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Meta-mood knowledge as a moderator of the relationship between risk factors and internalizing psychopathology: anxiety and depression

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Dissertation

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DISSERTATION DECLARATION FORM

I affirm that the work presented here is my own. All information I have taken from other sources has been approved for use in this dissertation.

Damla Yildirim

10.01.2022

THE THREE ORIGINAL PAPERS ARE

Yildirim, D., Vives, J., & Ballespí, S. (2022). Meta-mood knowledge moderates the relationship between neuroticism and depression but not between neuroticism and anxiety in a sample of nonclinical adolescents. *Current Psychology* (In press).

Yildirim, D., Vives, J., & Ballespí, S. (2022). Anxiety and Depression: The Moderating Effects of Attention to Emotion and Emotional Clarity. *Psychological Reports*. https://doi.org/10.1177/00332941211070764

Yildirim, D., Vives, J., & Ballespí, S. (2022). Why do I feel what I feel? Examining individual differences in meta-mood knowledge as a moderator of the relationship between anxiety and depression in adolescents. *Personality and Individual Differences*, 187(July 2021). https://doi.org/10.1016/j.paid.2021.111407

THE FOUR CONFERENCE ABSTRACTS ARE

Yildirim, D., Vives, J., & Ballespí, S. (2021, July 18-23). *Does EI moderate the relationship between neuroticism and internalizing problems?* [Oral presentation]. 32nd International Congress of Psychology (ICP 2020+), Prague, Czech Republic. https://abstracts.icp2020.endevel.eu/abstracts/d4688179-90ed-48c0-995e-2f5cfac23b97/

Yildirim, D., Vives, J., & Ballespí, S. (2021, July 18-23). *When emotional intelligence meets mentalizing: emotional imbalances predict mental health* [E-poster presentation]. 32nd International Congress of Psychology (ICP 2020+), Prague,

Czech Republic. https://abstracts.icp2020.endevel.eu/abstracts/2da1e9b5-6cc3-417e-a304-ca5310cc2006/

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Yildirim, D., Vives, J., & Ballespí, S. (2022, July 5-8). *Individual Differences in Knowledge of Meta-Moods: Anxiety and Depression* [Oral presentation]. 17th European Congress of Psychology, Ljubljana, Slovenia.

OVERVIEW

In the present work, we examined the importance of emotional self-awareness (i.e., the ability to perceive and understand one's own emotional world) using a multidimensional approach to dimensions of meta-mood knowledge (i.e., attention to emotions and emotional clarity) with a focus on internalizing psychopathology such as anxiety and depression. In clinical practice, meta-mood knowledge is a key factor in psychotherapy, but there is a gap in the literature regarding the moderating role of meta-mood knowledge, which prompted us to present this work. The overall goal was to examine the two core dimensions of meta-mood knowledge from a multidimensional perspective. More specifically, we examined these two moderators to identify risk factors for increased anxiety and depression in a sample of adolescents and adults from a nonclinical population. In Part I, we first briefly reviewed the relevant literature on this topic to present the state of the research. In Part II, we focused on the specific aims and explained the three empirical research papers in more detail. Each empirical paper includes a formal reflection on the challenges of developing theoretical and applied approaches to emotional self-awareness. Finally, we discussed our findings from the literature review and the three empirical research papers, including recommendations for interventions, clinical work, and future directions.

IMPACT STATEMENT

The ability to perceive and understand one's own emotional world is a higher order cognitive ability. It is necessary for social interactions. It promotes "salutogenesis," which fosters positive mental health and greater well-being. There is evidence that emotional self-awareness has strong effects on emotion regulation that impact social interactions and mental health. There is also evidence that (negative) emotions directed toward the "self" are often associated with anxiety and depression. However, although the importance of emotional self-awareness as a pathway to emotion regulation is crystal clear and fundamental to mental health, empirical research on the moderating role of this higher-level cognition in the relationship between risk factors and symptoms is lacking.

The relevant literature on emotional self-awareness prompted us to ask to what extent meta-mood knowledge plays a role in the relationship between risk factors and internalizing psychopathology. In other words, our general goal was to examine the extent to which emotional self-awareness attenuates the risk of internalizing psychopathology. Importantly, we examined emotional self-awareness in this context from a multidimensional perspective using the two core dimensions of meta-mood knowledge: Attention to Emotions (i.e., willingness to pay attention to emotions) and Emotional Clarity (i.e., ability to understand and process feelings of emotional states).

In our first empirical study, we focused on the relationship between neuroticism and internalizing psychopathology. The literature suggests that neuroticism is associated with risk for internalizing symptoms. The higher the neuroticism, the higher the vulnerability to anxiety and depression. Several studies show that highly neurotic adolescents are more likely to experience anxiety and depression. Based on this

vulnerability model, we approached our hypothesis and found that emotional clarity moderates the relationship between neuroticism and depression, but attention to emotion does not. This was the case only for neuroticism and depression, but not for neuroticism and anxiety. The intriguing result was unique to the combination of low attention and high clarity, which may be the most favorable condition for emotion regulation and thus coping with depression. Therefore, we interpreted the results in the context of emotion regulation problems and addressed the need for adaptive coping skills for severely neurotic adolescents.

In our second empirical study, we focused on the relationship between anxiety and depression in a sample of adults. In our third empirical study, we examined the same hypothesis as in the second study using a sample of adolescents. Given the literature on the comorbidity of anxiety and depression, we considered anxiety as a risk factor for depression. We found that both attention to emotion and emotional clarity moderated the relationship between anxiety and depression in a sample of adults and adolescents. Not surprisingly, however, only emotional clarity had a buffering effect on the relationship between anxiety and depression. The combination of low attention and high clarity was the intriguing result, which was similar to the findings on neuroticism and depression. This could be the most favorable condition for emotion regulation and thus for dealing with symptoms of anxiety and anxiety-comorbid depression.

Our main findings from the literature review and the three empirical research papers are fruitful and can be summarized in light of the view that different combinations within these two dimensions are useful for capturing the unique patterns of association of emotions in the context of internalizing psychopathology. For example, (1) the combination of low attention and high clarity may indicate better emotional self-

awareness and psychological resilience; (2) the combination of high attention and low clarity may in turn indicate dysfunctional emotion processing and the use of maladaptive coping strategies; (3) the combination of high attention and low clarity may be the hallmark of depressive symptomatology; (4) a non-significant moderating effect in the relationship between neuroticism and anxiety may indicate a high level of arousal that blocks emotion processing already in the first "identification" phase. All in all, it seems crucial to assess and evaluate individual differences in emotion-based cognitions in order to reduce emotional stress, promote "salutogenesis" and support mental health.

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INTRODUCTION

Emotional self-awareness

The ability to pay attention to one's emotional states and to understand how and why "I" feel the way "I" feel is an advanced human emotion processing skill that has been studied in the literature under terms such as interpersonal intelligence, emotional intelligence, mentalization, theory of mind, and metacognition (Carruthers, 2009; Coffey et al., 2003; Fonagy & Target, 1997; Frith & Frith, 1999; Salovey & Mayer, 1995). Although the use and evaluation of this meta-skill varies across disciplines, the main goal is the same and is based on the fact that it is an effective tool to promote better social interactions and thus mental health.

From a therapeutic perspective, interventions (e.g., mentalization-based treatments) place this meta-skill at the center of psychotherapy (Freeman, 2016; Hawkes, 2011; Hayden et al., 2018; Liotti & Gilbert, 2011). Psychoeducation is also recommended in this way; the inclusion of emotional self-awareness in the standard curriculum for teachers and caregivers, taking into account the school and home environment, for example (Salovey et al., 1995; Sharp et al., 2020; Tobias et al., 2008). This suggests that promoting emotional self-awareness beyond therapeutic interventions, such as using engaging stories as reading material or exploring the mental state of the sensitive caregiver in the parent-child relationship, is also important for public health.

Emotional self-awareness as resilience

Previous research on this topic has mentioned emotional self-awareness as a basic resilience resource (Stein, 2006). The resilience mechanism is closely related to better recovery from emotionally stressful events and sustainability of positive outcomes in the face of acute or chronic difficulties (Zautra et al., 2010). In this sense, the positive value of emotional self-awareness in relation to various psychopathological disorders is well established (Luyten et al., 2020). For example, the role of emotional self-perception in relation to mental health has been studied from a transdiagnostic perspective in a sample of adolescents (Ballespí et al., 2018).

In the study by Ballespí and colleagues (2018), the authors showed that emotional self-awareness promoted psychological resilience and well-being. However, there was no statistically significant association between emotional self-awareness and factors of general psychopathology. This nonsignificant finding was interpreted in light of the currently used methodological approach, which assesses children's internalizing and externalizing problems based on parents' observations of their children. Remarkably, a later study by Ballespí and colleagues (2019) found that different patterns of association of emotions were associated with different levels of somatic complaints. That is, increased somatic complaints were strongly associated with the specific subset of emotional self-awareness (i.e., excessive attention to (negative) emotions without a clear understanding of those emotions).

