Pathways to Depressive Symptoms in a Digital Environment: The Role of Trait Affectivity and Mediation of Media Response Styles in Adolescence

Nausikaä Brimmel [1] · Patricia Bijttebier[2] · Steven Eggermont[1]

Abstract

Trait negative affectivity and trait extraversion/positive affectivity are predictive of both responses to affect and depressive symptoms in adolescence. Furthermore, differences in the use of responses to affect are associated with different levels of depressive symptoms. Despite the central role of media content in adolescents' daily lives, responses to affect have not yet been extended to affect in this media content. It is thus unclear whether trait affectivity is predictive of responses to affective media content, and whether such media response styles are predictive of depressive symptoms. A 3-wave longitudinal panel study with 3-month intervals among 318 adolescents ($M_{age} = 16.5$ years, $SD_{age} = 1.11$, 72.5% boys) investigated the mediating role of media response styles in associations between trait affectivity and depressive symptoms. Trait negative affectivity predicted media rumination and media dampening, yet only media rumination predicted greater levels of depressive symptoms over time. Trait positive affectivity was associated with concurrent media distraction and media-enhancing. The media response styles did not mediate the associations between trait affectivity and depressive symptoms over time. These findings suggest that individuals higher in trait negative affectivity tend to engage in maladaptive emotion regulation strategies during sad media content consumption, whereas adolescents higher in trait positive affectivity turn to more adaptive strategies during sad or happy media content consumption. Yet, media response styles are not robustly associated with depressive symptoms over time.

Keywords Adolescence · Depressive symptoms · Media response styles · Trait affectivity · Response styles

Introduction

Adolescence is a period characterized by emotional maturation and a heightened vulnerability to developing depressive symptoms (Hankin et al., 1998). Throughout this developmental stage in their lives, adolescents spend a considerable amount of time with media content, which has attracted much scholarly attention and concern regarding their emotional well-being. Media content is constantly available and this content, which one may intentionally select or be unintentionally exposed to during one's media use, can either be of an uplifting and positive nature, or be sad and contain negative emotions. Depending on adolescents' responses to the emotional nature of the media content, their media use may relate to a greater or lower well-being over time. The use of certain responses to affect has, in itself, been associated with greater or lesser levels of depressive symptoms (Li et al., 2017). Research has instigated the mapping out of dispositional characteristics that may play a protective or harmful role in adolescents' media use, yet so far little is known about the role of responses to emotional media content in the association with well-being. Along with responses to affect as risk factors for developing a greater or lesser well-being, literature has shown that trait affectivity relates differently to well-being and can be a risk factor for both developing depressive symptoms (Mezulis et al., 2011; Verstraeten et al., 2009) and the use maladaptive response styles (Compas et al., 2014; Gentzler et al.,

✉ Nausikaä Brimmel
nausikaa.brimmel@kuleuven.be

1 School for Mass Communication Research, Faculty of Social Sciences, KU Leuven, Leuven, Belgium

2 School Psychology & Development in Context, Faculty of Psychology and Educational Sciences, KU Leuven, Leuven, Belgium

2013). While research literature has attempted to map out the relationship between trait affectivity and depressive symptoms, with the role of response styles as (potential) mediators (Mezulis et al., 2011), little is known about this process in a digital environment. In what follows, the role of trait affectivity in the vulnerability to depressive symptoms and the use of certain (mal)adaptive responses to affective states will be introduced. Additionally, a theoretical framework for the potential role of responses to affect in both traditional and social media content will be provided. This study will examine the potential mediating role of response styles to affective media content (i.e., media response styles) in the association between trait negative affectivity and trait extraversion/positive affectivity, and depressive symptoms in adolescence.

Trait Affectivity as a Dispositional Risk Factor for Developing Depressive Symptoms in Adolescence

As the affective dimensions of temperament, trait negative affectivity and trait extraversion/positive affectivity have been shown to relate differently to depressive symptoms over time (Anthony et al., 2002). Higher levels of trait negative affectivity are associated with more depressive symptoms in both adults and adolescents, whereas only low levels of trait positive affectivity are predictive of more depressive symptoms in adolescents (Mezulis et al., 2011; Verstraeten et al., 2009).

Trait negative affectivity entails a greater tendency to experience negative emotions such as fear, sadness, discomfort, or frustration (Mezulis et al., 2011). Additionally, individuals tend to show more fearful and hostile behavior and tend to be more nervous (Anthony et al., 2002). As the emotional sub-component of trait negative affectivity, sadness refers to one's tendency to experience a lowered mood, disappointment, or unpleasant affect (Evans & Rothbart, 2007). Trait positive affectivity entails greater sociability, extraversion, positive affect, and a liking for seeking out novel situations. Furthermore, individuals higher in trait positive affectivity are more alert, excited, and joyful; they moreover tend to be more active and show socially enthusiastic behavior (Anthony et al., 2002). As the emotional sub-component of trait positive affectivity, positive affect refers to the intensity and frequency in which one experiences pleasure or positive affect.

Trait Affectivity as a Predictor of (Mal)Adaptive Response Styles

Trait affectivity has been shown to be a risk factor for the development of depressive symptoms in adolescence, the trait negative affect and trait positive affect components of temperament furthermore relate differently to responses to affect and affective states. The relationships between trait affectivity and depressive symptoms may be mediated by cognitive variables, such as responses to affect (Compas et al., 2014). Response styles to affect are strategic responses to existing affective states and individuals differ in their use of response styles (Nolen-Hoeksema, 1991). The differences in the use of response styles are associated with differences in levels of depressive symptoms between individuals (Feldman et al., 2008; Nolen-Hoeksema, 1991). Response styles can entail a downregulation of positive emotions (i.e., dampening), an upregulation of positive emotions (i.e., enhancing), an upregulation of negative emotions (i.e., ruminative brooding), or a downregulation of negative emotions (i.e., distraction).

Studies have put forward trait negative affectivity as a risk factor for the development of maladaptive response styles such as worry and ruminative brooding. Greater levels of depressive symptoms have been found in adolescents higher in trait negative affectivity through the use of ruminative brooding (Mezulis et al., 2011). Furthermore, sadness as a component of negative affectivity has been shown to distinctly relate to rumination and a depressed mood as individuals ruminate on causes of sadness and on the feeling of sadness itself (Peled & Moretti, 2010). In regard to responses to positive affect, trait negative affectivity has been shown to predict the use of dampening in prospective analyses (Gentzler et al., 2013; Nelis et al., 2016). This dampening response has been found to predict greater concurrent and prospective levels of depressive symptoms (Raes et al., 2012).

When looking at the role of trait positive affectivity in predicting the use of particular response styles to affect, only low levels of trait positive affectivity have been shown to predict lower prospective use of enhancing, but trait positive affectivity was not associated with a dampening response style (Nelis et al., 2016). An enhancing response style has been negatively associated with depressive symptoms and may even be protective against depressive symptoms (Li et al., 2017). While research on the association between trait positive affectivity and a distractive response style is scarce, a moderately strong correlation between extraversion and the use of a distractive response style to negative emotions has been found (Bagby & Parker, 2001). Looking further, study results on associations between distraction and depressive symptoms have been mixed. Cross-sectional research results have indicated lower levels of depressive symptoms in individuals who engage in distraction (Abela et al., 2004), yet longitudinal results do not seem to consistently corroborate these results (Rood et al., 2009).

