Perceived vs Observed: Is Adolescent-Perceived or Observed Parenting More Important for Emotional Regulation in Adolescents, While Controlling for Depression?

Wanningen, Taïra

Psychologie
Faculteit der Sociale Wetenschappen

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T. A. Wanningen

Clinical Psychology

Supervisor: PhD candidate W. G. M. Wentholt

Institute of Psychology

Universiteit Leiden

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Abstract

Background. Parenting plays an important role in the development of adolescent's emotion regulation (ER). Parental psychological control (PC) is negatively and parental autonomy support (AS) is positively linked to adolescent ER. Impaired ER has been linked to internalizing- and externalizing problems. Parenting is usually examined trough observation or trough self-report methods, but these methods are not interchangeable. ***Research question***. Is adolescent-perceived or observed parenting more important for ER in adolescents, while controlling for depression? ***Method.*** In this cross-sectional and multi-method study, 35 depressed and 80 control adolescents (11-17 years) reported on perceived parental PC and AS using the Parental Bonding Inventory and their own behavioral ER using the Children's Emotion Management Scale. Parental PC and AS was observed and scored on the Problem-solving Interaction task. A multiple regression analysis was used. ***Results.*** Depressed adolescents showed significantly lower adaptive ER. There were no significant results for adolescent-perceived and observed PC and AS in relation to ER. For the interaction effect of group status with autonomy support, parental support, and ER, no significant results were found. A trend effect was found for the moderating effect between depression and adolescent-perceived PC. ***Conclusions.*** Depressed adolescents showed significantly lower adaptive ER, demonstrating the need for ER focused interventions. For teens in middle adolescence, PC and AS parenting did not have a significant effect on their ER. Lastly, when depressed adolescents experienced their parents as more psychologically controlling, they had more difficulty with their ER, highlighting the potential benefit of cognitive behavioral therapy.

Introduction

Adolescence presents many emotional, cognitive, social, and physical challenges. Most adolescents successfully overcome these challenges and enter adulthood with a solid psychosocial capital (Neves, Dias de Carvalho, Serra, Torres, & Fraga, 2019). However, for some adolescents this transition marks the beginning of mental health issues (Kallay & Cheie, 2023; Rapee et al., 2019). An important predictor for mental health is the extent to which emotion regulation is developed in childhood (Morris, Criss, Silk, & Houltberg, 2017).

Emotion regulation (ER) is the complex process of exerting control over one's emotional state (Garnefski & Kraaij, 2007). ER happens in response to an emotion (Compas et al., 2017) and consists of regulating the occurrence, duration, intensity and expression of said emotion (Cui, Morris, Criss, Houltberg, & Silk, 2014; Kallay & Cheie, 2023; Morris et al., 2017). During childhood and early adolescence, children become increasingly independent when it comes to regulating and controlling their emotions (Gross, 2013). Developing the skills necessary for ER is an important part of development (Cicchetti, Ganiban, & Barrett, 1991). Failure to adequately develop ER skills can result in emotional dysregulation (Plutchik, 1993). This dysregulation is linked to externalizing problems, such as aggressiveness and legal violations, and internalizing problems, such as depression (Barber, 1996; Cui et al., 2014).

A distinction can be made between cognitive ER and behavioral ER (Garnefski, Kraaij, & Spinhoven, 2001), although there is a lot of cooperation between these processes. This study will focus on behavioral ER. Behavioral ER strategies can be classified into adaptive strategies (e.g. finding social support, finding distractions) and maladaptive strategies (e.g. withdrawal and ignoring) (Joormann & Stanton, 2016). Lower adaptive ER has been connected to behavioral issues and depressive symptoms (Barber, 1996; Cui et al., 2014; Eisenberg, Spinrad, & Eggum, 2010). In comparison, adolescents with higher adaptive ER have better social skills, score better on empathy and exhibit fewer behavioral issues (Cui et al., 2014; Eisenberg & Fabes, 2006).

Research shows a distinct link between parenting and ER (Cui et al., 2014; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Morris et al., 2017; Morris et al., 2002). Parenting consists of a lot of different components, but studies have consistently demonstrated that

overly controlling and harsh parenting may cause difficulty with ER (Morris et al., 2007) and that autonomy supportive parenting is associated with more effective ER in children and adolescents (Kliewer et al., 2004; Morris & Age, 2009). In this study we will look into the relationship between parenting and ER, measured through both self-report and observation. To date, very little studies have used both self-report and observational research methods to assess parental constructs. Using multiple research methods enables us to obtain more objective measurements of parenting and ER, increase our knowledge and hopefully help improve ER based interventions.

Psychological Control and Autonomy Support

Early adolescence is a challenging time for both adolescents and parents. As adolescents navigate the difficult transition from adolescence to adulthood, parents need to find a balance between control and support in their parenting (Galambos & Ehrenberg, 1997). How successfully parents bridge this transition influences how effectively adolescents can adjust to the many changes they go through (Galambos, Barker, & Almeida, 2003). In this study we will focus on these two dimensions of parenting: parental psychological control and autonomy support.

