Trait emotional intelligence and emotional experiences during the COVID-19 pandemic outbreak in Poland: A daily diary study☆

Marcin Moroń[a,*], Magdalena Biolik-Moroń[b]

[a] Institute of Psychology, University of Silesia, Poland
[b] Institute of Theology, University of Silesia, Poland

ARTICLE INFO

ABSTRACT

The study examined trait emotional intelligence as a predictor for emotional reactions experienced during the first full week of the lockdown in Poland (from 16th to 22nd March). One hundred and thirty persons (101 women and 25 men; 4 did not report their gender) participated in the baseline measurement of trait emotional intelligence, positive and negative affect, and affect intensity and in a one-week daily diary. Trait emotional intelligence correlated positively with baseline positive affect and positive intensity, while negatively with baseline negative affect and negative intensity. Trait emotional intelligence marginally significantly predicted a lower frequency of anger, disgust, and sadness during the first week of the pandemic. Trait emotional intelligence predicted a lower intensity of fear, anxiety and sadness. The study showed a complex dynamics of emotional experiences during the first week of the COVID-19 pandemic. Positive states of relaxation and happiness were experienced more frequently and more intensely compared to the negatively-valenced emotions. The protective role of trait emotional intelligence during the COVID-19 pandemic outbreak was mainly associated with experiencing negative emotions (fear, anxiety, and sadness) less intensely, but not less frequently.

1. Introduction

According to the data of the World Health Organization (WHO), since December 2019, the coronavirus disease 2019 (COVID-19) has spread to 216 countries, areas or territories. On July 20th the number of confirmed cases reached 14,348,858 and the number of deaths amounted to 603,691 (WHO, 2020). The COVID-19 pandemic, declared by the WHO on March 11th, has deeply affected large populations in terms of serious social, political, economic, and psychological aspects (Holmes et al., 2020; Hui et al., 2020). Experts drew attention to patient populations that may particularly need tailored interventions, i.e. older adults and international migrant workers (Liem, Wang, Wariyanti, Latkin, & Hall, 2020; Yang et al., 2020). However, infectious disease outbreaks such as COVID-19 can cause severe emotional distress, fear of the disease, anxiety, depression, and anger even in people who are not at high risk of the disease (Dai, Hu, Xiong, Qiu, & Yuan, 2020; Duan & Zhu, 2020; Huang & Zhao, 2020; Montemurro, 2020). Recommended psychological crisis intervention response to COVID-19 was focused on maintaining emotional stability, confronting the fear, monitoring distress and improving coping (Zhang, Wu, Zhao, & Zhang, 2020). Emotional understanding and emotion regulation were the prerequisites of

many of the above interventions. Therefore, trait emotional intelligence, as a construct that encompasses efficient processing and managing emotional cues (Mayer & Salovey, 1997), may be regarded as a significant protective factor in the face of the pandemic.

The aim of the present study was to examine a role of trait emotional intelligence in predicting emotional experiences in the first full week of COVID-19 outbreak in Poland. The first case of laboratory-confirmed SARS-CoV-2 was diagnosed with COVID-19 in Poland on 4th March. The first death from the COVID-19 in Poland was reported on 12th March. Lockdown-type control measures started on 10th – 12th March, closing schools and university classes and cancelling mass events, and were strengthened on 25th March, limiting non-family gatherings to two people and religious gatherings to six and forbidding non-essential travel. The baseline measurement of the present study was conducted on 15th and 16th March and immediately a diary phase of the study started and lasted for a week (16th-22nd March).

1.1. The COVID-19 impact on emotional and mental health of the public

The COVID-19 pandemic has created a rapidly evolving and threatening situation. Recent reports showed that the COVID-19 pandemic

was correlated with the risk of mental disorders (e.g. schizophrenia, anxiety, depression, panic, acute stress disorder, suicides) among healthcare personnel but also among the public (e.g. Dai et al., 2020; Galea, Merchant, & Lurie, 2020; Goyal, Chauhan, Chhikara, Gupta, & Singh, 2020; Jizheng, Mingfeng, Tengda, Ake, & Xiaoping, 2020; Wang et al., 2020; Xiang et al., 2020; Zhang et al., 2020). Similar epidemics (e.g. H1N1, SARS, MERS) had serious negative consequences for mental health and caused mainly anxiety and depressive disorders (e.g. Kim & Song, 2017; Liu, Zhang, & Lu, 2005; Tauszcik, Faasse, Pennebaker, & Petrie, 2012). For example, in the early phase of the SARS outbreak, a range of psychiatric morbidities, including persistent depression, anxiety, panic attacks, psychomotor excitement, psychotic symptoms, delirium, and even suicidality, were reported (Maunder, Hunter, Vincent, et al., 2003; Xiang et al., 2020). Thus, the COVID-19 can impact greatly daily emotional experiences of the public.

Reactions to the COVID-19-related threat and to public health measures that were introduced to help resulted in slowing down the spread of the virus (e.g. physical distancing, self-isolation, and handwashing) and may result in a range of negative emotions rather than have a single, specific form (Somma et al., 2020). Fear seems to be a central emotional response to imminent threats such as COVID-19 (Van Bavel al. 2020). Schimmenti, Billieux, and Starcevic (2020) pointed out that fear (of one's body, others, not knowing, and inaction) may be a significant emotional issue resulting from the pandemic (see also: Arpaci, Karataş, & Baloğlu, 2020). Negative emotions resulting from a threat of infection (e.g. fear, panic) can be contagious and may have ramifications on how people feel about and react to others (Van Bavel, Baicker, Boggio, et al., 2020). Excessive fear of COVID-19 (e.g. being infected or infecting others) may also worsen anxiety and depressive symptoms (Alyami, Henning, Krägeloh, & Alyami, 2020). Negative psychological effects of the public health measures also included confusion and anger (Brooks et al., 2020). Therefore, the discrete emotions approach may be more informative in order to describe a psychological impact of the COVID-19 pandemic compared to overall emotional well-being measures.

During disease outbreaks, community anxiety can rise following the first death, increased media reporting, and an escalating number of new cases (Gao et al., 2020; Lima et al., 2020). The frequent exposure to COVID-19 in written, visual, and social media can also increase the levels of anxiety and fear among the public (Arpaci et al., 2020). The public health measures (e.g. lockdown) and their consequences (e.g. job losses, financial insecurities, and disruption to day-today activities) are likely to have an adverse impact on mental health and well-being.

(Galea et al., 2020; Lima et al., 2020). Thus, the evaluation of a rapid emotional reaction during the pandemic outbreak and after the introduction of public health measures (lockdown) may be of special interest.

Most reviews and studies on the psychological consequences and interventions related to COVID-19 were focused on the risk factors of mental health problems (Alyami et al., 2020; Brooks et al., 2020; Duan & Zhu, 2020; Wang et al., 2020). Negative affectivity and emotional liability were the main causes of risk of clinically-relevant emotional problems during the pandemic outbreak in Italy (Somma et al., 2020). Fear of infection, boredom, frustration, anger, post-traumatic stress symptoms and avoidance behaviors were present as stressors during quarantine (Brooks et al., 2020) and could influence particularly patients with mental health problems (Xiang et al., 2020). However, less is known about personal resources which may foster an adaptive response to extraordinary stress and protect individuals from the severe emotional consequences at the time of the pandemic. Since emotional responses are part of a response to stress caused by COVID-19 (e.g. panic; Arpaci et al., 2020; Maunder et al., 2003), an ability to understand and regulate one's emotional experiences may be regarded as a protective personal resource.

1.2. Trait emotional intelligence and emotional experiences

Emotional intelligence refers to a set of core competencies of processing, facilitating, understanding, and managing emotions (Mayer & Salovey, 1997). Two main approaches to emotional intelligence have been developed in the literature. Ability emotional intelligence assesses emotional capabilities using maximum performance methods, whereas trait emotional intelligence approach uses a self-report assessment of self-perceptions about an individual's emotional abilities (Petrides, Pérez-González, & Furnham, 2007). The correlations between ability emotional intelligence and trait emotional intelligence are rather low (Gohm, Corser, & Dalsky, 2005). However, meta-analyses have demonstrated higher importance of trait emotional intelligence on health (Martins, Ramalho, & Morin, 2010) and life satisfaction (Sánchez-Álvarez, Extremera, & Fernández-Berrocal, 2016) compared to ability emotional intelligence. Thus, the focus of the present study is on self-reported emotional intelligence.

Trait emotional intelligence has significant and positive associations with mental and physical health (Extremera, Ruiz-Aranda, Pineda-Galán, & Salguero, 2011; Martins et al., 2010; Sánchez-Álvarez et al., 2016). A model of affective mediators of these associations was proposed and verified (Kong, Gong, Sajjad, Yang, & Zhao, 2019; Kong & Zhao, 2013; Moroń, 2018; Zeidner, Matthews, & Roberts, 2012). Trait emotional intelligence predicted increased positive affect and decreased negative affect, which subsequently affected subjective well-being.