When looking at these responses to affect and affective states, so far no studies have studied whether the response styles may be context-specific, nor have they been extended

to a digital environment. However, media content can provide or portray different emotions and emotional events. For instance, films or series may portray predominantly uplifting or positive events, or the reverse, they can portray sad and negative events. Similarly, social media content can be positive/uplifting, or the content can be sad/negative. Studying the responses to affective media content may help to understand the processes that occur specifically during adolescents' media use.

Media Response Styles as Individual Differences

The media response styles may explain why positive or negative media content use predicts higher or lower levels of depressive symptoms in some individuals and not in others. Similar to the response styles to affect, the media response styles can be adaptive or maladaptive processing styles of happy or sad emotions in media content and may explain why the same affective media content is associated with different levels of depressive symptoms. A conceptualization of the media response styles was developed in earlier studies (Brimmel et al., 2022). The response styles to affective media content that were developed in earlier studies are fourfold. In regard to responses to sad/negative media content, the downregulation of this media content is referred to as media distraction whereas the upregulation of sad media content is referred to as media rumination (referring to the maladaptive component of rumination, i.e., brooding). Adolescents who engage in media rumination may continue to look for other sad media content, or they may want to isolate themselves after being viewing media content that was sad or unhappy. When engaging in media distraction, adolescents may try to learn something from the sad/unhappy media content, or they may, for instance, turn to media content that has made them feel better in the past in order to disengage from the sad media content. When looking at response styles to uplifting/positive media content, one can downregulate this media content by engaging in media dampening, or one can upregulate the media content by engaging in media-enhancing. Adolescents who engage in media dampening may downplay their media use by, for instance, anticipating sad emotions after their media use or feeling undeserving of viewing happy/uplifting media content. A media-enhancing processing style refers to allowing oneself to be fully immersed in the media use or to feel the joy induced by the media content consumption. These media response styles may relate differently to well-being both concurrently and prospectively, in a similar vein as the response styles to affect.

Building on the Differential Susceptibility to Media Effects Model (DSMM) put forward by Valkenburg and Peter (2013), the media response styles may play a mediating role in the relationship between dispositional factors (i.e., trait affectivity) and media effects (i.e., subjective well-being operationalized as one's level of depressive symptoms). The DSMM has attempted to organize media effects research and presents dispositional variables as predictors of media use. Furthermore, it introduces emotional response states as mediating variables in the relationship between media use and media effects. The current study considers trait negative affectivity and trait positive affectivity as dispositional variables and predictors of the media response styles. The media response styles represent the strategies used to respond to emotional media content and predict the level of depressive symptoms. Based on the findings of the above presented literature on trait affectivity and depressive symptoms, a direct relationship exists between trait negative affectivity and trait positive affectivity, and the level of depressive symptoms in adolescents.

Current Study

While research has identified trait negative affectivity as a risk factor for the use of maladaptive responses to affect and the development of depressive symptoms, so far little is known about these associations in a digital environment. Furthermore, trait positive affectivity has been associated with the use of adaptive response styles and less depressive symptoms in adolescents. By extending the response styles to a digital environment, these media response styles may be an individual difference variable that – similar to response styles to affect - could be an explanatory mechanism in the association between trait affectivity and depressive symptoms in adolescence. The current study will aim to fill this lacuna in the literature by first examining the prospective associations between trait affectivity and depressive symptoms in adolescents. It is expected that (Hypothesis 1a) higher levels of trait negative affectivity will be associated with higher levels of depressive symptoms and (Hypothesis 1b) higher levels of trait positive affectivity will be associated with lower levels of depressive symptoms. By examining these hypotheses, the first research question will be answered: Do trait negative affectivity and trait positive affectivity predict the level of depressive symptoms in adolescents?

Secondly, the current study will examine whether the associations between both trait negative affectivity and trait positive affectivity and depressive symptoms are mediated by the media response styles. These associations may occur through the use of maladaptive or adaptive response styles to the emotional valence of media content (Fig. 1). Maladaptive responses to happy/positive or sad/negative media content may predict greater levels of depressive symptoms, while adaptive responses to media content may predict lower levels of depressive symptoms. The second research

Fig. 1 Conceptual model for mediated association between trait negative affectivity, trait positive affectivity, and depressive symptoms. Figure for the conceptual model.
T1 = Time 1, T2 = Time 2, T3 = Time 3
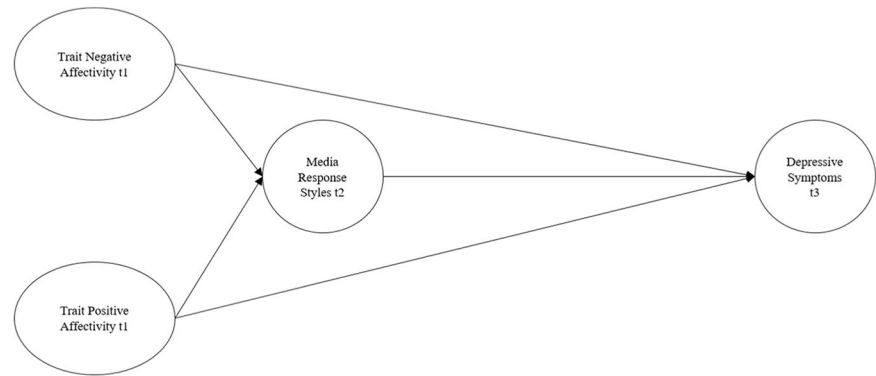
question is thus formulated as follows: Do the media response styles mediate the relationship between trait affectivity and depressive symptoms in adolescents? It is hypothesized that trait negative affectivity predicts the use of a (Hypothesis 2a) ruminative and (Hypothesis 2b) dampening media response style, and trait positive affectivity predicts the use of an (Hypothesis 2c) enhancing and (Hypothesis 2d) distractive media response style. Moreover, it is hypothesized that (Hypothesis 3a) media rumination and (Hypothesis 3b) media dampening will be associated with greater levels of depressive symptoms, and (Hypothesis 3c) media-enhancing and (Hypothesis 3d) media distraction will be associated with lower levels of depressive symptoms. In regard to the mediation of the media response styles, (Hypothesis 4a) media rumination and (Hypothesis 4b) media dampening will mediate the association between trait negative affectivity and depressive symptoms, and (Hypothesis 4c) media-enhancing and (Hypothesis 4d) media distraction will mediate the association between trait positive affectivity and depressive symptoms.

Method

Sample size and sample characteristics are reported, all measures in the study are outlined, the setup of the measurement model is described, the reason for the inclusion or exclusion of items in the analyses is proved, and all significant paths that emerged in the structural equation models are presented.