Parental psychological control (PC) can be defined as parenting that uses the following tactics to manipulate the parent-child bond: psychological and emotional manipulation, withholding love, instilling guilt, downplaying and mocking feelings, and using parenting practices that halter the development of autonomy (Barber, 1996). Psychologically controlling parenting is a predictor of maladaptive development in children (Cui et al., 2014). PC mainly entails emotional costs for the child (Barber, 1996). There is a strong association with internalizing problems, such as anxiety and depressive symptoms, low self-confidence, negative self-image and lower adaptive ER (Silk, Morris, Kanaya, & Steinberg, 2003).

Children of psychologically controlling parents grow up in an unstable and coercive environment. These adverse emotional conditions halter adolescents from developing adaptive ER strategies (Cui et al., 2014). PC parenting compromises the adolescents' need for independence and individuality (Barber & Xia, 2013; Cui et al., 2014). In a home ruled by PC strategies, adolescents feel obligated to abide to their parents, resulting in self-doubt and emotional dependence (Cui et al., 2014; Morris et al., 2002). Many studies confirm the link

between PC and lower adaptive ER in children and adolescents (Barber, Stolz, Olsen, Collins, & Burchinal, 2005; Eisenberg et al., 2010; Morris et al., 2007; Steinberg, 2005).

The other dimension of parenting we will focus on is autonomy support (AS). Characteristics of autonomy supportive parenting are encouraging the child to develop their own norms, values and preferences (Soenens et al., 2008) and to listen to the child's perspective (Roth, Assor, Niemiec, Ryan, & Deci, 2009). Several studies show that AS is positively related to ER in children and adolescents (Brenning, Soenens, Braet, & Bosmans, 2012; Roth & Assor, 2012; Roth et al., 2009). Autonomy-supportive parents provide a home environment where emotions are accepted and explored. They show real interest in the emotions of their child and make room for emotional expression and discussion (Brenning, Soenens, Van Petegem, & Vansteenkiste, 2015; Roth et al., 2009). By doing so, autonomy supportive parents create opportunities for children to learn about their emotions and thus foster a good climate for developing adaptive ER (Roth & Assor, 2012; Roth et al., 2009).

The development of ER is significantly influenced by parenting (Barber et al., 2005; Brenning et al., 2012; Eisenberg et al., 2010; Morris et al., 2007; Roth & Assor, 2012; Roth et al., 2009; Silk et al., 2003; Steinberg, 2005), and ER problems are an important predictor for externalizing problems, such as aggression, and internalizing problems, such as depression (Barber, 1996; Eisenberg et al., 2010). Extensive research has shown the link between lower adaptive ER and depression in early, middle, and late adolescence (Garnefski & Kraaij, 2007; Joormann & Gotlib, 2010; Schäfer, Naumann, Holmes, Tuschen-Caffier, & Samson, 2017; Silk et al., 2003; Visted, Vøllestad, Nielsen, & Schanche, 2018). To expand on existing research, we will look into the link between parenting and ER in the vulnerable group of depressed adolescents. A meta-analysis by Zimmer-Gembeck, Rudolph, Kerin, and Bohadana-Brown (2022) showed that positive parental behavior was connected to more adaptive ER and less internalizing problems in their children. The target sample of this study is depressed adolescents with an official diagnosis. In conclusion, in the vulnerable group of depressed adolescents, it would be insightful for treatment efforts to see if the link between parenting and ER is still there.

Perceived vs. Observed Parenting

Research indicates that the role of parenting, and the specific PC and AS dimensions of parenting, play an important part in the development of adaptive ER in adolescents. An

angle that has received less attention is the difference between observable parental behavior and adolescent-perceived parental behavior.

Parenting dimensions are typically studied via either self-report or via observation (Locke & Prinz, 2002). Observation is used to evaluate behavior and self-report is used to gain more insight into emotions, opinions and attitudes (Gardner, 2000; Hendriks, Van der Giessen, Stams, & Overbeek, 2018). However, depending on the research aim either of these methods is preferred.

There are a number of pitfalls as to why observable research methods and self-report research methods are not automatically interchangeable. First, adolescents may judge their parents' behavior differently than researchers. For example, when looking at parental behavior, this may be evaluated differently by an adolescent completing a questionnaire than by a researcher observing the behavior. Adolescents and researchers have a different role in relation to the parent. Adolescents know more about how the parent normally behaves at home, which may lead them to assess situations differently (Achenbach, Krukowski, Dumenci, & Ivanova, 2005; Hendriks et al., 2018). Second, there may be a bias among adolescents about the parent, either out of protection of the parent or out of protection of their own feelings. This can lead to over- or under-reporting about, for example, the extent to which the parent uses PC parenting strategies (Bögels & van Melick, 2004; Hendriks et al., 2018). Third, there is a possibility that when an observer is present, parents act in a more socially acceptable way (Aspland & Gardner, 2003). As we can conclude that observable and self-report research methods are not always interchangeable, it would be beneficial to take both research methods into account when studying a subject and comparing these results.

