



**Universiteit Utrecht**

**Examining the Mediating Effect of Emotion Regulation and Emotion  
Crafting Between Parenting Dimensions and Anxiety Symptoms**

**Master Thesis**

Bence Juhász

Student Number 9173838

Clinical Psychology, Department of Social and Behavioural Sciences,

Utrecht University

Under the supervision of Dr. Jolene van der Kaap-Deeder

01.02.2022

## Abstract

Based on previous research showing that parental psychological control and autonomy support influences young adults' anxiety levels through emotion regulation, this research sought to add to this extant research by examining the role of positive emotion seeking in the context of parental dimensions and anxiety levels. Specifically, the present study examined the role of emotion regulation and emotion crafting as mediators between parenting dimensions (i.e., autonomy support, psychological control) and young adults' anxiety. Participants were 149 young adults (82.7% female, 17.3% male) from Hungary (36%), Croatia (19.4%), Greece (12.2%), Germany (9.4%), Denmark (4.3%), Albania (4.3%), the Netherlands (3.6%), Indonesia (1.4%), UK (1.4%), Spain (2.2%), USA (2.2%), Austria (0.7%), Italy (0.7%), Macedonia (0.7%), Switzerland (0.7%), Turkey (0.7%), and were between the ages of 18 and 25 ( $M_{age} = 22.7$ ;  $SD_{age} = 1.6$ ) who filled out an online survey concerning the study variables. Results showed that emotion dysregulation and suppression related to higher levels of anxiety, whereas emotion crafting related to lower levels of anxiety. Further, emotion dysregulation was a significant mediator between psychological control and anxiety, and the action component of emotion crafting significantly mediated the relation between autonomy support and anxiety. Emotion-specific emotion crafting, specifically happiness-, satisfaction-, and love crafting, were found to be significant mediators between autonomy support and young adults' anxiety. Additionally, concerning the relation between psychological control and anxiety, satisfaction- and love crafting were found to be significant mediators. Current findings add to the literature by showing the importance of positive emotion crafting in linking key parenting dimensions to symptoms of anxiety.

**Keywords:** emotion regulation, emotion crafting, autonomy support, psychological control, young adults, anxiety.

Anxiety is a prevalent problem among young adults. To illustrate, between the ages of 20 and 24 years 4.58-6.47% of the global population (Europe, Asia, America, Africa and Middle East, Oceania) was diagnosed with anxiety disorder in 2019 (Global Burden of Disease Study, 2019). In order to be able to lower the number of young adults living with elevated anxiety levels, researchers have to understand the different factors that contribute to the development and maintenance of anxiety symptoms. Numerous studies have shown that individuals' emotion regulation skills are key to understanding symptoms of anxiety (Barlow & Campbell-Sills, 2007; Gotlib, Gross, & Rottenberg, 2005; Mennin et al., 2007). As parents play a key role in facilitating their children's emotion regulation (Cumberland, Eisenberg, & Spinrad, 1998), it is imperative to examine how parenting relates to anxiety in young adults through emotion regulation. Besides emotion regulation, I will also examine the possible mediating role of emotion crafting, where individuals proactively seek positive emotions. Thus, in this thesis, I aim to examine the mediating role of emotion regulation and emotion crafting in the relation from perceived parental autonomy support and parental psychological control to anxiety in young adults.

### **The Relation between Parental Psychological Control and Autonomy Support and Anxiety**

Psychological control is apparent when parents pressure the child to act, feel, or think in a certain way (Barber, 1996) through, for instance, inducing feelings of guilt and shame in the child. Such controlling behavior makes it hard for the child to develop a sense of self, personal efficacy (Barber, 1996), and inhibits the child's development of autonomous functioning (Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010). In contrast, autonomy support refers to parents' fostering of the child's volitional functioning (Silk et al., 2003) by, for instance, considering the child's feelings and needs (Deci & Ryan, 2000), explaining the rationale of activities and promoting initiative taking (Koestner et al., 1984; Joussemet, Koestner, & Landry, 2008).

Many studies have found a significant positive relation between psychological control, from both mothers and fathers (Luebke et al., 2014), and child anxiety (Hudson & Rapee, 2001; Pettit et al., 2001; Greco & Morris, 2002; Siqueland et al., 1996). To illustrate, Inguglia et al. (2015) showed that parental achievement-oriented psychological control (i.e., psychological control focused on the child's academic achievement) related positively to symptoms of anxiety and depression in Italian and U.S. young adults between the ages of 18 and 28.

Although most studies focused on parental psychological control as a source of individuals' anxiety, there are some studies that also examined the role of parental autonomy support. For instance, McLeod et al. (2007) reviewed 47 research papers on parenting and child anxiety, and they found that autonomy-granting was strongly associated with child anxiety, explaining 18% of the variance of anxiety. Vrolijk et al. (2020) have found similar relations, namely young adults with higher parental autonomy support had significantly less internalizing problems such as anxiety, and depressive symptoms.

Some studies also looked at both parental autonomy support and psychological control as predictors of anxiety. For instance, Spence and Rapee (2016) demonstrated that in families characterized by a high level of psychological control and a low level of autonomy support, adolescent' social anxiety symptoms were more prevalent. Although the relation from parental psychological control and autonomy support to child anxiety is well-established, less is known about the mechanisms in these relations.