Participants

For the current study, schools in Flanders—the Dutch speaking part of Belgium—were randomly contacted from a complete list of all schools in Flanders provided by the Flemish government. Principals were first invited to partake in the study by e-mail, and a few weeks later by phone call. The study aimed for the age range of the sample to be between 14 and 18 years old due to the increased incidence

rates of depressive symptoms in this period (Broderick & Korteland, 2004; Hankin et al., 1998), pupils from the second and third grade were asked to participate. Because of the lack of positive responses to the study invitation, which may have been due to the covid-19 measures schools still had to comply to at the start of the study, the researchers approached personal contacts in schools to approach principals. Eventually, 3 schools agreed to participate in the longitudinal data collection. Parents were asked to fill out passive consent forms if they did not wish their child to partake in the study. Pupils were asked to actively consent to participation in the study and could opt out at any point during the study without bearing any consequences. Pupils filled out an online questionnaire or a paper-and-pencil questionnaire in class, depending on the availability of a smartphone. The paper-and-pencil questionnaires were coded by the doctoral student who was the coordinator of the primary study. During the data collection, respondents could ask the attendant, which was either the doctoral student or a master's student in Psychology or Communication Sciences, any questions about the contents of the survey. Afterward, they were able to ask them additional questions or comment on their experiences filling out the survey. The primary study was approved by the Ethical Commission of the University.

The study was a three-wave study with two 3-month follow-up intervals. The study started at the beginning of the school year and ended at the closing of the same school year. 524 pupils participated during the first round of data collection. Responses were removed when they did not pass the attention check, started the survey but did not complete the core questionnaires, or completed less than 30% of the survey, resulting in 375 responses for the first Wave. In this final sample, the age of the participants ranged from 14 to 18 years old ($M_{age} = 16.5$; $SD_{age} = 1.11$). The majority of the respondents identified as boys (72.9%), 1 respondent indicated they did not identify as boy nor girl. 55.6% were pupils in technical studies, 21.1% were pupils in vocational studies, 22.4% were pupils in academic studies, and 0.9% were students in creative studies. 15.5% of the respondents

were in the third grade (9th Grade in the U.S. education system), another 16.5% were in the fourth grade, 44.4% were in the fifth grade, and a final 23.6% was in the sixth grade. At the 3-month follow-up assessment, several students changed schools or were in quarantine or isolation as a result of Covid19 during the period of the data collection. This resulted in 362 pupils who participated during the second Wave, of whom 75.5% participated for the second time. During the third Wave of the data collection, 3 months later, 318 pupils filled out the questionnaire, of whom 66.4% participated for the third time.

Measures

Depressive symptoms

The *Center for Epidemiologic Studies Depression Scale* (CES-D, Radloff, 1977; Zhang et al., 2011) is a 20-item questionnaire measuring depressive symptoms in adolescents. Four subscales measure: somatic symptoms of depression (7 items), depressive affect (7 items), positive affect (4 items), and interpersonal issues (2 items). Participants rate the extent to which they have experienced emotions or thoughts during the past two weeks on a 4-point Likert scale (*1 = rarely or none of the time; 4 = most or all of the time*). Examples of items are 'I did not feel like eating; my appetite was poor (somatic symptoms)', 'I thought my life had been a failure (depressive affect)', 'I felt hopeful about the future (positive affect)', and 'people were unfriendly (interpersonal issues)'. The current study used the affective subscale of the CES-D, i.e., depressive affect. McDonald's Omega showed good reliability of the scale at T1 ($\omega = 0.90$), T2 ($\omega = 0.89$), and T2 ($\omega = 0.90$).

Trait negative affect and positive affect

The *Adult Temperament Questionnaire-Short Form* (ATQ-short; Rothbart et al., 2000) is a 77-item questionnaire measuring adult temperament. Participants rate the extent to which a statement describes them on a 7-point Likert scale (*1 = extremely untrue; 7 = extremely true*). The present study used the Sadness (7 items) subscale to represent trait negative affectivity (NA). Trait positive affectivity (PA) was represented by Positive Affect (5 items) scale. Examples of items for Sadness are 'When I hear of an unhappy event, I immediately feel sad' and 'Sometimes minor events cause me to feel intense sadness'. Examples of items for Positive Affect are 'Sometimes minor events cause me to feel intense happiness' and 'It doesn't take much to evoke a happy response in me'. Previous research has similarly employed these subscales to represent trait negative affectivity and trait positive affectivity among adolescents (Vasey et al., 2013). The reliability of the scales as used in the study was good for NA at T1 ($\omega = 0.86$) and adequate for PA at T1 ($\omega = 0.73$).

Media dampening and media enhancing

The *Media Response Styles to Positive Affect Scale for Adolescents* (MRSQ-A-PAM, Brimmel et al., 2022) measures responses to positive affective media content in adolescence. The questionnaire consists of 3 subscales and 13 items. Participants are asked to rate the extent to which each statement describes their reactions to positive media content: '*When you are watching a happy film/series or when you see happy posts on social media, how often do you…*'. They are then asked to rate the extent to which each item describes their reactions to positive media content on a 4-point Likert scale (*1 = almost never; 4 = always*). Examples of items are 'You think you don't deserve to use (social) media (media dampening)', 'You think back to happy or funny moments in your own life (emotion-focused media-enhancing)', and 'You think 'I can achieve whatever the person in/(on) (social) media achieves (self-focused media-enhancing)'. The present study will use the media dampening subscale (7 items) and the emotion-focused media-enhancing subscale (4 items). The reliability was adequate for media dampening at T1 ($\omega = 0.78$) and T2 ($\omega = 0.83$), and for media-enhancing at T1 ($\omega = 0.71$) and T2 ($\omega = 0.77$).

Media rumination and media distraction

The *Media Response Styles to Negative Affect Scale for Adolescents* (MRSQ-A-NAM, Brimmel et al., 2022) measures responses to negative affective media content in adolescence. The questionnaire consists of 2 subscales and 15 items. Participants are asked to rate the extent to which each statement describes their reactions to sad media content: '*When you are watching sad film/series or when you see sad posts on social media, how often do you…*'. They are then asked to rate the extent to which each item describes their reactions to the sad media content on a 4-point Likert scale (*1 = almost never; 4 = always*). Examples of items are 'You ask yourself why (social) media content can make you feel so sad (media rumination)' and 'You look for positive things in the sad events in/on the (social) media (media distraction)'. The media rumination subscale (8 items) and the media distraction subscale (7 items). The reliability was good for media rumination at T1 ($\omega = 0.84$) and T2 ($\omega = 0.86$), and for media distraction at T1 ($\omega = 0.87$) and T2 ($\omega = 0.87$).

Control variables

The control variable included in the analyses is the participants' gender (1 = male; 2 = female).

Data Analysis and Procedure

The current study used data from three time points, which were spread over a seven-month period with at least three months between each assessment time. In order to test the hypotheses, a structural equation model (SEM) was set up. More specifically, two models were set up with one model implementing the media response styles to positive affective media content as a mediator of the relationship between trait affectivity and depressive symptoms, and one model implementing the media response styles to negative affective media content as a mediator. At T1, depressive symptoms, the respective media response styles, NA and PA were set up as predictors of depressive symptoms at T2. Additionally, at T1, media response styles, NA and PA were set up as predictors of the media response styles at T2. NA and PA at T1, the media response styles at T2 and depressive symptoms at T2 were set up as predictors of depressive symptoms at T3. After examining correlations with age and gender, gender was controlled for at each of the time points for depressive symptoms.