Current Study

Most articles in our literature research use either observational methods or self-report methods to determine the amount of PC, AS or ER. However, research shows us that these methods are not interchangeable. For example, meta-analytic research by Hendriks et al. (2018) showed that observable parental behavior was only weakly, but significantly, associated with parent-reported parental behavior. Furthermore, in another meta-analysis about parental AS and various child outcomes, moderation effects of methodology (observation vs. self-report) were found. Where for some outcomes observational methods and for other outcomes self-report methods showed a stronger effect (Vasquez, Patall, Fong,

Corrigan, & Pine, 2016). In view of future research and interventions, it is important to see which is a greater predictor of ER, observational methods or self-report methods. By expanding our knowledge on what research method has greater predictability, future research can design more precise assessments for ER. More precise assessment can increase our knowledge and help improve ER based interventions. Therefore, our research question is: is observable or adolescent-perceived parental behavior more important for ER in adolescents?

The sub-questions are as follows: do depressed adolescents report a lower level of adaptive ER? Does observable PC significantly relate to ER? Does observable AS significantly relate to ER? Does adolescent-perceived PC significantly relate to ER? Does adolescent-perceived AS significantly relate to ER? Is observed PC or adolescent-perceived PC more strongly linked to ER? Is observed AS or adolescent perceived AS more strongly linked to ER? Does group status (depression vs. healthy control) moderate the relation between observed and adolescent-perceived parenting and adolescent ER?

We expect that depressed adolescents report a lower level of adaptive ER. As studies have shown the link between depression and lower adaptive ER (Joormann & Gotlib, 2010; Visted et al., 2018), we expect to find a significant relationship as well. We expect to find a significant relationship between observable and adolescent-perceived PC and ER. We expect to find a significant relationship between observable and adolescent-perceived AS and ER. We expect that perceived parental behavior has a stronger link with ER than observed parenting. To date, little research has examined both observable parent behavior and adolescent-perceived parent behavior, and no research has examined the differences between observable parent behavior and adolescent-perceived parent behavior for the development of ER in adolescents. This study was the first to investigate this, making the hypotheses exploratory in nature. Research showing different effects depending on the type of assessment (Hendriks et al., 2018; Vasquez et al., 2016) does suggest observed and adolescent-perceived parenting will relate to ER to a different extent, with stronger expected effects for adolescent-perceived than observed parenting. If the parenting behavior is perceived as negative by the adolescent (even if the observed parenting behavior could be classified as neutral or even positive), this can have an adverse effect. If something is perceived as negative, it may not matter if the interaction was truly negative, it is still perceived in a negative light and can have adverse consequences. Lastly, we expect that the interaction between group status and our parenting variables will be significantly related to ER. As stated above, there is a clear link

between depression and ER. We will explore whether the relationship between parenting and ER will be stronger in healthy control adolescents or in depressed adolescents.

Methods

Design

The context of this study is within the Relations and Emotions in Parent-Adolescent Interaction Research (RE-PAIR) project. The main goal of RE-PAIR is to investigate the interplay between parent-child interactions and the negative mood of depressed adolescents. RE-PAIR is a multi-method, multi-center, multi-informant cross-sectional study consisting of several parts: a laboratory study, ecological momentary assessments (EMA), online questionnaires and neuroimaging (fMRI). The research design of the current research project is cross-sectional and multi-method. Our research consisted of online questionnaires and laboratory research.

Participants

The sample consisted of 35 depressed adolescents and their parent(s) and 80 healthy control adolescents and their parent(s) between 11 and 17 years old. The characteristics of the research group can be found in Table 1. For the inclusion criteria, all adolescents were aged between 11 and 17 years at the time of inclusion, attended high school, lived with at least one primary caregiver and at least one primary caregiver was able to participate in the research. Depressed adolescents were required to have a predominant depressive disorder or a dysthymic disorder and that disorder must be the primary disorder. Adolescents may not have yet started (new) treatment or may have only just started treatment. For the parents no specific inclusion criteria were used.