Two important limitations of the previous research may be important while investigating the rapid emotional reaction to the pandemic. First, the frequency and intensity of positive and negative emotions were not differentiated in previous studies. Yet, this distinction is of both theoretical and practical significance (Diener, Larsen, Levine, & Emmons, 1985; Fabes, Hanish, Martin, & Eisenberg, 2002) For example, the frequency and intensity of emotions differentially predicted well-being, externalizing, and internalizing symptomatology (Hernández et al., 2015). Second, previous studies were focused on the broad categories of positive and negative affect (Gignac, 2006; Kong et al., 2019; Kong & Zhao, 2013), or their balance (Koydemir, Şimşek, Schütz, & Tipandjan, 2013; Liu, Wang, & Lü, 2013) with no examination of the role of discrete emotions. Since consequences of epidemics included mainly anxiety or depressive symptomatology (Wang et al., 2020), it was necessary to focus on discrete emotional experiences instead of paying attention to broad categories of positive and negative affect.

1.3. The role of frequency and intensity of emotional experiences

The frequency of emotion reflects how often a particular affective state is experienced, regardless of its strength. On the contrary, emotion intensity refers to the arousal level of the emotion when it is present (Hernández et al., 2015). Previous studies demonstrated considerably higher importance of positive emotions compared to negative ones in prediction of subjective well-being (Diener et al., 2002; Lucas, Diener, & Suh, 1996; Suh, Diener, Oishi, & Triandis, 1998). Although the frequency of affect predicted life satisfaction to a greater extent compared to intensity (Diener, Sandvik, & Pavot, 1991), the intensity of affective reactions plays its particular role, i.e. correlates with internalizing and externalizing symptomatology (Hernández et al., 2015).

Previous studies on the links between trait emotional intelligence and affect were focused more on the frequency of emotional experience rather than on the intensity of emotions (Kong et al., 2019) or did not differentiate these two characteristics. Second, the most frequently used measurement of experienced emotion in the analyses of the affective mediators model (PANAS; Watson, Clark, & Tellegen, 1988) included the items which all capture high-arousal feelings (Diener et al., 2010). Thus, it confounded the frequency with intensity measurement, missing the measurement of low-arousal affective states. In the present study, both the frequency and intensity of emotions were measured as states,

and emotional dispositions were also controlled for (trait positive and negative affect, and trait affect intensity).

From a practical point of view, the links between emotional intelligence and the frequency or intensity of emotions may be based on different processes. Previous studies demonstrated that personality variables (e.g. neuroticism, behavioral activation/inhibition system) predispose an individual to a reaction toward stressing events by the higher frequency of experiences (e.g. a more frequent positive interpersonal encounter; the exposure process) or higher reactiveness, even to rare exposure to certain situations (e.g. higher intensity of a particular reaction; the reactivity process) of positive/negative emotion (Bolger & Schilling, 1991; Gable, Reis, & Elliot, 2000). Highly emotionally intelligent people developed better social networks which subsequently predicted increased frequency of positive and decreased frequency of negative affect (Brackett et al., 2006; Kong et al., 2019; Lopes et al., 2005). These results suggested that the exposure process stands for the associations between trait emotional intelligence and affect, including an optimization of the number of situations evoking positive emotional states and a minimization of the number of situations evoking negative emotional states. In contrast, emotional intelligence was correlated with reactivity to mood inductions in the laboratory experiment (emotional intelligence was related to increased reactivity to both positive and negative induction; Fernández-Berrocal & Extremera, 2006), which may suggest a reactivity mechanism. Thus, examination of the mechanism of the expected protective role of trait emotional intelligence in emotional responding to the COVID-19 outbreak (exposure vs. reactivity) may enrich psychological interventions for people affected by the pandemic.

1.4. Discrete emotions approach

Somma et al. (2020) proposed that emotional reactions to quarantine may include a range of negative emotions rather than have a single, specific form. Recent studies focused on the role of fear (Alyami et al., 2020), anxiety and sadness (depressiveness; Wang et al., 2020), but also anger (Brooks et al., 2020) as consequences of the COVID-19 pandemic. Therefore, the discrete emotions approach seems to be useful in illustrating affective consequences of the COVID-19 outbreak and in investigating a potentially protective role of trait emotional intelligence.

Discrete emotions differ in the level of arousal, motivation direction, physiological substrates and adaptive functions (Harmon-Jones, Bastian, & Harmon-Jones, 2016). Moreover, they are related to particular action tendencies, subjective feelings, evoking situations, and cognitive appraisal (e.g. anger mixed with anxiety may be associated with withdrawal motivation; Zinner, Brodish, Devine, & Harmon-Jones, 2008). Recently, Harmon-Jones et al. (2016) proposed a framework of eight distinct state emotions, i.e. anger, disgust, fear, anxiety, sadness, happiness, relaxation, and desire. Differentiation of these emotions was justified by their different valences, motivational modes and levels of arousal (see Harmon-Jones et al., 2016). Anger is regarded as a negative, high-arousal emotion associated with approach motivational tendencies (Carver & Harmon-Jones, 2009). Disgust is regarded as a negative, high-arousal emotion, but it is associated with withdrawal motivational tendencies (Harmon-Jones et al., 2016). Fear is considered a negative, high-arousal emotion in response to a threat and is associated with withdrawal motivational tendencies (Carver & Harmon-Jones, 2009). Anxiety is regarded as a negative, high-arousal emotion that is most likely associated with behavioral conflict (Gray & McNaughton, 2000). Fear is evoked by discrete, acute threats, whereas anxiety is evoked by vague, potential threats (Harmon-Jones et al., 2016). Sadness is a negative, low-arousal emotion, which is mostly associated with the approach motivational system (Carver & Harmon-Jones, 2009). Joy or happiness is conceptualized as a positive emotion that could be associated with a variety of intensities of approach motivation (Carver & Harmon-Jones, 2009). Additionally, desire (high-

approach positive emotion related to appetitive or pre-goal positive states) and relaxation (low-approach positive emotion related to consummatory or post-goal positive state) were also included in order to measure positive affective discrete states more precisely (Harmon-Jones et al., 2016).

Trait emotional intelligence was correlated with the propensity to experience more joy, and less sadness, shame, envy, fear, and, marginally less disgust and anger (Mikolajczak, Nelis, Hansenne, & Quoidbach, 2008). Due to a wide array of emotional consequences of the COVID-19 outbreak (from anxiety and depression to anger; Maunder et al., 2003; Xiang et al., 2020), the current study was particularly interested in links between trait emotional intelligence and negative discrete emotions. However, a higher frequency of positive emotions reported by emotionally intelligent individuals (Gignac, 2006; Kong & Zhao, 2013) may also indicate a potential of an emotionally intelligent person to adaptive reactions to the pandemic through more positive emotional experiences.

1.5. The present study

The aim of the present study was to examine a predictive role of trait emotional intelligence for the immediate emotional reactions to the COVID-19 outbreak in Poland. We used a daily diary instead of a retrospective report to capture dynamic changes in affective reactions. Thus, multilevel modeling was used to examine associations between trait emotional intelligence, frequency (the number of episodes during a day) and intensity (the average intensity during a day) of discrete emotions. According to the affective mediators model (Zeidner et al., 2012), we expected that trait emotional intelligence would be positively correlated with the frequency and intensity of positive emotions (desire, relaxation, happiness), and negatively correlated with the frequency and intensity of negative emotions (anger, disgust, fear, anxiety, sadness). Baseline levels of dispositional positive and negative affect and affect intensity were controlled for. Significant associations between trait emotional intelligence and the frequency of emotions would be consistent with the differential exposure process (Bolger & Schilling, 1991), while a significant association between trait emotional intelligence and the intensity of emotions would be consistent with the differential reactivity process (Bolger & Schilling, 1991). Due to a daily diary method used, the present study also illustrated a structure of a rapid affective reaction to the COVID-19 outbreak in Poland.

2. Method

2.1. Participants

One hundred eighty individuals participated in the baseline measurement of the present study (139 women and 33 men; 8 persons did not report their gender). The age of participants ranged from 16 to 72 ($M = 23.53$; $SD = 10.0$). The majority of participants had secondary education (77.78%), followed by higher education (11.67%), primary or vocational education (9.44%). Most participants reported that none of their relatives was infected (90%), nearly half of the participants reported fear for their own health (45%), nearly 91% reported fear for their relatives' health and about 62.8% planned to continue to be educationally or professionally active during the following days of the pandemic. Due to rapid changes in the pandemic situation, we decided to include in the final sample only those participants who reported at least five days of the one-week daily diary. The final sample included 130 out of 180 persons who participated in the baseline measurement (72.8%). The age of participants ranged from 16 to 54 years ($M = 22.1$; $SD = 7.3$) and differed from the initial sample ($t = 2.396$; $p = .020$). Participants who did not report at least five days of the daily diary were older ($M = 27.18$; $SD = 14.3$) than those who participated in the diary study. The final sample did not differ in gender (126 women, 25 men, and 4 persons did not report their gender; $\chi = 0.225$; $p = .635$) or

education level (9.23% higher education; 81.54% secondary education; 7.7% primary or vocational education; $\chi = 0.821$; $p = .663$). Most participants in the final sample reported that none of their relatives was infected (89.2%; $\chi = 0.321$; $p = .571$), nearly half of the participants reported fear for their own health (43.8%; $\chi = 0.251$; $p = .616$), and 91.5% reported fear for their relatives' health ($\chi = 0.506$; $p = .477$). More individuals in the final sample (68.0%) planned to continue to be educationally or professionally active during the following days of the pandemic ($\chi = 3.881$; $p = .049$). Participants in the final group also reported a lower level of one indicator of affect intensity (serenity; $t = 2.011$; $p = .046$). Thus, the final sample was younger, more willing to continue to be active during the first week of the COVID-19 pandemic in Poland and reported less serenity.