In regard to missing data, Mplus showed 73 missing data patterns. In order to treat the missing data, WLSMV estimation was used whereby missing data is treated through pairwise deletion. Additionally, the WLSMV estimator is a robust estimator that does not assume normal distribution of the variables and is specifically designed for ordinal data (Cheng-Hsien, 2015). Little's MCAR test was conducted as a formal test of randomness of missing values for both predictor and outcome variables, and was not significant, therefore supporting random patterns of missing data ($\chi^2(5058) = 5126.84$, $p = 0.25$). Zero-order correlations, means, and standard deviations were calculated in SPSS.

Results

Zero-Order Correlations

Zero-order correlations are presented in Table 1. At T1, depressive symptoms showed strong and positive correlations with NA (T1), media dampening (T1 & T2), and media rumination (T1 & T2). Small positive correlations could be observed with media distraction (T1 & T2). A similar pattern could be observed for depressive symptoms at T2, in addition to a small negative correlation with PA (T1). At T3, the correlations were similar to T1 and T2, yet no significant correlation was observed with PA (T1) and a small, negative correlation with media-enhancing (T1) emerged. Trait negative affect (T1) showed moderately strong positive correlations with media dampening (T1 & T2) and media rumination (T1 & T2). Small positive correlations were observed with media distraction (T1 & T2). PA showed a

relatively small correlation with media enhancing (T1 & T2) and media distraction (T1 & T2). Both depressive symptoms and media response styles showed stable over time with strong, positive correlations between the time points.

Measurement Model

A confirmatory factor analysis (CFA; geomin/oblique rotation with WLSMV estimation) was conducted in Mplus to test the adequacy of the measurement model before proceeding with the structural model. Factor loadings were freed and the metric of the factor was set by fixing the factor variance to 1. In order to evaluate the model fit, four cutoff values were used to test the model fit adequacy: the RMSEA, CFI, TLI, and SRMR (Hooper et al., 2007). With regard to these indices, an RMSEA below 0.08 for an adequate fitting model was aimed for (Browne & Cudeck, 1992; RMSEA < 0.05 for a close fitting model and < 0.10 for a marginal fitting model), CFI and TLI values larger than 0.90 for acceptable fit (Bentler & Bonett, 1980; >0.95 for a good fit), and SRMR values between 0.05 and 0.10 for acceptable fit (Hu & Bentler, 1995; SRMR < 0.05 for a good fitting model). All reliability analyses were conducted in SPSS, using McDonald's Omega (Hayes & Coutts, 2020). The measurement model included latent variables for sadness (NA) and positive affect (PA) at T1, the media response styles at T1 and T2, and depressive symptoms at T1, T2, and T3. Items were removed from the full measurement model if they had shown poor loadings on the factors during a confirmatory factor analysis prior to setting up the full measurement model[1]. The measurement model with all latent factors and their indicators showed good model fit and met the common thresholds, $\chi^2(3002) = 3875.99$, $p < 0.001$, RMSEA = 0.02, 90% CI = [0.02/0.03], CFI = 0.95, TLI = 0.94, SRMR = 0.08.

Two SEM models were set up to test the conceptual models after the initial test of the measurement model. The first model included two mediations by the response styles to positive affective media content. A second model included two mediations by the response styles to negative affective media content. The decision to create two separate

---

[1] Items were removed during factor analysis - prior to testing of the full measurement model - if they did not significantly load on their assigned factors. Three items were removed from the Sadness subscale ('I rarely feel sad after saying goodbye to friends or relatives'; 'I seldom become sad when I watch a sad movie', and 'I seldom become sad when I hear of an unhappy event'). For Positive Affect, two items were removed ('I sometimes seem to be unable to feel pleasure from events and activities that I should enjoy' and 'It takes a lot to make me feel truly happy'). All items were reverse worded items and were initially recoded in SPSS. However, as suggested by Windmann (2016), reverse worded items can affect the factor structure and result in poor fitting on the original factor.

Table 1 Zero-order correlations at T1, T2, and T3

|	M	SD	Age	Gender	NA	PA	Media dampening		Media-enhancing		Media rumination		Media distraction		Depressive symptoms	
					T1	T1	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Gender	1.25	0.44	0.20**	-												
NA T1	3.54	1.61	0.04	0.57***	-											
PA T1	4.13	1.35	0.11	0.12	0.12	-										
MDAMP T1	1.69	0.52	-0.03	0.17*	0.51***	-0.12	-									
MDAMP T2	1.63	0.54	0.15*	0.26***	0.48***	-0.06	0.57***	-								
MENH T1	2.37	0.60	-0.05	0.06	0.07	0.38***	-0.04	0.03	-							
MENH T2	2.41	0.66	-0.04	0.20***	0.14	0.25***	0.03	0.13*	0.46***	-						
MRUM T1	1.90	0.63	-0.04	0.40***	0.64***	0.04	0.55***	0.47***	0.16*	0.19*	-					
MRUM T2	1.84	0.63	0.10	0.42***	0.59***	-0.01	0.46***	0.57***	0.05	0.24***	0.63***	-				
MDISTR T1	2.07	0.67	-0.09	0.19*	0.34***	0.26***	0.22**	0.21*	0.45***	0.36***	0.47***	0.25***	-			
MDISTR T2	2.04	0.69	-0.02	0.21***	0.27***	0.21**	0.18*	0.30***	0.38***	0.45***	0.27***	0.53***	0.48***	-		
DS T1	1.94	0.80	0.08	0.56***	0.70***	-0.07	0.60***	0.46***	-0.07	0.10	0.62***	0.52***	0.24***	0.18*	-	
DS T2	1.81	0.76	0.16*	0.54***	0.62***	-0.18*	0.44***	0.55***	-0.13	0.09	0.54***	0.58***	0.17*	0.20***	0.69***	-
DS T3	1.79	0.73	0.10	0.46***	0.57***	-0.10	0.43***	0.47***	-0.16*	0.04	0.46***	0.55***	0.08	0.15**	0.65***	0.74***

Gender: boys are coded as 1; girls are coded as 2

NA Trait negative affect, PA Trait positive affect, MDAMP Media dampening, MENH Media-enhancing, MRUM Media rumination, MDISTR Media distraction, DS Depressive symptoms