In summary, the literature suggests that promoting emotional self-awareness in conjunction with psychological resilience in the face of adversity or subclinical symptoms may prevent subsequent diagnosis. From this perspective, we were particularly interested

in the current work to examine the role of meta-mood knowledge (i.e., attention to emotion and emotional clarity) as an aspect of emotional intelligence or mentalizing and in the context of internalizing psychopathology.

Emotional self-awareness in the context of internalizing psychopathology

Recent literature on this topic has emphasized the need for a dimensional approach when assessing mentalizing in the context of psychopathology (see, e.g., for a review, Luyten et al., 2020). This is because it involves dimensions such as self-focus versus other-focus, affective focus versus cognitive focus, and attention-based focus versus knowledge-based focus. Therefore, a dimensional approach to assessing specific aspects of this broad meta-skill proved helpful and informative, particularly in the context of psychopathology. In this sense, the present work focused on the act of emotional meta-thinking in relation to the "self" using the dimensions of attention to emotion and emotional clarity of meta-mood knowledge.

There are other aspects that contribute to the assessment of emotional self-awareness by underlying other domains (e.g., attachment-based versus nonattachment-based) (Ballespí et al., 2021; Debbané et al., 2017; Taubner et al., 2013). This knowledge allows us to discuss relevant findings within the framework of attachment theory. This is important because in the first years of life, a secure relationship between child and caregiver plays a role in the development of affect regulation (Fonagy & Target, 1997). A lack of affect regulation inevitably leads to difficulties in certain areas such as representational thinking - understanding the intentional direction of emotions. In this

sense, the development of a pathological "self" in terms of self-perception, self-interpretation, and self-organization has been described as rooted in insecure attachment.

Attention to emotion and emotional clarity - dimensions of meta-mood knowledge

Attention to emotion (i.e., the ability to perceive an emotion) and emotional clarity (i.e., the ability to have a clear understanding of an emotion) have been extensively studied in the literature (for review, Fernandez-Berrocal & Extremera, 2008; Salovey et al., 1995). Both dimensions have been associated with coping strategies and are therefore considered in the context of good mental health. For example, in a recent study, emotional clarity, but not (necessarily) the dimension of attention to emotions, was shown to be an effective source of healthy coping and well-being (Eckland & Berenbaum, 2021). Similarly, emotional clarity has been found to be associated with less perceived stress and greater subjective well-being or happiness in most empirical studies (e.g., de la Barrera et al., 2021; Extremera et al., 2011).

Moreover, the literature on attention to emotion and emotional clarity has shown that the dimension of attention is less stable and also less adaptive. For example, one study has shown that the trait form of emotional clarity is not related to affect intensity (Boden et al., 2013). Along these lines, attention to emotion in both forms was found to be related to affect intensity: State and Trait (Thompson & Boden, 2019). In this regard, attention to emotion has been found to be associated with longer duration of stress (Vives et al., 2021).

It is apparent that emotion processing, like emotions themselves, is also fragile, supporting the need for a multidimensional approach to attention to emotion and

emotional clarity (Boden & Thompson, 2017). After reviewing the literature on attention to emotion and emotional clarity, a multidimensional approach to the dimensions of meta-mood knowledge seems critical, regardless of the subclinical or clinical level of symptoms, to better understand the role of meta-mood knowledge (i.e., attention to emotion and emotional clarity).

Multidimensional approach to attention to emotion and emotional clarity

Meta-analysis studies have mentioned that attention to emotion and emotional clarity at a certain level and in a certain combination may indicate problems related to emotion regulation and psychopathological symptoms (Boden & Thompson, 2017; Davis & Nichols, 2016). Furthermore, and in this context, imbalanced emotional profiles in the form of emotional imbalances (i.e., low attention and high clarity or high attention and low clarity) have been interpreted as "positive" and "negative" emotional imbalances, respectively (Boden & Thompson, 2017). Overall, the evidence for balanced profiles (i.e., high attention and high clarity or low attention and low clarity) was less consistent, also suggesting further research on this topic.

THE OVERALL GOAL OF THE CURRENT RESEARCH

The overarching goal of our research was to examine the role of attention to emotion and emotional clarity as moderators, focusing on internalizing psychopathology in a nonclinical sample of adolescents and adults.

Consistent with this goal, we conducted a more specific literature search of databases such as PsycINFO and PubMed for publications from 2000 to mid-2021, entering the following keywords: "overwhelm*" AND "emotional clarity" OR "attention to emotion."

In **Part I**, we presented the state of research on this topic from the perspective outlined in the introduction above. In **Part II**, we presented specific research questions and hypotheses related to the three empirical research studies.

PART I: LITERATURE REVIEW

In general, research findings on the dimensions of meta-mood knowledge (i.e., attention to emotion and emotional clarity) have shown that examining the interplay between them is crucial; a way to better understand issues related to emotion regulation and various psychopathological states (Boden & Thompson, 2017). For example, the combination of high attention and low clarity has been linked to increased somatization (Ballespí, et al., 2019), depression and worry (Berenbaum et al., 2012), and problems with mood regulation (Gohm, 2003).

This combination of high attention and low clarity has been described as emotions of emotionally overwhelmed individuals who experience intense emotions and lack emotional understanding (i.e., emotional clarity) (Gohm, 2003). In other words, the appraisal of emotionally overwhelmed individuals has been conceptualized in terms of self-perceptions of meta-emotional characteristics: *Attention to Emotion*, *Emotional Clarity*, and *Intensity of Affect* (Berenbaum et al., 2012; Gohm et al., 2005).

It has been mentioned that a combination without high affect intensity is sufficient (Kerns & Berenbaum, 2010). This is because the processing of emotions in overwhelmed individuals suggests that the combination of high attention and low clarity is in turn associated with individuals who exhibit high (negative) affect intensity. In fact, the overwhelming effect of high attention seems to be more related to the lack of emotional

clarity. According to the literature (e.g., Gohm, 2003), this also has to do with confusion about emotions.

In a study of emotional self-awareness and psychological needs (Dizén et al., 2005), it was concluded that a style of needs processing associated with emotional clarity demonstrated slow, thorough, and complete emotion processing. This was especially true for the relationship between emotional clarity and psychological needs (e.g., achievement, friendship, independence). This means that you have sufficient cognitive resources to reflect on and process your own internal experiences, events, and situations when confronted with them.

The literature supports the positive value of emotional clarity - broadly, understanding why you feel the way you do - as a therapeutic component to facilitating better self-regulation (Sugarman, 2006). In addition, interventions (e.g., mentalization-based, emotion-focused, or dialectical-behavioral therapies) focus on improving awareness of one's emotions, particularly in treating emotion regulation problems in individuals with borderline personality disorder (Target, 2016). In short, the therapist aims to improve the "clarity" of emotions. Another important point is that low emotional clarity has been shown to be particularly related to mistrust of emotions and avoidant coping strategies, which are associated with clinical symptoms in patients with various mental disorders (Lizeretti et al., 2012).

The combination of high attention and low clarity is the most harmful combination associated with increased risk factors. Nevertheless, a consensus of theoretical positions is necessary. This means that it is necessary to assess complete emotional profiles (i.e., high attention and low clarity; low attention and low clarity; high attention and high clarity; low attention and high clarity), focusing on internalizing psychopathology:

Anxiety and Depression. Presumably, the combination of high attention and low clarity would indicate increased risk for anxiety and depression related to maladaptive coping strategies such as rumination (Gohm, 2003; Salguero et al., 2013). However, other combinations of attention to emotion and emotional clarity are less clear, leading to a more exploratory view.

STATUS OF RESEARCH

We have focused more on the research studies that have examined the combinations of the dimensions of attention and clarity, and when referred to as "overwhelmed," or in this context, the combination of high attention and low clarity. The details of these relevant studies can be found in Table 1, including the names of the scales, the outcome variables, the characteristics of the study sample, and the main results (see below).

Results of individual sources of evidence

In a study by Ballespí et al. (2019), the combination of high attention and low clarity was found to be associated with a higher risk of increased somatic complaints. In a study by Berenbaum et al. (2012), individuals with average attention, low clarity, and high intensity were found to have higher levels of depression and worry. In relation to this combination of average attention, low clarity, and high intensity, Gohm (2003) found different emotion regulation strategies; these individuals appeared unable or unwilling to use critical affective information. Interestingly, Gohm et al. (2005) later examined

overwhelmed types of emotions and found that emotional intelligence did not predict stress. When the arousal factor was taken into account, overwhelmed individuals with high current arousal levels showed lower affectivity on evaluative tasks but increased affectivity on non-evaluative tasks (Kerns & Berenbaum, 2010). Furthermore, this type of emotion has been found to be associated with a tendency to exhibit the highest levels of affective dysregulation in daily life (Sperry & Eckland, 2021). Of note, in this study by Sperry and Eckland (2021), the authors conceptualized overwhelming emotions as low/average, low clarity, and high intensity, which is less common in this regard.