To compute the justified *N* of the sample, the meta-analyses of the effects of positive and negative affect on the trait emotional intelligence were conducted using correlational coefficients from previous studies (Kafetsios & Zampetakis, 2008; Kong et al., 2019; Kong & Zhao, 2013; Moroń, 2018; Palmer, Donaldson, & Stough, 2002). The mean correlation between emotional intelligence and positive affect was = 0.369; 95% CI [0.335; 0.403]; $Z = 19.333$; $p < .001$, while the mean correlation between emotional intelligence and negative affect was = -0.259; 95% CI [-0.295; -0.222]; $Z = -13.199$; $p < .001$. The required sample size to detect effect sizes of similar magnitude was $n = 115$ (Hulley, Cummings, Browner, Grady, & Newman, 2013). Thus, the final sample met this criterion.

2.2. Measures

2.2.1. Trait emotional intelligence

Trait emotional intelligence was evaluated by the Trait Emotional Intelligence Questionnaire–Short Form (TEIQ – SF; Petrides, 2009; Polish version: Szczygieł, Jasielska, & Wytykowska, 2015). TEIQ – SF consists of 30 items designed to measure global trait emotional intelligence (e.g. "I usually find it difficult to regulate my emotions"; "I'm usually able to influence the way other people feel"). The items were rated on a five-point Likert-type scale from 1 (*completely disagree*) to 5 (*completely agree*). A global trait EI score is calculated by summing up the item scores (after reverse scoring for negative items) and dividing by the total number of items. The reliability of TEIQ-SF was 0.836 in the present study.

2.2.2. Positive and negative affect

Positive affect and negative affect were assessed using the Positive Affect and Negative Affect Scale (PANAS; Kuppens, Realo, & Diener, 2008; Polish version: Moroń, 2018) used in the previous research in affective mediators between emotional intelligence and life satisfaction (Kong & Zhao, 2013). The scale includes a 14-word list and comprises eight negative affect labels (i.e. sadness, anger, guilt, shame, worry, stress) and six positive affect labels (i.e. pleasure, happiness, pride, gratitude, love). Participants were instructed to indicate how frequent they experienced each affect in general using a seven-point Likert-type scale from 1 (*Very slightly or not at all*) to 7 (*Very much*). An individual score was an average score in items of a particular subscale. In this study, Cronbach's α for negative affect was $\alpha = 0.836$, and for positive affect was: $\alpha = 0.812$.

2.2.3. Affect intensity

The Short Affect Intensity Scale (Geuens & De Pelsmacker, 2002) was used to measure affect intensity. This scale consists of 20 items rated on a Likert-type scale ranging from 1 (*Never*) to 6 (*Always*). Participants were asked to describe their typical reactions. Three subscales are included in the scale, namely Positive intensity (e.g. "My happy moods are so strong that I feel like I'm in heaven"; 8 items), Negative intensity (e.g. "Sad movies deeply touch me"; 6 items) and Serenity (e.g. "When I succeed at something, my reaction is calm and contentment"; reverse scored; 6 items). In the present study, the reliability of

Positive intensity, Negative intensity and Serenity was $\alpha = 0.893$, $\alpha = 0.693$, and $\alpha = 0.881$, respectively.

2.2.4. A diary measurement of discrete emotions

Participants were asked to keep a journal of emotions during the week from 16th to 23rd March. Each day they were asked to note down and describe concisely each situation which evoked emotions in them. Participants were provided with a list of emotional terms taken from The Discrete Emotions Questionnaire (Harmon-Jones et al., 2016). The list was sorted into eight discrete emotion categories: anger (e.g. rage, pissed off), disgust (e.g. nausea, sickened), fear (e.g. scared, panic), anxiety (e.g. nervous, worry), desire (e.g. wanting, longing), relaxation (e.g. chilled out, relax), and happiness (e.g. liking, enjoyment). Participants were asked to note down which emotion they had felt in a particular situation (using the emotion label from the list) and to rate the intensity of each emotion in a particular episode (on a Likert-type scale ranging from 1 = *Not at all* to 7 = *Extremely*). Both authors coded participants' reports according to the content of the situations described and emotional labels used by participants (in case of doubt, each episode was carefully discussed). For each participant a daily score of frequency (the number of episodes in which a particular emotion had been reported) and the intensity of a particular emotion (the mean intensity reported for a particular emotion in a particular day) were recorded.

2.3. Procedure

Prior to the study, participants attended the information session in which they were provided with the web addresses describing the study, as well as a compilation of questionnaires assessing baseline levels of trait emotional intelligence, positive and negative affect, and affect intensity (15th March). After completing the on-line battery of questionnaires, participants completed the online emotion diary for 7 consecutive days (16th – 22nd March). Participants were asked to send their daily emotion diary until 11 p.m. each day via e-mail. The e-mail account provided the authors of the paper with the information whether the participants entered their data in a timely fashion. Due to a rapidly changing situation during the first days of the lockdown at the outbreak of the COVID-19 pandemic in Poland, we decided to analyze only those diaries which included five or more days out of seven (72.8% response rate). Participants reported 3578 emotional episodes during the week and completed on average 6.65 days out of 7 days of a diary, and reported on average 27.5 emotional episodes during the week (SD = 14.21) and 3.9 emotional episodes per a day (SD = 2.03).

3. Results

3.1. Descriptive statistics for baseline measurement

Means, standard deviations and bivariate correlations between dispositional predictors are given in Table 1.

Trait emotional intelligence correlated positively with dispositional positive affect and positive intensity. Negative correlation was observed between trait emotional intelligence and dispositional negative affect and negative intensity. Semi-partial correlations between trait emotional intelligence and positive affect ($sr = 0.371$; $p < .001$) and negative affect ($sr = -0.487$; $p < .001$) were significant when controlled for affect intensity. Trait emotional intelligence correlated significantly only with negative intensity ($sr = -0.195$; $p = .027$) when controlled for positive and negative affect.

3.2. Multilevel regressions

Due to the nested two-level nature of the diary data (i.e. repeated measures nested within individuals), we conducted multilevel random coefficient models (MRCM) using lme4 package for R (Bates, Mächler,

Table 1
Means, standard deviations and bivariate correlations between baseline measurement variables.

Variables	1	2	3	4	5	6
1. Trait emotional intelligence						
2. Positive affect	0.466***					
3. Negative affect	−0.637***	−0.329***				
4. Positive intensity	0.259**	0.444***	−0.148			
5. Negative intensity	−0.425***	−0.069	0.528***	0.093		
6. Serenity	−0.049	−0.084	0.025	−0.551***	0.026	
7. Age	−0.083	0.137	−0.013	0.190*	0.260**	−0.205*
8. Gender	−0.002	0.140	0.007	0.090	0.023	−0.019
M	4.697	4.727	4.037	4.292	4.110	3.356
SD	0.663	1.030	0.950	0.893	0.882	1.019

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Bolker, & Walker, 2015). The package addresses simultaneously both levels in a hierarchically nested dataset (i.e. days nested within persons), and it provides independent estimates of the relationship among constructs at the lower level (level-1; within persons) and models them at the higher level (level2; between persons) as a random effect using restricted maximum likelihood estimation.

We constructed a series of multilevel equations to test our hypotheses. Below we describe these models and analyses, adopting the nomenclature and terminology used in multilevel modeling. Our primary analyses were two-level models. The daily measures were nested within participants, and for each participant, coefficients were estimated representing the day-to-day associations between life events, savoring, and mood [see Nezlek, 2001 for a comprehensive description of multilevel models for diary data].

3.2.1. Descriptive statistics for daily measurements of the frequency and intensity of discrete emotions

Table 2 presents descriptive statistics and reliability coefficients (i.e. intra-class correlations) for all diary variables. These statistics were generated by an unconditional (intercept-only) model of each variable, meaning no terms other than intercepts are included in the model (Nezlek, 2001). The basic Level 1 equation was as follows:

Level 1: $Y_{ij} = \beta_{0y} + r_{ij}$

In this basic model, β_{0y} is a random coefficient representing the mean of y (in the context of this study, daily frequency or intensity of a discrete emotion) for person j across the i days that each person provided data; r_{ij} represents the error associated with each measure, and the variance of.

r_{ij} makes up the Level 1 (day-level) random variance.

