Studia Psychologica, Vol. 65, No. 4, 2023, 307-319
https://doi.org/10.31577/sp.2023.04.882

An Emotional Experience of Work: Attachment Orientations and Emotion Expressions to Work-Related Film Stimuli

Martin Seitl[1], Ema Omastová[1], Filip Sulejmanov[1], Ursula Hess[2], Shlomo Hareli[3], Daniel Dostál[1], Petra Hypšová[1], Konstantinos Kafetsios[1]
[1] Department of Psychology, Faculty of Arts, Palacký University Olomouc
[2] Department of Psychology, Humboldt University of Berlin
[3] Graduate School of Management, University of Haifa

The present study investigated individual differences in attachment orientation at work as they relate to workers' facial expressions to work-related emotions. In a laboratory study, sixty employees completed the Experiences in Work Relationships-Individual scale (EWR-I), which assesses attachment-related regulation strategies at work. Participants' facial expressions while viewing film clips from a work environment series were assessed using a computerized facial analysis software. Results showed that higher avoidant attachment was associated with lower average intensity of happiness expressions. In contrast, higher anxious attachment was associated with lower average intensity of anger and fear expressions. The results of the study suggest that facial expressions in response to work-related emotion stimuli serve as behavioral indicators of emotion regulation at work and, in particular, attachment-related emotion regulation.

Key words: emotion expression, emotional regulation, adult attachment organization, behavioral analysis

Emotion regulation, the process by which an individual can alter the emotion s/he experiences but also the way in which s/he will express those emotions depending on the situation (Gross, 1998), is an integral part of the adult attachment organization (Diamond & Aspinwal, 2003; Mikulincer & Pereg, 2003; Zimmermann, 1999). Bowlby's original insights into attachment theory (1969/1988) suggest that insecure attachment strategies and defenses are responsible for regulating emotions and information processing, thereby obstructing awareness of feelings and intentions within oneself and others. Emotion regulatory processes related to adult attachment organization have been examined within social (Mikulincer et al., 2003), clinical (Cloitre et al., 2008) or organizational (Richards &

Correspondence concerning this article should be addressed to PhDr. Martin Seitl, Ph.D., Department of Psychology, Faculty of Arts, Palacký University Olomouc, Křížkovského 10, 771 80 Olomouc, Czech Republic. E-mail: martin.seitl@upol.cz

Received October 4, 2022

Schat, 2011) contexts. Especially with regards to work and organizational contexts – the focus of the present study – existing research has produced some telling results related to how adult attachment organization and emotion regulation coalesce to influence social interaction at work (Kafetsios et al., 2014; Richards & Schat, 2011), typically using concurrent or retrospective assessments of emotion regulatory strategies at work. Yet we know relatively little about how attachment at work can impact the processing and responding to emotional situations at work, specifically with facial expressions to the emotion eliciting event.

The present study used a laboratory approach to gauge facial emotional reactions to work-related emotion situations and separately assessed attachment-related emotion regulation strategies at work. We thus focused on the expressive part of emotion regulation (Gross & Levenson, 1997), the facial emotion expressions, since facial expressions constitute an important aspect of social (Niedenthal & Bauer, 2012) and emotional interaction at work (Van Kleef, 2019).

Attachment Theory and Emotion Regulation at Work

Attachment is an evolutionary developed behavioral system that characterizes humans "from the cradle to the grave" (p. 208, Bowlby, 1969/1982). While, at a distal level, the attachment system has the adaptive goal to increase the chances of survival, at the proximal level, attachment organization constitutes a system of fear and uncertainty regulation. It is activated in the face of an imminent threat, and activation of the attachment system motivates an individual to seek closeness and support from those who are important to him or her. Deactivation of the system usually occurs when the individual receives the needed support and gains a sense of security.

Generally, these normative aspects of attachment organization are overlooked in favor of an individual differences perspective. Individual differences in adult attachment trait-like characteristics (secure, anxious or avoidant attachment dimensions or orientations) derive from interaction patterns with primary caregivers established in early stages of development. Each attachment dimension or orientation is associated with distinct emotion regulation strategies and processes (Mikulincer et al., 2019). Individuals with secure attachment orientations are better able to regulate positive and negative emotions than individuals with an anxious or avoidant attachment orientation (Cooper et al., 1998; Wei et al., 2005). Persons with anxious attachment orientations typically use hyperactivating strategies in order to regulate anticipated or felt distress (Mikulincer et al., 2002). Recent research suggests that anxious attachment orientations are associated with higher dysregulation and suppression of specific emotions such as sadness and anger (Clear et al., 2020). Conversely, persons with avoidant attachment orientations typically deactivate the attachment system. Accordingly, attachment avoidance is related to more emotion suppression overall (Gross & John, 2003) and with regards to specific emotions (Clear et al., 2020). These hyperactivating and deactivating regulatory strategies have consequences for emotion expression (Consedine et al., 2012).