Overall, the combination of high attention and low clarity appears to be associated with increased risk for internalizing psychopathology. However, there is no evidence on whether the combination of low attention and high clarity buffers the effects of the risk factors. Similarly, there is no evidence as to whether balanced emotional profiles (i.e., high attention and high clarity; low attention and low clarity) are associated in any meaningful way - systematically - with internalizing psychopathology. This line of thought led to the following three empirical research papers, in which we exploratively analyzed the associations between attention to emotion and emotional clarity in relation to risk factors and internalizing psychopathology using a sample of adolescents and adults from the nonclinical population.

CRITICAL APPRAISAL

Learning from the literature review

The aim of the literature review was to present the state of research on the dimensions of meta-mood knowledge. There is evidence that the type of combination of greatest interest is that labeled "overwhelmed" (Gohm, 2003), and some other occasions labeled differently, such as "negative emotional imbalance" (Boden & Thompson, 2017). The main challenge in the review was the lack of a standardized method for validating and reporting different levels of attention to emotion and emotional clarity. Therefore, it was difficult to compare results across studies.

Next, we aimed to present the details of three empirical research studies in part II. Each study examined the moderating role of meta-mood knowledge, including different combinations of attention to emotion and emotional clarity, with a focus on understanding the relationship between risk factors and internalizing psychopathology.

Table 1 Status of research

First author, year	Scale(s)	Outcome Variable(s)	Sample
[1]Ballespí*, 2019	TMMS	Somatic complaints	*N* = 264, 54.5% female *M(SD)* = 14.7 (1.7)
[2]Berenbaum*, 2012	TMMS; Affect Intensity Measure	Depression, worry	*N* = 923, 51.6% female *M(SD)* = 19.3 (1.3)
[2]Gohm, 2003	TMMS; Mood Awareness Scale; Affect Intensity Measure; Emotional Intensity Scale	Mood regulation	*N* = 250, 123 female, 13 unreported *M(SD)* = 18.36 (unreported) *N* = 83, 47 women, 36 men *M(SD)* = 18.6 (unreported) *N* = 236, 113 women, 121 men, 2 unreported *M(SD)* = 18 (unreported)
[2]Gohm*, 2005	TMMS; Mood Awareness Scale; Affect Intensity Measure; Emotional Intensity Scale	Stress	*N* =158, 97 female, 13 unreported *M(SD)* = 18.3 (unreported)
Kerns*, 2010	TMMS; Affect Intensity Measure	Task performance (non-evaluative and evaluative)	*N* = 129, 68 women *M(SD)* = 19.3 (1.0) *N* = 177, 89 women *M(SD)* = 19.3 (1.4) *N* = 121, 65 women *M(SD)* = 18.5 (0.87) *N* = 339, 171 women *M(SD)* = 18.7 (1.5) *N* = 261, 58 % women *M(SD)* = 18.7 (1.2)
[3]Sperry*, 2021	TMMS; Affect Intensity Measure	Positive affect Negative affect	*N* = 233, 71% women *M(SD)* = 18.8 (1.0)

Note: * = only the first authors are listed. *N* = number of participants. *M(SD)* = mean (standard deviation). [1] = Overwhelmed: high attention, low clarity. [2] = Overwhelmed: average attention, low clarity, high intensity. [3] = Overwhelmed: low/average attention, low clarity, high intensity. TMMS = Trait Meta Mood Scale

PART II: BEYOND THE LITERATURE REVIEW: EMPIRICAL RESEARCH

The general aim of the present work was to investigate the role of attention to emotion and emotional clarity as moderators and in the context of internalizing psychopathology in a nonclinical sample of adolescents and adults. Considering this aim, we first examined the moderating role of attention to emotion and emotional clarity in the relationship between neuroticism and internalizing psychopathology (i.e., anxiety and depression) and in a sample of adolescents. Later, we examined the moderating role of attention to emotion and emotional clarity in the relationship between anxiety and depression in a sample of adolescents and adults.

SPECIFIC AIMS

The research question of the first empirical research paper: to what extent do the dimensions of meta-mood knowledge moderate the relationship between (1) neuroticism and depression, (2) neuroticism and anxiety in a sample of adolescents.

The vast majority of research studies have focused on the relationship between neuroticism and internalizing psychopathology and examining these two potentially moderating variables of meta-mood knowledge could have theoretical and clinical implications.

The research question of the second empirical research paper: to what extent do the dimensions of meta-mood knowledge moderate the relationship between anxiety and depression in a sample of adults.

Anxiety and depression are two common mental disorders that have high comorbidity in both clinical and subclinical settings. Given the high prevalence rates of anxiety and depression in the nonclinical adult population, which impacts important domains of functioning, examining this question would likely advance the literature on anxiety and depression.

The research question of the third empirical research paper: to what extent do the dimensions of meta-mood knowledge moderate the relationship between anxiety and depression in a sample of adolescents.

The literature on childhood anxiety shows that anxiety is more likely to lead to depression. The age at which this comorbidity between anxiety and depression occurs is usually in late adolescence. Examining this question in this age group may shed light on the pathways that lead to anxiety and anxiety-comorbid depressive symptoms.

METHODOLOGY

Participants

The samples of the three empirical research studies come from a large cross-sectional data set that includes adolescents and their parents or guardians from Catalonia/Spain. The inclusion criterion for the adolescent sample was an age range of 12 to 18 years. All adolescent participants were in active student status at the time of data

collection. There was no age criterion for the selection of adult participants. The exclusion criterion for the two samples was a diagnosis of a serious mental illness such as psychosis, autism spectrum disorder, or intellectual disability. This information was collected in a brief questionnaire, and we then proceeded with only eligible participants. Later, participants who did not complete one or more scales were excluded from the study.

Table 2 Characteristics of participants

ERP(s)	*N*	$M(SD)_{age}$
ERP I	244 53.7 % girls	*M(SD)* = 14.6(1.7) Range: from 12 to 18
ERP II	256 82.03% women	*M(SD)* = 46.21(5.53) Range: from 32 to 66
ERP III	264 54.5% girls	*M(SD)* = 14.7(1.7) Range: from 12 to 18

Note: Cross-sectional study design. ERP: empirical research paper.

Procedure

The data used in the present study were collected in accordance with the Declaration of Helsinki and approved by the Ethics Committee (CEEAH 2603). For the project entitled "Personality, Psychopathology, and Coping Strategies in Adolescence," we obtained written informed consent from the participants. Prior to data collection, we distributed an invitation letter to the selected schools. We invited ten schools based on their proximity to the research center to facilitate coordination. Five schools agreed to participate in the current study. Later, the adolescents and their parents/guardians received sealed envelopes containing questionnaires and an alphanumeric code that

encoded their identity. As soon as the deadline for returning the questionnaires expired or necessary information was missing, we contacted them with the code provided. Data collection took place over the course of five weeks.

Questionnaires, assessment, and evaluation

Big Five Inventory (BFI) (John & Srivastava, 1999)**.** ***Spanish adaptation*** (Benet-Martínez & John, 1998)**.** This instrument included forty-four items. In the first study, only the eight items on neuroticism were used (e.g., "I see myself as someone who gets nervous easily"; "I see myself as someone who can be moody"). Participants responded on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Trait Meta-Mood Scale (TMMS) (Salovey et al., 1995). ***Spanish adaptation*** (Fernandez-Berrocal et al., 2004)**.** This instrument included twenty-four items. We used only the following two subscales: Attention to Emotion (e.g., "I pay a lot of attention to how I feel") and Emotional Clarity (e.g., "I am usually very aware of my feelings"), with each subscale comprising eight items. Participants responded on a 5-point scale ranging from 1 ("strongly disagree") to 5 ("strongly agree").

Beck's Depression Inventory-II (BDI-II) (Beck et al., 1996). ***Spanish adaptation*** (Sanz et al., 2003). The BDI-II consists of twenty-one items related to emotions, behavioral changes, and somatic symptoms, including symptoms such as "feelings of sadness," "suicidal thoughts," "sleep patterns," and "changes in appetite." Participants indicated the extent to which they agreed with each item on a 4-point scale.

Multidimensional Anxiety Scale for Children (MASC) (March et al., 1999). ***Spanish adaptation*** (García Villamisar et al., 2002). The total score of MASC consists of thirty-nine items and includes four dimensions of anxiety: physical symptoms, social anxiety, harm/avoidance, separation anxiety. We asked participants to rate how well each item described them on a 4-point scale ranging from 0 (never true) to 3 (often true).