The basic Level 2 equation was as follows:

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

In this model, γ_{00} refers to the grand mean of the person-level means from Level 1, u_{0j} refers to the error of β_{0j}, and the variance of u_{0j} represents the Level 2 residual variance.

As shown in Table 2, substantial portions of the variance were derived from variability within days, suggesting that a diary study successfully captured the daily changes in discrete emotions (mainly for anger, fear, anxiety, sadness, relaxation and happiness) across these 7 days. On a daily basis, participants experienced 0.83 episode of anger, 0.63 and 0.62 episode of anxiety and sadness, whereas fear episodes were less frequent (0.24). However, positive emotional states were quite frequent (1.69 episodes of relaxation and 1.91 episodes of happiness per a day). Similarly, the intensity of negative emotions [i.e. anger (2.49 per day on a scale from 1 to 7), anxiety (2.01), sadness (1.99) or fear (0.96)] was lower than the intensity of relaxation (3.88) and happiness (4.18). Thus, the frequency and intensity of positive emotions were present quite frequently during the COVID-19 outbreak in Poland, at least in the participants of the present study.

3.2.2. Trait emotional intelligence and daily discrete emotions during the COVID-19 pandemic outbreak: a multilevel regression

To test our hypotheses about the predictive role of trait emotional intelligence for the frequency and intensity of discrete emotions, we constructed a series of regression models with random intercepts of level-1 dependent variables and level-2 fixed effects. Prior to the analysis, the level-2 predictor variables were grand-mean centered (Enders & Tofighi, 2007). Three models were estimated, namely:

Model 1: β_{0y} (daily frequency or intensity of a discrete emotion) $= \gamma_{0j} + r_{ij}$

Model 2: $\beta_{0j} = \gamma_{0j} + \gamma_{1j}$ (gender) $+ \gamma_{2j}$ (trait emotional intelligence) $+ u_{0j}$

Table 2
Multilevel descriptive statistics of daily measures of the frequency and intensity of discrete emotions.

Descriptive statistics of daily measures	Anger	Disgust	Fear	Anxiety	Sadness	Desire	Relaxation	Happiness
Frequency								
Mean	0.83	0.07	0.24	0.63	0.62	0.19	1.69	1.91
Within-person variance	0.80	0.07	0.24	0.59	0.59	0.17	1.16	1.25
Between-person variance	0.33	0.01	0.05	0.31	0.23	0.04	1.67	1.33
ICC	0.29	0.10	0.17	0.35	0.28	0.19	0.59	0.52
Intensity								
Mean	2.49	0.28	0.96	2.01	1.99	0.89	3.88	4.11
Within-person variance	5.51	1.22	3.46	4.98	5.09	3.59	4.09	3.91
Between-person variance	0.94	0.12	0.67	1.38	1.09	0.60	1.35	1.13
ICC	0.15	0.09	0.16	0.22	0.18	0.14	0.25	0.22

Note. ICC – intra-class correlation.

Table 3

Multilevel analyses for hypotheses: Level-2 variables predicting Level-1 daily measures (ustandardized estimates).

Predictors	Anger frequency			Predictors	Anger intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
Intercept	0.83***	0.79***	0.75***	Intercept	2.50***	2.38***	2.56***
Gender	–	0.06	0.10	Gender	–	0.15	−0.07
TEI	–	−0.15†	0.06	TEI	–	−0.10	−0.05
PA	–	–	−0.02	PosInt	–	–	0.01
NA	–	–	0.22**	NegInt	–	–	0.13
	–	–	–	Serenity	–	–	−0.29*
AIC	2359.1	2360.0	2356.4	AIC	3892.8	3896.2	3895.5
Adj. R^2	0.299	0.303	0.307	Adj. R^2	0.153	0.156	0.161

Predictors	Disgust frequency			Predictors	Disgust intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
Intercept	0.07***	0.06*	0.06*	Intercept	0.29***	0.24*	0.27*
Gender	–	0.01	0.01	Gender	–	0.05	0.01
TEI	–	−0.03†	−0.01	TEI	–	−0.12†	−0.11
PA	–	–	−0.01	PosInt	–	–	−0.05
NA	–	–	0.02	NegInt	–	–	−0.01
	–	–	–	Serenity	–	–	−0.12†
AIC	197.5	198.3	200.1	AIC	2620.1	2621.1	2622.9
Adj. R^2	0.106	0.110	0.113	Adj. R^2	0.088	0.091	0.095

Predictors	Fear frequency			Predictors	Fear intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
Intercept	0.24***	0.19***	0.24***	Intercept	0.96***	0.83***	1.00***
Gender	–	0.06	0.06	Gender	–	0.15	−0.05
TEI	–	−0.06	−0.04	TEI	–	−0.42**	−0.30†
PA	–	–	0.01	PosInt	–	–	0.02
NA	–	–	0.03	NegInt	–	–	0.25†
	–	–	–	Serenity	–	–	−0.13
AIC	1274.6	1274.8	1277.8	AIC	3509.3	3504.2	3504.0
Adj. R^2	0.181	0.186	0.189	Adj. R^2	0.174	0.178	0.183

Predictors	Anxiety frequency			Predictors	Anxiety intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
Intercept	0.62***	0.46***	0.63***	Intercept	1.97***	1.48***	1.65***
Gender	–	0.20	0.24	Gender	–	0.62*	0.41
TEI	–	−0.09	0.08	TEI	–	−0.45*	−0.09
PA	–	–	−0.03	PosInt	–	–	−0.27
NA	–	–	0.16*	NegInt	–	–	0.50**
	–	–	–	Serenity	–	–	−0.18
AIC	2115.3	2116.0	2115.5	AIC	3840.8	3834.4	3830.4
Adj. R^2	0.358	0.363	0.367	Adj. R^2	0.216	0.220	0.225

Predictors	Sadness frequency			Predictors	Sadness intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
Intercept	0.62***	0.51***	0.47***	Intercept	1.99***	1.42***	1.962***
Gender	–	0.13	0.18	Gender	–	0.70*	0.46
TEI	–	−0.13†	0.03	TEI	–	−0.31†	−0.21
PA	–	–	−0.05	PosInt	–	–	−0.06
NA	–	–	0.13*	NegInt	–	–	0.18
	–	–	–	Serenity	–	–	−0.34*
AIC	2045.6	2044.8	2043.7	AIC	3845.9	3840.7	3838.3
Adj. R^2	0.297	0.301	0.306	Adj. R^2	0.179	0.182	0.187

Predictors	Desire frequency			Predictors	Desire intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
Intercept	0.19***	0.19***	0.18***	Intercept	0.88***	0.75***	0.87***
Gender	–	0.01	0.01	Gender	–	0.17	0.02
TEI	–	0.01	0.05	TEI	–	0.11	0.21

(*continued on next page*)

Table 3 (*continued*)

Predictors	Desire frequency			Predictors	Desire intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
PA	–	–	0.01	PosInt	–	–	0.05
NA	–	–	0.05	NegInt	–	–	0.22†
	–	–	–	Serenity	–	–	−0.04
AIC	1011.7	1015.6	1017.3	AIC	3530.7	3533.6	3536.6
Adj. R²	0.194	0.198	0.202	Adj. R²	0.150	0.154	0.160

Predictors	Relaxation frequency			Predictors	Relaxation intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
Intercept	1.67***	1.43***	1.30***	Intercept	3.85***	3.44***	3.88***
Gender	–	0.30	0.45	Gender	–	0.52†	0.43
TEI	–	0.13	0.25	TEI	–	0.19	0.23
PA	–	–	−0.39**	PosInt	–	–	0.23
NA	–	–	−0.19	NegInt	–	–	0.19
	–	–	–	Serenity	–	–	0.23
AIC	2768.1	2770.7	2765.1	AIC	3697.7	3698.2	3699.0
Adj. R²	0.602	0.606	0.610	Adj. R²	0.249	0.254	0.260

Predictors	Happiness frequency			Predictors	Happiness intensity		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model3
Intercept	1.87***	1.85***	1.84***	Intercept	4.11***	3.82***	3.86***
Gender	–	0.02	0.04	Gender	–	0.36	0.32
TEI	–	0.15	0.18	TEI	–	0.14	0.15
PA	–	–	−0.04	PosInt	–	–	0.09
NA	–	–	0.01	NegInt	–	–	0.07
	–	–	–	Serenity	–	–	0.06
AIC	2810.9	2814.0	2817.9	AIC	3653.1	3655.1	3660.4
Adj. R²	0.501	0.505	0.510	Adj. R²	0.219	0.224	0.230

Note. TEI – trait emotional intelligence; PA – positive affect; NA – negative affect; PosInt – positive emotions intensity; NegInt – negative intensity; AIC – Akaike Information Criterion. Gender was coded: 0 – men; 1 – woman.

* $p < .05$.
** $p < .01$.
*** $p < .001$.
† $p < .10$.