Healthy control adolescents were excluded from the study if any of the following was present: having a mental disorder at the time of the study or in the past two years; having had a depressive disorder; a history of psychological treatments; not managing the Dutch language; using medication for psychological disorders or sleep medication. Depressed adolescents were excluded if any of the following was present: a primary psychological disorder (axis I) other than a depressive or dysthymic disorder; presence of mental retardation, psychosis, addiction, autism; the use of antidepressants (except when the adolescent is on a stable dose); not managing the Dutch language; not being able to guarantee

Table 1

Characteristics Research Group (expressed in absolute numbers and averages)

	DEP	**HC**
	M(SD)/n(%)	M(SD)/n(%)
Characteristics Adolescents	N = 35	N = 80
Age	16	16
Number of girls	27 (78%)	51 (74%)
Born in the Netherlands	32 (91%)	78 (97%)
Dutch ethnicity	23 (66%)	73 (91%)
Current level of education N (%)		
Lower vocational education	6 (16.7%)	10 12.6%)
Higher vocational education	5 (13.9%)	20 (25%)
Pre-university education	16 (44.4%)	39 (48.8%)
No current education	1 (2.8%)	0 (0%)
Other	7 (19.4%)	10 (12.6%)
Current grade N (%)		
Grade 1	9 (25%)	9 (11.3%)
Grade 2	5 (13.9%)	8 (10.0%)
Grade 3	9 (25%)	14 (17.5%)
Grade 4	5 (13.9%)	26 (32.5%)
Grade 5	5 (13.9%)	18 (22.5%)
Grade 6	1 (2.8%)	5 (6.3%)
Characteristics Parents	*N = 64*	*N = 149*
Average age	50	49
Number of women	36 (55.4%)	79 (53%)
Born in the Netherlands	52 (80%)	141 (94.6%)
Dutch ethniticity	52 (80%)	145 (97.3%)

Highest level of education		
None	1 (1.5%)	1 (1.7%)
Lower vocational education	9 (13.8%)	4 (2.7%)
Secondary vocational education	15 (23.1%)	33 (22.4%)
Mix: Higher secondary vocational education and pre - univ	4 (6.2%)	11 (7.4%)
Secondary higher vocational education	15 (21.1%)	64 (43%)
University	19 (29.2%)	33 (22.1%)
Other	1 (1.5%)	3 (2.0%)
Average monthly netto income	2.500-4.500 euro	2.500-4.500 euro

safety in the event of suicidal tendencies or serious self-harm. For the parents a lack of a good understanding of the Dutch language was an exclusion criterion.

Measures

Observable Parental Behavior

Observable parental behavior is measured with the Problem-Solving Interaction task (PSI) using a coding system looking at observable PC and AS. AS is coded on the basis of three 9-point subscales: encouraging the child's input, explaining one's own motivations and receptiveness to the child's expression. The mean of this subscale represents the level of AS on the task, with a higher score indicating a higher level of AS. PC is also coded based on three 9-point subscales: restricting child expression, inducing guilt, and invalidating feelings. The mean of this subscale represents the level of PC over the task, with a higher score indicating a higher level of PC. Independent coders were trained in the coding system and demonstrated a high degree of inter-rater reliability (mean measures ICC = .96). The internal validity of the scales is .96 for AS and .94 for PC. As a new coding system was used for the RE-PAIR project, the validity of this system is not yet known.

Adolescent-Perceived Parental Behavior

We used the Parental Bonding Inventory (PBI) (Parker, Tupling, & Brown, 1979) to assess the adolescent-perceived parental PC and AS. The PBI originally consisted of 25 item questions, including 12 'care' items and 13 'overprotection' items. New research (Kullberg,

Maciejewski, Schie, Penninx, & Elzinga, 2020) shows that a three-factor structure for the scales works better, with the addition of the autonomy granting subscale. Items are rated on a 4-point Likert scale (0 = *totally* to 3 = *(totally) untrue*). The total score on the PBI is calculated by means of a sum score. We recoded the Care subscale to ensure that all the items in the questionnaire have the same direction. Higher scores on the care items mean a higher level of caring parenting, higher scores on the overprotection items mean a higher level of protective parenting and a higher score on autonomy granting means more autonomy granting parenting. The PBI is reported to have good reliability and validity (Tam & Yeoh, 2008). The internal reliability of our dataset is .94 for PC and .98 for AS.

In this study we looked at the PC and AS dimensions of parenting to assess perceived parental behavior. However, our research is part of a larger study, namely RE-PAIR. Certain questionnaires were administered for RE-PAIR. The PBI is the questionnaire that most closely matches the constructs PC and AS. The autonomy granting scale (e.g. “My father lets me do the things I like”, “My fathers lets me make my own decisions”) corresponds to the AS dimension (i.e. AS is a parenting style in which children are provided with choices and informative feedback instead of imposing control as they explore their emotions, interest and self-values) (Brenning et al., 2015). The overprotection scale (e.g. “My father is invading my privacy”, “My father tries to make me dependent on him”, “My father makes me feel like I’m not wanted”) corresponds to the PC dimension (i.e. psychological and emotional manipulation, withholding love, instilling guilt, downplaying and mocking feelings, and using parenting practices that halter the development of autonomy) (Barber, 1996).