For T1: N = 375, for T2: N = 362, for T3: N = 318

*p < 0.05, **p < 0.01, ***p < 0.001

Fig. 2 Structural equation model for response styles to negative affective media content. Structural equation model with standardized path coefficients for the model with response styles to negative affective media content. Bold lines represent positive associations, thin lines represent negative associations. Non-significant associations are not presented for reasons of clarity. T1 = Time 1, T2 = Time 2, T3 = Time 3. *p < 0.05, **p < 0.01, ***p ≤ 0.001
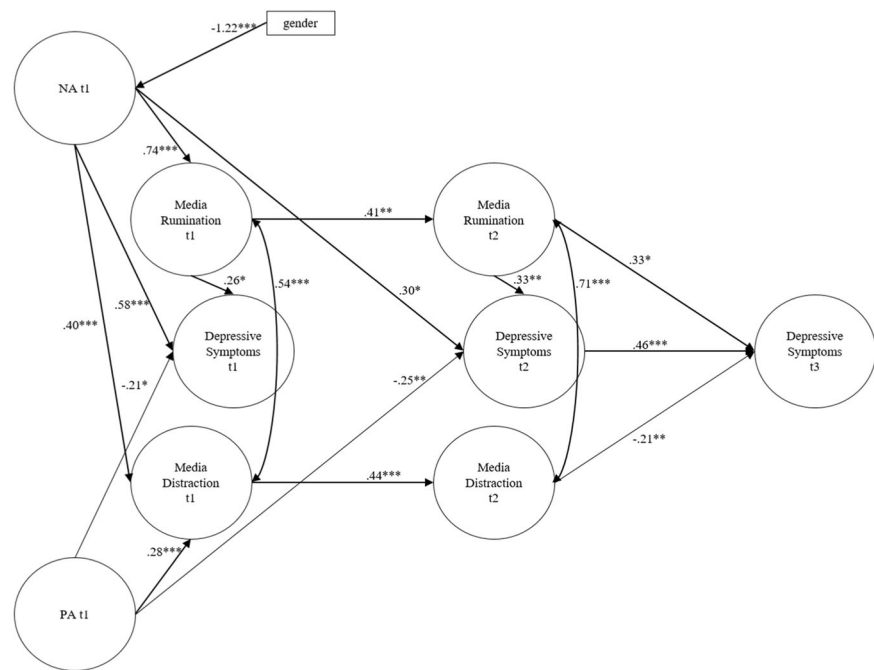
models to test the mediations was made after convergence issues with the full mediation model.

Confirmatory Structural Equation Model for Responses to Negative Affective Media Content

The global fit of the model was borderline acceptable and model fit indicators were close to common thresholds, $\chi^2(1585) = 2338.96$, $p < 0.001$, RMSEA = 0.03, 90% CI = [0.03/0.03], CFI = 0.92, TLI = 0.92, SRMR = 0.11. In order to improve model fit, modification indices provided by Mplus pointed towards a direct association between media rumination at T2 and gender (M.I. = 69.406, E.P.C. = −2.087), as well as an association between NA at T1 and gender (M.I. = 140.425, E.P.C. = 1.524). All paths suggested by the modification indices that could be theoretically supported were separately added to the model and retained if they lead to an improved model fit and did not present convergence issues. A re-specified SEM included these paths.

Re-specified SEM for responses to negative affective media content

The re-specified SEM (Fig. 2) showed good model fit, $\chi^2(1583) = 2116.66$, $p < 0.001$, RMSEA = 0.03, 90% CI = [0.02/0.03], CFI = 0.95, TLI = 0.94, SRMR = 0.08. NA was positively associated with depressive symptoms at T1[2]

---

[2] T1 = Time 1, T2 = Time 2, T3 = Time 3; *p < 0.05, **p < 0.01, ***p ≤ 0.001

($R^2 = 0.75$, $\beta = 0.58^{***}$) and predicted higher levels of depressive symptoms at T2 ($R^2 = 0.70$, $\beta = 0.30^*$) but not at T3 ($R^2 = 0.68$), partially confirming H1a. PA was negatively associated with depressive symptoms at T1 ($\beta = -0.21^{**}$) and predicted lower levels of depressive symptoms at T2 ($\beta = -0.25^{**}$) but not at T3, which partially confirms H1b. Looking further, NA was positively associated with media rumination at T1 ($R^2 = 0.25$, $\beta = 0.74^{***}$), but did not predict media rumination at T2 ($R^2 = 0.28$). Interestingly, NA was positively associated with media distraction at T1 ($R^2 = 0.55$, $\beta = 0.40^{***}$), but not at T2 ($R^2 = 0.47$). This partially confirms H2a as NA is only associated with media rumination in cross-sectional analyses. PA was positively associated with media distraction at T1 ($\beta = 0.28^{***}$) but not at T2, which partially confirms H1d as PA is only associated with media distraction at the same time point. In regard to the hypothesis H3a, media rumination at T1 was positively associated with depressive symptoms at T1 ($\beta = 0.26^*$) and predicted media rumination at T2 ($\beta = 0.41^{**}$). Media rumination at T2 was positively associated with depressive symptoms at T2 ($\beta = 0.33^{**}$) and predicted depressive symptoms at T3 ($\beta = 0.33^{**}$), partially confirming H3a. Media distraction at T1 predicted media distraction at T2 ($\beta = 0.44^{***}$), media distraction at T2 predicted lower levels of depressive symptoms at T3 ($\beta = -0.21^*$), partially confirming H3d. In the SEM, media rumination and media distraction were positively and strongly correlated at both T1 and T2. The mediation hypotheses could not be confirmed, as none of the mediations in the SEM were significant, thus refuting H4a and H4d.

Fig. 3 Structural equation model for response styles to positive affective media content. Structural equation model with standardized path coefficients for the model with response styles to positive affective media content. Bold lines represent positive associations, thin lines represent negative associations. Non-significant associations are not presented for reasons of clarity. T1 = Time 1, T2 = Time 2, T3 = Time 3. *$p < 0.05$, **$p < 0.01$, ***$p \leq 0.001$
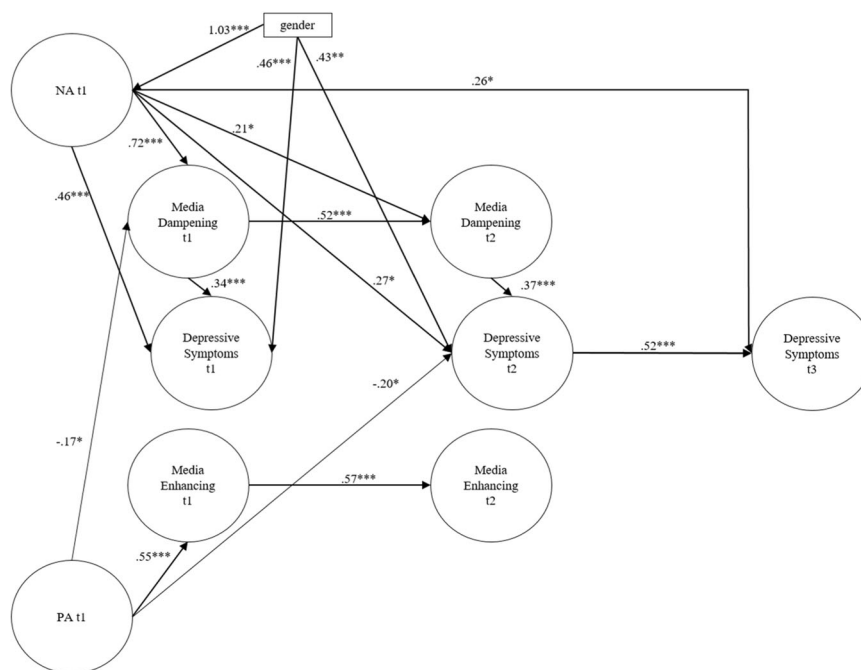
Confirmatory Structural Equation Model for Responses to Positive Affective Media Content

The global fit of the model was acceptable and model fit indicators were close to common thresholds, $\chi^2(1161) = 1773.30$, $p < 0.001$, RMSEA = 0.03, 90% CI = [0.03/0.04], CFI = 0.93, TLI = 0.92, SRMR = 0.11. In order to reach good model fit, modification indices provided by Mplus pointed towards a direct association between NA at T1 and gender (M.I. = 100.473, E.P.C. = 1.105). Similar to the confirmatory structural equation model for responses to negative affective media content, the paths suggested by the modification indices that could be theoretically supported were separately added to the model and retained if they lead to an improved model fit and did not present convergence issues. A re-specified SEM thus included the retained path.