Model 3a (frequency of a discrete emotion): $\beta 0j$

$= \gamma 0j + \gamma 1j$ (gender) $+ \gamma 2j$ (trait emotional intelligence) $+ \gamma 3j$ (positive affect) $+ \gamma 4j$ (negative affect) $+ u0j$

Model 3b (intensity of a discrete emotion): $\beta 0j$

$= \gamma 0j + \gamma 1j$ (gender) $+ \gamma 2j$ (trait emotional intelligence) $+ \gamma 3j$ (positive intensity) $+ \gamma 4j$ (negative intensity) $+ \gamma 5j$ (serenity) $+ u0j$

For each model, the Akaike Information Criterion and conditional $R2$ (Nakagawa & Schielzeth, 2012) were estimated. All models were also compared using $\chi 2$ tests. The estimation method used was restricted maximum likelihood (REML). In Models 3a and 3b positive and negative affect, and affect intensity indicators were controlled for. The results of the multilevel regressions are given in Table 3.

Trait emotional intelligence marginally significantly predicted a lower daily frequency of anger ($B = -0.15$; $CI = [-0.33; 0.03]$; $p = .098$), disgust ($B = -0.03$; $CI = [-0.07; 0]$; $p = .083$), and sadness ($B = -0.13$; $CI = [-0.28; 0.01]$; $p = .073$). Model 2 was marginally significantly better for sadness ($\chi = 4.758$; $p = .093$) than the model with only intercept included (Model 1). However, after positive affect and negative affect were entered in Model 3a, trait emotional intelligence was a non-significant predictor of discrete emotion frequency. Negative affect predicted a higher frequency of anger ($B = 0.22$; $CI = [0.06; 0.38]$; $p = .007$), anxiety ($B = 0.16$; $CI = [0.01; 0.31]$; $p = .043$), and sadness ($B = 0.13$; $CI = [0; 0.27]$; $p = .049$), while the positive affect predicted a lower frequency of relaxation ($B = -0.39$; $CI = [-0.65; -0.13]$; $p = .003$).

Trait emotional intelligence predicted marginally significantly disgust intensity ($B = -0.12$; $CI = [-0.27; 0.02]$; $p = .097$), and sadness intensity ($B = -0.31$; $CI = [-0.66; 0.04]$; $p = .086$), but significantly predicted fear intensity ($B = -0.42$; $CI = [-0.70; -0.13]$; $p = .004$), and anxiety intensity ($B = -0.45$; $CI = [-0.82; -0.09]$; $p = .016$). Women experienced higher intensity of fear ($B = 0.62$; $CI = [0; 1.23]$; $p = .050$) and sadness ($B = 0.70$; $CI = [0.12; 1.29]$; $p = .018$) than men. Model 2 was significantly better than Model 1 for fear intensity ($\chi = 9.042$; $p = .011$), anxiety intensity ($\chi = 10.337$; $p = .006$) and sadness intensity ($\chi = 9.124$; $p = .010$). With affect intensity measures entered into Model 3b, trait emotional intelligence remained a marginally significant predictor of fear ($B = -0.31$; $CI = [-0.63; 0.01]$; $p = .061$). Serenity predicted lower anger intensity ($B = -0.29$; $CI = [-0.58; -0.01]$; $p = .046$), lower sadness intensity ($B = -0.34$; $CI = [-0.62; -0.06]$; $p = .017$), and lower disgust intensity ($B = -0.12$; $CI = [-0.23; 0]$; $p = .054$). Negative intensity predicted fear intensity ($B = 0.25$; $CI = [0; 0.50]$; $p = .054$) and anxiety intensity ($B = 0.50$; $CI = [0.18; 0.83]$; $p = .002$).

4. Discussion

The aim of the present study was to examine a role of trait emotional intelligence in predicting affective states during the first full week of the lockdown due to the COVID-19 pandemic in Poland. We expected that trait emotional intelligence would be positively correlated with the frequency and intensity of positive emotions (desire, relaxation, happiness), and negatively correlated with the frequency

and intensity of negative emotions (anger, disgust, fear, anxiety, sadness). To the best of our knowledge, this study represents one of the first attempts at assessing the emotional reactions among Polish adults in the first week of the social distancing period due to the COVID-19 pandemic in Poland. This study showed that emotional responses to the COVID-19 outbreak were not as strongly dominated by anxiety and depression, or other negative affective responses as it could be expected (Xiang et al., 2020). Participants reported twice more episodes of happiness or relaxation than episodes of anger, anxiety or sadness. Similarly, the intensity of negative states (i.e. anger, anxiety and sadness) was twice lower than the intensity of relaxation or happiness. This unexpected result of a high frequency of positive emotions may be due to several possible processes. First, participants may have remained a relatively high level of the frequency and intensity of positive emotions due to unrealistic optimism, namely a bias where "people believe that negative events are less likely to happen to them than to others, and they believe that positive events are more likely to happen to them than to others" (Weinstein, 1980). Such unrealistic optimism regarding a danger of infection by SARS-COV-2 was observed among Poles in the first days of the pandemic (Dolinski, Dolinska, Zmaczynska-Witek, Banach, & Kulesza, 2020). Thus, the heightened positive emotionality may be the effect of the belief that negative consequences of the pandemic would not be as adverse to the participant as to others. Another explanation of the difference between the predicted frequency and intensity of positive emotions and those obtained in the daily diary may be associated with the impact bias, a systematic tendency for forecasters to overestimate the intensity (i.e. intensity bias) and the duration (i.e. durability bias) of hedonic reactions to future events (for review, see Wilson & Gilbert, 2013). Overestimation of negative affect in a reaction to future events is more likely to occur for events that are large, unlikely, psychologically near, and/or long in duration (Buechel, Zhang, & Morewedge, 2017). The COVID-19 pandemic and the lockdown could be considered large, unlikely, psychologically near and potentially long-term threats, and hence our predictions may be affected by the impact bias. People's emotional reactions were more positive than we had expected. These results may indicate that people's psychological resilience may be higher than it was anticipated by numerous mental health professionals, at least in the non-clinical populations. Our suggestions were supported by emotional profiles constructed through a psycholinguistic analysis of social media (Twitter and Weibo) during the lockdown in Italy and China (Stella, Restocchi, & De Deyne, 2020; Su et al., 2020). These analyses demonstrated that emotional reactions to COVID-19 were polarized. Numerous messages included references to fear, anger or anxiety, but a similar number of messages regarded calm, hope, solidarity, and leisure. Thus, people during the lockdown may have been focused more on family bonds, home, leisure or on creating a sense of solidarity with other people (e.g. by singing together from balconies), which may help to reduce fear and enhance self-trust, commitment and social bonding (Pearce, Launay, & Dunbar, 2015; Unwin, Kenny, & Davis, 2002). Another source of hope and joy might be a belief that the measures implemented by expert committees and authorities would be efficient in fighting against the pandemic (Stella et al., 2020).

However, the present study demonstrated adverse emotional reactions to the pandemic which were related to anger (frustration), anxiety and sadness. This result was consistent with the previous reports of severity of frustration, anxiety and depressive symptomatology during the COVID-19 pandemic (Maunder et al., 2003; Xiang et al., 2020). Contrary to the concerns that have recently been expressed, fear (phobia) did not predominate the emotional responses of participants (Arpaci et al., 2020). Participants reported a high percentage of fear for their relatives' health (over 90%) and also for their own health (about 50%), but in diary reports the frequency of fear was low and daily fear intensity was also low on a daily basis. These results demonstrated that negative emotional experiences of participants included mainly frustration and sadness which may be due to disruption to people's routines

and inability to freely express their motives and intentions (Duan & Zhu, 2020; Zhang, Wang, Rauch, & Wei, 2020). Anxiety more that fear was a problem during the COVID-19 outbreak in Poland. This may be due to poor information about threat, insufficiently clear guidelines about actions to take, confusion about the purpose of social isolation and its economic and psychological consequences (Brooks et al., 2020).

Trait emotional intelligence was correlated positively with dispositional positive and negative affect, and with dispositional affect intensity in the baseline measurement. These results were consistent with previous findings about positive associations of trait emotional intelligence and positive affect and negative associations with negative affect (Kong et al., 2019; Kong & Zhao, 2013; Zeidner et al., 2012). Emotionally intelligent people may experience more positive affect and less negative affect because of more adaptive emotion regulation, social sharing of emotions or better social network which provide them with more social support (Kong et al., 2019; Peña-Sarrionandia, Mikolajczak, & Gross, 2015). The analysis of semi-partial correlations demonstrated that the frequency of emotions (positive and negative) was related to trait emotional intelligence, while only negative intensity correlated with trait emotional intelligence. These results demonstrated that a role of trait emotional intelligence in predicting the positive and negative affect was based on the differential exposure process (Bolger & Schilling, 1991). At a dispositional level, trait emotional intelligence was associated with higher exposure to positive and lower exposure to negative emotion-inducing situations. However, trait emotional intelligence was also associated with a lower dispositional intensity of negative emotions. Thus, the reactivity process was present only in the link between trait emotional intelligence and negative affect intensity.