These attachment-related emotion regulation strategies also influence the experience of emotions at work. Both attachment anxiety and avoidance were associated with more surface acting at work (Richards & Schat, 2011), a form of emotion regulation where people suppress the behavioral display of emotions that they are experiencing (Grandey, 2003). To our knowledge, however, these important observations about the emotional attachment dynamics in the workplace have not been

tested with regards to more nuanced facets of emotion regulation and targeting behavioral aspects of the underlying emotion regulatory process. Attachment is a behavioral system of relating of self and others yet, much of the research has been shying away from examining the behavioral aspects of adult attachment organization (Strand et al., 2019).

Emotional facial reactions constitute important behavioral indicators of emotion regulation strategies (Buck et al., 1972; Gross, 2008; Zampetakis et al., 2017) and characteristics of attachment-related emotion regulatory processes in particular (Sroufe, 1996). Existing research suggests that securely attached individuals tend to be able to consistently express both positive and negative emotions whereas dismissively attached (avoidant) participants tend to suppress their emotional expression (Spangler & Zimmermann, 1999; Roisman et al., 2004). The limited research that has examined facial emotion responses as markers of insecure attachment orientations has found that persons with an anxious/preoccupied state of mind tend to show discrepancies between facial and verbal expressions of emotion during activation of the attachment system (Roisman et al., 2004). On the other hand, avoidantly attached participants (dismissing participants) during the Adult Attachment Interview exhibited lower facial expressions using the OpenFace software (Baltrusaitis et al., 2018), a method of automatic detection of facial emotion expressions. More recently, in a sub-clinical sample, Altmann et al. (2021) observed lower facial expressions of avoidantly attached participants (dismissing participants) during the Adult Attachment Interview and using the OpenFace software (Baltrusaitis et al., 2018). These results were in line with previously conducted research (Spangler & Zimmermann, 1999; Roisman et al., 2004) and highlight insecure participants' suppression tendencies.

Yet, despite the general agreement that facial emotion expressions to emotion eliciting events constitute meaningful and reliable markers of emotion regulation, such markers have seen limited use in research on attachment-related emotion regulation strategies, including examination of attachment-related emotion regulation strategies at work.

The Present Study

The present study examined relationships between individual differences in attachment-related emotion regulatory strategies at work (hyperactivating-deactivating) and behavioral facets (facial emotion expressions) of the emotion regulation processing of work-related emotion episodes. The study extends existing lines of research by examining whether and how attachment-related emotion regulation strategies form antecedents to facial reactions to work-related emotion episodes.

Based on the existing research that links insecure attachment orientation with emotion suppression in general (Gross & John, 2003) and with emotion suppression at work in particular (Richards & Schat, 2011**)** we predicted that the two insecure attachment regulatory strategies (anxiety-hyperactivating, avoidance-deactivating) will be related with lower intensity of facial emotion expressions indicative of emotion suppression; however, given the very limited evidence on this topic, we did not have specific hypotheses as to the specific emotions this would concern, and in that respect, the study was exploratory.

We sampled emotion expressions to episodes that have distinctive significance for work relationships (anger, Gibson & Callister, 2010; fear, Kish-Gephart et al., 2009; and happiness, Gavin & Mason, 2004) and which are relevant to attachment theory (Gruda et al., 2022). Recent years have seen an increased interest and evidence into how films induce

specific emotional states (Fernandez-Aquilar et al., 2018; Sato et al., 2020). The overall consensus is that films are effective emotion generation means (Lench et al., 2011). In the context of emotion regulation research, films have been a popular and powerful way of experimentally studying emotion regulation (Gross, 1998; Gross & Levenson, 1997).

Method

Participants

The sample comprised 60 individuals recruited through intentional sampling using local contacts of the researchers in different organizations. Participants who have been in active employment for a minimum of 6 months were invited to participate in the study. No one declined to participate. Specifically, the sample consisted of 38 women (M_{age} = 44.66, *SD* = 14.06, age range: 23-70) and 22 men (M_{age} = 40.43, *SD* = 15.18, age range: 19-72). Besides demographic data about gender and age, information about education, tenure, seniority, and specialization were collected. The mean tenure was *M* = 11.84, range = 0.2 to 42 years). A sensitivity analysis (Faul et al., 2007) suggested that this sample is sufficient to detect a medium f^2 = .12 effect with .84 power. Before the main study, we piloted the study with 5 participants (3 men, M_{age} = 48.75) to technically verify the study design. These participants were excluded from the main study.

Measures

Attachment orientations at work. The Experiences in Work Relationships-Individual (EWR-I) scale (Seitl et al., 2022) was used to measure attachment anxiety and attachment avoidance at work. The EWR-I comprises 15 statements rated on a seven-point Likert-type scale, tapping two subscales. These are, interpersonal hyperactivation and interpersonal deactivation. While the hyperactivation scale represents secondary regulatory strategies typical of anxious attachment at work, the deactivation part of the scale focuses on secondary regulatory strategies typical of avoidant attachment. The EWR-I subscales highly correlate with the two ECR dimensions and demonstrate acceptable levels of reliability (Seitl et al., 2016; Seitl et al., 2022). The hyperactivation dimension also demonstrates gender differences (Seitl et al., 2016). A confirmatory factor analysis performed on independent sample of 633 employed respondents, demonstrated very good fit of the model with the data (Seitl et al., 2022). In the present study, internal consistency was α = 0.71 and α = 0.67 for hyperactivation and deactivation respectively.