Re-specified SEM for responses to positive affective media content

The re-specified SEM (Fig. 3) showed good model fit, $\chi^2(1583) = 2116.66$, p < 0.001, RMSEA = 0.03, 90%CI = [0.02/0.03], CFI = 0.95, TLI = 0.94, SRMR = 0.08. Similar to the SEM for negative affective media content, NA was positively associated with depressive symptoms at T1 ($R^2 = 0.77$, β = 0.46***) and predicted higher levels of depressive symptoms at T2 ($R^2 = 0.72$, β = 0.27*). However, the SEM for positive affective media content additionally showed that NA predicted higher levels of depressive symptoms at T3 ($R^2 = 0.67$, β = 0.26*). This confirms H1a. It may be that, in the SEM for negative

affective media content, media rumination was a stronger predictor of depressive symptoms at T3 than media dampening in the current SEM, leaving more power for a positive relationship between NA and depressive symptoms at T3 to unfold. PA was not associated with depressive symptoms at T1, but predicted lower levels of depressive symptoms at T2 (β = −0.20*). This finding differs from the SEM for negative affective media content as, in the model, PA was associated with depressive symptoms at T1. Thus, only partial support for H1b was found as PA consistently predicted lower levels of depressive symptoms at T2, but not at T3, and is not consistently associated with depressive symptoms at T1. NA was positively associated with media dampening at T1 ($R^2 = 0.55$, β = 0.72***) and predicted higher levels of media dampening at T2 ($R^2 = 0.48$, β = 0.21*). This confirms H2b. PA was positively associated with media-enhancing at T1 ($R^2 = 0.31$, β = 0.55***), but did not predict higher levels of media-enhancing at T2 ($R^2 = 0.35$), thus refuting H2c. Media dampening at T1 positively predicted media dampening at T2 (β = 0.52***). Media dampening was positively associated with higher levels of depressive symptoms at the same time point (T1: β = 0.34***; T2: β = 0.37***), but did not significantly predict higher levels of depressive symptoms at a subsequent time point. Thus, H3b could not be confirmed. Media-enhancing at T1 predicted media-enhancing at T2 (β = 0.57***). Media-enhancing was not associated with depressive symptoms at any time point and did not predict the level of depressive symptoms, thus refuting H3c. None of the mediation hypotheses could be confirmed thus refuting H4b and H4c.

Table 2 Overview of hypotheses with estimates and significance

Hypothesis	Standardized estimate	Confirmation
H1a: higher levels of trait negative affectivity at T1 predict higher levels of depressive symptoms at T3	0.26*/0.16	Confirmed for SEM with positive affective media content, not confirmed for SEM with negative affective media content
H1b: higher levels of trait positive affectivity at T1 predict lower levels of depressive symptoms at T3	−0.10	Not confirmed
H2a: trait negative affectivity at T1 predicts media rumination at T2	0.27	Not confirmed
H2b: trait negative affectivity at T1 predicts media dampening at T2	0.21*	Confirmed
H2c: trait positive affectivity at T1 predicts media-enhancing at T2	0.02	Not confirmed
H2d: trait positive affectivity at T1 predicts media distraction at T2	0.12	Not confirmed
H3a: Media rumination at T2 predicts greater levels of depressive symptoms at T3	0.33*	Confirmed
H3b: Media dampening at T2 predicts greater levels of depressive symptoms at T3	0.06	Not confirmed
H3c: Media-enhancing at T2 predicts lower levels of depressive symptoms at T3	−0.10	Not confirmed
H3d: Media distraction at T2 predicts lower levels of depressive symptoms at T3	−0.21*	Confirmed
H4a: Media rumination at T2 mediates association between trait negative affectivity at T1 and depressive symptoms at T3	−0.09	Not confirmed
H4b: Media dampening at T2 mediates association between trait negative affectivity at T1 and depressive symptoms at T3	0.01	Not confirmed
H4c: Media-enhancing at T2 mediates association between trait positive affectivity at T1 and depressive symptoms at T3	<−0.01	Not confirmed
H4d: Media distraction at T2 mediates association between trait positive affectivity at T1 and depressive symptoms at T3	−0.03	Not confirmed

$*p < 0.05$, $**p < 0.01$, $***p < 0.001$

Discussion

Trait affectivity has been shown to be a risk factor for developing depressive symptoms in adolescence (Mezulis et al., 2011; Verstraeten et al., 2009). Furthermore, research has shown that trait negative affectivity and trait positive affectivity relate to different responses to affective states, which can be harmful or protective of well-being (Rutter et al., 2020). Specifically, sadness as the emotional component of trait negative affectivity has been shown to be associated with the use of maladaptive responses to sadness (Peled & Moretti, 2010), and trait negative affectivity predicts the use of maladaptive responses to positive affect. Furthermore, trait positive affectivity is associated with adaptive responses to both positive and negative affect. Yet, so far little is known about these processes in a digital environment, despite the constant availability of affective media content in adolescents' lives and the possible role of responses to affective media content in predicting depressive symptoms.

The first aim of the study was to examine the associations between trait negative affectivity and trait positive affectivity, and depressive symptoms. The results (Table 2) partially corroborate earlier findings on trait negative affectivity and depressive symptoms. Trait negative affectivity was associated with greater levels of concurrent depressive symptoms and was predictive of greater levels of depressive symptoms at the follow-up, both three and six months later. However, when media rumination – the maladaptive response to negative affective media content – was included in the confirmatory structural equation model, only media rumination was predictive of higher levels of depressive symptoms over time. As such, the difference between both structural equation models seems to indicate that a ruminative response to sad/unhappy media content may play a stronger role in predicting prospective levels of depressive symptoms than media dampening. However, it may additionally be that media rumination was more predictive of depressive symptoms over time as it was measured more closely in time than trait negative affectivity. Regarding trait positive affectivity and the association with depressive symptoms, the results showed that trait positive affectivity was consistently predictive of lower levels of depressive symptoms three months later, but not six months

later. Additionally, the association between trait positive affectivity and concurrent levels of depressive symptoms was less consistent as only one SEM-model showed a negative association with concurrent levels of depressive symptoms. Based on these findings, it seems that trait negative affectivity and trait positive affectivity are not singularly responsible for increases in depressive symptoms in adolescence.

The second aim of the study was to investigate whether media response styles mediated the association between trait negative affectivity and trait positive affectivity, and depressive symptoms. No evidence for this mediation was found in this study, which was not in line with the expectations. These findings indicate that other mediational processes may be at play in the relationship between trait affectivity and depressive symptoms.