The diary study showed different patterns of associations. First, trait emotional intelligence only marginally significantly predicted a lower frequency of anger, disgust, and sadness. Moreover, these effects did not remain significant after dispositional positive affect and negative affect were entered into the regression model. Only limited evidence supported the exposure process of a protective role of trait emotional intelligence in the COVID-19 outbreak. This protective role referred only to lower exposure to situations eliciting negative emotions. However, trait emotional intelligence predicted a lower intensity of fear, anxiety, and sadness. A protective role of trait emotional intelligence remained marginally significant after affect intensity was entered into the model of fear. This may indicate that trait emotional intelligence may play a role in soothing negative affective reactions of fear, anxiety and sadness. One of the explanations of these findings may be that emotional intelligence moderates the reaction to stressful events. Individuals with high emotional intelligence appraise these events less negatively (Mikolajczak & Luminet, 2008; Ruiz-Aranda et al., 2014) and use more efficient and adaptive coping and emotion regulation strategies (Mikolajczak et al., 2008). Emotionally intelligent individuals may, therefore, perceive a threat related to the COVID-19 pandemic less negatively or use efficient regulation strategies to reduce the intensity of fearful, anxious or sad reactions to the pandemic. This protective role of emotional intelligence was the most prominent in the present study, namely trait emotional intelligence seemed to help to downregulate or to reduce the intensity of negative emotional reactions in the days following the lockdown in Poland. Moreover, dispositional affect intensity (negative intensity and serenity) may have accounted for the associations between trait emotional intelligence and daily intensity of fear, anxiety and sadness. Individuals with higher emotional intelligence experienced less stress and their body reactivity (e.g. measured as the overall diurnal profile of cortisol) was lower in the previous studies (Kotsou, Nelis, Grégoire, & Mikolajczak, 2011). Future research should address a possible mediation between trait emotional intelligence and the intensity of negative discrete emotions by situational emotional reactiveness using multilevel modeling in diary studies (e.g. daily measures of negative affective reactiveness; Jose, Lim, & Bryant, 2012) or experimental designs (Fernández-Berrocal & Extremera, 2006). Future research should also examine other

mechanisms of a protective role of trait emotional intelligence in the pandemic outbreak, e.g. in maintaining satisfying social relationships despite physical distancing (Abel & McQueen, 2020).

The obtained results should be considered in light of several limitations. Our sample was relatively small and consisted mainly of female gender. These characteristics inherently limit the generalizability of our findings. The high rate of female participants was consistent with a relative overabundance of female subjects participating in online studies (e.g., Paolacci, Chandler, & Ipeirotis, 2010) and was similar to other studies on rapid reactions to the COVID-19 (Somma et al., 2020). Since the majority of the participants had secondary education, our results may reflect the reactions in young adults and students. Thus, participants may not have experienced several concerns (e.g. work-related issues). However, young adults also experienced significant disruptions in their routines (e.g. in education, accommodation), which may produce a serious threat and tension (Zhang, Wang, et al., 2020). Another limitation was related to self-report measurements and time-consuming daily diary method. The baseline measurement was performed during the COVID-19 pandemic. This may have affected the ratings of participants' dispositions related to affective states (e.g. positive and negative affect and affect intensity) due to the fact they may have already been exposed to stress or negative emotions. However, they were directly instructed to indicate their typical affective dispositions. Despite these limitations, the present study has several strengths. It captured rapid emotional responses during the COVID-19 outbreak and used the daily reports of discrete emotions. This allowed us to examine the associations between trait emotional intelligence and the dynamics of emotional reactions which were absent in the previous papers on these relationships. Moreover, the present study provided the first evidence that the affective mediators model of associations between trait emotional intelligence and well-being may be limited to the intervening role of the frequency of emotions, while in the shorter designs, trait emotional intelligence may be a more significant predictor of the intensity of negative affect (Bolger & Schilling, 1991). This effect may be due to more efficient self-regulation among emotionally intelligent people (Mikolajczak et al., 2008).

The present study has important clinical implications for public mental health. Since the main concerns of mental health professionals regarding public reactions to the COVID-19 pandemic were related to potentially heightened levels of panic, depressiveness or anxious reactions, the present study demonstrated that a "positive" potential of the pandemic and specific measures introduced in particular countries (e.g. lockdown) may be also present. The possibility to focus on home, social bonds with the family and relatives, and collective actions undertaken to create a sense of solidarity and hope, or simply leisure activities, may help individuals to experience positive emotions during the pandemic (Su et al., 2020). Another implication for practice was that trait emotional intelligence appeared to be a protective factor against the intense reactions of fear, anxiety and sadness during the pandemic. This suggests that training of emotional regulation and emotional perception skills may be efficient in dealing with heightened negative affect during the pandemic and measures used to fight with this type of collective danger (e.g. lockdown). Numerous studies demonstrated that emotional intelligence trainings are efficient in improving emotional skills, emotion regulation and coping with stress (Geßler, Nezlek, & Schütz, 2020; Hodzic et al., 2018; Kotsou et al., 2011; Mattingly & Kraiger, 2019). These studies showed short-term and long-term improvements in neuroticism, subjective well-being and social relationships after trainings in emotional intelligence (e.g. Nelis et al., 2011). Several of these trainings and interventions included on-line trainings (Geßler et al., 2020), which makes them possible to implement during social isolation periods and via the Internet. Moreover, focus on emotion regulation exercises seemed to be the most useful for improvement in trait emotional intelligence (Geßler et al., 2020). According to the meta-analyses, trait emotional intelligence is a stronger predictor of mental health (Martins et al., 2010). Thus, the emotional intelligence trainings during the

pandemic should be mainly focused on the emotional regulation strategies which may help individuals to be convinced that they will be able to deal with potential threats connected with the pandemic.

The present study demonstrated that rapid emotional responses during the first week of the COVID-19 outbreak in Poland included anger, anxiety and sadness, but also twice more events of happiness and relaxation. Daily intensity of anger, anxiety and sadness was higher than the intensity of fear, but the intensity of positive emotions (i.e. relaxation and happiness) was, again, twice higher than other negative emotions. Trait emotional intelligence only marginally predicted a lower frequency of anger, disgust, fear, and sadness. However, trait emotional intelligence predicted the intensity of fear, sadness and anxiety to a larger extent. This may lead to the conclusion that trait emotional intelligence related to the dispositional regulation of the intensity of negative affect may be a protective factor against potentially dangerous emotional consequences of the COVID-19 pandemic (e.g. anxiety and depressive symptomatology; Brooks et al., 2020).

Compliance with ethical standards ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all participants included in the study.

CRediT authorship contribution statement

Marcin Moroń: Conceptualization, Methodology, Formal analysis, Data curation, Writing - original draft, Writing - review & editing. **Magdalena Biolik-Moroń:** Conceptualization, Methodology, Investigation, Writing - review & editing.

Declaration of competing interest

Authors declare none.

References

Abel, T., & McQueen, D. (2020). The COVID-19 pandemic calls for spatial distancing and social closeness: Not for social distancing!. *International Journal of Public Health, 65*(3), 231. https://doi.org/10.1007/s00038-020-01366-7.

Alyami, M., Henning, M., Krägeloh, C. U., & Alyami, H. (2020). Psychometric evaluation of the Arabic version of the fear of COVID-19 Scale. *International Journal of Mental Health and Addiction.* https://doi.org/10.1007/s11469-020-00316-x.

Arpaci, I., Karataş, K., & Baloğlu, M. (2020). The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). *Personality and Individual Differences, 164*, Article 110108. https://doi.org/10.1016/j.paid.2020.110108.

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software, 67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01.

Bavel, J. J. V., Baicker, K., Boggio, P. S., et al. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behavior, 4*, 460–471. (2020) https://doi.org/10.1038/s41562-020-0884-z.

Bolger, N., & Schilling, E. A. (1991). Personality and the problems of everyday life: The role of neuroticism in exposure and reactivity to daily stressors. *Journal of Personality, 59*, 355–386.

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology, 91*, 780–795.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet.* https://doi.org/10.1016/S0140-6736(20)30460-8.

Buechel, E. C., Zhang, J., & Morewedge, C. K. (2017). Impact bias or underestimation? Outcome specifications predict the direction of affective forecasting errors. *Journal of*

Experimental Psychology: General, 146(5), 746–761. https://doi.org/10.1037/xge0000306.

Carver, C. S., & Harmon-Jones, E. (2009). Anger is an approach-related affect: Evidence and implications. *Psychological Bulletin, 135*(2), 183–204. https://doi.org/10.1037/a0013965.

Dai, Y., Hu, G., Xiong, H., Qiu, H., & Yuan, X. (2020). Psychological impact of the coronavirus disease 2019 (COVID-19) outbreak on healthcare workers in China. *MedRxiv*. https://doi.org/10.1101/2020.03.03.20030874.

Diener, E., Larsen, R. J., Levine, S., & Emmons, R. A. (1985). Intensity and frequency: Dimensions underlying positive and negative affect. *Journal of Personality and Social Psychology, 48*(5), 1253–1265.

