \text{ and } 0.74$, respectively).

4.1.3. Procedure

Participants completed two experimental sessions. In the first session, they completed the attitude measures: ATE and EVE scales. In the second session (conducted approximately a week later; $M = 6.44$ days, $SD = 3$ days), they rated the perceived utility and pleasantness of emotion. Questionnaires in both sessions were completed in a random order.

4.2. Results

As hypothesized and shown in Table 6, the ATE scales tended to be more strongly correlated with pleasantness of emotions, whereas EVE scales tended to be more strongly correlated with perceived utility of emotions. Steigers Z comparisons showed that EVE scale scores correlated more strongly with perceived utilities than were ATE scores, for fear ($z = 2.31, p = .021$), and marginally so for sadness ($z = 1.95, p = .053$), but not for anger ($z = 0.058, p = .954$). Additionally, the ATE scores for fear and anger were more strongly correlated with perceived pleasantness ratings than the EVE scores ($z = 2.08, \text{ and } 2.24, ps < 0.05$), although correlations with sadness did not differ between attitudes scales ($z = 0.28, p = .781$).⁸

4.3. Discussion

Despite the temporal lag between sessions, we found some support for our hypotheses. Perceived pleasantness of fear was more strongly correlated with ATE fear, whereas perceived utility of fear was more

⁸ When repeating the analysis after omitting the 'harmful-useful' item from the EVE scales, the associations between the EVE anger scale and anger utility remained significant, $r(70) = 0.26, p = .032$. The associations between emotion utility and EVE fear, $r(70) = 0.23, p = .051$, and sadness, $r(70) = 0.21, p = .088$, were preserved in scope and direction, but were marginally significant.

Table 6
Descriptive Statistics and Correlations among Attitudes Scales and Utility and Pleasantness Ratings (Study 3).

	M (SD)	Evaluations of Emotions Scales			Attitude Toward Emotions Scales		
		Fear	Anger	Sadness	Fear	Anger	Sadness
Fear utility	3.53 (1.24)	0.24*	−0.01	0.22	−0.10	−0.05	0.05
Anger utility	2.41 (1.44)	0.09	0.25*	0.13	−0.21	0.24*	−0.14
Sadness utility	2.12 (1.10)	−0.07	0.30*	0.28*	−0.23	0.13	0.05
Fear pleasantness	1.81 (0.88)	0.08	0.36**	0.10	0.38**	0.35*	0.10
Anger pleasantness	1.70 (0.89)	−0.10	0.21	0.07	0.08	0.50**	0.17
Sadness pleasantness	1.60 (0.75)	−0.07	0.28*	0.21	0.15	0.37**	0.25*
M (SD)		4.06 (1.01)	2.68 (1.05)	3.91 (0.92)	2.04 (0.91)	1.83 (0.77)	2.60 (0.65)

For ease of illustration, the hypothesized correlations between attitudes scales and utility and pleasantness ratings are in boldface.

* $p < .05$.

** $p < .01$.

strongly correlated with EVE fear. Perceived pleasantness of anger was more strongly correlated with ATE anger, but perceived utility was equally and significantly related to both attitudes scales. The perceived pleasantness of sadness was significantly correlated with ATE but not EVE sadness (although this difference was not statistically significant), and the perceived utility of sadness was more strongly correlated with EVE than with ATE sadness. This suggests that although, in general, affective components of attitudes are related to pleasantness ratings, whereas cognitive components are related to utility ratings, there may be some overlap between them in some cases.

5. Study 4

Studies 1–3 established the discriminant and construct validity of the EVE. In Study 4, we assessed the predictive validity of the EVE scale, by assessing emotion-related outcomes. Specifically, we tested whether the EVE and ATE scales are differentially linked to instrumental motivation in emotion regulation. First, as people may be motivated to experience emotions for either hedonic or instrumental reasons (e.g., Tamir, 2016), we predicted that more positive attitudes toward an emotion, measured either by the ATE or by the EVE, would be linked to a stronger motivation to experience that emotion. Second, we predicted that people with more positive cognitive attitudes toward an emotion, as measured by the EVE, would consider the emotion more useful, which may account for their greater motivation to experience that emotion.

To test these hypotheses, participants in a laboratory study were led to anticipate an economic task, for which anger may or may not be useful. We then measured beliefs about the utility of anger, by asking participants to what extent anger might help them achieve an important goal in their lives. We assessed how angry participants wanted to feel when completing the economic task. Finally, we measured attitudes toward anger. Additionally, to test for the specificity of effects, we measured attitudes toward sadness. We also measured trait anger to control for variability in the tendency to experience anger, which is likely linked to both attitudes and the motivation to experience anger.