Behavioral ER

Adolescents' behavioral ER was measured with the Children's Emotion Management Scale (CEMS) questionnaire for adolescents (Zeman, Shipman, & Penza-Clyve, 2001). The CEMS measures emotion regulation through the scales Inhibition (six items), Dysregulated Expression (six items) and Emotion Coping (six items). Items are rated on a 3-point Likert scale (1 = *almost never* to 3 = *often*) (Ogbaselase et al., 2022). The CEMS is assessed by means of a total score. We recoded the Dysregulated Expression subscale to ensure that all the items in the questionnaire have the same direction. This way a higher score on the CEMS indicates better emotional regulation. The validity of the questionnaire is good (Ogbaselase et al., 2022; Zeman, Cassano, Suveg, & Shipman, 2010).

Procedure

Healthy control adolescents and their parent(s) were recruited via advertisements on (social) media and via the researchers' own network. Interested families received information about RE-PAIR. After screening, an appointment was made for the lab visit. Recruitment of depressed young people and their parents took place in collaboration with mental health care facilities in the area of Leiden, the Netherlands. The institutions checked their eligibility, after which RE-PAIR was introduced. If they were interested in participating, the K-SADS-PL interview was administered to adolescents to diagnose depression.

Upon inclusion, families participated in four parts of the study: online questionnaires, a research day, 14 consecutive days of electronic diaries, and an fMRI scan session. The current study used the data from the questionnaires and the research day. During the research day, parents and adolescents were asked to complete a dyadic interaction task, a jenga task, a problem-solving task, an event planning task, and a reminiscence task. The current research project looked at the problem-solving task. Participants completed the Issues Checklist (Robin & Weiss, 1980) at the beginning of the research day to identify problems within the family. The problems were rated in frequency and intensity using a five-point Likert scale (1 = *very unlikely* to 5 = *very likely*). In the problem-solving task, the three most frequent and intense topics were chosen from this list. The following instructions were given: "Please both discuss your point of view and try to find a solution." The task lasted 10 minutes and was videotaped for later coding.

Compensation

All participants received compensation for their participation. Healthy control participants received €35 for the first three parts of the RE-PAIR study (questionnaires, the research day and the EMA). Depressed adolescents received €15 for the first three parts of the RE-PAIR study. Parents received €73 for participation in the first three parts of the RE-PAIR study.

Statistical Analysis

The main goal of the study was to investigate if observable or adolescent-perceived parental behavior is more important for ER in adolescents. A multiple regression analysis model was used to examine this.

When an adolescent had two parents participating in the study, the parents did the questionnaires and the observation task separately. As a result of this, the original datasets contained separate PBI and PSI scores for the parents. We transformed these separate mother and father variables into one variable: the average PBI and PSI score of the parents together. Our research questions looked at four parenting variables (PC and AS in observable parent behavior and PC and AS in adolescent-perceived parent behavior) and one adolescent behavior variable, namely behavioral ER. These variables all have an interval measurement level. We also used one nominal level variable, namely group status. Group status is a variable to categorize depressed and healthy control adolescents. To answer our main question, we conducted a multiple regression analysis with our observed parenting and adolescent-perceived parenting variables. For this analysis we used SPSS. We used the standard alpha level of .05 as the significance criterion cutoff score for our tests.

Results

Preliminary Analyses

After screening and cleaning our data, we checked the assumptions of our multiple regression analysis. The data met all needed assumptions. The tolerance and FIV scores of our main research variables were good with the lowest tolerance score being .45 and the highest FIV score being 2.20. A preliminary bivariate analysis was done by looking at the Normal Probability Plot (P-P) of the Regression Standardised Residual and the Scatter-plot. We checked for outliers, normality, linearity, homoscedasticity and the independence of residuals. The data had a normal distribution and there was homoscedasticity, as all predictive values of the scatter plot were distributed without a clear pattern. Our Cook's Distance was 0.16. We have calculated the correlations between all main variables (table 2). The two constructs of parenting, PC and AS, correlate with each other within but not between the measuring instruments. The CEMS only correlates with PC according to the self-report of the adolescent.

Main Analyses

The covariate (group status) explained .04 of the variance of ER (table 3), model fit was significant ($F(1, 111) = 4.27$, $p = .041$, $R^2 = .04$). Adding the main effects (PC measured with the PBI, AS measured with the PBI, PC measured with PSI and AS measured with PSI) in block two increased the R^2 to .08, the model fit did not significantly improve ($F(5, 107) = 1.97$, $p = .088$, $R^2 = .08$). In block 3 we added the interaction effects of the group status and

Table 2

Correlations for Main Variables

Variable	1	2	3	4	5
1. CEMS					
2. AS_PBI	-.07				
3. PC_PBI	.21*	-.33**			
4. AS_PSI	.18	-.01	.09		
5. PC_PSI	-.12	.05	-.01	-.73**	

Note. CEMS = children's emotion management scale; AS_PBI = autonomy support measured with the Parental Bonding Inventory; PC_PBI = psychological control measured with the Parental Bonding Inventory; AS_PSI = autonomy support measured with the Problem-solving Interaction task; PC_PSI = psychological control measured with the Problem-solving Interaction task.