Diener, E., Oishi, S., & Lucas, R. E. (2002). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology, 54*(1), 403–425.

Diener, E., Sandvik, E., & Pavot, W. (1991). Happiness is the frequency, not the intensity, of positive versus negative affect. In F. Strack, M. Argyle, & N. Schwarz (Eds.). *Subjective well-being: An interdisciplinary perspective* (pp. 119–139). New York: Pergamon.

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research, 97*, 143–156.

Dolinski, D., Dolinska, B., Zmaczynska-Witek, B., Banach, M., & Kulesza, W. (2020). Unrealistic optimism in the time of coronavirus pandemic: May it help to kill, if so—Whom: Disease or the person? *Journal of Clinical Medicine, 9*(5), 1464. https://doi.org/10.3390/jcm9051464.

Duan, L., & Zhu, G. (2020). Psychological interventions for people affected by the COVID-19 epidemic. *The Lancet Psychiatry*. https://doi.org/10.1016/s2215-0366(20)30073-0.

Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods,* (2), 121–138.

Extremera, N., Ruiz-Aranda, D., Pineda-Galán, C., & Salguero, J. M. (2011). Emotional intelligence and its relation with hedonic and eudaimonic well-being: A prospective study. *Personality and Individual Differences, 51*, 11–16.

Fabes, R. A., Hanish, L. D., Martin, C. L., & Eisenberg, N. (2002). Young children's negative emotionality and social isolation: A latent growth curve analysis. *Merrill-Palmer Quarterly, 48*, 284–307. https://doi.org/10.1353/mpq.2002.0012.

Fernández-Berrocal, P., & Extremera, N. (2006). Emotional intelligence and emotional reactivity and recovery in laboratory context. *Psicothema, 18*, 72–78.

Gable, S. L., Reis, H. T., & Elliot, A. J. (2000). Behavioral activation and inhibition in everyday life. *Journal of Personality and Social Psychology, 78*(6), 1135–1149. https://doi.org/10.1037/0022-3514.78.6.1135.

Galea, S., Merchant, R. M., & Lurie, N. (2020). The mental health consequences of COVID-19 and physical distancing: The need for prevention and early intervention. *JAMA Medicine*. https://doi.org/10.1001/jamainternmed.2020.1562.

Gao, J., Zheng, P., Jia, Y., Chen, H., Mao, Y., Chen, S., ... Dai, J. (2020). Mental health problems and social media exposure during COVID-19 outbreak. *PLoS One, 15*(4), Article e0231924. https://doi.org/10.1371/journal.pone.0231924.

Geßler, S., Nezlek, J. B., & Schütz, A. (2020). Training emotional intelligence: Does training in basic emotional abilities help people to improve higher emotional abilities? *The Journal of Positive Psychology,* 1–10. https://doi.org/10.1080/17439760.2020.1738537.

Geuens, M., & De Pelsmacker, P. (2002). Developing a Short Affect Intensity Scale. *Psychological Reports, 91*(2), 657–670. https://doi.org/10.2466/pr0.2002.91.2.657.

Gignac, G. E. (2006). Self-reported emotional intelligence and life satisfaction: Testing incrementalpredictive validity hypotheses via structural equation modeling (SEM) in a small sample. *Personality and Individual Differences, 40*, 1569–1577.

Gohm, C. L., Corser, G. C., & Dalsky, D. J. (2005). Emotional intelligence under stress: Useful, unnecessary, or irrelevant? *Personality and Individual Differences, 39*(6), 1017–1028.

Goyal, K., Chauhan, P., Chhikara, K., Gupta, P., & Singh, M. P. (2020). Fear of COVID 2019: First suicidal case in India!. *Asian Journal of Psychiatry, 49*, Article 101989. https://doi.org/10.1016/j.ajp.2020.101989.

Gray, J. A., & McNaughton, N. (2000). *The neuropsychology of anxiety: an inquiry into the functions of the septohippocampal system* (2nd). Oxford: Oxford University press.

Harmon-Jones, C., Bastian, B., & Harmon-Jones, E. (2016). The Discrete Emotions Questionnaire: A new tool for measuring state self-reported emotions. *PLoS One, 11*(8), Article e0159915. https://doi.org/10.1371/journal.pone.0159915.

Hernández, M. M., Eisenberg, N., Valiente, C., Spinrad, T. L., VanSchyndel, S. K., Diaz, A., ... Piña, A. A. (2015). Observed emotion frequency versus intensity as predictors of socioemotional maladjustment. *Emotion, 15*(6), 699–704. https://doi.org/10.1037/emo0000099.

Hodzic, S., Scharfen, J., Ripoll, P., Holling, H., & Zenasni, F. (2018). How efficient are emotional intelligence trainings: A meta-analysis. *Emotion Review, 10*(2), 138–148. https://doi.org/10.1177/1754073917708613.

Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Silver, R. C., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A. K., Shafran, R., Sweeney, A., et al. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *The Lancet Psychiatry*. https://doi.org/10.1016/S2215-0366(20)30168-1.

Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. *Psychiatry research, 288*, Article 112954. https://doi.org/10.1016/j.psychres.2020.112954.

Hui, D. S., I Azhar, E., Madani, T. A., Ntoumi, F., Kock, R., Dar, O., ... Zumla, A. (2020). The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health: The latest 2019 novel coronavirus outbreak in Wuhan, China. *International Journal of Infectious Diseases, 91*, 264–266. https://doi.org/10.1016/j.ijid.2020.01.009.

Hulley, S. B., Cummings, S. R., Browner, W. S., Grady, D., & Newman, T. B. (2013). *Designing clinical research: An epidemiologic approach* (4th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Jizheng, H., Mingfeng, H., Tengda, L., Ake, R., & Xiaoping, Z. (2020). A survey of mental health of medical staff in new-type coronavirus pneumonia hospitals. *Chinese Journal of Industrial Hygiene and Occupational Diseases, 38*, Article 00. https://doi.org/10.3760/cma.j.cn121094-20200219-00063.

Jose, P. E., Lim, B. T., & Bryant, F. B. (2012). Does savoring increase happiness? A daily diary study. *Journal of Positive Psychology, 7*(3), 176–187. https://doi.org/10.1080/17439760.2012.671345.

Kafetsios, K., & Zampetakis, L. A. (2008). Emotional intelligence and job satisfaction: Testing the mediatory role of positive and negative affect at work. *Personality and Individual Differences, 44*(3), 712–722. https://doi.org/10.1016/j.paid.2007.10.004.

Kim, C. W., & Song, H. R. (2017). Structural relationships among public's risk characteristics, trust, risk perception and preventive behavioral intention: The case of MERS in Korea. *Crisisnomy, 13*, 85–95. https://doi.org/10.14251/crisisonomy.2017.13.6.85.

Kong, F., Gong, X., Sajjad, S., Yang, K., & Zhao, J. (2019). How is emotional intelligence linked to life satisfaction? The mediating role of social support, positive affect and negative affect. *Journal of Happiness Studies*. https://doi.org/10.1007/s10902-018-00069-4.

Kong, F., & Zhao, J. (2013). Affective mediators of the relationship between trait emotional intelligence and life satisfaction in young adults. *Personality and Individual Differences, 54*(2), 197–201.

Kotsou, I., Nelis, D., Grégoire, J., & Mikolajczak, M. (2011). Emotional plasticity: Conditions and effects of improving emotional competence in adulthood. *Journal of Applied Psychology, 96*(4), 827–839. https://doi.org/10.1037/a0023047.

Koydemir, S., Şimşek, Ö. F., Schütz, A., & Tipandjan, A. (2013). Differences in how trait emotionalintelligence predicts life satisfaction: The role of affect balance versus social support in India and Germany. *Journal of Happiness Studies, 14*(1), 51–66.

Kuppens, P., Realo, A., & Diener, E. (2008). The role of positive and negative emotions in life satisfaction judgment across nations. *Journal of Personality and Social Psychology, 95*(1), 66–75.

Liem, A., Wang, C., Wariyanti, Y., Latkin, C. A., & Hall, B. J. (2020). The neglected health of international migrant workers in the COVID-19 epidemic. *The Lancet Psychiatry, 7*(4), e20. https://doi.org/10.1016/S2215-0366(20)30076-6.

Lima, C. K. T., Carvalho, P. M. de M., Lima, I. de A. S., Nunes, J. V. A. de O., Saraiva, J. S., de Souza, R. I., ... Neto, M. L. R. (2020). The emotional impact of coronavirus 2019-Ncov (New Coronavirus Disease). Psychiatry Research, 112915.

Liu, Y., Wang, Z., & Lü, W. (2013). Resilience and affect balance as mediators between trait emotional intelligence and life satisfaction. *Personality and Individual Differences, 54*(7), 850–855.

Liu, Z. G., Zhang, K. R., & Lu, Z. X. (2005). Follow-up study on phobia emotion of SARS patients. *Journal of Shanxi Medical University, 1*, 62–64. Retrieved from http://en.cnki.com.cn/Article_en/CJFDTotal-SXYX200501024.htm.