Behavioral analysis of emotional facial expression. FaceReader 9.0 software (Uyl & Van Kuilenburg, 2005) was used to analyze video clips obtained during respondents' viewing of contextual stimuli, allowing for analysis of the basic emotions, user-set emotions, emotional valence, emotional arousal, eye movements, and non-contact measurement of heart rate variability at 26 Hz. The analysis is age and race matched. The technology uses the FACS-based model (Ekman et al., 2002) to identify emotions and their intensity in real time.

Emotional empathy. To control for the influence of individual differences in emotional reactivity, the Emotional Empathy Scale, EES-R (Seitl et al., 2017) was used. The scale was firstly presented by Caruso and Mayer (1998) as a tool for the assessment of non-cognitive emotional regulatory functions. The scale measures three dimensions of emotional empathy: the tendency to respond to both negative (Sympathy) and positive (Positive sharing) experiencing of others with complementary emotions and the tendency to identify with imaginary characters and to respond

emotionally to works of art, including music (Emotional movement). Respondents high on emotional empathy tend to experience higher emotional response on perceived situations, including movies and series, because emotional empathy represents a trait manifested via empathizing with seen or heard stimuli. The dimensions correlate negatively with emotional stability and positively with sociability (Seitl et al., 2017). Internal consistency for the three dimensions of the scale were $\alpha = 0.71$, $\alpha = 0.83$, and $\alpha = 0.81$ for sympathy, positive sharing and emotional movement, respectively.

Procedure

Before the start of the study, respondents provided informed consent for their participation and the use of personal data. The specific aims and hypotheses of the study were disclosed at the end of the experiment. Participants were given the option to have their data deleted at this point. No participant asked for this.

An episode of a popular series set in a work environment was selected as the primary contextual stimulus. Participants watched an entire 42 minutes and 21-second-long episode of the series (to promote identification with the characters and habituation to the recording.) Participants were instructed to watch the entire episode while their facial reactions were recorded. In order to select the three excerpts, the episode was piloted with five participants. Three passages of the episode were selected that depicted happiness, anger and fear, based on respondents' emotional expressions in comparison to their baseline. Based on the results of the pre-test, only the passages that confirmed their stimulus effect were selected. Below is a brief description of the situations in the selected passages:

Happiness. The new leader is changing in the locker room with the followers. They have not yet been introduced and therefore do not know that this is their new leader. The followers speculate about which of them the new leader will fire, how long he will last in his position, and make bets among themselves. The denouement comes when another employee arrives and reveals the identity of the new leader to the others. The leader expresses that he is unaffected by the followers' behavior, is not threatened by them, and joins the bet. In doing so, he expresses his support for them. The scene ends non-confrontationally and with humorous overtones. The passage was 63-second-long.

Anger. A conversation between a leader and a follower. The leader strongly expresses dissatisfaction with the follower's behavior and, after a brief discussion, gives an ultimatum for behavioral change or termination. During the interaction, both participants display a socially acceptable but distinct level of anger. The passage ends without resolution; the follower leaves the interaction without responding. The passage was 65-second-long.

Fear. Later, after the passage for anger, the conversation between leader and follower continues. The follower suddenly approaches the leader, their initial conversation does not bring resolution to the previous conflict, it focuses on a seemingly different topic, the dynamic graduates, raising anticipation and fear of the ongoing conflict and possible consequences. The denouement brings surprise and relief, the leader states that a correction has been made and the follower expresses her intention to stay and relive her position with the new leader as beneficial. The passage was 78-second-long.

Participants completed the EWR-I and EES-R scales after a 30 minutes interval following the exposure to the episode of the series. The study design prioritized video recording of behavior before self-reports in the sequence, because the items in the questionnaires may

focus participants' attention on the regulation of emotions. The opposite direction, when the questionnaires are administered first, was considered as riskier.

Results

Data were analyzed using SPSS Statistics version 25 software. Based on descriptive analyses, parametric methods were deemed not suitable for data processing since the facial emotional expression indicators showed high skewness (happiness 1.2; anger 3.5; fear 3.5) and kurtosis (happiness -.13; anger 13.9; fear 13.2). Table 1 presents the results from Spearman's zero-order correlation coefficient tests for the main variables of interest (attachment dimensions, the emotional empathy dimensions, and emotion expression for the three context-specific stimuli) and the demographic variables. Results depict a negative relationship between the two attachment orientations at work (deactivating- avoidance and hyperactivating-anxiety) and the expression of basic emotions when viewing the film stimuli. Anxious attachment at work, tapped by the attachment hyperactivation scale, was negatively correlated with the expression of anger and fear (rs = -.33, p < .05 and rs = -.37, p < .01 respectively) whereas avoidant attachment, tapped by the attachment deactivation scale, was negatively correlated with the expression of happiness (rs = -.28, p < .05). Moreover, females expressed lower fearful reaction at work (rs = -.28, p < .05).