5.1. Method

5.1.1. Participants

Participants were 57 undergraduate students ($M_{age} = 22.90$; 89.5% female). Participants received approximately \$6 for their participation.

5.1.2. Measures

5.1.2.1. Attitudes toward emotion scales (ATE). Participants completed the ATE scales for anger ($\alpha = 0.82$) and sadness ($\alpha = 0.79$).

5.1.2.2. Evaluations of emotion scales (EVE). Participants completed the EVE scales for anger ($\alpha = 0.77$) and sadness ($\alpha = 0.85$).

5.1.2.3. Anger utility. Participants indicate the extent to which anger may be useful in attaining a goal that they described as important in their lives (1 = not at all; 9 = very much).

5.1.2.4. Motivation to experience anger. Participants rated the extent to which they wanted to feel *angry* and *mad* ($\alpha = 0.88$) before performing the economic task (1 = very little; 7 = very much). Participants also rated several other emotions as filler items (e.g., *sadness*).

5.1.2.5. Trait anger scale (TAS). Participants rated 10 items (e.g., *I have a fiery temper*) capturing individual differences in the frequency and intensity of anger experiences (1 = almost never; 4 = almost always; Spielberg, Jacobs, Russell, & Crane, 1983). To calculate TAS scores we averaged across the 10 items ($\alpha = 0.88$).

5.1.3. Procedure

Participants were first informed that they are about to participate in an economic task.⁹ They rated the perceived utility of anger, and then the extent to which they wanted to feel anger during the upcoming economic task. They completed a brief economic task to support the cover story, and then completed the trait anger, ATE and the EVE scales.

5.2. Results

Table 7 presents descriptive statistics and correlations between all key variables. Consistent with our first hypothesis, both ATE and EVE anger (but not sadness) were positively correlated with the motivation to experience anger during the economic task. We ran a multiple regression analysis predicting the motivation to experience anger, from ATE anger, EVE anger, and trait anger as simultaneous predictors. As predicted, both the ATE and the EVE scales significantly predicted the motivation to experience anger (for ATE: $B = 0.53$, $SE = 0.23$, $\beta = 0.30$, $t = 2.31$, $p = .025$; 95% CI [0.07, 0.99]; for EVE: $B = 0.38$, $SE = 0.18$, $\beta = 0.25$, $t = 2.05$, $p = .046$; 95% CI [0.01, 0.75]). Trait anger was not a significant predictor ($B = 0.34$, $SE = 0.31$, $\beta = 0.14$, $t = 1.08$, $p = .284$; 95% CI [−0.29, 0.97]). This indicates that each attitude component uniquely and independently contributed to the motivation to experience anger.

Consistent with our second hypothesis, ATE (but not EVE) anger was significantly correlated with the perceived utility of anger. To test our second hypothesis, we used Hayes (2013) PROCESS bootstrapping command (Model 4: 5000 iterations). Motivation to experience anger served as the dependent variable, the EVE scale served as the

⁹ The economic task was similar to a prisoner's dilemma game. Participants were asked to choose one of two options, based on a payoff table detailing the sums they could earn following each choice, as a function of the choice of another participant with whom they would be paired. Participants were informed that 10% of the participants would be randomly chosen and paid according to the outcome of the game.

Table 7
Descriptive Statistics and Correlations between key variables (Study 4).

	M (SD)	Evaluations of Emotions Scales		Attitudes toward Emotions Scales	
		Anger	Sadness	Anger	Sadness
Anger utility	5.86 (1.34)	0.54**	0.05	0.24 [#]	0.06
Trait anger	2.09 (0.56)	0.23 [#]	0.00	0.42**	0.10
Motivation to experience anger	2.02 (1.34)	0.36**	0.01	0.42**	0.13
M (SD)		2.87 (0.89)	3.92 (1.1)	1.59 (0.77)	2.74 (0.74)

[#] $p < .10$.
* $p < .05$.
** $p < .01$.