Lopes, P. N., Salovey, P., Côté, S., & Beers, M. (2005). Emotion regulation abilities and the quality of social interaction. *Emotion, 5*, 113–118. https://doi.org/10.1037/1528-3542.5.1.113.

Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology, 71*, 616–628.

Martins, A., Ramalho, N., & Morin, E. (2010). A comprehensive meta-analysis of the relationship between emotional intelligence and health. *Personality and Individual Differences, 49*, 554–564. https://doi.org/10.1016/j.paid.2010.05.029.

Mattingly, V., & Kraiger, K. (2019). Can emotional intelligence be trained? A meta-analytical investigation. *Human Resource Management Review, 29*(2), 140–155. https://doi.org/10.1016/j.hrmr.2018.03.002.

Maunder, R., Hunter, J., Vincent, L., et al. (2003). The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *CMAJ, 168*, 1245–1251.

Mayer, J., & Salovey, P. (1997). What is emotional intelligence? In D. Sluyter, & P. Salovey (Eds.). *Emotional development and emotional intelligence. Educational implications* (pp. 3–31). New York: Basic Books.

Mikolajczak, M., & Luminet, O. (2008). Trait emotional intelligence and the cognitive appraisal of stressful events: An exploratory study. *Personality and Individual Differences, 44*(7), 1445–1453. https://doi.org/10.1016/j.paid.2007.12.012.

Mikolajczak, M., Nelis, D., Hansenne, M., & Quoidbach, J. (2008). If you can regulate sadness, you can probably regulate shame: Associations between trait emotional intelligence, emotion regulation and coping efficiency across discrete emotions. *Personality and Individual Differences, 44*(6), 1356–1368. https://doi.org/10.1016/j.paid.2007.12.004.

Montemurro, N. (2020). The emotional impact of COVID-19: From medical staff to common people. *Brain, Behavior, and Immunity*. https://doi.org/10.1016/j.bbi.2020.03.032 S0889-1591(20)30411-6. Advance online publication.

Moroń, M. (2018). Perceived emotional intelligence and life satisfaction: The mediating role of the positivity ratio. *Current Issues in Personality Psychology, 6*(3), 212–223. https://doi.org/10.5114/cipp.2018.75650.

Nakagawa, S., & Schielzeth, H. (2012). A general and simple method for obtaining R^2 from generalized linear mixed-effects models. *Methods in Ecology and Evolution, 4*(2), 133–142. https://doi.org/10.1111/j.2041-210x.2012.00261.x.

Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., & Mikolajczak, M. (2011). Increasing emotional competence improves psychological and physical well-being, social relationships, and employability. *Emotion, 11*(2), 354–366. https://doi.org/10.1037/a0021554.

Nezlek, J. B. (2001). Multilevel random coefficient analyses of event- and interval-

contingent data in social and personality psychology research. *Personality and Social Psychology Bulletin, 27*, 771–785.

Palmer, B., Donaldson, C., & Stough, C. (2002). Emotional intelligence and life satisfaction. *Personality and Individual Differences, 33*, 1091–1100.

Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on Amazon mechanical Turk. *Judgment and Decision making, 5*, 411–419.

Pearce, E., Launay, J., & Dunbar, R. I. (2015). The ice-breaker effect: Singing mediates fast social bonding. *Royal Society Open Science, 2*(10), Article 150221. https://doi.org/10.1098/rsos.150221.

Peña-Sarrionandia, A., Mikolajczak, M., & Gross, J. J. (2015). Integrating emotion regulation and emotional intelligence traditions: A meta-analysis. *Frontiers in Psychology, 6*, 160. https://doi.org/10.3389/fpsyg.2015.00160.

Petrides, K. V., Pérez-González, J. C., & Furnham, A. (2007). On the criterion and incremental validity of trait emotional intelligence. *Cognition and Emotion, 21*(1), 26–55.

Petrides, K. V. (2009). *Technical manual for the Trait Emotional Intelligence Questionnaires (TEIQue)*. London: London Psychometric Laboratory.

Ruiz-Aranda, D., Extremera, N., & Pineda-Galán, C. (2014). Emotional intelligence, life satisfaction and subjective happiness in female student health professionals: The mediating effect of perceived stress. *Journal of Psychiatric and Mental Health Nursing, 21*(2), 106–113.

Sánchez-Álvarez, N., Extremera, N., & Fernández-Berrocal, P. (2016). The relation between emotional intelligence and subjective well-being: A meta-analytic investigation. *Journal of Positive Psychology, 11*(3), 276–285.

Schimmenti, A., Billieux, J., & Starcevic, V. (2020). The four horsemen of fear: An integrated model of understanding fear experiences during the COVID-19 pandemic. *Clinical Neuropsychiatry, 17*(2), 41–45. https://doi.org/10.36131/CN20200202.

Somma, A., Gialdi, G., Krueger, R. F., Markon, K. E., Frau, C., Lovallo, S., & Fossati, A. (2020). Dysfunctional personality features, non-scientifically supported causal beliefs, and emotional problems during the first month of the COVID-19 pandemic in Italy. *Personality and Individual Differences, 165*, Article 110139. https://doi.org/10.1016/j.paid.2020.110139.

Stella, M., Restocchi, V., & De Deyne, S. (2020). #lockdown: Network-enhanced emotional profiling in the time of COVID-19. *Big Data and Cognitive Computing, 4*(2), 14. https://doi.org/10.3390/bdcc4020014.

Su, Y., Xue, J., Liu, X., Wu, P., Chen, J., Chen, C., & Zhu, T. (2020). Examining the impact of COVID-19 lockdown in Wuhan and Lombardy: A psycholinguistic analysis on Weibo and twitter. *International Journal of Environmental Research and Public Health, 17*(12), 4552. https://doi.org/10.3390/ijerph17124552.

Suh, E., Diener, E., Oishi, S., & Triandis, H. C. (1998). The shifting basis of life satisfaction judgments across cultures: Emotions versus norms. *Journal of Personality and Social Psychology, 74*, 482–493.

Szczygieł, D., Jasielska, A., & Wytykowska, A. (2015). Psychometric properties of the Polish version of the Trait Emotional Intelligence Questionnaire-Short Form. *Polish Psychological Bulletin, 46*(3), 447–459. https://doi.org/10.1515/ppb-2015-0051.

Tauszczik, Y., Faasse, K., Pennebaker, J. W., & Petrie, K. J. (2012). Public anxiety and information seeking following the H1N1 outbreak: Blogs, newspaper articles, and Wikipedia visits. *Health Communication, 27*(2), 179–185. https://doi.org/10.1080/10410236.2011.571759.

Unwin, M. M., Kenny, D. T., & Davis, P. J. (2002). The effects of group singing on mood. *Psychology of Music, 30*(2), 175–185. https://doi.org/10.1177/0305735602302004.

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health, 17*, 1729.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063.

Weinstein, N. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology, 39*, 114–129. https://doi.org/10.1037/0022-3514.39.5.806.

Wilson, T. D., & Gilbert, D. T. (2013). The impact bias is alive and well. *Journal of Personality and Social Psychology, 105*, 740–748. https://doi.org/10.1037/a0032662.

World Health Organization (WHO) (2020). Coronavirus disease (COVID-19) pandemic. July 20th https://www.who.int/emergencies/diseases/novel-coronavirus-2019.

Xiang, Y.-T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Ng, C. H. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry, 7*(3), 228–229. https://doi.org/10.1016/S2215-0366(20)30046-8.

Yang, Y., Li, W., Zhang, Q., Zhang, L., Cheung, T., & Xiang, Y. T. (2020). Mental health services for older adults in China during the COVID-19 outbreak. *The Lancet Psychiatry, 7*(4), e19. https://doi.org/10.1016/S2215-0366(20)30079-1.

Zeidner, M., Matthews, G., & Roberts, R. D. (2012). The emotional intelligence, health, and well-being nexus: What have we learned and what have we missed? *Applied Psychology: Health and Well-Being, 4*(1), 1–30.

Zhang, J., Wu, W., Zhao, X., & Zhang, W. (2020). Recommended psychological crisis intervention response to the 2019 novel coronavirus pneumonia outbreak in China: A model of West China Hospital. *Precision Clinical Medicine, 3*(1), 3–8. https://doi.org/10.1093/pcmedi/pbaa006 2020.

Zhang, S. X., Wang, Y., Rauch, A., & Wei, F. (2020). Unprecedented disruption of lives and work: Health, distress and life satisfaction of working adults in China one month into the COVID-19 outbreak. *Psychiatry Research, 288*, Article 112958. https://doi.org/10.1016/j.psychres.2020.112958.

Zinner, L. R., Brodish, A. B., Devine, P. G., & Harmon-Jones, E. (2008). Anger and asymmetrical frontal cortical activity: Evidence for an anger-withdrawal relationship. *Cognition & Emotion, 22*(6), 1081–1093.