General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979)**.** ***Spanish adaptation*** (Lobo et al., 1986). The GHQ consists of twenty-eight items. The GHQ was used to assess the severity of symptoms of anxiety and depression. In the second study, we used only the anxiety (e.g., "Do you feel that everything is getting on top of you?") and depression (e.g., "Do you feel that life is completely hopeless?") subscales. Each subscale consisted of seven items. For each item, participants had four response options: "Not at all," "Not more than usual," "Rather more than usual," and "Much more than usual." Responses were scored using a binary procedure: 'Not at all' and 'Not more than usual' were coded as '0'; 'Rather more than usual' and 'Much more than usual' were coded as '1'. Any score above 4 indicated the presence of distress.

In **Table 3**, we have summarized the details of the measures used in the research studies, including the descriptive statistics (mean, standard deviation) and Cronbach's alpha values of the three empirical research studies to provide an overall picture of the data.

Table 3 Descriptive statistics, Cronbach's alpha(s), and number of items in each scale/subscale

Measurements	**TMMS**	**BFI**	**MASC**	**BDI-II**	**GHQ**
ERP I					
	Attention	Neuroticism	Anxiety	Depression	
M(SD)	22.79(6.98)	2.8 (0.68)	42.13(15.08)	8.97(8.39)	
α	0.90	0.77	0.88	0.90	
Items	8	8	39	21	
	Clarity				
M(SD)	24.88(7.25)				
α	0.92				
Items	8				
ERP II					
	Attention				Anxiety
M(SD)	22.26(6.01)				3.87(2.08)
α	0.88				0.75
Items	8				7
	Clarity				Depression
M(SD)	28(6.23)				0.90(1.50)
α	0.90				0.87
Items	8				7
ERP III					
	Attention		Anxiety	Depression	
M(SD)	23(7.0)		42.3(14.9)	9(8.2)	
α	0.90		0.88	0.90	
Items	8		39	21	
	Clarity				
M(SD)	24.8(7.3)				
α	0.92				
Items	8				

Note: ERP: empirical research paper. M(SD) = mean (standard deviation).

α = Cronbach's alpha. Items = number of items in each scale/subscale.

Analysis of the data

As a first step, we analyzed the data using tests of the assumptions of multiple linear regression analysis. We proceeded with regression-based moderation analysis after confirming that the data met the assumptions of normality, linearity, and multicollinearity. Moderation analysis was performed using PROCESS version 3.5 (Model 2) (Hayes, 2013). As recommended by Hayes (2013), we also assessed statistically significant interaction effects by plotting the simple regression lines for low (16th) and high (84th) values of the moderating variables (attention to emotion and emotional clarity). All statistical analyzes were performed using IBM Statistics Package for Social Science (SPSS), version 27. Statistical significance of results was set at the alpha level of 0.05. We used G*Power 3.1 (Faul et al., 2009) to calculate the required sample size for the regression analysis. The smallest sample size required was 236 for 80% power (alpha = 0.05) to achieve effect sizes of 0.04 (Cohen's f^2), which is between small ($f^2 \geq 0.02$) and medium ($f^2 \geq 0.15$) effect sizes (Cohen, 1988).

EMPIRICAL RESEARCH PAPERS

Empirical research study – I

Neuroticism is an unhealthy personality trait that is expressed, for example, in how someone deals with worry (e.g., difficulty calming and soothing oneself due to high arousal) (Shiner & Caspi, 2003). The literature on the relationship between neuroticism and internalizing psychopathology suggests that highly neurotic youth are more likely to develop clinical depression and anxiety at some point in their lives or later in adulthood (Aldinger et al., 2014; Griffith et al., 2010). Thus, it is important to understand whether the ability to perceive and understand emotional states can buffer the effects of neuroticism on anxiety and depression.

Emotional self-awareness has been studied in different contexts using different approaches and assessment instruments (Resurrección et al., 2014). Moreover, there is evidence that the combination of high attention and low clarity seems to be associated with higher psychopathological symptomatology (Boden & Thompson, 2017). With this in mind, we examined individual differences in the profile of attention to emotion and emotional clarity.

From this perspective, we aimed to examine the moderating effects of attention to emotion and emotional clarity on the relationship between neuroticism and internalizing psychopathology. More specifically, we analyzed these two moderators in the relationship between neuroticism and depression, controlling for age, gender, socioeconomic status, and anxiety (due to the high comorbidity between depression and

anxiety). Later, we performed the same analysis for anxiety, but this time we controlled for depression in addition to the same demographic variables.

The participants in this first study were 244 adolescents aged 12 to 18 years with an average age of 14.6 (*SD* = 1.7) years from Catalonia, Spain. Participants completed self-report questionnaires on the personality traits neuroticism, attention to emotion, emotional clarity, anxiety, and depression during their school years.

According to the results of Pearson correlation analysis, each variable had a statistically significant correlation with every other variable, ranging from low to moderate. In addition, the Pearson correlation results were in the expected direction. Previous studies have also found a positive relationship between attention to emotion and internalizing psychopathology.

Regarding the moderating effects of attention to emotion and emotional clarity, our study revealed the following results: For anxiety, there was no statistically significant moderating effect. However, for depression, we found that emotional clarity alone moderated the relationship between neuroticism and depression, but attention to emotion did not. Because emotional clarity significantly moderated this relationship, we further evaluated the results for the combined effects of attention to emotion and emotional clarity. The results showed that the combination of low attention and high clarity was the most favorable condition, as the significant and positive relationship between neuroticism and depression was attenuated or partially disappeared.

We also found the highest coefficient value for depression for the combination of high attention and low clarity. Less strong coefficient values for the combination of low attention and low clarity and the combination of high attention and high clarity. The only nonsignificant moderating effect was found when attention was low and clarity was high.

We considered this combination to be the most favorable condition. These results are also shown in **Table 4**.

Table 4 Moderating effects on neuroticism and depression in adolescents

Moderators	Coefficients	*p*	95 % CI
High EA - low EC	5.90	$p < .001$	[3.51, 8.30]
Low EA - low EC	4.18	$p < .001$	[1.84, 6.52]
High EA - high EC	2.39	$p = .031$	[0.22, 4.57]
Low EA - high EC	2.39	$p = .031$	[0.22, 4.57]

Note: N = 244. EA = attention to emotion EC = emotional clarity.

Regression coefficients (b), p-values (p), and 95% confidence intervals (95% CIs).

High = individuals who were at or above the 84th percentile.

Low = individuals who were at or below the 16th percentile.

Control variables: Age, gender, socioeconomic status, anxiety.

These two different results on anxiety and depression underline the arousal factor. It appears to be a key factor in why the relationship between neuroticism and depression differs from the relationship between neuroticism and anxiety. It is important that the results be interpreted in terms of higher levels of arousal in the relationship between neuroticism and anxiety (Deckert et al., 2020). In this context, it is advisable to differentiate the types of anxiety symptoms, as it is a broad spectrum that may be particularly important when considering individual differences in meta-mood knowledge as a general protective factor (for social anxiety, see, e.g., Ballespí et al., 2021).

There are some limitations that should be noted. First, this is a cross-sectional study, so our results cannot establish a cause-and-effect relationship. Second, these preliminary results need to be replicated in a longitudinal study to establish a causal relationship and to test whether there are mediating effects. Finally, the results are limited to the adolescent population. Future studies with other participant demographics or other developmental stages could help generalize these findings to the broader population, as neuroticism peaks in adolescence.

Despite these limitations, the current study is the first to show from this perspective how meta-mood knowledge moderates between a risk factor and psychopathological symptoms. Our findings suggest that thought needs to be given to how attention to emotion and emotional clarity functions, or when and how it leads to increased risk for emotion regulation and internalizing problems. In the case of depression, comprehensive screening for emotional imbalances (or inconsistent emotional profiles) could help reduce associated difficulties, whereas in the area of anxiety, further research is needed.

In summary, there is a robust relationship between neuroticism and internalizing psychopathology. We have extended this knowledge by showing that emotional clarity significantly attenuates the relationship between neuroticism and depression, but not in the case of anxiety. Moreover, in depression, the combination of low attention and high clarity could be interpreted as a positive meta-mood experience. However, we also found that attention to the emotion dimension negatively affects emotion processing. At a given low level of emotional clarity, attention to emotion seems to be particularly maladaptive. This raises the question of how this affects early therapeutic interventions aimed at developing adaptive coping strategies.