### **Emotion Regulation as a Mechanism**

According to Thompson (1994, pp. 27-28) emotion regulation refers to “the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals”. To broaden the theory of emotion regulation Self-Determination Theory (SDT), a broad theory on motivation, personality, and socialization, distinguishes between integrative, suppressive, and dysregulated emotion regulation (Roth et al., 2019; Ryan et al., 1995, 2006). Integrative emotion regulation style is an adaptive way of regulating one's own emotions and is characterized by an open attitude towards negative and positive emotions (Ryan et al., 2006), and an active exploration of these emotions in terms of their relevance for short- and long-term goals (Roth et al., 2018). In contrast, suppression, a maladaptive emotion regulation style, is typified by blocking out negative emotions through avoiding and ignoring emotions (Roth et al., 2019). Due to this avoidance, feelings emotions cannot be openly explored, and awareness to emotions is lacking or low, which can cause rumination (Thomsen et al., 2011). Besides emotion suppression, emotion dysregulation is a way of emotion regulation in which emotions are hard to manage, are perceived to be overwhelming and have an impact on functioning (Roth et al., 2019). Emotions are not openly evaluated, and are not brought into awareness fully, therefore behavior cannot be controlled either (Assor & Roth, 2012).

Emotion regulation is a useful concept when trying to understand the progression of mental illness, because it has a serious impact on the development of psychopathology such as depression and anxiety (Barlow & Campbell-Sills, 2007). It can be stated that anxious

children experience more intense emotions than their less anxious peers, and they use maladaptive coping strategies -such as avoidance- to regulate their emotions (Suveg & Zeman, 2004). Aldao's (2010) meta-analytical review, which evaluated mostly cross-sectional studies revealed that emotion dysregulation and emotion suppression were associated with higher anxiety (medium to large effect sizes), and general psychopathology, while emotion integration was associated with lower level of anxiety, and less psychopathology. These findings are in line with a recent meta-analysis of Schäfer et al. (2017), in which they reviewed more than 30 studies on emotion regulation and anxiety in adolescents. According to their meta-analysis, adaptive emotion regulation strategies (acceptance, cognitive reappraisal, and problem solving) were negatively associated with anxiety, and maladaptive emotion regulation strategies (suppression, rumination, avoidance) were positively associated with anxiety symptoms. Kashndan and Breen's (2008) longitudinal study revealed that emotional suppression predicted symptoms of social anxiety, and lower level of positive emotions in 3 months follow-up. Similarly, Schneider et al.'s (2016) longitudinal study revealed that 18 months after the start of the study higher levels of nonacceptance of emotions was associated with higher levels of physical anxiety, and social anxiety in children and young adults. An experimental study of De Witte et al. (2017) taught anxious adolescents how to regulate their emotions in an emotion regulation training combining cognitive reappraisal techniques with negative and positive images, which resulted in significant decrease of state anxiety, specifically larger decrease in anxious adolescents was seen.

Besides the link between emotion regulation and anxiety, studies have also indicated that parental autonomy support and psychological control significantly relate to children's emotion regulation (e.g., REF). That is, in order to be open to, aware of, and curious about one's own emotions (indicative of integrative emotion regulation), it is important to feel volitional and in control of one's own functioning (instead of feelings pressured and controlled), something that is fostered by receiving autonomy support (Roth et al., 2009). Indeed, Brenning et al. (2015) found that perceived maternal autonomy support predicted increases in emotional integration and decreases in suppressive regulation, and emotional dysregulation predicted decreased level of perceived maternal autonomy support. Further, McEwen and Flouri (2009) found that participants with higher level of parental control had higher levels of anxiety, and increased emotion dysregulation mediated between maternal control and anxiety (Inguglia, 2015).

Mc. Ewen and Flouri (2009) investigated the possible mediating role of emotion regulation between adolescents' emotional symptoms and paternal psychological control and

found that paternal psychological control is significantly associated with emotion regulation problems. Moreover, Goger et al. (2020) examined whether maternal psychological control relate to adolescents' emotion regulation. Similarly, they found that young adults high on maternal psychological control experienced higher levels of emotion regulation problems. In conclusion, high levels of psychological control and low levels of autonomy support hinder adolescents' and young adults' adaptive emotion regulation, and may cause internalizing problems such as anxiety.

### **Emotion Crafting as a Mechanism**

The theory of emotion regulation mainly focuses on negative emotion that may cause psychopathology, but it doesn't focus on the importance of positive emotions. According to the broaden-and-build theory (Fredrickson, 1998) positive emotions broaden the repository of possible actions, and thoughts, therefore it can increase well-being. Based on the concept of job crafting, Van der Kaap-Deeder et al. (2021) coined the term *emotion crafting*, which is based on the premise that people actively participate in shaping their emotional experiences (Deci & Ryan, 2000). The construct emotion crafting was inspired by the concept of job crafting, which focuses on employees' active participation in shaping their thoughts, work environment and duties at work to increase their self-job fit, and to prevent burnout (Dutton & Wrzesniewski, 2001). Emotion crafting is defined as "proactive behavior, referring to anticipatory, deliberate and self-initiated behavior, aimed at increasing positive feelings" (Van der Kaap-Deeder et al., 2021). Furthermore, emotion crafting aims to understand the benefit of people's active behavior towards reaching positive emotion goals, and whether it increases well-being, and decreases ill-being. Building on the premise that people actively create their emotions and well-being, Van der Kaap-Deeder et al. (2021) hypothesize that people who use emotion crafting will actively create positive feelings and reduce their negative feelings.