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

our main effects, increasing the R^2 to .12, the model fit did not significantly improve ($F(9, 103) = 1.53$, $p = .147$, $R^2 = .12$). The group status accounted for 4% of the variance in ER. When adding the main effects this number increased to 8% of variance explained. When looking at the interaction between the main effects and the group status, 12% of the variance in ER can be explained.

Group status is significantly related to ER ($B = -2.06$, $SE = .99$, $p = .041$) (table 4). This means that group status (depressed vs. healthy controls) is significantly related to how well adolescent are able to regulate their emotions. A higher score on ER means more adaptive emotion regulation. The results show that adolescents with depression have a significantly lower score on adaptive ER than their HC peers.

Looking at our main effects, neither adolescent-perceived ($B = .36$, $SE = .22$, $p = .114$) nor observed ($B = -.03$, $SE = .19$, $p = .871$) PC is significantly related to ER. For adolescent-perceived and observed PC, a higher score means a higher level of PC. Additionally, neither adolescent-perceived ($B = .02$, $SE = .17$, $p = .869$) nor observed ($B = .17$, $SE = .17$, $p = .339$) AS is significantly related to ER. For adolescent-perceived and observed AS, a higher score means a higher level of AS parenting. Looking at our parenting variables, none are significantly related to ER in adolescents, and our hypotheses are not confirmed. Looking at the interaction between group status and our main variables, neither adolescent-perceived

Table 3

Results of the ANOVA to Compare Hierarchical Multiple Regression Models Predicting Adolescent Behavioral Emotion Regulation

Model		Df	*F*	*P*	R^2
1[a]	Regression	1	4.27	.041	.04
	Residual	111			
2[b]	Regression	5	1.97	.088	.08
	Residual	107			
3[c]	Regression	9	1.53	.47	.12
	Residual	103			

Note. The dependent variable is the Children's Emotion Management Scale (CEMS)

a. Covariate: group status
b. Main effects: Psychological control measured with the Parental Bonding Inventory (PBI_PC), autonomy support measured with the Parental Bonding Inventory (PBI_AS), psychological control measured with the Problem-solving Interaction task (PSI_PC), autonomy support measured with the Problem-solving Interaction task (PSI_AS),
c. Interaction between group status and the main effects

Table 4

Results of Hierarchical Multiple Regression Analyses Predicting Adolescent Behavioral Emotion Regulation

Model	Variable	*B*	SE	*B*	*P*				
1	GS	-2.06	.99	-.19	.041				
			Observed Parenting			Adolescent-perceived Parenting			
Model	Variable	*B*	SE	*B*	*P*	*B*	SE	*B*	*P*
2	AS	.17	.17	.13	.339	.02	.17	.01	.896
	PC	-.03	.19	-.02	.871	.36	.22	.16	.114
3	GS*AS	-.32	.36	-.60	.378	.11	.38	.13	.769
	GS*PC	-.26	.41	-.33	.526	1.04	.56	1.26	.066

Note. GS = group status; AS =autonomy support; PC = psychological control.

(*B*= .11, *SE* = .38 *p* = .769) nor observed (*B* = -3.2, *SE* = .36, *p* = .378) AS related to ER, while controlling for group status. Additionally, neither adolescent-perceived (*B*= 1.04, *SE* = .56, *p* = .066) nor observed (*B* = -.26, *SE* = .41, *p* = .526) PC related to ER, while controlling for group status. This means that our hypotheses about the interaction effects are not confirmed either. However, the interaction analysis between group status and adolescent-perceived PC did show a trend effect.

Discussion

The current study aimed to examine whether adolescent-perceived parenting or observed parenting is more important for ER in adolescents, and to test the possible moderating role of adolescent depression. Depressed adolescents showed significantly lower adaptive ER. Looking at our main research question, we did not find significant results between perceived and observed PC nor AS, and adolescent ER. We did not find significant results for the interaction effects between group status and PC or between group status and AS. We did, however, find a trend effect for the moderating effect between depression and adolescent-perceived PC.

Impaired ER and Depression

The first goal of our study was to look at the effects of group status and ER. In our research we found that adolescents with diagnosed depression showed significantly lower adaptive ER. This is in line with our hypothesis and is consistent with the literature on ER and depression (Garnefski & Kraaij, 2007; Joormann & Gotlib, 2010; Schäfer et al., 2017; Silk et al., 2003; Visted et al., 2018). Like most studies on this topic, our study was cross-sectional in nature. This hinders us from making causal claims concerning depression and ER. However, there have been a few longitudinal studies that found that ER problems predict depressive symptoms in adolescence (Feng et al., 2009; Gonçalves et al., 2019; Kim & Cicchetti, 2010).