Empirical research study – II

The epidemiological literature on the comorbidity of anxiety and anxiety-related disorders with depression points to the high prevalence rate estimated by the World Health Organization (Bandelow & Michaelis, 2015; Charlson et al., 2019). Most importantly, both impact intrapersonal (i.e., hope, shame) and interpersonal (i.e., social connectedness, quality of social relationships) functioning (Cowden et al., 2021). Previous studies have considered some of the moderating factors such as daily rumination in the relationship between anxiety and depression (e.g., Starr & Davila, 2012). However, the moderating role of attention to emotion and emotional clarity has not been examined in this context. Where improved emotional self-awareness is needed to develop adaptive coping strategies.

Despite previous findings on the dimensions of meta-mood knowledge (i.e., attention to emotion and emotional clarity), it was not clear how, for example, (1) might the combination of low attention and high clarity be associated with depression? - Would this combination have a buffering effect? (2) How is the combination of high attention and high clarity associated with depression? It is likely that attention to emotion and emotional clarity function differently in adolescents than in adults. This is in large part because the processing of emotions is more mature in adults than in adolescents, for whom the harmful effects of the attention to emotion dimension may be different, namely less harmful.

The participants in this second study consisted of 256 individuals. The age of the participants ranged from 32 to 66 years (M = 46.21, SD = 5.53; 82.03% women) from Catalonia, Spain. Participants completed questionnaires on attention to emotion,

emotional clarity, anxiety, and depression. We measured participants' socioeconomic status (SES) using the Hollingshead Four Factor Index (Socioeconomic Status): 8.98% had high SES, 11.32% had medium-high SES, 18.35% had medium SES, 26.95% had medium-low SES, 12.89% had low SES, and 21.48% had 'not applicable' or unknown SES.

According to the results of Pearson correlation analysis, there was no statistically significant correlation between the variables attention to emotion and depression. Other correlation results were in the expected direction. Emotional clarity was negatively correlated with anxiety and depression.

We found that both dimensions moderated the relationship between anxiety and depression, but only emotional clarity showed a buffering effect on this relationship. Moreover, the results showed that the statistically significant relationship between anxiety and depression disappeared when attention was at a low level and clarity was at a high level. Not surprisingly, the results regarding the combination of high attention and low clarity appeared to be more strongly associated with increased risk for co-occurrence of anxiety and depression in adolescents and adults.

We also found that the highest coefficient value for depression is for the combination of high attention and low clarity. Less strong coefficient values for the combination of low attention and low clarity and the combination of high attention and high clarity. The coefficient values for the balanced combinations were found to be complex, making it difficult to differentiate their effect. The only nonsignificant moderating effect was found when attention was low and clarity was high. We considered this combination to be the most favorable condition. These results are presented in **Table 5**.

Table 5 Moderating effects on anxiety and depression in adults

Moderators	Coefficients	*p*	95 % CI
High EA - low EC	0.54	$p < .001$	[0.37, 0.71]
Low EA - low EC	0.32	$p < .001$	[0.18, 0.46]
High EA - high EC	0.32	$p < .001$	[0.18, 0.46]
Low EA - high EC	0.10	$p = .121$	[-0.03, 0.23]

Note: N = 255. EA = attention to emotion EC = emotional clarity.

Regression coefficients (b), p-values (p), and 95% confidence intervals (95% CIs).

High = individuals who were at or above the 84th percentile.

Low = individuals who were at or below the 16th percentile.

Control variables: Gender

The results of the second empirical research study allow us to compare and extend the results of the first empirical research study. For example, comparing the results of the two studies, the balanced profiles are less pronounced in the second study. That is, in the first study, the results showed that high levels of both can lead to a better emotional state than low levels of both. This may be due to different age groups or may be seen as a result of psychopathological conditions specific to anxiety and depression.

It is important to note that this is a cross-sectional study, so our results cannot establish a cause-and-effect relationship. Future research could therefore replicate these results with other study designs (e.g., longitudinal). In addition, a sample from the clinical population could validate and extend our results to some extent. Despite these limitations, the results of the second empirical study support the positive value of assessing and evaluating the moderating role of meta-mood knowledge from this

perspective as helpful and informative. The results underscore the importance of individual differences in emotional self-perception that may influence comorbidity risk between anxiety and depression.

Empirical research study – III

Based on the literature and our previous findings, there is evidence that a multidimensional approach to attention to emotion and emotional clarity is helpful in understanding the increased risk for symptoms of anxiety and anxiety-comorbid depression. It seems more likely that the combination of high attention and low clarity indicates a negative emotional imbalance associated with emotion regulation and increased psychopathological symptoms. While other combinations indicate lower risk to some degree. To confirm this view, we examined the role of these moderators in the relationship between anxiety and depression using a sample of adolescents.

It is noteworthy that the co-occurrence of anxiety and depression is considered common in both clinical and nonclinical settings and that anxiety usually precedes depression (Essau, 2008). Furthermore, our motivation to focus on a sample of adolescents was primarily due to the fact that adolescence is an important period for emotional development: it is characterized by high emotional intensity and is associated with a high prevalence of anxiety and depressive symptoms (Bailen et al., 2019). From a developmental psychopathology perspective, an advanced understanding of emotional metacognition in this context could help prevent more severe consequences in adulthood. Adolescence is also a period for the development of more complex and abstract metacognitive skills (Brizio et al., 2015).

Participants in the current study were 258 adolescents aged 12 to 18 years (M = 14.62, SD = 1.71, 54.5% girls) from Catalonia, Spain. Participants completed self-report questionnaires on attention to emotion, emotional clarity, anxiety, and depression.

We found that both dimensions significantly moderated the relationship between anxiety and depression in a sample of adolescents, but only emotional clarity showed a buffering effect on this relationship. In addition, the results of the four different combinations of low and high scores per dimension were presented in **Table 6**.

Table 6 Moderating effects on anxiety and depression in adolescents

Moderators	Coefficients	p	95 % CI
High EA - low EC	0.36	$p < .001$	[0.26, 0.46]
Low EA - low EC	0.18	$p < .001$	[0.09, 0.28]
High EA - high EC	0.18	$p = .001$	[0.08, 0.29]
Low EA - high EC	0.00	$p = .929$	[-0.00, 0.10]

Note: N = 258. EA = attention to emotion EC = emotional clarity.

Regression coefficients (b), p-values (p), and 95% confidence intervals (95% CIs).

High = individuals who were at or above the 84th percentile.

Low = individuals who were at or below the 16th percentile.

Control variables: Age, gender, socioeconomic status, anxiety.

The results showed that the combination of low attention and high clarity was the most favorable condition, as there was no statistically significant relationship between anxiety and depression. The results showed the highest coefficient value for depression in the combination of high attention and low clarity. The less strong coefficient values

for the combination of low attention and low clarity and the combination of high attention and high clarity. Similar to the results for the adult sample, the coefficient values for the balanced combinations proved to be complex and difficult to differentiate in their effect. The only nonsignificant moderating effect was found when attention was at a low level and clarity was at a high level. We considered this combination to be the most favorable condition.

In conclusion, the results of the third empirical study support the moderating role of attention to emotion and emotional clarity on anxiety and anxiety-comorbid depression in a sample of adolescents. Specifically, our results highlight the buffering effect of emotional clarity. As in the study with adult participants, the combination of low attention and high clarity was the most favorable combination, whereas the combination of high attention and low clarity was the least favorable combination. These results indeed suggest negative and positive meta-mood experiences, which may therefore help in naming unique emotional difficulties. This may also suggest new directions and avenues for researchers and clinicians to raise awareness of this multidimensional approach, as it appears to have significant potential to mitigate risk factors associated with internalizing psychopathology.

CRITICAL APPRAISAL

Learning from the empirical research studies

The aim of the empirical research studies was to investigate the role of meta-mood knowledge and to understand how its development can be improved to prevent

internalizing psychopathology. We used the most relevant questionnaires that did not cover the assessment of some other temperament factors. Certainly, the use of other methodological aspects would also help to improve our understanding of this topic to a greater extent. For example, assessing stress/agitation or arousal levels at specific times prior to assessing symptoms. In other words, considering stress in daily life using experimental study designs (Rhee et al., 2020). In particular, the stability of neuroticism and meta-mood knowledge is another controversial topic in the literature. We coded neuroticism and dimensions of meta-mood knowledge as dispositional traits, whereas anxiety and depression were coded as states measured and assessed in the immediately preceding days. We recommend that future research pay particular attention to the factors underlying the trait construct and contextual variation, as this may shed new light on the stability of neuroticism and emotional self-awareness or meta-mood knowledge.

DISCUSSION

The overall aim was to examine the moderating role of attention to emotion and emotional clarity of meta-mood knowledge from a multidimensional perspective focusing on internalizing psychopathology in a sample of adolescents and adults.

In our initial empirical research study, only emotional clarity buffered the relationship between neuroticism and depression. Moreover, we found that despite all other combinations of attention and clarity (i.e., high attention and high clarity; low attention and high clarity; low attention and low clarity), the combination of low attention and high clarity was not associated with increased neuroticism and depression. Importantly, we interpreted this combination of low attention and high clarity as an indicator of psychological resilience, as there was no association between neuroticism and depression.