Previous research on savoring (i.e., mindful awareness and appreciation of the positive emotions) shows that savoring beliefs are associated with wellbeing, and decreased mental health issues, such as reduced levels of depression and anxiety (Smith & Bryant, 2017; Smith & Hollinger-Smith, 2015; Hou et al., 2016). Building on the above-mentioned research taking into account young adults' willingness and ability of positive emotion creation in order to reduce negative emotions is a relevant new area of research.

### **Present Research**

Most of the research on emotional development focuses on the lack of adaptive emotion regulation mechanisms in the relation between parenting dimensions and anxiety. There is a gap in the literature regarding the relation between parenting dimensions, positive

emotions and anxiety. Therefore, in this thesis research I focus on both negative emotion regulation and emotion crafting as positive emotion regulation processes.

The overall aim of the present research was to examine the relation from autonomy-supportive and psychologically controlling parenting to young adults' anxiety. Additionally, the possible mediating role of emotion regulation and emotion crafting in these relations were investigated. Based on previous research, I hypothesized that a higher level of autonomy support and a lower level of psychological control were going to be associated with a lower level of anxiety (Hypothesis 1). Second, I expected that both emotion regulation (Hypothesis 2) and emotion crafting (Hypothesis 3) mediated these above relations, although the mediating role of emotion crafting was expected to be the strongest due to the active nature of self-initiated behaviors to upregulate positive emotions. Finally, in an explorative fashion, the mediating role of the seven specific emotions related to emotion crafting between parenting and anxiety was explored (Research question 1).

## **Method**

### **Procedure**

Five students (part of the master thesis) recruited participants through their social network and social media (e.g., Facebook), thereby employing a convenience sampling procedure. Participants were invited to complete an online survey using Qualtrics. We assessed participants' emotion regulation strategies, emotion crafting capabilities, trait anxiety, and experienced maternal autonomy support and maternal psychological control. At the start of the survey, participants could indicate whether they wanted to fill out the items in Hungarian, English, or Dutch. Only four participants filled out the survey in Dutch and these were therefore excluded from the analyses. With regard to the Hungarian survey, the Perceptions of Parents Scale (POPS; Grolnick, Deci, & Ryan, 1997), Psychological Control Scale- Youth Self-Report (Barber, 1996), Emotion Regulation Inventory (ERI; Roth et al., 2009), and Emotion Crafting Scale (Van der Kaap-Deeder et al., 2021) were translated into Hungarian by me, and I used the already available Hungarian translation of the State Trait Anxiety Inventory (Spielberger et al., 1964) by Sipos and Sipos (1983). I first translated the English questionnaires into Hungarian, and to ensure the accuracy of my translations two siblings of mine were asked to back-translate these scales into English. Back-translators were both Hungarian, and had a high level of English proficiency. They both lived abroad and used English daily. After receiving the back-translated version, I compared the back-translated version with the original. Discrepancies between translations were corrected, and were re-evaluated by the translators for a second check. Furthermore, three participants indicated a

basic knowledge of the chosen language and were, therefore, also excluded. Participants who were older than 25 years old ( $n = 54$ ) were excluded from the analysis, because the main aim of the study was to assess young adults's emotion regulation, emotion crafting and anxiety symptoms. Participants who filled out at least 75% of the survey were selected.

This study was approved by the The Faculty Ethics Review Committee (FETC) of Utrecht University. Further, participants were at the start of the survey presented with information about the procedures of this study (e.g., duration of the study, anonymity of the participants) and were informed that they could terminate their participation at any moment and that collected data would be used in theses and possibly in a scientific paper. Data collection was completely anonymous and no ip-addresses were stored. Finally, all participants filled out an informed consent.

### **Participants**

The sample consisted of 149 young adults aged between 18 and 25 years ( $M_{age} = 22.64$ ;  $SD_{age} = 1.57$ ). Of these, 81.2% ( $n = 121$ ) were female, 16.8% ( $n = 25$ ) were male, and 2% ( $n = 3$ ) identified themselves as non-binary, who were excluded from the analyses. Regarding the language of the survey, 67.1% ( $n = 100$ ) of the participants filled out the survey in English, and 32.9% ( $n = 49$ ) filled it out in Hungarian. Participants' educational level was distributed as follows: 50.3% ( $n = 75$ ) held a Bachelor's degree, 34.9% ( $n = 52$ ) held a highschool or equivalent diploma, 8.1% ( $n = 12$ ) held a Master's degree, 3.4% ( $n = 5$ ) completed a trade, technical or vocational training and 3.4% received technical and further education ( $n = 5$ ). Regarding marital status, 55% ( $n = 82$ ) of the participants were single, 26.2% ( $n = 39$ ) were in a relationship but living separately, and 18.8% ( $n = 28$ ) were living together or were married. Further, 45% ( $n = 67$ ) of participants were not working, 30.2% ( $n = 45$ ) worked part-time, 24.8% ( $n = 37$ ) worked fulltime. Finally, most of the participants were students (81.9%;  $n = 122$ ).

### **Instruments**

**Demographic Characteristics.** First, participants provided information related to their demographic characteristics. Specifically, they indicated their age, gender, educational level, educational status, marital status, and employment status.

**Parental Autonomy Support.** The Perceptions of Parents Scale (POPS; Grolnick, Deci, & Ryan, 1997), specifically its Mother Autonomy Support subscale, was used to measure maternal autonomy support. The POPS consists of nine items, for instance "My mother allows me to decide things for myself". Items are rated on a Likert-scale ranging from



1 (*Not at all true*) to 7 (*Very true*). Previous research indicated this scale to have an adequate internal validity (Robbins, 1994). In this study POPS was found to be reliable ( $\alpha = .89$ ).