While none of the media response styles mediated the associations between the trait affectivity and depressive symptoms, several direct associations emerged when examining cross-sectional and prospective associations between trait affectivity and the media response styles, and the media response styles and depressive symptoms. First, the study found that trait negative affectivity was positively associated with media dampening, in addition to the positive association with media rumination, while controlling for co-occurring depressive symptoms. This finding is in line with earlier work by Harding and colleagues (2014) who reported positive associations between trait negative affectivity and a dampening response style. In addition, prospective analyses similarly showed that trait negative affectivity predicted higher levels of media dampening (Harding et al., 2014). Looking further, only media rumination was predictive of a lower well-being over time whereas media dampening was only concurrently associated with higher levels of depressive symptoms. Media ruminative brooding – similar to brooding responses to sadness – may amplify this negative affect, which increases the risk for developing depressive symptoms (Hamilton et al., 2017). This suggests that adolescents who engage in maladaptive emotion regulation in response to sad or unhappy media content are at risk for developing greater levels of depressive symptoms (Burwell & Shirk, 2007). An interesting finding of the current study was the positive association between trait negative affectivity and media distraction, which has not been reported extensively in current research literature. As such, while trait negative affectivity shows strong associations with maladaptive emotion regulation in response to affective media content, a moderately strong association exists with the adaptive response of media distraction.

Second, the study found that trait positive affectivity was associated with higher levels of adaptive response styles to media content, i.e., media-enhancing and media distraction. While these results are in line with earlier research (Bagby & Parker, 2001; Hamilton et al., 2017), the study found that trait positive affectivity was not predictive of these adaptive response styles to media content over time. Furthermore, while studies did not find associations between trait positive affectivity and dampening (Hamilton et al., 2017), the results showed that trait positive affectivity was associated with lower concurrent media dampening. In relation to depressive symptoms, only one of the expected negative associations between adaptive media response styles and the level of depressive symptoms was found. While media-enhancing did not predict a decrease in the level of depressive symptoms over time, media distraction was a predictor of this negative association. As such, adolescents who distract themselves from negative affective media content or try to learn something from the sad events occurring in the media content, are at lower risk of developing depressive symptoms over time. This result partially corroborates earlier findings by Abela and colleagues (2004) and Li and colleagues (2017), but goes against the longitudinal findings by Rood and colleagues (2009).

The current study is subject to a few limitations. A first limitation entails the lack of investigation of gender differences in the associations between trait affectivity and depressive symptoms, as well as trait affectivity and the use of media response styles. Research has indicated that boys and girls differ in their responses to affect and the level of depressive symptoms (Gomez-Baya et al., 2017). The current sample did not provide sufficient power to test such gender moderations and lead to convergence issues in both models. Therefore, future studies are recommended to investigate whether these differences are similarly present in a digital environment. An additional limitation in regard to gender is the overrepresentation of boys in the current study sample. This overrepresentation may have led to lower levels of media response styles which are more prevalent among girls than boys, such as (media) rumination (Gomez-Baya et al., 2017). A second limitation of this study is the relatively short duration of the data collection period. Because of practical considerations, the three data collection moments took place in a period of 7 months, which does not allow us to make any claims about the role of media response styles in the development of depressive symptoms throughout adolescence. Third, studies have pointed at bidirectional relationships between response styles to positive affect and depressive symptoms (Gomez-Baya et al., 2017), yet investigating such relationships in a digital environment was beyond the scope of the current study. Future research can examine such bidirectional associations as this might offer clarity in regard to longitudinal associations between response styles to positive affective media content and depressive symptoms. Fourth, the current study used convenience sampling to collect the longitudinal data, which limits the generalization of these results to the larger adolescent population. Lastly, the current study employed only one sub-dimension for trait negative affectivity and one sub-dimension for trait positive affectivity. This decision was made based on research

findings that indicated a strong relationship between maladaptive response styles and sadness, and adaptive response styles and positive affect. Future research could include more dimensions of trait affectivity in order to test the robustness of these findings and the specificity of the relationships with the emotional sub-components of trait affectivity.

Conclusion

While trait negative affectivity and trait positive affectivity have been shown to relate differently to adolescent well-being, and furthermore show different associations with response styles to affect, little is known about these relationships in a digital environment. The current study examined the mediation of different response styles to the emotional valence of media content in the relationship between the trait negative affectivity and trait positive affectivity, and depressive symptoms. Only trait negative affectivity predicted greater levels of depressive symptoms in the model with positive affective media content, whereas trait positive affectivity was only prospectively associated with lower levels of depressive symptoms. No significant indirect relationships were found as neither adaptive nor maladaptive media response styles mediated the associations between trait negative affectivity or trait positive affectivity and depressive symptoms. However, partially in line with the hypotheses, trait negative affectivity predicted the use of media dampening but not media rumination. Yet, only media rumination was predictive of greater levels of depressive symptoms. Trait positive affectivity was associated with the use of adaptive responses to media content, but only media distraction predicted lower levels of depressive symptoms. This study shows that, in adolescence, trait negative affectivity is not always a risk factor for engaging in maladaptive responses to affective media content. Furthermore, not all responses to affective media content can be regarded as equal in relation to depressive symptoms. Media rumination in itself may be a risk factor for developing depressive symptoms over time, whereas media distraction can be protective of well-being as it predicted lower levels of depressive symptoms. Encouraging adolescents to engage with media content that is sad or negative in an adaptive way, and discouraging them to ruminate on this content, may promote long-term emotional well-being.

Compliance with Ethical Standards

Conflict of interest The authors declare no competing interests.

Ethical approval This study was approved by the Ethical Commission of the University (KU Leuven).

Informed consent Parents were provided with an information letter describing the study's intentions and practical guidelines, they filled out passive consent forms if they did not wish their child to partake in the study. Pupils were asked to actively consent to participation in the study and could opt out at any point during the study without this having any consequences.

References

Abela, J. R. Z., Vanderbilt, E., & Rochon, A. (2004). A test of the integration of the response styles and social support theories of depression in third and seventh grade children. *Journal of Social and Clinical Psychology*, 23(5), 653–674. https://doi.org/10.1521/jscp.23.5.653.50752.

Anthony, J. L., Lonigan, J. C., Hooe, E. S., & Phillips, B. M. (2002). An affect-based, hierarchical model of temperament and its relations with internalizing symptomatology. *Journal of Clinical Child & Adolescent Psychology*, 31(4), 480–490. https://doi.org/10.1207/S15374424JCCP3104_7.

Bagby, R. M., & Parker, J. D. A. (2001). Relation of rumination and distraction with neuroticism and extraversion in a sample of patients with major depression. *Cognitive Therapy and Research*, 25(1), 91–102. https://doi.org/10.1023/A:1026430900363.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588–606. https://doi.org/10.1037/0033-2909.88.3.588.

Brimmel, N., Bijttebier, P., & Eggermont, S. (2022). *The Media Response Styles Questionnaires for Adolescents (MRSQ-A) for Positive Affective Media Content (MRSQ-A-PAM) and Negative Affective Media Content (MRSQ-A-NAM): Conceptualization, Construction, and Validation*. [Manuscript submitted for publication]. School for Mass Communication Research, KU Leuven.