To control for likely effects of individual differences of attachment and emotional expressivity we also controlled for those in the multivariate analyses. We conducted binomial logistic regression analyses in which the dependent dichotomous variable for each model was the expression of each emotion and the predictors included the two dimensions of attachment strategies at work. Gender and age were always included in those models with respect to their relationship to the attachment at work (Seitl et al., 2022). For each model, the assumptions for its calculation were checked with emphasis on linearity. Verification was conducted using the Box-Tidwell procedure (1962) and Bonferroni correction procedures of the significance level by the number of independent variables (Tabachnick & Fidell, 2014).

As depicted in Table 2, results from a binomial logistic regression model that ascertained relationships between gender, age and attachment deactivation at work and the likelihood of happiness expression in the given context was statistically significant, $\chi^2(3) = 9.70$, p < .05. The model explained 21.0%

Table 1 *Basic descriptive statistics and intercorrelations of study variables*

	M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Gender	-	-									
2. Age	43.10	14.6	-.14								
3. EWR-I HYP	4.68	.90	-.23	.29*							
4. EWR-I DEA	3.51	.82	.11	.26**	-.16						
5. Sympathy	3.73	.59	-.53**	.36**	.34**	-.10					
6. Emotional movement	3.25	.85	-.43**	.50**	.40**	.04	.56**				
7. Positive sharing	2.48	.77	-.41**	.50**	.40**	-.04	.56**	.95**			
8. Happiness	.24	.32	-.20	-.06	.03	-.28*	-.06	-.03	-.01		
9. Anger	.07	.12	.15	-.05	-.33*	-.04	-.16	-.16	-.11	.05	
10. Fear	.01	.02	-.29*	-.16	-.37**	-.13	.05	-.13	-.08	.24	.50**

Note. HYP = EWR-I Hyperactivation; DEA = EWR-I Deactivation; Sympathy = EES-R Sympathy; Emotional movement = ESS-R Emotional movement; Positive sharing = EES-R Positive sharing.
* p < 0.05; ** p < 0.01; *** p < 0.001

(Nagelkerke R^2) of the variance in expression of the emotion and correctly classified 70.0% of cases. Sensitivity was 45.5%, specificity was 83.8%, positive predictive value was 62.5% and negative predictive value was 72.1%. Of the three predictor variables only EWR-I Deactivation was a statistically significant predictor. Increase of mean of deactivation by one unit decreases the odds of happiness expression by 2.86.

Table 3 further presents the results of a binomial logistic regression that tested relationships between gender, age, sympathy and interpersonal hyperactivation, and the likelihood of anger expression, which was statistically significant ($\chi^2(4) = 24.81$, $p < .000$). The model explained 61.0% (Nagelkerke R^2) of the variance in the expression of the emotion, and correctly classified 91.2% of cases. Sensitivity was 55.6%, specificity was 97.9%, positive predictive value was 92.15% and negative predictive value was 83.3%. Of the four predictor variables age and EWR-I Hyperactivation were significant predictors. Increasing hyperactivation was associated with a decrease in likelihood of anger expression, and age was associated with an increased likelihood of anger expression. Increase in hyperactivation mean by one unit increases the odds of anger suppression by 20. The Sympathy dimension of the EES-R was a significant predictor when entered solely, however it became non-significant after adding the Hyperactivation dimension. As with the previous models, the analysis was performed stepwise with the addition of predictors. All dimensions of emotional empathy lost their contribution in the model when attachment anxiety was added. Therefore, the final model does not include the EES-R dimension.

Table 2 *Logistic regression of expression of happy expression intensity on attachment deactivation at work*

							95% C.I. for EXP(B)	
	B	S.E.	Wald	*Df*	*p*	Exp(B)	Lower	Upper
Gender	-0.84	0.61	1.91	1	0.17	0.43	0.13	1.42
Age	.00	0.02	0.00	1	0.95	1.00	0.96	1.04
DEA	-1.05	0.43	5.84	1	0.02	0.35	0.15	0.82
Constant	4.59	1.70	7.28	1	0.01	98.36		

Note. Gender: males: 2, females: 1. DEA = EWR-I Deactivation

Table 3 *Logistic regression of anger expression intensity on attachment hyperactivation at work*

							95% C.I. for EXP(B)	
	B	S.E.	Wald	*df*	*p*	Exp(B)	Lower	Upper
Gender	.31	1.26	.06	1	0.81	1.36	0.11	16.12
Age	.13	.06	4.04	1	0.04	1.13	1.00	1.28
Sympathy	-3.18	1.86	2.93	1	0.09	0.04	0.00	1.58
HYP	-3.04	1.22	6.18	1	0.02	0.05	0.01	0.53
Constant	16.38	8.30	3.89	1	0.05	12934740.91		