We found no statistically significant moderating effects of attention to emotion and emotional clarity in the case of neuroticism and anxiety. This may suggest that emotional clarity is influenced by the intensity of negative emotions and arousal. This result is partially consistent with the literature. For example, buffering effects of emotion-related cognitive abilities on stress have been reported in certain cases (e.g., acute stress), with mixed results regarding physiological stress responses (e.g., heart rate) (Lea et al., 2019). It seems particularly important to measure the source and nature of emotional

clarity when assessing anxiety (Boden & Berenbaum, 2011). This might explain why the results differ in the case of neuroticism and anxiety.

In the second and third empirical work, we found that both attention to emotion and emotional clarity moderated the relationship between anxiety and depression, but only emotional clarity buffered this relationship between anxiety and depression. The combination of high attention and low clarity was more harmful than all other combinations of attention and clarity (i.e., high attention and high clarity; low attention and high clarity; low attention and low clarity).

From the perspective of negative and positive emotional imbalance; in fact, there is evidence of positive emotional imbalance (i.e., low attention and high clarity), as there was no statistically significant relationship between neuroticism and depression and between anxiety and depression. And negative emotional imbalance (i.e., high attention and low clarity), suggesting increased risk for psychopathological disorders (Boden & Thompson, 2017; Davis & Nichols, 2016).

Crucially, the results of empirical research studies support the positive value of emotional clarity on levels of depression (Balluerka et al., 2013; Blöte & Westenberg, 2019) and healthy coping (Eckland & Berenbaum, 2021). Moreover, the results of the studies with adolescents and adults may actually suggest that the patterns of associations of attention to emotion and emotional clarity related to anxiety and depression follow similar patterns in these two different age groups.

Theoretical implications

The attention to emotion and emotional clarity dimensions of meta-mood knowledge are complementary and their moderating role should be carefully considered. By applying the multidimensional approach to these two dimensions, we contribute to the literature on impairments related to the perception of emotions and their association with symptoms of depression and anxiety. The importance of a multidimensional approach to emotional self-awareness in the context of psychopathology has been discussed previously and includes several subdimensions of this meta-skill (see Luyten et al., 2020).

Specifically, we recorded four different combinations, the most salient of which has been described in the literature as emotion types of overwhelmed individuals (e.g., Gohm, 2003) and negative emotional states (i.e., the combination of high attention and low clarity) (Boden & Thompson, 2017). Thus, our findings are meaningful and contribute to the literature on meta-mood knowledge by highlighting emotional states that may be associated with increased risk for internalizing psychopathology.

In general, our results primarily support the positive value of emotional clarity for depression severity and reduced risk of comorbidity (i.e., anxiety and depression). In particular, interpreting the results in relation to previous research studies, we agree that emotional clarity is more "knowledge-based" and thus plays an essential role in mental organization (Sugarman, 2006), emotion regulation (Gross & John, 2003), and mental health (Ciarrochi et al., 2002). Moreover, we emphasize that it cannot be fully elucidated when and how emotional clarity is effective and protective independently of the attentional dimension.

In the second and third empirical work, the effect of *high attention and high clarity* was almost equal to that of *low attention and low clarity*. This also means that the balanced emotional profiles were more homogeneous with respect to the co-occurrence of anxiety and depression. The question arises whether, when assessing subjective well-being (e.g., happiness) in the absence of internalizing symptoms, the combination of high attention and high clarity is associated with better psychological resilience than the combination of low attention and high clarity. Thus, we are not yet convinced that emotional states with high attention and high clarity are generalizable as positive or negative (balanced) emotional states. There is a lack of evidence in the literature on this topic, which opens new avenues for further investigation.

Moreover, emotional states of high attention and low clarity might indicate involuntary types of attention to emotion than voluntary ones. Presumably, involuntary attention to emotion is specific to negative emotions and arousal, leading to reflexive responses to emotional stimuli and intolerance of emotional distress (Benfer et al., 2017). This may also partially explain how emotional self-awareness (i.e., attention to emotion and emotional clarity) is related to automatic and/or less self-aware emotion processing (Ballespí et al., 2019; Fiori, 2009). Further research on the moderating role of attention to emotion and emotional clarity in relation to the arousal factor will certainly help to clarify this issue.

Implications for intervention and clinical work

Our findings have the potential to demonstrate implications for intervention initiatives and clinical work by highlighting the importance of emotional clarity as an indicator of good psychological self-knowledge. This is consistent with a large body of research that tailors interventions to promote emotional clarity (Freeman, 2016; Hawkes, 2011; Hayden et al., 2018; Liotti & Gilbert, 2011).

Also, those of interventions that serve psychoeducation as part of therapeutic sessions in which they teach psychological and emotional vocabulary. In addition, we believe that these unique positive and negative emotional imbalances can be helpful when addressed through meta-interventions (e.g., mentalization-based treatments) to support mental health and well-being in general. With the positive value of moving from negative emotional imbalance to positive emotional imbalance.

The combination of low attention and high clarity may indicate that the person has developed adaptive coping strategies that, in this context, are indicative of beneficial rather than harmful emotional states. In this sense, it may be helpful to recognize this unique combination at the level of subclinical symptoms to prevent a later clinical diagnosis. We should make the public aware of their own individual personality differences, for example, by assessing their tendency to pay attention to emotional states along with their ability to clearly distinguish their own emotions.

As another example, the combination of high attention and low clarity may indicate that the person is at increased risk for co-occurring anxiety and depression. This could indicate the need to develop adaptive coping strategies. It is important to note that problems related to emotional self-regulation often do not fully describe emotional

difficulties. This is consistent with theories of emotion regulation associated with maladaptive coping strategies and behaviors such as ruminative thinking patterns or impulsive behaviors (Gross & Jazaieri, 2014). In this sense, the combination of high attention and low clarity may be useful in illuminating issues that focus on the balance between the "thinking mind" and the "working mind."

Clinically, the combination of high attention and low clarity has been shown to be statistically significantly associated with mood regulation and increased internalizing symptoms such as worry, sadness, depression, and somatic complaints. Further exploration of this negative emotional imbalance in relation to attachment styles and affect regulation could help address other mental health issues. From the perspective of emotion regulation, the study of personality disorders (e.g., borderline personality disorder) and neurological disorders (e.g., attention deficit and hyperactivity) could lead to a better understanding in this area.

Although there seems to be consensus on the findings that individuals with high attention and low clarity (or overwhelmed individuals) are dealing with excessive (or more than necessary) attention to (negative) emotions and are unable to clarify their own feelings. More research is needed to support the positive value of meta-mood knowledge; training for professionals (e.g., teachers, health care workers) that could promote better social interactions and psychological resilience, and thus positive mental health.

Table 7 The four different combinations and internalizing psychopathology

Combination	Definition	Example
High EA - low EC	High attention to emotions followed by low emotional clarity	Individuals may feel overwhelmed by the intensity of negative emotions
Low EA - low EC	Low attention to emotions followed by low emotional clarity	Individuals may be unwilling to notice and process emotions; they tend to focus their attention on negative emotions
High EA - high EC	High attention to emotions followed by high emotional clarity	Individuals may reason well, but in relation to negative emotions
Low EA - high EC	Low attention to emotions followed by high emotional clarity	Individuals may use this as a strategy to avoid being overwhelmed by their emotions

Note: EA = attention to emotion EC = emotional clarity.

High = individuals who were at or above the 84th percentile.

Low = individuals who were at or below the 16th percentile.

In practice, the use of specific mediation techniques (e.g., Zen meditation) in combination with yoga classes (or mindful movement) in the classroom has shown promise in reducing anxiety and increasing well-being (Boehnke & Harris, 2021). The practice of Zen meditation specifically involves "thinking about not thinking" (Pagnoni et al., 2008). Through the practice of Zen mediation (using adaptive techniques such as diaphragmatic breathing), individuals could achieve self-regulation in which they control

their involuntary attention by refocusing on the breath, which is in part a process of transitioning to voluntary self-regulation. However, there is no empirical research evidence to inform which type of mediation works for whom. Therefore, it seems imperative that future studies look for negative and positive emotional imbalances associated with psychopathological conditions and examine what type of meditation techniques or mindful movements work best for emotionally overwhelmed individuals (i.e., individuals with high attention and low clarity).