Most studies researching the relationship between depression and ER either look at adults who have been diagnosed with depression (Dennis, 2007; Garnefski & Kraaij, 2007; Joormann & Gotlib, 2010; Visted et al., 2018) or look at adolescents with depressive symptoms, but without a diagnosis (Garnefski & Kraaij, 2018; Gonçalves et al., 2019; Hughes, Gullone, & Watson, 2011; Larsen et al., 2013; Schäfer et al., 2017; Silk et al., 2003). Our findings add to the literature by specifically looking into diagnosed depressed adolescents and their ER. This adds valuable information as it highlights that impaired ER is not only linked to depressive symptoms in adolescents, but also to diagnosed depressive disorders. Knowing that lower adaptive ER is one of the mechanisms at play in adolescent depression can help develop more targeted interventions for depression. For example, it would be beneficial to teach adolescents long-term tools, such as adaptive ER strategies, to help prevent the recurrence of depression and hopefully increase their quality of life.

Effects of Parenting on ER

Unexpectedly, we did not find significant results between adolescent-perceived PC and ER and observed PC and ER. Several studies have linked PC to great ER problems in children and adolescents (Barber et al., 2005; Eisenberg et al., 2010; Morris et al., 2017; Steinberg, 2005). As PC is emotionally manipulative in its essence and is dysregulating to the emotions and cognitions of adolescents it most likely has a negative impact on ER (Morris et al., 2002). We also did not find significant results for adolescent-perceived AS and ER and observed AS and ER. Several studies show that AS is positively related to ER in children and adolescents (Brenning et al., 2015; Roth & Assor, 2012; Roth et al., 2009). Autonomy supportive parents create a positive emotional climate in which emotions are accepted and explored. This helps children to learn about their emotions and thus foster a good climate for developing ER (Roth & Assor, 2012; Roth et al., 2009).

Studies of the relationship between PC, AS and ER have mostly focused on either children or teens in early adolescence (Aunola, Tolvanen, Viljaranta, & Nurmi, 2013; Blossom, Fite, Frazer, Cooley, & Evans, 2016; Brenning et al., 2015; Cui et al., 2014). Early adolescence can be categorized as teens between the ages of 10 to 14 years old (Blum, Astone, Decker, & Mouli, 2014). The average age of our research sample is 16 years old, which falls under the category middle adolescence (Ages 15 to 17) (Arnett, 2015). There is a possibility that the relationship between PC and ER and AS and ER might not be as strong in middle adolescence, as it is in childhood and early adolescence. This could explain why we did not find significant results with our age group. A meta-analysis by Zimmer-Gembeck et al. (2022) confirms that age may play a relevant factor in the study of parental influence and children's ER. During adolescence, teens gain more independence from their parents (Geuzaine, Debry, & Liesens, 2000; Szwedo, Hessel, Loeb, Hafen, & Allen, 2017; Van Eickels, Tsarpalis-Fragkoulidis, & Zemp, 2022). With this growing independence, it is possible that PC and AS parenting has less effect on their ER development, compared to children and younger adolescents. Furthermore, in middle and late adolescence, friends become more important for the social emotional development of the teen (Nickerson et al., 2005). Adolescents can even develop ER strategies by learning and adapting from their friends' ER strategies (Reindl, Gniewosz, & Reinders, 2016). Thus, it is possible that adolescents can learn and adapt from their friends ER strategies, regardless of their parents PC or AS. In conclusion, as teens in middle adolescence become less dependent on their

parents, it is possible that PC and AS parenting has less effect on their ER development. In addition, it is possible that teens in middle adolescence learn and adapt their friends ER strategies, regardless of their parents PC and AS.

Looking specifically at observed parenting, we see that our observations of PC and AS do not relate to ER. Parent behaviors in very specific interactions during adolescence are thus not in themselves indicative of the young person's ER. That these specific moments of observable parenting behavior are not directly related to the overall ER of the young person is understandable when looking at the broader context of the life of the adolescent. Many factors are at play when developing ER, such as upbringing, social life and temperament (Garnefski & Kraaij, 2007).

Something to take into consideration regarding methodology, is that we used the PBI questionnaire (Parker et al., 1979) to assess PC and AS. Out of the 25 items on this questionnaire, six items are in regard to PC. Most other studies use the eight item Psychological Control Scale—Youth Self-Report (PCS-YSR) (Barber, 1996) to asses PC. PC can be defined as parenting that uses the following tactics to manipulate the parent-child bond: psychological and emotional manipulation, withholding love, instilling guilt, downplaying and mocking feelings, and using parenting practices that infringe on the development of autonomy (Barber, 1996). The PBI mostly focuses on stopping the child from developing independence, withholding love and psychosocial and emotional manipulation (e.g. “My father tries to make me dependent on him”, “My father makes me feel like I’m not wanted”). The PCS-YSR questionnaire mostly focuses on downplaying and mocking feelings, instilling guilt, withholding love and psychological and emotional manipulation (e.g. ‘’He blames me for other family members problems’’, ‘’He is less friendly with me if I do not see things his/her way’’).