Note. Gender: males: 2, females: 1. HYP = EWR-I Hyperactivation

Table 4 *Logistic regression predicting intensity of expressing fear based on attachment hyperactivation at work*

							95% C.I. for EXP(B)	
	B	S.E.	Wald	*df*	*p*	Exp(B)	Lower	Upper
Gender	-25.31	6588.08	0.00	1	1.0	0.00	0.00	
Age	-.22	.10	4.65	1	0.03	0.81	0.66	0.98
HYP	-2.84	1.33	4.59	1	0.03	0.06	0.01	0.76
Constant	19.77	8.47	5.44	1	0.02	383735594.10		

Note. Gender: males: 2, females: 1. HYP = EWR-I Hyperactivation

Finally, a binomial logistic regression was performed to ascertain the effects of gender, age, and interpersonal hyperactivation on the likelihood that participants expressed fear in the context provided by the stimuli. The logistic regression model was statistically significant, $\chi2(3) = 30.62$, $p < .000$. The model explained 75.3% (Nagelkerke R^2) of the variance in the expression of the emotion and correctly classified 91.1% of cases. Sensitivity was 62.5%, specificity was 95.8%, positive predictive value was 93.9% and negative predictive value was 71.4%. Of the three predictor variables two were statistically significant: age and EWR-I Hyperactivation. Increase in hyperactivation mean by one unit led to decrease in the odds of fear expression by 16.7.

Discussion

The aim of the present study was to examine whether and how attachment-related emotion regulation strategies (hyperactivation-anxiety and deactivation-avoidance) relate to facial expression responses to emotional work-related situations as behavioral indicators of regulatory strategies in the work environment (Richards & Schat, 2011). Within this goal, a specific aim of the study was to capture behavioral facets of emotional responses at work in conjunction with the use of a self-report measure that focuses on attachment-related emotion regulation strategies at work (Seitl et al., 2022). This is related to the growing recognition of the need to take a more behavioral approach to the study of adult attachment, also within the work context, and a broader concern about limitations associated with generic self-report measures (Baumeister et al., 2007).

Overall, the results of the present study support the prediction that the two insecure attachment regulatory strategies at work (hyperactivating, deactivating) would be related with lower intensity of facial emotion expressions indicative of emotion suppression. Indeed, individual differences in hyperactivating and deactivating strategies at work were associated with lower intensity facial emotional expressions to work-related film stimuli. These findings are largely in line with studies that used similar behavioral measures in the general population (e.g., Altmann et al., 2021) or self-report measures of emotion suppression in the work context in particular (Richards & Hackett, 2012). However, an interesting pattern of results arose with regard to documenting attachment-related emotional reactions to specific emotions. Hyperactivating strategies at work, corresponding to anxious attachment orientations, were negatively associated with participants' facial expression reactions to angry and fearful (but not happy) emotion excerpts, whereas deactivating strategies at work, corresponding to avoidant at-

tachment orientations, were associated with (lower) expression of happy emotion (but not anger or fear) episodes.

These findings are indicative of suppression of positive emotion expressions by participants higher on avoidant attachment and were in line with previous findings (Altmann et al., 2021; Mikulincer & Shaver, 2016a), and especially with research that documents the distinctive role of positive emotion in avoidant regulatory strategies (Kafetsios et al., 2014; Spielman et al., 2013). Namely, that avoidant persons demonstrate an aversion to positive emotional experience. The present study extends this notion to the realm of the work environment. However, there has also been evidence for avoidance being associated with suppression of negative emotion in the context of close relationships (Winterheld, 2016). Yet, our study did not examine the moderating effects of the relationship context and did not focus on self-reported accounts of emotion, but rather directly examined behavioral, facial expression, reactions to emotional episodes.

The present study found suppression of anger and fear were specifically related to hyperactivation tendencies, corresponding to anxious attachment orientation at work. This finding is in line with theorizing on insecure attachment and emotion regulation links (Mikulincer & Shaver, 2019) in particular and research depicting the dysregulation and suppression tendencies involved in anxious attachment (Clear et al., 2020). At face value, this evidence seems to negate research that highlights the fact that anxious attachment orientations are associated with a 'maximizing' style of negative emotion regulation (Cassidy, 1994), that is, participants are hypervigilant to rejection cues and distress (Mikulincer, 1998b). However, much of that research was situated within close relationships and utilized self-report methods of emotion expression. Future studies should consider those elements, and aim to incorporate both self-reported and behavioral aspects of emotion expression and emotion regulation and examine those within an interpersonal context as well. Facial expressions of emotion play a crucial role in social interactions (Niedenthal & Bauer, 2012) and have significant implications for emotional interactions in the workplace (Van Kleef, 2014).

The results also provide converging evidence for the validity of the Experiences in Work Relationships Scale, a new measure with a behavioral flavor of attachment dynamics at work (Seitl et al., 2022). The scale targets self-reported attachment-related emotions and behavior at work and the results from the present study demonstrate its ability to differentiate hyperactivating (anxious) and deactivating (avoidant) strategies as with regards to specific work-related emotions.