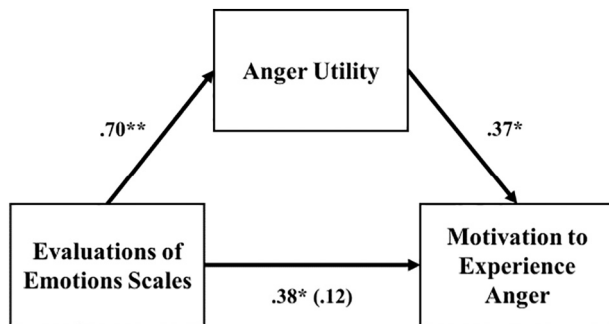


Fig. 2. The link between the EVE anger scale and the motivation to experience anger, as mediated by the perceived utility of anger (Study 4).

independent variable, we also included perceived anger utility in the model to examine the indirect link between EVE and the motivation to experience anger through anger utility. Trait anger and ATE were included as covariates in the model.

As shown in Fig. 2, the findings supported our prediction that the perceived utility of anger is associated with both the cognitive component of attitudes toward anger, as assessed by the EVE scale, and the motivation to experience anger. The total effect of the EVE scale on the motivation to experience anger ($b = 0.38$, $SE = 0.18$, $t = 2.05$, $p = .045$; 95% CI [0.01, 0.75]) become insignificant when anger utility was included in the model ($b = 0.12$, $SE = 0.20$, $t = 0.59$, $p = .557$; 95% CI [-0.89, 0.59]). The indirect effect differed from zero ($b = 0.26$, $SE = 0.11$; 95% CI [0.08, 0.55]). The results remained similar when including only one or none of the control variables in the model.

We repeated this analysis, replacing EVE with ATE as the predicting variable. As expected, the perceived utility of anger was not associated with ATE and did not explain its link to the motivation to experience anger. The total effect of the ATE scale on the motivation to experience anger ($b = 0.53$, $SE = 0.23$, $t = 2.31$, $p = .025$; 95% CI [0.07, 0.99]) remained significant when anger utility was included in the model ($b = 0.54$, $SE = 0.22$, $t = 2.49$, $p = .016$; 95% CI [0.11, 0.98]). The indirect effect was insignificant ($b = -0.01$, $SE = 0.08$; 95% CI [-0.22, 0.11]). These results remained unchanged when only one or none of the control variables were included in the model.

5.3. Discussion

Study 4 provides evidence for the unique predictive validity of the EVE. First, the EVE and ATE distinctly contributed to the motivation to experience anger. These findings are consistent with our hypothesis that the types of attitudes toward emotions, captured by the EVE and ATE, could potentially underlie different paths for emotion-related outcomes. Second, the EVE was uniquely linked the perceived utility of anger. This link, in turn, explained the association between the EVE and the motivation to experience anger. According to these findings, the cognitive (but not affective) evaluations of emotion may motivate

people to seek emotions for their instrumental value.

6. General discussion

In this investigation, we developed and validated a measure to assess the cognitive component of attitudes toward emotions. Our findings distinguish between the cognitive component of attitudes toward emotions and the affective and behavioral components. We show that a cognitive component of attitudes toward emotions, measured by the newly developed EVE scale, is distinct from affective or behavioral components, measured by the ATE scale (Harmon-Jones et al., 2011). We further show that the cognitive component of attitudes toward emotions is associated with different types of emotion-related judgments. Whereas affect-based attitudes toward emotions are more strongly linked to the perceived pleasantness of emotions, cognition-based attitudes toward emotions are more strongly linked to the perceived utility of emotions. Furthermore, such links may underlie different emotion-related outcomes. We show that the cognitive component of attitudes toward emotions, but not the affective component, is linked to the motivation to regulate emotions for their instrumental value.

6.1. Theoretical implications

6.1.1. Understanding evaluations of emotions and their complexity

Attitudes toward emotion are multidimensional constructs, involving separate components (i.e., affective, behavioral and cognitive), that may be consistent or inconsistent with each other (Abelson et al., 1982; Breckler & Wiggins, 1989). Each component may have different associations with relevant outcome variables. Our findings distinguish between cognitive and other components of attitudes toward emotion. We demonstrated that while the affective and behavioral components of attitudes toward emotions relates mostly to the perceived pleasantness of emotions, the cognitive component is linked to perceived utility.

6.1.2. Contribution to understanding meta-emotion

Attitudes toward emotion may contribute to work on meta-emotion. The way people react to their emotional responses (i.e., meta-emotion) involves experiences, knowledge, and strategies (Norman & Furnes, 2016). Meta-emotion experiences are subjective reactions elicited by the experience of an emotion (Norman & Furnes, 2016). The affective component of attitudes toward emotion measured by the ATE scales seems to reflect the experiential facet of meta-emotion. Meta-emotional knowledge is an organized set of thoughts about emotions, which refers to people's declarative knowledge about cognitive processes (Norman & Furnes, 2016). The cognitive component of attitudes toward emotion measured by the EVE scales seems to reflect the cognitive facet of meta-emotion.