**Parental Psychological Control.** Psychological Control Scale- Youth Self-Report (Barber, 1996) was used to measure perceived maternal psychological control. The instrument uses a Likert-scale ranging from 1 (*Totally disagree*) to 5 (*Totally agree*) to measure the participants' perception about his or her mother, and the degree of control he or she was subjected to. Psychological Control Scale consists of eight items, for instance "Changes the subject whenever I have something to say" (Barber, 1996). Previous research indicated good internal consistency (Barber, 1996;  $\alpha = .83$ ). This scale was found to be reliable ( $\alpha = .88$ ).

**Emotion Regulation.** The Emotion Regulation Inventory (ERI; Roth et al., 2009) was used to measure participants' emotion regulation strategies. The ERI consists of three subscales, namely dysregulation (6 items; e.g., "Often my negative emotions makes me behave in ways I do not feel good about (agree with). ";  $\alpha = .83$ ), suppressive regulation (6 items; e.g., "I almost always try not to express my emotions ";  $\alpha = .89$ ), integrative regulation subscales (6 items; e.g., "Sometimes, talking about my feelings can be useful";  $\alpha = .79$ ). Items were rated on a 5-point Likert scale ranging from 0 (*Not at all*) to 5 (*Very true*). The total scale was found to be reliable ( $\alpha = .67$ ).

**Emotion Crafting.** The Emotion Crafting Scale (Van der Kaap-Deeder et al., 2021) was used to measure participants' degree of emotion crafting. The general Emotion Crafting Scale consists of twelve items, and measures three dimensions of emotion crafting: action (4 items; e.g., "I consciously choose to spend time with people who I feel good around";  $\alpha = .72$ ), awareness (4 items; e.g., "I know well which activities make me feel good";  $\alpha = .72$ ), and cognition (4 items; e.g., "I deliberately think about things that make me feel good";  $\alpha = .61$ ). Items were rated on a 5-point Likert scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Reliability of the total Emotion Crafting Scale in the current sample was adequate ( $\alpha = .81$ ).

Next to the general Emotion Crafting Scale, participants were shown seven specific positive emotions together with the same items as in the general version, namely joy, interest, contentment, love, enthusiasm, pride, feeling energetic (Fredrickson, 1998). Participants instead of focusing on positive emotions in general, each item was answered with respect to the above mentioned seven positive emotions. The emotion-specific Emotion Crafting Scale consists of 84 items, and displayed adequate reliability with reliabilities ranging between .62 to .82 for active pursuit (4 items for each emotion; e.g., "I consciously choose to spend time with people with whom I feel happy "), between .74 and .86 for awareness (4 items for each

emotion ; e.g., " I know well which activities make me feel happy"), between .71 and .79 for cognitions (4 items for each emotion; e.g., "I deliberately think about things that make me feel happy ").

**Anxiety Symptoms.** State Trait Anxiety Inventory (hereinafter: STAI) (Spielberger et al., 1964) was used to measure trait anxiety. Trait anxiety scales were used, because we wanted to measure the participants' general tendency to feel anxious in order to make the data comparable to the other test results. The hungarian A-Trait scales alpha coefficient of .85 indicates good reliability, and the test-retest correlations were .73 (Sipos & Sipos, 1983). It is a 20 item self report instrument, which is used in clinical and research settings (Sesti, 2000). STAI consists of items that measure different aspects of anxiety such as "I feel nervous and restless" (Spielberger et al., 1964). Items were rated on a 4-point Likert scale ranging from 1 (*Almost never*) to 4 (*Almost always*). This scale was found to be reliable ( $\alpha = .91$ ).

## Results

### Preliminary Analyses

Descriptive statistics and bivariate correlations among the measured variables are reported in Table I and Table 1 (see Appendix). Emotion Crafting Cognition Subscale ( $z_{\text{Skewness}} = -3.23$ ;  $z_{\text{Kurtosis}} = 0.93$ ), Emotion Regulation (Emotion Dysregulation  $z_{\text{Skewness}} = -0.16$ ;  $z_{\text{Kurtosis}} = -1.15$ ; Emotion Suppression  $z_{\text{Skewness}} = -0.03$ ;  $z_{\text{Kurtosis}} = -1.18$ ; Emotion Integration  $z_{\text{Skewness}} = -2.42$ ;  $z_{\text{Kurtosis}} = 0.69$ ), Emotion-specific Emotion Crafting ( Happiness Crafting  $z_{\text{Skewness}} = -1.86$ ;  $z_{\text{Kurtosis}} = -1.24$ ; Satisfaction Crafting  $z_{\text{Skewness}} = 2.07$ ;  $z_{\text{Kurtosis}} = 0.38$ ; Enthusiasm Crafting  $z_{\text{Skewness}} = -1.45$ ;  $z_{\text{Kurtosis}} = -0.49$ ; Pride Crafting  $z_{\text{Skewness}} = -1.39$ ;  $z_{\text{Kurtosis}} = -1.69$ ; Fascination Crafting  $z_{\text{Skewness}} = -2.79$ ;  $z_{\text{Kurtosis}} = 0.19$ ; Energetic Crafting  $z_{\text{Skewness}} = -2.31$ ;  $z_{\text{Kurtosis}} = -0.21$ ), and Anxiety ( $z_{\text{Skewness}} = -0.17$ ;  $z_{\text{Kurtosis}} = -1.02$ ) scores were normally distributed, and Emotion Crafting Action Subscale ( $z_{\text{Skewness}} = -4.86$ ;  $z_{\text{Kurtosis}} = 3.55$ ), Emotion Crafting Awareness Subscale ( $z_{\text{Skewness}} = -3.41$ ;  $z_{\text{Kurtosis}} = 0.24$ ), Psychological Control ( $z_{\text{Skewness}} = 3.81$ ;  $z_{\text{Kurtosis}} = -0.15$ ), Autonomy Support ( $z_{\text{Skewness}} = -4.69$ ;  $z_{\text{Kurtosis}} = 1.95$ ), and Love Crafting ( $z_{\text{Skewness}} = -4.77$ ;  $z_{\text{Kurtosis}} = 3.00$ ) were not normally distributed. General emotion crafting related positively to integrative emotion regulation, and correlated negatively with anxiety symptoms. while being unrelated to maternal psychological control and autonomy support. Furthermore, maternal psychological control was positively correlated with anxiety symptoms and emotion dysregulation, while negatively correlating with maternal autonomy support and some of the emotion-specific versions of emotion crafting (i.e., happiness, satisfaction, love). In addition, maternal autonomy support was positively correlated with emotion integration, and some of the emotion-specific versions of emotion