Last, the present study adds to increasing evidence for the ability of films to evoke particular emotional states (Fernandez-Aquilar et al., 2018; Lench et al., 2011), especially with regards to emotion regulatory strategies (Gross, 1998; Gross & Levenson, 1997). The present study extends the realm to the study of work-related emotional episodes.

Limitations and Future Directions

A possible limitation of the present study is the likely effects participants' awareness of the recording may have exerted, which could have resulted in more controlled expressions. Moreover, the likely influence of personality and the degree of identification of respondents with the characters in the material were only indirectly assessed (through the use of the Empathy scale). These shortcomings should be addressed in follow-up studies, which could consider utilizing unobtrusive observation methods.

Future research could extend the results to the interpersonal work context. The results of the present study point to the need to consider the experience and expression of emotion related to regulatory functions of the attachment system (e.g., Consedine et al., 2012). People with insecure attachment may render it difficult for the observer to accurately decode the expression of the expressed emotion correctly (especially if the expression is completely suppressed), which can lead to confusion or misunderstanding in dyadic and group interactions. The communicative function of emotions, like other components of the communication process, is linked to the context within which the communication process takes place and one should consider such contextual effects (Slaměník, 2011). Future research could also involve data regarding other aspects of emotion measurement such as psychophysiological reactions during experiencing and expressing work-related emotion.

Conclusion

The results from the present study underpin the importance of the expressive part of emotion regulation strategies associated with the adult attachment dimensions in the work context. The focus of the present study was on facial emotion expression reactions, a behavioral facet of emotion regulation (Gross, 1998); therefore, it extends previous research that relied exclusively on self-reports of emotional experience and expression and which involved specific samples within the general population. In general, we have shown that hyperactivating (avoidant) and deactivating (anxious) attachment strategies at work are differentially related with facial emotion expression to work-related stimuli, indicative of suppression emotion regulation tendencies.

Acknowledgement

The study was funded by the Czech Science Foundation (GAČR), project No. 22-15238S.

Authors' ORCID

Martin Seitl
https://orcid.org/0000-0002-3996-2085
Ema Omastová
https://orcid.org/0000-0002-7031-7818
Filip Sulejmanov
https://orcid.org/0000-0002-5162-0467
Ursula Hess
https://orcid.org/0000-0002-6793-7282
Shlomo Hareli
https://orcid.org/0000-0002-3101-868X
Daniel Dostál
https://orcid.org/0000-0001-5489-7907
Petra Hypšová
https://orcid.org/0000-0003-0049-1594
Konstantinos Kafetsios
https://orcid.org/0000-0001-5933-4409

References

Altmann, U., Friemann, C., Frank, T. S., Sittler, M. C., Schoenherr, D., Singh, S., Schurig, S., Strauss, B., & Petrowski, K. (2021). Movement and emotional facial expressions during the adult attachment interview: Interaction effects of attachment and anxiety disorder. *Psychopathology, 54*, 47–58. https://doi.org/10.1159/000512127

Baltrusaitis, T., Zadeh, A., Lim, Y. C., & Morency, L. P. (2018, May). Openface 2.0: Facial behavior analysis toolkit. In 2018 13th IEEE international conference on automatic face & gesture recognition (FG 2018) (pp. 59–66). IEEE.

Baumeister, R. F., Vohs, K. D., & Funder, D. C. (2007). Psychology as the science of self-reports and finger movements: Whatever happened to actual behavior? *Perspectives on Psychological Science, 2(4),* 396–403.

Bowlby, J. (1969/1982). *Attachment and loss* (Vol. 1, Attachment). Basic Books.

Box, G. E. P., & Tidwell, P. W. (1962). Transformation of the independent variables. *Technometrics, 4*(4), 531–550.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). Guilford Press.

Buck, R. W., Savin, V. J., Miller, R. E., & Caul, W. F. (1972). Communication of affect through facial expressions in humans. *Journal of Personality and Social Psychology*, *23*(3), 362. https://doi.org/10.1037/h0033171

Caruso, D. R., & Mayer, J. D. (1998). A measure of emotional empathy for adolescents and adults. Unpublished manuscript.

Clear, S. J., Gardner, A. A., Webb, H. J., & Zimmer-Gembeck, M. J. (2020). Common and distinct correlates of depression, anxiety, and aggression: Attachment and emotion regulation of sadness and anger. *Journal of Adult Development, 27,* 181–191.

Cloitre, M., Stovall-McClough, C., Zorbas, P., & Charuvastra, A. (2008). Attachment organization, emotion regulation, and expectations of support in a clinical sample of women with childhood abuse histories. *Journal of Traumatic Stress, 21*(3), 282–289. https://doi.org/10.1002/jts.20339

Consedine, N. S., Fiori, L. K., & Magai, C. (2012). Regulating emotion expression and regulating emotion experience: Divergent associations with dimensions of attachment among older women. *Attachment & Human Development, 14*(5), 477–500. https://doi.org/10.1080/14616734.2012.706433

Consedine, N. S., Magai, C., & King, A. R. (2004). Deconstructing positive affect in later life: A differential functionalist analysis of joy and interest. *International Journal of Aging & Human Development, 58*(1), 49–68. https://doi.org/10.2190/2M9F-7GN5-P4KA-WXED

Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology*, *74*(5), 1380–1397.