6.1.3. Implications for emotion regulation

There are reasons to expect both affective- and cognitive-based attitudes toward emotions to be associated with emotion regulation.

Harmon-Jones et al. (2011) demonstrated that individuals who like experiencing fear, as measured by the ATE scale, were more motivated to approach fear related stimuli. Similarly, Markovitch, Netzer, and Tamir (2016) found that individual who evaluated disgust more positively, as measured by the EVE, were more likely to approach disgusting things. Studies conducted in other attitude domains found that distinct attitude components are differently linked to specific behaviors toward the attitude object (e.g., Millar & Tesser, 1986; Trafimow & Sheeran, 1998).

Building on these findings, in the current investigation, we demonstrated that the cognitive component, but not the affective component, of attitudes toward emotions was linked to the motivation to regulate emotion via instrumental considerations. Instrumental motivation leads people to pursue emotions that can help them attain goals (see Tamir, 2016). Such motivation is guided by peoples' beliefs about the utility of emotions for attaining target goals (Tamir et al., 2015; Tamir & Ford, 2012). Our findings suggest that people with more positive cognitive attitudes toward an emotion (as measured by the EVE) find it more useful and are hence more motivated to experience it. However, for people with more positive affective attitudes toward an emotion (as measured by the ATE), motivation to experience an emotion was not linked to instrumental considerations.

Whereas cognitive components of attitudes toward emotions are linked to instrumental motives in emotion regulation, affective components of attitudes toward emotions may be linked to hedonic motives in emotion regulation. Future research should systematically test the relationship between each component of attitudes toward emotions and emotion regulation. For instance, the link between the cognitive component of attitudes toward emotions and motivation to experience emotions might be evident in contexts where such emotions are beneficial, whereas the link between the affective component and such motivation is relatively stable across contexts.

6.2. Pragmatic implications

As for pragmatic implications, the EVE scales showed adequate validity in the present investigation. First, each emotion examined in the EVE scales emerged as a separate factor, with a high internal reliability. Second, the EVE scales were discriminate from the ATE scales. Third, a construct validity examination of the EVE scales, showed that the scales were associated with perceived emotional utility but not perceived pleasantness (and vice-versa for the ATE scales). Therefore, it seems that the EVE scales can be used in future studies to assess the cognitive component of emotions.

6.3. Limitations and future research

In general, we found support for our hypothesis that affect-based attitudes toward emotions were related to perceived pleasantness of emotion, and cognition-based attitudes were related to perceived utility. Nonetheless, the findings were not entirely consistent across emotions. For instance, in Studies 1 and 2 happiness utility was associated with both ATE and EVE scales. As happiness is both pleasant and useful, the affective and cognitive components of attitudes toward happiness may overlap to a greater extent. Future studies could potentially disentangle the two in experimental settings, where participants are tested in contexts in which happiness could be harmful (e.g., winning a competition where a friend lost, feeling giddy while taking an important exam, etc.). In such cases, we would expect utility and pleasantness to be more distinct from one another. This might result in stronger associations between the EVE (relative to the ATE) and perceived utility of happiness.

More broadly, it seems that the distinction between affective and cognitive components of attitudes toward emotions may differ in scope as a function of the target emotion. For example, it may be that positive emotions differ from negative emotions in this extent. Future research

could test this by assessing attitudes toward positive emotions other than happiness. Future research could also continue to assess the validity and implications of the EVE scale.

First, although the results of the present investigation replicated across two distinct cultures (USA and Israel), a wide range of ages (the general population vs. undergraduates), and study setting (MTurk surveys versus lab studies), future research should replicate these results using additional samples. In particular, it would be interesting to assess the components of attitudes toward emotions and their potential variation across cultures (see Chow & Berenbaum, 2012; Tsai et al., 2006). Second, in this investigation, to minimize the potential of priming effects, attitudes toward emotions were measured after beliefs about emotions and motivation. In future research, however, attitudes toward emotions should be measured before potential mediators or outcomes, to allow for tests of mediation.

Future research should also systematically examine differential associations and implications of the ATE and EVE scales, especially with reference to attitude-related behavior. Finally, the attitude measures in the present investigation are based on self-report. Future research may focus on measuring implicit attitudes toward emotions and their potential links to psychological processes that may or may not be accessible to conscious awareness.