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research*, 21(2), 230–258. https://doi.org/10.1177/0049124192021002005.

Burwell, R. A., & Shirk, S. R. (2007). Subtypes of rumination in adolescence: associations between brooding, reflection, depressive symptoms, and coping. *Journal of Clinical Child & Adolescent Psychology*, 36(1), 56–65. https://doi.org/10.1080/15374410709336568.

Compas, B. E., Connor-Smith, J., & Jaser, S. S. (2014). Temperament, stress reactivity, and coping: Implications for depression in childhood and adolescence. *Journal of Clinical Child & Adolescent Psychology*, 33(1), 21–31. https://doi.org/10.1207/S15374424JCCP3301_3.

Evans, D. E., & Rothbart, M. K. (2007). Developing a model for adult temperament. *Journal of Research in Personality*, 41(4), 868–888. https://doi.org/10.1016/j.jrp.2006.11.002.

Feldman, G. C., Joormann, J., & Johnson, S. L. (2008). Responses to positive affect: A self-report measure of rumination and

dampening. *Cognitive Therapy and Research*, 32(4), 507–525. https://doi.org/10.1007/s10608-006-9083-0.

Gentzler, A. L., Ramsey, M. A., Yuen Yi, C., Palmer, C. A., & Morey, J. N. (2013). Young adolescents' emotional and regulatory responses to positive life events: Investigating temperament, attachment, and event characteristics. *The Journal of Positive Psychology*, 9(2), 108–121. https://doi.org/10.1080/17439760.2013.848374.

Gomez-Baya, D., Mendoza, R., Paino, S., & Gillham, J. E. (2017). A two-year longitudinal study of gender differences in responses to positive affect and depressive symptoms during middle adolescence. *Journal of Adolescence*, 56, 11–23. https://doi.org/10.1016/j.adolescence.2017.01.005.

Hamilton, J. L., Burke, T. A., Stange, J. P., Kleiman, E. M., Rubenstein, L. M., Scopelliti, K. A., Abramson, L. Y., & Alloy, L. B. (2017). Trait affect, emotion regulation, and the generation of negative and positive interpersonal events. *Behavior Therapy*, 48(4), 435–447. https://doi.org/10.1016/j.beth.2017.01.006.

Hankin, B. L., Abramson, L. Y., Moffitt, T. E., Silva, P. A., McGee, R., & Angell, K. E. (1998). Development of depression from preadolescence to young adulthood: emerging gender differences in a 10-year longitudinal study. *Journal of abnormal psychology*, 107(1), 128–140. https://doi.org/10.1037//0021-843x.107.1.128.

Harding, K. A., Hudson, M. R., & Mezulis, A. (2014). Cognitive mechanisms linking low trait positive affect to depressive symptoms: A prospective diary study. *Cognition and Emotion*, 28(8), 1502–1511. https://doi.org/10.1080/02699931.2014.889661.

Hayes, A. F., & Coutts, J. J. (2020). Use omega rather than cronbach's alpha for estimating reliability. But. *Communication Methods and Measures*, 14(1), 1–24. https://doi.org/10.1080/19312458.2020.1718629.

Hooper, D., Coughlan, J., & Mullen, M. (2007). Structural equation modeling: guidelines for determining model fit. *The Electronic Journal of Business Research Methods*, 6(1), 53–60.

Hu, L. T. & Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 76–99). Sage Publications, Inc.

Li, Y. I., Starr, L. R., & Hershenberg, R. (2017). Responses to positive affect in daily life: Positive rumination and dampening moderate the association between daily events and depressive symptoms. *Journal of Psychopathology and Behavioral Assessment*, 39(3), 412–425. https://doi.org/10.1007/s10862-017-9593-y.

Mezulis, A., Simonson, J., McCauley, E., & Vander Stoep, A. (2011). The association between temperament and depressive symptoms in adolescence: Brooding and reflection as potential mediators. *Cognition and Emotion*, 25(8), 1460–1470. https://doi.org/10.1080/02699931.2010.543642.

Nelis, S., Bastin, M., Raes, F., Mezulis, A., & Bijttebier, P. (2016). Trait affectivity and response styles to positive affect: Negative affectivity relates to dampening and positive affectivity relates to enhancing. *Personality and Individual Differences*, 96, 148–154. https://doi.org/10.1016/j.paid.2016.02.087.

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, 100(4), 569–582. https://doi.org/10.1037//0021-843x.100.4.569.

Peled, M., & Moretti, M. M. (2010). Ruminating on rumination: are rumination on anger and sadness differentially related to aggression and depressed mood. *Journal of Psychopathology and Behavioral Assessment*, 32, 108–117. https://doi.org/10.1007/s10862-009-9136-2.

Raes, F., Smets, J., Nelis, S., & Schoofs, H. (2012). Dampening of positive affect prospectively predicts depressive symptoms in non-clinical samples. *Cognition & Emotion*, 26(1), 75–82. https://doi.org/10.1080/02699931.2011.555474.

Rood, L., Roelofs, J., Bögels, S. M., Nolen-Hoeksema, S., & Schouten, E. (2009). The influence of emotion-focused rumination and distraction on depressive symptoms in non-clinical youth: A meta-analytic review. *Clinical Psychology Review*, 29(7), 607–616. https://doi.org/10.1016/j.cpr.2009.07.001.

Rothbart, M. K., Ahadi, S. A., & Evans, D. E. (2000). Temperament and personality: Origins and outcomes. *Journal of Personality and Social Psychology*, 78(1), 122–135. https://doi.org/10.1037/0022-3514.78.1.122.

Rutter, T. M., Skalisky, J., Caudle, H., Aldrich, J. T., & Mezulis, A. H. (2020). Brooding concurrently and prospectively links trait positive and negative affect to depressive symptoms. *The Journal of Early Adolescence*, 40(8), 1121–1141. https://doi.org/10.1177/0272431619891249.

Valkenburg, P. M., & Peter, J. (2013). The differential susceptibility to media effects model. *Journal of Communication*, 63(2), 221–243. https://doi.org/10.1111/jcom.12024.

Verstraeten, K., Vasey, M. W., Raes, F., & Bijttebier, P. (2009). Temperament and risk for depressive symptoms in adolescence: Mediation by rumination and moderation by effortful control. *Journal of Abnormal Child Psychology*, 37, 349–361. https://doi.org/10.1007/s10802-008-9293-x.

Nausikaä Brimmel is a doctoral student at the Leuven School of Mass Communication Research, Faculty of Social Sciences at KU Leuven, Leuven, Belgium. Her major interests include the role of (social) media use in emotional well-being in adolescents and adolescent (media) response styles to affect.

Patricia Bijttebier is professor of psychology at the Faculty of Psychology and Educational Sciences at KU Leuven, Belgium. Her major interests include identifying various processes and mechanisms that play a role in the development of internalizing and externalizing behavioral problems in childhood and adolescence.

Steven Eggermont is associate professor in the Leuven School for Mass Communication Research, Faculty of Social Sciences at KU Leuven, Leuven, Belgium. His major interests include the media use of children, adolescents and the elderly, sexual media contents, media use and health behaviors, and the effects of media exposure on attitudes and behaviors.