Den Uyl, M. J., & Van Kuilenburg, H. (2005). The FaceReader: Online facial expression recognition. In L. P. J. J. Noldus, F. Grieco, L. W. S. Loijens, & P. H. Zimmerman (Eds.), *Proceedings of measuring behavior* (Vol. 30, pp. 589–590). Information Technology.

Ekman, P., Friesen, W. V., Hager, J. C. (2002). *Facial action coding system. The manual.* Research Nexus.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191.

Fernández-Aguilar, L., Ricarte, J., Ros, L., & Latorre, J. M. (2018). Emotional differences in young and older adults: Films as mood induction procedure. *Frontiers in Psychology, 9*, Article 1110. https://doi.org/10.3389/fpsyg.2018.01110

Fischer, A. H., & Manstead, A. S. R. (2016). Social functions of emotion regulation. In L. F. Barrett, M. Lewis, & J. M. Haviland-Jones, *Handbook of Emotions* (4th ed., pp. 424–439). Guilford Press.

Gavin, J. H., & Mason, R. O. (2004). The virtuous organization: The value of happiness in the workplace. *Organizational Dynamics*, *33*(4), 379–392. https://doi.org/10.1016/j.orgdyn.2004.09.005

Gibson, D. E., & Callister, R. R. (2010). Anger in organizations: Review and integration. *Journal of Management*, *36*(1), 66–93. https://doi.org/10.1177/0149206309348060

Grandey, A. A. (2003). When "the show must go on": Surface acting and deep acting as determinants of emotional exhaustion and peer-rated service delivery. *Academy of Management Journal*, *46*(1), 86–96. https://doi.org/10.5465/30040678

Gross, J. J. (1998). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*(1), 224–237. https://doi.org/10.1037/0022-3514.74.1.224

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and wellbeing. *Journal of Personality and Social Psychology, 85*(2)*,* 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Gross, J. J., & Levenson, R. W. (1997). Hiding feelings: The acute effects of inhibiting negative and positive emotion. *Journal of Abnormal Psychology*, *106*(1), 95–103. https://doi.org/10.1037/0021-843X.106.1.95

Gruda, D., Berrios, R. A., Kafetsios, K. G., McCleskey, J. A. (2022). Time after time: Attachment orientations and impression formation in initial and longer-term team interactions. *Frontiers in Psychology, 13*, 882162. https://doi.org/10.3389/fpsyg.2022.882162

Hareli, S., & Hess, U. (2012). The social signal value of emotions. *Cognition & Emotion, 26*(3), 385–389. https://doi.org/10.1080/02699931.2012.665029

Hess, U., & Hareli, S. (2018). On the malleability of the meaning of contexts: The influence of another person's emotion expressions on situation perception. *Cognition and Emotion, 32*(1), 185–191. https://doi.org/10.1080/02699931.2016.1269725

Kafetsios, K., Athanasiadou, M., & Dimou, N. (2014). Leaders' and subordinates' attachment orientation, emotion regulation and affect at work: A multilevel analysis. *The Leadership Quarterly, 25, 3,* 512–527. https://doi.org/10.1016/j.leaqua.2013.11.010

Kafetsios, K., Andriopoulos, P., & Papachiou, A. (2014). Relationship status moderates avoidant attachment differences in positive emotion decoding accuracy. *Personal Relationships, 21*(2), 191–205. https://doi.org/10.1111/pere.12026

Kish-Gephart, J. J., Detert, J. R., Treviño, L. K., & Edmondson, A. C. (2009). Silenced by fear: The nature, sources, and consequences of fear at work. *Research in Organizational Behavior*, *29*, 163–193. https://doi.org/10.1016/j.riob.2009.07.002

Lench, H. C., Flores, S. A., & Bench, S. W. (2011). Discrete emotions predict changes in cognition, judgment, experience, behavior, and physiology: A meta-analysis of experimental emotion elicitations. *Psychological Bulletin, 137,* 834–855. https://doi.org/10.1037/a0024244

Matsumoto, D., Keltner, D., Shiota, M. N., O'Sullivan, M., Frank, M. (2008). Facial expressions of emotion. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions (*3rd ed., pp. 211–234). Guilford Press.

Matsumoto, D., Yoo, S. H., & Fontaine, J. R. (2008). Mapping expressive around the world: The relationships between emotional display rules and individualism versus collectivism. *Journal of Cross-Cultural Psychology, 39*(1), 55–74. https://doi.org/10.1177/0022022107311854

Messinger, D., Fogel, A., & Dickson, K. L. (1997). A dynamic systems approach to infant facial action. *The Psychology of Facial Expression*, 205–226.

Mikulincer, M., & Shaver, P. R. (2016). *Attachment in adulthood* (2nd ed.). Guilford Press.