6.4. Conclusion

Like other types of attitudes, attitudes toward emotions involve affective, behavioral, and cognitive components (Eagly & Chaiken, 1993). In this work, we introduce and validate the EVE scales that assess the cognitive component of attitudes toward emotions. Our findings suggest that to understand why people react to their emotions and regulate (or fail to regulate) them, it may be important to understand how people feel, but also how they think, about their emotions.

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References

- Abelson, R. P., Kinder, D. R., Peters, M. D., & Fiske, S. T. (1982). Affective and semantic components in political person perception. *Journal of Personality and Social Psychology*, 42(4), 619–630.
- Breckler, S. J., & Wiggins, E. C. (1989). Affect versus evaluation in the structure of attitudes. *Journal of Experimental Social Psychology*, 25(3), 253–271.
- Chow, P. I., & Berenbaum, H. (2012). Perceived utility of emotion: The structure and construct validity of the Perceived Affect Utility Scale in a cross-ethnic sample. *Cultural Diversity and Ethnic Minority Psychology*, 18(1), 55–63.
- Eagly, A. H., & Chaiken, S. (1993). The nature of attitudes. In A. H. Eagly, & S. Chaiken (Eds.). *The psychology of attitudes* (pp. 1–22). Orlando, FL: Harcourt Brace Jovanovich College.
- Eid, M., & Diener, E. (2001). Norms for experiencing emotions in different cultures: Inter- and intranational differences. *Journal of Personality and Social Psychology*, 81, 869–885.
- Harmon-Jones, E., Harmon-Jones, C., Amodio, D. M., & Gable, P. A. (2011). Attitudes toward emotions. *Journal of Personality and Social Psychology*, 101, 1332–1350.
- Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Himmelfarb, S. (1993). The measurement of attitudes. In A. H. Eagly, & S. Chaiken (Eds.). *The psychology of attitudes* (pp. 23–87). Orlando, FL: Harcourt Brace Jovanovich College.
- IBM Corporation (2012). *IBM SPSS Statistics for Windows, Version 21.0*. Armonk, NY: IBM Corp.
- Jöreskog, K., & Sörbom, D. (1993). *Structural equation modelling with the SIMPLIS command language*. Lincolnwood: Scientific Software.
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: Guilford Press.
- Litman, L., Robinson, J., & Abberbock, T. (2017). TurkPrime.com: A versatile crowdsourcing data acquisition platform for the behavioral sciences. *Behavior Research Methods*, 49(2), 433–442.
- Markovitch, N., Netzer, L., & Tamir, M. (2016). Will you touch a dirty diaper? Attitudes toward emotions and behavior. *Cognition and Emotion*, 30(3), 592–602.
- Millar, M. G., & Tesser, A. (1986). Effects of affective and cognitive focus on the attitude-behavior relation. *Journal of Personality and Social Psychology*, 51(2), 270–276.

- Norman, E., & Furnes, B. (2016). The concept of “metaemotion”: What is there to learn from research on metacognition? *Emotion Review*, 8(2), 187–193.
- Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satiating to increase statistical power. *Journal of Experimental Social Psychology*, 45(4), 867–872.
- Osgood, C. E. (1964). Semantic differential technique in the comparative study of cultures. *American Anthropologist*, 66(3), 171–200.
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). *The measurement of meaning*. Urbana, IL: University of Illinois Press.
- Spielberger, C. D., Jacobs, G., Russell, S., & Crane, R. (1983). Assessment of anger: The State–Trait Anger Scale. In J. N. Butcher, & C. D. Spielberger (Vol. Eds.), *Advances in personality assessment*. vol. 2. *Advances in personality assessment* (pp. 112–134). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Tamir, M. (2016). Why do people regulate their emotions? A taxonomy of motives in emotion regulation. *Personality and Social Psychology Review*, 20(3), 199–222.
- Tamir, M., Bigman, Y. E., Rhodes, E., Salerno, J., & Schreier, J. (2015). An expectancy-value model of emotion regulation: Implications for motivation, emotional experience, and decision making. *Emotion*, 15, 90–103.
- Tamir, M., & Ford, B. Q. (2012). When feeling bad is expected to be good: Emotion regulation and outcome expectancies in social conflicts. *Emotion*, 12, 807–816.
- Trafimow, D., & Sheeran, P. (1998). Some tests of the distinction between cognitive and affective beliefs. *Journal of Experimental Social Psychology*, 34(4), 378–397.
- Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology*, 90, 288–307.