crafting (i.e., happiness, satisfaction, pride, love). Furthermore, anxiety symptoms were positively correlated with emotion dysregulation and suppression, while negatively correlating with emotion integration, and some of the emotion-specific versions of emotion crafting (i.e., happiness, satisfaction, enthusiasm, pride, fascination, love, energetic).

Additionally, the relation from the background variables of gender, education, age, user language to autonomy support, psychological control, emotion regulation, emotion crafting, and anxiety was assessed. The assumption of normality of the independent variables was violated. The Box's Test of Equality of Covariances was not significant, therefore assumption homogeneity of variances was met. Results of a Multivariate Analysis of Covariance (MANCOVA) showed no significant effects of gender (Wilk's  $\Lambda = 0.80$ ,  $F(28, 290) = 1.24$ ,  $p = .20$ ), education (Wilk's  $\Lambda = 0.69$ ,  $F(70, 694) = 0.82$ ,  $p = .85$ ), age (Wilk's  $\Lambda = 0.94$ ,  $F(14, 145) = 0.64$ ,  $p = .83$ ), and user language (Wilk's  $\Lambda = 0.90$ ,  $F(14, 102) = 0.57$ ,  $p = .57$ ) on the study variables.

**Table 1***Descriptives of and Correlations between the Study Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Autonomy Support	-																
2. Psychological Control	-.73**	-															
3. ER Dysregulation	-.06	.20*	-														
4. ER Suppression	-.18*	.20*	-.15	-													
5. ER Integration	.25**	-.05	.04	-.25**	-												
6. EC (T)	.20*	-.11	-.01	-.12	.20*	-											
7. EC Action	.25**	-.17	-.03	-.16	.17	.87**	-										
8. EC Awareness	.09	-.04	-.15	-.22**	.21*	.74**	.56**	-									
9. EC Cognitive	.12	-.05	.12	.06	.12	.78**	.49**	.30**	-								
10. EC Happiness (T)	.22*	-.18*	-.09	-.20*	.24**	.72**	.59**	.54**	.59**	-							
11. EC Satisfaction (T)	.21*	-.17*	-.01	-.21*	.29**	.63**	.54**	.44**	.51**	.70**	-						
12. EC Enthusiasm (T)	.15	-.08	-.03	-.10	.18*	.46**	.44**	.33**	.33**	.52**	.63**	-					
13. EC Pride (T)	.19*	-.15	.10	-.12	.16	.44**	.37**	.32**	.36**	.47**	.65**	.66**	-				
14. EC Fascination (T)	.05	.03	-.01	-.04	.20*	.48**	.35**	.38**	.41**	.51**	.63**	.71**	.68**	-			
15. EC Love (T)	.38**	-.33**	.12	-.16	.12	.53**	.45**	.34**	.48**	.67**	.50**	.34**	.52**	.34**	-		
16. EC Energetic (T)	.12	-.10	-.10	-.04	.14	.51**	.45**	.38**	.38**	.53**	.56**	.77**	.57**	.62**	.35**	-	
17. Anxiety	-.31**	.32**	.43**	.24**	-.23*	-.32**	-.34**	-.33**	-.12	-.40**	-.38**	-.27**	-.24**	-.27**	-.21*	-.34**	-
<i>M</i>	5.38	2.12	3.06	2.86	3.97	4.10	4.07	4.39	3.84	4.20	3.95	3.90	3.66	3.82	4.18	3.86	2.29
<i>SD</i>	1.18	0.91	0.79	0.91	0.59	0.48	0.65	0.50	0.65	0.51	0.56	0.61	0.75	0.74	0.73	0.70	0.52
<i>N</i>	127	129	128	128	128	129	129	129	129	129	129	129	129	129	129	129	129

*Note.* ER = Emotion regulation. EC = Emotion crafting. T = Total scale.

\*\* $p < 0.01$ . \* $p < 0.05$ .

## Primary Analyses

To examine the relation between parenting (i.e., maternal autonomy support and psychological control) and anxiety, and the mediating role of emotion regulation and emotion crafting, several hierarchical regression analyses were performed. Specifically, in Step 1, both maternal autonomy support and psychological control were entered as predictors, whereas in Step 2 emotion regulation (Model 1) or emotion crafting (Model 2) was entered as a predictor. The results of the mediation analyses can be found in Table II and Table III (see Appendix).