Limitations and future directions

First, the data we used are based on a cross-sectional design and self-assessment questionnaires. This may suggest that future research should consider replicating our findings with a longitudinal design and incorporating other assessment tools for anxiety and depression, such as semistructured interviews. Although our results are based on a self-report questionnaire, they are still useful and informative and appropriate for this application and, in particular, for assessing emotional self-perception from this perspective. Second, in our second empirical research study, we used a sample from an adult population, namely the parents of the adolescents. And in our first and second empirical studies, we used the corresponding sample of adolescents. Thus, we strongly recommend replicating our results with other samples to increase the validity and reliability of our findings, considering individuals with different demographic backgrounds and with clinical diagnoses or other life-limiting conditions.

CONCLUSION

The results of the three empirical studies offer new insights into the existing literature on awareness of one's emotions, when and how they are associated with increased risk for internalizing psychopathology. We specifically contribute to the literature by demonstrating the moderating role of the attention to emotion and emotional clarity dimensions of meta-mood knowledge, focusing on internalizing psychopathology. With our results, we highlight that excessive attention to emotions, especially in the absence of emotional clarity, tends to indicate the need for an adaptive coping strategy to internalize less and mentalize more. In this sense, the combination of low attention and high clarity seems to be beneficial in most cases, except for neuroticism and anxiety. With regard to depressive symptomatology and the co-occurrence of anxiety and depression, this positive imbalance could help promote "salutogenesis," which is associated with psychological resilience, positive mental health, and greater well-being. Finally, we hope to convey the message that attention to emotion is a necessary cognitive input, but one that should be evaluated with caution because of its deleterious effect on internalizing psychopathology, despite the positive value of emotional clarity for the relationship between neuroticism and depression and between anxiety and depression. We also hope that our findings will suggest new directions and avenues for future research as well as for public health workers and clinicians.

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APPENDICES

APPENDIX 1. JOURNAL ARTICLE

Empirical research study – III

Yildirim, D., Vives, J., & Ballespí, S. (2022). Why do I feel what I feel? Examining individual differences in meta-mood knowledge as a moderator of the relationship between anxiety and depression in adolescents. *Personality and Individual Differences*, 187(July 2021). https://doi.org/10.1016/j.paid.2021.111407

Abstract

The aim of this study is to analyze whether dimensions of meta-mood knowledge (i.e., attention to emotion and emotional clarity) moderate the relationship between anxiety and depression. A sample of 258 adolescents aged 12 to 18 years (M = 14.6, SD = 1.7, 54.5% girls) was examined to investigate the moderating role of attention to emotion and emotional clarity on the relationship between anxiety and depression. A regression-based moderation analysis controlling for age, gender, and socioeconomic status was conducted. The results showed that attention to emotion and emotional clarity moderated the relationship between anxiety and depression. Moreover, the positive relationship between anxiety and depression was statistically significant in all cases (i.e., high attention and low clarity: b = 0.362, p < .001, low attention and low clarity: b = 0.184, p < .001; high attention and high clarity: b = 0.183, p = .001), with one exception (i.e., low attention and high clarity: b = 0.004, p = .929). This study highlights the importance of

understanding individual differences in attention to emotion and emotional clarity in order to benefit more from treatments and prevention programs that incorporate emotional self-awareness as an active component.

Keywords: Anxiety, depression, meta-mood knowledge, emotional awareness, attention to emotion, emotional clarity

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Why do I feel what I feel? Examining individual differences in meta-mood knowledge as a moderator of the relationship between anxiety and depression in adolescents

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ABSTRACT

The aim of this study is to analyze whether dimensions of meta-mood knowledge (i.e., attention to emotion and emotional clarity) moderate the relationship between anxiety and depression. A sample of 250 adolescents aged 12 to 18 years ($M = 14.6$, $SD = 1.7$, 54.5% girls) was examined to investigate the moderating role of attention to emotion and emotional clarity on the relationship between anxiety and depression. A regression-based moderation analysis controlling for age, gender, and socioeconomic status was conducted. The results showed that attention to emotion and emotional clarity moderated the relationship between anxiety and depression. Moreover, the positive relationship between anxiety and depression was statistically significant in all cases (i.e., high attention and low clarity: $b = 0.362$, $p < .001$, low attention and low clarity: $b = 0.104$, $p < .001$; high attention and high clarity: $b = 0.183$, $p = .001$), with one exception (i.e., low attention and high clarity: $b = 0.004$, $p = .929$). This study highlights the importance of understanding individual differences in attention to emotion and emotional clarity in order to benefit more from treatments and prevention programs that incorporate emotional self-awareness as an active component.

1. Introduction

Anxiety and depression are the most common internalizing psychopathologies in the general and clinical population, both in their clinical and subclinical forms. The global prevalence of anxiety and depression in children and adolescents is estimated at 6.5% for anxiety and 2.6% for depression (Polanczyk et al., 2015). A recent meta-analysis estimated the pooled prevalence of anxiety to be 19.1% (19 studies) and the pooled prevalence of depression to be 14.3% (36 studies) in young people with a life-limiting condition (mean age: 15.4 years) (Barker et al., 2019). Furthermore, co-occurrence of anxious and depressive symptoms is one of the most common examples of comorbidity (Costello et al., 2003; Essau, 2003). In a sample of adolescents, the comorbidity of anxiety and depression was estimated to be 72% and 62% in outpatient and clinical settings, respectively, with the presence of anxiety preceding depression (Essau, 2008).

A study of emotion regulation showed that only the subclinical anxious-depressed group had unique problems with emotion regulation (i.e., nonacceptance of emotional reactions and difficulties with impulse control) (Shukla & Pandey, 2021). Although adolescence is a critical time for mental health and specific mental disorders peak at age 14.5 (Solmi et al., 2021), comorbid anxiety and depressive symptoms in children and adolescents receive less attention than in adults and are understudied in the nonclinical population (Melton et al., 2016). In addition, emotion regulation skills are still developing in adolescence, which may increase vulnerability to emotional difficulties related to anxiety and depression in adolescents (Young et al., 2019).

Importantly, anxiety associated with depression is often more difficult to treat and requires better, more specialized treatments (Frank et al., 2020). Early interventions at this developmental stage, when symptoms are at subclinical levels and/or before clinical disorders emerge, can help improve adolescent mental health by providing opportunities to understand risk factors associated with anxiety and depression (Garber & Weersing, 2010). Thus, understanding moderating factors such as knowledge of meta-moods is critical in this context. And any effort to improve emotion regulation strategies in adolescents could

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APPENDIX 2. JOURNAL ARTICLE

Empirical research study – II

Yildirim, D., Vives, J., & Ballespí, S. (2022). Anxiety and Depression: The Moderating Effects of Attention to Emotion and Emotional Clarity. *Psychological Reports*. https://doi.org/10.1177/00332941211070764

Abstract

Anxiety and depression are the most common mental health problems. They often occur together and significantly affect well-being and daily functioning. However, it is unclear to what extent the two dimensions of meta-mood knowledge play a role in their comorbidity. Therefore, the aim of the current study was to examine the role of attention to emotion and emotional clarity in the relationship between anxiety and depression. A sample of 256 adults aged 32 to 66 years (M = 46.21, SD = 5.53; 82.03% women) completed questionnaires on anxiety, depression, and meta-mood knowledge. Results showed that emotional clarity buffered the relationship between anxiety and depression. In addition, all combinations of attention to emotion and emotional clarity showed a significant and positive relationship with anxiety and depression symptom severity, with one exception. Interestingly, there was no statistically significant relationship between anxiety and depression when attention to emotion was low and emotional clarity was high. This last condition was interpreted as beneficial rather than detrimental, which in turn could help promote psychological resilience to better cope with emotional

difficulties. Given these findings, this study highlights the role of attention to emotion and emotional clarity in assessing anxiety and risk of comorbid depression.

Keywords: Anxiety, depression, comorbidity, attention to emotion, emotional clarity, emotionally overwhelmed.

Original Research Article

Anxiety and Depression: The Moderating Effects of Attention to Emotion and Emotional Clarity

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Abstract

Anxiety and depression are the most common mental health problems. They often occur together and significantly affect well-being and daily functioning. However, it is unclear to what extent the two dimensions of meta-mood knowledge play a role in their comorbidity. Therefore, the aim of the current study was to examine the role of attention to emotion and emotional clarity in the relationship between anxiety and depression. A sample of 256 adults aged 32–66 years (M = 46.21, SD = 5.53; 82.03% women) completed questionnaires on anxiety, depression, and meta-mood knowledge. Results showed that emotional clarity buffered the relationship between anxiety and depression. In addition, all combinations of attention to emotion and emotional clarity showed a significant and positive relationship with anxiety and depression symptom severity, with one exception. Interestingly, there was no statistically significant relationship between anxiety and depression when attention to emotion was low and

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APPENDIX 3. JOURNAL ARTICLE

Empirical research study – I

Yildirim, D., Vives, J., & Ballespí, S. (2022). Meta-mood knowledge moderates the relationship between neuroticism and depression but not between neuroticism and anxiety in a sample of nonclinical adolescents. *Current Psychology* (In press).