Mikulincer, M., & Shaver, P. R. (2019). Attachment orientations and emotion regulation. *Current Opinion in Psychology, 25*, 6–10. https://doi.org/10.1016/j.copsyc.2018.02.006

Mikulincer, M., Gillath, O., & Shaver, P. R. (2002). Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *Journal of Personality and Social Psychology*, *83*(4), 881. https://doi.org/10.1037/0022-3514.83.4.881

Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion, 27*(2), 77–102. https://doi.org/10.1023/A:1024515519160

Richards, D. A., & Hackett, R. D. (2012). Attachment and emotion regulation: Compensatory interactions and leader–member exchange. *The Leadership Quarterly, 23*(4), 686–701. https://doi.org/10.1016/j.leaqua.2012.03.005

Richards, D. A., & Schat, A. C. H. (2011). Attachment at (not to) work: Applying attachment theory to explain individual behavior in organizations. *Journal of Applied Psychology, 96*(1), 169–182. https://doi.org/10.1037/a0020372

Roisman, G. I., Tsai, J. L., & Chiang, K. H. (2004). The emotional integration of childhood experience: Physiological, facial expressive, and self-reported emotional response during the adult attachment interview. *Developmental Psychology, 40*(5), 776–789. https://doi.org/10.1037/0012-1649.40.5.776

Sato, W., Kochiyama, T., & Yoshikawa, S. (2020). Physiological correlates of subjective emotional valence and arousal dynamics while viewing films. *Biological Psychology, 157*, Article 107974. https://doi.org/10.1016/j.biopsycho.2020.107974

Seitl, M., Charvát, M., & Juřicová, K. (2017). Česká verze škály emocionální empatie [The Czech version of Emotional Empathy Scale (EES-R)]. *E-psy-*

chologie, 11(2), 47–70. http://e-psycholog.eu/pdf/seitl_etal.pdf

Seitl, M., Charvát, M., & Lečbych, M. (2016). Psychometric characteristics of the Czech version of Experiences in Close Relationships scale (ECR). *Československá Psychologie, 60(4),* 351–371.

Seitl, M., Charvát, M., Střelec, J., Seitlová, K., & Kafetsios, K. (2022). Experiences in work relationships: A measure of attachment strategies at work. *Psychological Reports*. Advance online publication. https://doi.org/10.1177/00332941221075249

Slaměník, I. (2011). *Emoce a interpersonální vztahy.* Grada.

Spangler, G., & Zimmermann, P. (1999). Attachment representation and emotion regulation in adolescents: A psychobiological perspective on internal working models. *Attachment & Human Development, 1*(3), 270–290. https://doi.org/10.1080/14616739900134151

Spielmann, S. S., Maxwell, J. A., MacDonald, G., & Baratta, P. L. (2013). Don't get your hopes up: Avoidantly attached individuals perceive lower social reward when there is potential for intimacy. *Personality and Social Psychology Bulletin, 39*(2), 219–236. https://doi.org/10.1177/0146167212472541

Sroufe, L. A. (1996). *Emotional development: The organization of emotional life in the early years.* Cambridge, UK: Cambridge University Press.

Strand, P. S., Vossen, J. J., & Savage, E. (2019). Culture and child attachment patterns: A behavioral systems synthesis. *Perspectives on Behavior Science*, *42*, 835–850.

Tabachnick, B. G., & Fidell, L. S. (2014). *Using multivariate statistics* (6th ed.). Pearson.

van Kleef, G. A. (2014). Understanding the positive and negative effects of emotional expressions in organizations: EASI does it. *Human Relations*, *67*(9), 1145–1164.

Vrtička, P., Sander, D., & Vuilleumier, P. (2012). Influence of adult attachment style on the perception of social and non-social emotional scenes. *Journal of Social and Personal Relationships, 29*(4), 530–544. https://doi.org/10.1177/0265407512443451

Wei, M., Vogel, D. L., Ku, T. Y., & Zakalik, R. A. (2005). Adult attachment, affect regulation, negative mood, and interpersonal problems: The mediating roles of emotional reactivity and emotional cut-off. *Journal of Counseling Psychology, 52,* 14–24. https://doi.org/10.1037/0022-0167.52.1.14

Winterheld, H. A. (2016). Calibrating use of emotion regulation strategies to the relationship context: An attachment perspective. *Journal of Personality, 84*(3), 369–380. https://doi.org/10.1111/jopy.12165

Yip, J., Ehrhardt, K., Black, H., & Walker, D. O. (2018). Attachment theory at work: A review and directions for future research. *Journal of Organizational Behavior*, *39*(2), 185–198. https://doi.org/10.1002/job.2204

Zampetakis, L. A., Kafetsios, K., Lerakis, M., & Moustakis, V. S. (2017). An emotional experience of entrepreneurship: Self-construal, emotion regulation, and expressions to anticipatory emotions. *Journal of Career Development*, *44*(2), 144–158.

Zimmermann, P. (1999). Structure and functions of internal working models of attachment and their role for emotion regulation. *Attachment & Human Development*, *1*(3), 291–306.