In Model 1, emotion regulation was a significant predictor of anxiety, where emotion dysregulation accounted for the largest variation in anxiety. Specifically, the increase of emotion dysregulation ( $t = 6.20, p = .00$ ) and suppression ( $t = 3.38, p = .00$ ) predicted the increase of anxiety and decrease of emotion integration ( $t = -2.29, p = .02$ ).

In Model 2, emotion crafting action and emotion crafting awareness were significant predictors of anxiety, where emotion crafting awareness accounted for the largest variation in anxiety. Specifically, the increase of emotion crafting action ( $t = -2.35, p = .02$ ) and awareness ( $t = -2.19, p = .03$ ) predicted a decrease in anxiety.

In Model 3, the significant subscales of emotion regulation and emotion crafting, namely emotion dysregulation, emotion suppression, emotion integration, emotion crafting action and emotion crafting awareness were added as mediators between parenting dimensions and anxiety. This model explained 37% of the variation in anxiety, and emotion dysregulation, emotion crafting action and emotion suppression accounted for the largest mediating effect. A Sobel test was conducted to evaluate the significance of the mediation effect of emotion crafting and emotion regulation, which revealed that only emotion crafting action was a significant mediator between autonomy support and anxiety ( $p_{\text{Dysreg}} = .51; p_{\text{Suppr}} = .09; p_{\text{Integr}} = .06; p_{\text{ECAAction}} = .02; p_{\text{ECAw}} = .31$ ), and only emotion dysregulation was a significant mediator between psychological control and anxiety ( $p_{\text{Dysreg}} = .04; p_{\text{Suppr}} = .08; p_{\text{Integr}} = .06; p_{\text{ECAAction}} = .08; p_{\text{ECAw}} = .67$ ).

## Exploratory Analysis

In an explorative fashion, I examined the mediating role of the seven specific emotions related to emotion crafting by examining Model 2. This model explained 24% of the variation in anxiety. Autonomy support positively predicted happiness- ( $p = .01$ ), satisfaction- ( $p = .02$ ), pride- ( $p = .04$ ), and love crafting ( $p = .00$ ), but did not predict fascination crafting ( $p = .61$ ) and energetic crafting ( $p = .20$ ). On the contrary, psychological control negatively predicted happiness- ( $p = .04$ ), satisfaction- ( $p = .04$ ) and love crafting ( $p = .00$ ), but did not

predict enthusiasm- ( $p = .33$ ), pride- ( $p = .07$ ), fascination- ( $p = .70$ ) and energetic crafting ( $p = .22$ ). Results of a Sobel test revealed that happiness crafting, satisfaction crafting, and love crafting were significant mediators between autonomy support and anxiety ( $p = .03$ ), while satisfaction crafting ( $p = .05$ ) and love crafting ( $p = .04$ ) were significant mediators between psychological control and anxiety ( $p = .08$ ).

### **Discussion**

The purpose of this study was to examine the relation between maternal parenting practices and young adults' anxiety, and whether this relation was mediated by emotion regulation and emotion crafting. Although emotion regulation has been found to be crucial in predicting anxiety levels, less is known about the role of emotion regulation, especially positive emotion regulation, as a possible mechanism in the effects of parenting on anxiety symptoms. It was expected that maternal autonomy support would foster adaptive emotion regulation and emotion crafting, thereby relating negatively to anxiety. An opposite pattern of relations was hypothesized for maternal psychological control. Moreover, it was expected that emotion crafting would be the strongest mediator, because acceptance parenting fosters awareness and appreciation of the positive emotions, which are associated with wellbeing, and decreased mental health issues.

#### **Psychological Control and Anxiety**

A weak, positive correlation was found between maternal psychological control and anxiety symptoms. There was a weak, negative correlation between maternal autonomy support and anxiety. In line with the first hypothesis and previous studies showing that psychological control might increase anxiety (e.g., Hudson & Rapee, 2001; McLeod et al., 2007), results of this study showed that young adults with parents using psychological control as a way of parenting experienced more anxiety.

Although a vast amount of research evaluates the relation of parenting dimensions and young adults' anxiety, there is a gap in research regarding what mediates between these variables. First, emotion regulation styles were hypothesized to mediate from parenting dimensions to anxiety. Psychological control predicted emotion dysregulation, and emotion dysregulation predicted the increase of anxiety. This relation was aligned with the literature, namely psychological control being positively correlated with emotion dysregulation (Flouri & McEwen, 2009), and increased emotion regulation problems (Goger et al., 2020). Additionally, only emotion dysregulation was found to be a significant mediator between psychological control and anxiety, which accounted for 24% of the variance in anxiety symptoms. Increase in psychological control was associated with emotion dysregulation, and

anxiety. Psychological control predicted action component of emotion crafting, emotion crafting awareness. Furthermore, the hypothesized mediator effect of emotion crafting from psychological control to anxiety was not confirmed. Psychological control was not a significant predictor of emotion crafting, and action component, and awareness component of emotion crafting were significant predictors of anxiety, namely that active steps and awareness toward creating positive emotions had a positive effect on anxiety.

### **Autonomy Support and Anxiety**

There was a weak, negative correlation between maternal autonomy support and anxiety. In line with the first hypothesis and previous studies showing that autonomy support may decrease anxiety (Pinquart, 2017), results of this study showed that young adults with autonomy supportive parents experienced less anxiety.