Abstract

Research shows a strong link between neuroticism and internalizing psychopathology, such as depression and anxiety. However, it is unclear to what extent meta-mood knowledge (i.e., attention to emotion and emotional clarity) plays a role as a moderator in this relationship. To investigate this, we collected data on meta-mood knowledge, personality traits, depression, and anxiety in a sample of adolescents (N = 244; 53.7% girls) aged 12 to 18 years (M = 14.6, SD = 1.7) from Catalonia, Spain. Regarding the relationship between neuroticism and depression, results showed that emotional clarity buffered this relationship. Although attention to emotion did not, the joint moderating effect of attention to emotion and emotional clarity was significant. The results on the four different combinations of attention to emotion and emotional clarity showed that the relationship between neuroticism and depression was strongest for high attention and low clarity, less strong for low attention and low clarity, and even lower for high attention and high clarity. And importantly, these similar patterns of association disappeared at low attention and high clarity. In contrast to the relationship between neuroticism and depression, we found no statistically significant moderating effects for the relationship

between neuroticism and anxiety. Based on these results, we argue the importance of examining individual differences in emotion-based cognition and understanding when the benefits of emotional clarity are associated with fewer disadvantages of excessive attention. These results provide preliminary evidence that the combination of low attention and high clarity may be an adaptive version of emotional self-awareness in relation to neuroticism and depression.

Keywords: Emotional self-awareness, Neuroticism, Depression, Anxiety, Adolescence.

APPENDIX 4. CONFERENCE ABSTRACT

Empirical research study – I

Yildirim, D., Vives, J., & Ballespí, S. (2021, July 18-23). *Does EI moderate the relationship between neuroticism and internalizing problems?* [Oral presentation]. 32nd International Congress of Psychology (ICP 2020+), Prague, Czech Republic. https://abstracts.icp2020.endevel.eu/abstracts/d4688179-90ed-48c0-995e-2f5cfac23b97/

Abstract

Many studies have shown that there is a strong relationship between neuroticism and internalizing problems such as depression and anxiety. Therefore, it is important to understand the moderating role of emotional intelligence (EI) by assessing emotional awareness (i.e., attention to emotions) and emotional clarity (i.e., understanding of emotions) in this relationship. This is because higher levels of emotional attention and emotional clarity may buffer the effects of neuroticism on depression and anxiety. 244 adolescents (12-18 years old, M = 14.6, SD = 1.7, 52.5% girls) in Catalonia, Spain, completed self-report questionnaires on personality, EI, depression, and anxiety. Results showed that when scores for emotional attention and emotional clarity were high, neuroticism was associated with less depression. However, there was no significant moderating effect on anxiety, which could be due to a high emotional arousal factor. We concluded that adolescents with high neuroticism may benefit from improved attention

and understanding of emotions to cope with depression, but that more research is needed for anxiety.

Keywords: Emotional intelligence, neuroticism, adolescence

APPENDIX 5. CONFERENCE ABSTRACT

Yildirim, D., Vives, J., & Ballespí, S. (2021, July 18-23). *When emotional intelligence meets mentalizing: emotional imbalances predict mental health* [E-poster presentation]. 32nd International Congress of Psychology (ICP 2020+), Prague, Czech Republic. https://abstracts.icp2020.endevel.eu/abstracts/2da1e9b5-6cc3-417e-a304-ca5310cc2006/

Abstract

The ability to understand one's own and others' mental states or emotions is presented in the literature as a necessary tool for social interaction and mental health. However, how attention to emotions can weaken mental health when understanding of emotions is lacking has not been specifically explored in this context. Therefore, the aim of the present study was to shed light on the multiple interaction effects of emotional attention and emotional clarity in mental health assessment. The data in this cross-sectional study consisted of participants aged 12 to 19 years. Linear regression analyses were conducted to test whether the interactions between emotional attention and emotional clarity predict adolescent mental health. Mental health was assessed from a transdiagnostic perspective using a series of personality and psychopathology questionnaires. Secure attachment was found to be associated with an imbalance between emotional attention and emotional clarity, whereas balance or a combination of high scores was associated with greater resilience. In addition, we found that high emotional attention without emotional clarity predicted low self-esteem, less positive thinking about self and others, higher levels of neuroticism, internalising psychopathology (depression, anxiety, social anxiety, somatic

complaints), and risk for borderline personality traits. We further discuss this imbalance in relation to mentalizing failure and suggest ways to restore it through metainterventions aimed at establishing emotional balance.

Keywords: mentalizing, emotional intelligence, mental health

APPENDIX 6. CONFERENCE ABSTRACT

Empirical research study – III

Yildirim, D., Vives, J., & Ballespí, S. (2022, June 4-7). *Individual differences in the experience of meta-mood and internalizing psychopathology* [E-poster presentation]. 30th European Congress of Psychiatry, Budapest, Hungary.

Abstract

Emotional competencies such as attention to emotion and emotional clarity have been extensively studied in the literature. Depending on the context, their role shows different patterns of association with emotion regulation and psychopathological states. In the current study, we aim to understand when and how attention to emotion and emotional clarity are related to the co-occurrence of anxiety and depression. Data were collected on attention to emotion, emotional clarity, anxiety, and depression. A sample of 258 adolescents aged 12 to 18 years (M = 14.6, SD = 1.7, 54.5% girls) was examined to investigate the moderating role of attention to emotion and emotional clarity on the relationship between anxiety and depression after controlling for age, gender, and socioeconomic status. Results showed that high levels of attention to emotion and low levels of emotional clarity were associated with increased risk for anxiety and depression. Balanced levels of attention to emotion and emotional clarity were also associated with increased risk for anxiety and depression. However, low levels of attention to emotion and high levels of emotional clarity showed no statistically significant association with the occurrence of anxiety and depression. Overall, this positive imbalance of low

attention to emotion and high emotional clarity appears to be the most favorable emotional states for coping with internalizing problems, suggesting less harmful effects of attention to emotion.

APPENDIX 7. CONFERENCE ABSTRACT

Empirical research study – II & Empirical research study – III

Yildirim, D., Vives, J., & Ballespí, S. (2022, July 5-8). *Individual Differences in Knowledge of Meta-Moods: Anxiety and Depression* [Oral presentation]. 17th European Congress of Psychology, Ljubljana, Slovenia.

Abstract

Although anxiety and depression and their comorbidity have been extensively researched, little is known about the role of meta-mood knowledge in the relationship between anxiety and depression. The aim of the present work was to examine the extent to which individual differences in attention to emotion and emotional clarity play a role in this relationship. We collected data on anxiety, depression, attention to emotion, and emotional clarity in a sample of adolescents and adults. The first study included 258 adolescents aged 12 to 18 years (M = 14.6, SD = 1.7, 54.5% girls). The second study consisted of 256 adults aged 32 to 66 years (M = 46.21, SD = 5.53; 82.03% women). In both studies, a regression-based moderation analysis was conducted to analyze the moderating role of meta-mood knowledge on the relationship between anxiety and depression. In both a sample of adolescents and adults, we found the strongest relationship between anxiety and depression when high attention and low clarity were combined. Interestingly, there was no statistically significant relationship between anxiety and depression when low attention and high clarity were combined. Moreover, this positive relationship between anxiety and depression persisted and remained positive

when low attention and low clarity were combined and when high attention and high clarity were combined. The present work highlights the importance of understanding individual differences in knowledge about meta-moods, with a focus on attention to emotion and emotional clarity. In terms of knowledge of meta-moods, the combination of high attention and low clarity was found to be detrimental, as it was associated with an increased risk of co-occurring anxiety and depression. An encouraging finding was that individuals with a combination of low attention and high clarity may have developed psychological resilience that contributes to the maintenance of positive mental health.

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VITAE [ABSTRACT]

The author studied BSc in Psychology in Istanbul (Turkey) and MSc in Clinical and Child Psychology in Cambridge (England). She then started a PhD in Clinical and Health Psychology in Barcelona (Spain). During the first semester of her PhD, she took courses on Philosophy of Mind at the Faculty of Philosophy in Salzburg (Austria) to deepen her knowledge on topics such as mentalization, Theory of Mind, emotional intelligence and social cognition. In February 2020, she moved to Barcelona, where she authored three publications for peer-reviewed journals. She also prepared oral and poster presentations for international conferences organized by the International Congress of Psychology, the European Congress of Psychology, and the European Psychiatric Association. She is an active member of the American Psychological Association (APA), the European Psychiatric Association (EPA), and the International Society for the Study of Individual Differences (ISSID). Her research interests include the study of emotional self-perception based on principles of psychology, philosophy, and neuropsychology. This metafaculty is inherently complex and dynamic because of the interactions between the person and the environment, which opens up a wide range of questions related to mental disorders.

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