Regarding the hypothesis of emotion regulation being a mediator from autonomy support to anxiety was not confirmed. Looking at the predictive power of the variables, autonomy support was not a predictor of emotion dysregulation, but it predicted the decrease of emotion suppression and increase of emotion integration. These results were partly aligned with the literature because autonomy support has been found to predict the increase of emotion integration (Roth et al., 2009), which relation was confirmed. While in previous studies autonomy support was found to predict the decrease of emotion dysregulation (Brenning et al., 2015), it was not the case for the analyses.

I assessed the relationship between autonomy support, emotion crafting, and anxiety. The hypothesized mediating effect of emotion crafting between autonomy support and anxiety was partly confirmed, autonomy support predicted action component of emotion crafting, which predicted anxiety. Similarly, action component of emotion crafting significantly predicted anxiety symptoms, and awareness component of emotion crafting predicted anxiety. These findings suggest that autonomy supportive parenting may increase young adults' capability of active pursuit of positive emotions. Furthermore, actively seeking out people, activities and situations which create positive emotions has a positive effect on anxiety, namely it decreases anxiety level.

### **Parenting Dimensions, Emotion-Specific Emotion Crafting and Anxiety**

I performed an exploratory analysis on the mediation effect of emotion-specific emotion crafting from parental dimensions to anxiety. Sobel test revealed that happiness-, satisfaction-, and love crafting mediated the relation between autonomy support and anxiety, and it explained 24% of the variance in anxiety. Moreover, satisfaction- and love crafting were significant mediators between psychological control and anxiety, namely psychological

control was associated with the decrease of satisfaction- and love crafting, which predicted anxiety. These findings are in line with previous research, where Moran et al.'s (2018) research on the hypothesized mediating effect of children's positive affect regulation between maternal socialization of positive affect and psychopathology yielded the result that parents who savored more had children who also created more positive affects, and mother's modeling savoring related to child's depressive symptoms.

### **Strengths and Limitations**

This study had several important strengths including the opportunity to recruit participants from multiple countries, and that we were able to explore the effect of positive emotions on anxiety. Nonetheless, there were also limitations. First, only maternal parenting dimensions were assessed, therefore the results cannot be generalized to parenting. Second, due to the small sample size and chosen student population, results cannot be generalized to other age groups. In future research it may be useful to add paternal autonomy support and psychological control questionnaires.

### **Conclusion**

In conclusion, higher levels of autonomy support and lower levels of psychological control were associated with lower levels of anxiety. Moreover, only emotion dysregulation was a significant mediator between psychological control and anxiety, whereas the action component of emotion crafting mediated the relation between autonomy support and young adults' anxiety. Exploratory analysis indicated that happiness crafting, love crafting, and satisfaction crafting mediated between autonomy support and anxiety, and satisfaction- and love crafting were significant mediators between psychological control and anxiety. Building on these findings, autonomy-supportive parenting seems to be fostering young adults' ability to craft positive emotions. On the contrary, parental psychological control may be harmful for the development of the child's ability to cope with life stressors, and rather supporting the autonomy of young adults as a way of protecting them against anxiety would be beneficial.



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## Appendix

**Table I**

*Descriptive Statistics and Reliability of the Scales*

	N	Cronbach's alpha ( $\alpha$ )	Skewness		Kurtosis	
			Statistic	SE	Statistic	SE
User Language	149		0.74	0.20	-1.48	0.40
Sex	149		2.09	0.20	3.71	0.40
Age	149		-.44	0.20	-0.61	0.40
Education	149		0.45	0.20	0.29	0.40
Maternal Psychological Control	149	.88	0.81	0.20	-0.02	0.40
Maternal Autonomy Support	137	.89	-1.02	0.21	0.79	0.41
Emotion Dysregulation	138	.83	0.02	0.21	-0.48	0.41
Emotion Suppression	138	.89	0.06	0.21	-0.46	0.41
Emotion Integration	138	.79	-0.49	0.21	0.13	0.41
Emotion Crafting Happiness	149	.86	-0.39	0.20	-0.51	0.40
EC Satisfaction (Total score)	149	.86	-0.46	0.20	0.16	0.40
EC Enthusiasm (Total score)	149	.87	-0.31	0.20	-0.30	0.40
EC Pride (Total score)	149	.91	-0.29	0.20	-0.66	0.40
EC Fascination (Total score)	149	.92	-0.56	0.20	0.02	0.40
EC Love (Total score)	149	.90	-0.97	0.20	1.19	0.40
EC Energetic (Total score)	149	.91	-0.51	0.20	-0.08	0.40
EC Happiness (Action subscale)	139	.62	-1.48 to -0.90	0.21	0.20 to 2.96	0.41
EC Satisfaction (Action subscale)	139	.67	-0.85 to -0.59	0.21	-0.20 to 0.56	0.41
EC Enthusiasm (Action subscale)	139	.73	-0.90 to -0.52	0.21	-0.35 to 0.62	0.41
EC Pride (Action subscale)	139	.82	-0.45 to -0.16	0.21	-1.07 to -0.70	0.41
EC Fascination (Action subscale)	139	.81	-0.32 to -0.68	0.21	-1.04 to 0.27	0.41
EC Love (Action subscale)	139	.77	-1.86 to -0.63	0.21	-0.43 to 4.22	0.41
EC Energetic (Action subscale)	139	.82	-0.79 to -0.58	0.21	-0.42 to -0.08	0.41
EC Happiness (Awareness subscale)	139	.81	-1.72 to -0.83	0.21	4.74 to 0.00	0.41
EC Satisfaction (Awareness subscale)	139	.74	-1.17 to -0.64	0.21	-0.20 to 2.09	0.41



EC Enthusiasm (Awareness subscale)	139	.80	-0.82 to -0.50	0.21	-0.54 to 0.02	0.41
EC Pride (Awareness subscale)	139	.85	-0.60 to -0.40	0.21	-0.74 to -0.20	0.41
EC Fascination (Awareness subscale)	139	.83	-0.80 to -0.52	0.21	-0.75 to 0.02	0.41
EC Love (Awareness subscale)	139	.86	-1.50 to -0.81	0.21	-0.06 to 1.92	0.41
EC Enthusiasm (Awareness subscale)	139	.85	-0.66 to -0.58	0.21	-0.21 to 0.13	0.41
EC Happiness (Cognition subscale)	139	.75	-1.27 to -0.78	0.21	0.11 to 1.75	0.41
EC Satisfaction (Cognition subscale)	139	.74	-0.96 to -0.48	0.21	-0.39 to 1.25	0.41
EC Enthusiasm (Cognition subscale)	139	.71	-0.75 to -0.41	0.21	-0.46 to -0.04	0.41
EC Pride (Cognition subscale)	139	.79	-0.54 to -0.27	0.21	-0.81 to -0.57	0.41
EC Fascination (Cognition subscale)	139	.79	-0.64 to -0.45	0.21	-0.60 to -0.15	0.41
EC Love (Cognition subscale)	139	.77	-1.54 to -0.89	0.21	0.50 to 2.30	0.41
EC Energetic (Cognition subscale)	139	.79	-0.85 to -0.47	0.21	-0.61 to -0.14	0.41
Anxiety symptoms	139	.91	0.03	0.21	-0.36	0.41

*Note.* EC = Emotion crafting.



Emotion Dysregulation	.28**	.05		
Emotion Suppression	.14**	.05		
Emotion Integration	-.20**	.08		
EC Action	-.26**	.07		
EC Awareness	-.35**	.09		
Model 3 PC-ER, EC-Anxiety			.37	.29*
PC to ER, EC				
Emotion Dysregulation	.17*	.08		
Emotion Suppression	.20*	.09		
Emotion Integration	-.03	.06		
EC Action	-.12*	.06		
EC Awareness	-.02	.05		
ER, EC to Anxiety				
Emotion Dysregulation	.28**	.05		
Emotion Suppression	.14**	.05		
Emotion Integration	-.20**	.08		
EC Action	-.26**	.07		
EC Awareness	-.35**	.09		

*Note.* EC = Emotion crafting. AS = Autonomy support. PC = Psychological control. Step 1 = AS and PC as predictors of anxiety. Step 2 = ER and EC as predictors of anxiety. Model 1= ER as mediator between parenting dimensions and anxiety. Model 2 = EC as mediator between parenting dimensions and anxiety. Model 3 = ER and EC as mediators between parenting dimensions and anxiety. \*\* $p < 0.01$ . \* $p < 0.05$ .

**Table III***Exploratory Analyses of the Mediation of Emotion-specific Emotion Crafting from Parenting Dimensions to Anxiety*

	Step 1				Step 2			
	$\beta$	<i>SE</i>	R <sup>2</sup>	R <sup>2</sup> change	$\beta$	<i>SE</i>	R <sup>2</sup>	R <sup>2</sup> change
Model 3 AS- Em. Spec. EC-Anxiety								
AS to Em.Spec. EC								
EC Happiness					.10**	.04	.04	.05**
EC Satisfaction					.10*	.04	.04	.04*
EC Enthusiasm					.08	.05	.02	.02
EC Pride					.12*	.06	.03	.03*
EC Fascination					.03	.06	-.01	.00
EC Love					.20**	.04	.14	.15**
EC Energetic					.07	.05	.01	.01
Em. Spec EC to Anxiety								
EC Happiness					-.41**	.08	.15	.16**
EC Satisfaction					-.35**	.08	.14	.15**
EC Enthusiasm					-.23**	.07	.07	.07**
EC Pride					-.17	.06	.05	.06**
EC Fascination					-.19	.06	.07	.07**
EC Love					-.18*	.07	.05	.05*
EC Energetic					-.25**	.06	.11	.11**
Model 3 PC to EM. Spec. EC								
					-.10*	.05	.02	.03*
EC Happiness								
EC Satisfaction					-.11*	.05	.02	.03*
EC Enthusiasm					-.06	.06	.00	.01
EC Pride					-.13	.07	.02	.02

EC Fascination	.03	.07	-.01	.00
EC Love	-.23**	.06	.10	.11**
EC Energetic	-.08	.07	.01	.01
Em. Spec EC to Anxiety				
	-.41**	.08	.15	.16**
EC Happiness				
EC Satisfaction	-.35**	.08	.14	.15**
EC Enthusiasm	-.23**	.07	.07	.07**
EC Pride	-.17	.06	.05	.06**
EC Fascination	-.19	.06	.07	.07**
EC Love	-.18*	.07	.05	.05*
EC Energetic	-.25**	.06	.11	.11**

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*Note.* Step 1 = parental dimensions as predictors of anxiety. Step 2 = Emotion specific EC as predictor of anxiety. Em. Spec. EC = Emotion specific Emotion Crafting. AS = Autonomy support. PC = Psychological control. \*\*  $p < 0.01$ . \* 0.05.