Comparing the two questionnaires, the PBI misses items covering instilling guilt and downplaying and mocking feelings. Shame and guilt have been connected to nonadaptive ER strategies, including expressive suppression (Elison et al., 2006; Schoenleber & Berenbaum, 2012; Szentágotai-Tătar & Miu, 2017; Van Eickels et al., 2022). Expressive suppression is an individuals attempt to mask one’s emotions after a trigger (Gross & John, 2003; Szentágotai-Tătar & Miu, 2017). Expressive suppression could thus not only occur when an adolescent feels guilt, but could also occur when a parent downplays or mocks their child’s feelings.

Expressive suppression is a counterproductive ER strategy (Dryman & Heimberg, 2018; Szentágotai-Tătar & Miu, 2017). The reaction of expressive suppression could further explain how the PC constructs of inducing guilt and mocking emotions are connected to less adaptive ER. We strongly encourage future research to further look into the different constructs of PC and their relation to ER.

We also used the PBI to asses AS. Out of the 25 items on this questionnaire, seven items are in regard to AS. Many other studies about AS use the eight item Psychological Autonomy Granting Scale (Silk et al., 2003). AS parenting focuses on providing children with choices and informative feedback instead of imposing control as they explore their emotions, interest and self-values (Brenning et al., 2015). When comparing the contents of the respective questionnaires, the items have the same conceptual level. Both questionnaires are aimed at assessing the level of AS the parent gives to their child. For example, sample items of the PBI included "My father lets me do the things I like" and "My father lets me decide things for myself". To compare, sample items of the Psychological Autonomy Granting Scale are "My parents let me make my own plans for things I want to do" and "My parents keep pushing me to think independently". In our opinion, both questionnaires are interchangeable as they cover the same conceptual level of AS.

Focusing specifically on alternative possibilities of not finding significant results between AS and ER, one possibility could be the interference of the adolescents' temperament (Stifter, Dollar, & Cipriano, 2011). Children who have a higher-than-average temperament show more nonadaptive ER (Dollar & Stifter, 2012). They move towards more novelty, impulsivity and pleasure and when these goals are blocked, they could show more anger and frustration, and can show dysregulated ER (Stifter et al., 2011). Similarly, children who are characterized as lower-than-average temperament, resist novelty and out-of-comfort experiences and may need additional skills to regulate these emotions. Having a higher- or lower than average temperament could thus intervene with the AS provided by parents and still cause dysfunctional ER.

The absent relation between PC and ER in the current study may also be explained by the theorized internalizing effect of PC. PC has internalizing emotional costs for the child, but it still induces compliance as the child does not want to disappoint their parent (Barber, 1996; Roth et al., 2009). As a result, children of psychologically controlling parents might not show

externalizing problems. Our ER questionnaire is based on behavioral ER, which manifest as externalizing problems instead of cognitive ER, which manifest as internalizing problems. This could explain why there is no significant result between PC and behavioral ER. A meta-analysis by Zimmer-Gembeck et al. (2022) further confirms this theory. In their analysis they found that parenting behaviors and their children's ER could be associated with less internalizing symptoms, but that the findings were rather negligible for children's externalizing behavior. In conclusion, as children do not want to disappoint their parents, they possibly do not show externalizing problems. This could explain the absent relation between PC and ER in our study.

The second goal of the study was to determine if adolescent-perceived parenting or observed parenting is more important for ER in adolescents. Since we did not find significant results, we cannot compare observed or adolescent-perceived methods for PC and AS with each other. This prevents us from forming any conclusions about which research methods generates more significant results.

The Moderating Effect of Group Status

We found a trend effect for adolescent-perceived but not for observed PC to adolescent ER, specifically in adolescents with depression. This suggests that when adolescents with clinical depression experience their parents as more psychologically controlling, they have more difficulty with their ER. This trend effect is only found in adolescent-perceived PC. We did not find this trend effect for observable PC. This means that adolescents with ER issues experience their parents as more psychologically controlling, but that in this study we do not see psychological controlling behavior in their parents. However, it is important to note that observed PC concern very specific interactions and that adolescent-perceived PC concerns the PC levels in daily life.

From a clinical viewpoint, our results could mean that adolescents with depression and difficulty in ER may have a negativity bias. This negativity bias could be worked on through therapy. For example, using a cognitive behavioral therapy G-scheme could help the adolescent work trough their thoughts, feelings and behavior when faced by parental behavior. Cognitive behavioral therapy (CGT) is widely used and has proven to be effective (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012). Future research is needed to demonstrate if CGT could actually work as a beneficial therapy choice in the area of family dynamics.

Furthermore, in the current study, we did not observe what happens in the daily life of adolescents in regards to parental behavior. It is likely that observable PC does contribute to the overall, perceived PC from the adolescents' perspective, and is thus related to the young person's ER. It is worthwhile to further investigate this. In addition, psychoeducation and system-based interventions in a clinical setting could be beneficial to make parents aware of the connection between parental behavior as adolescents experience it and their ER.

In conclusion, when adolescents with clinical depression experience their parents as more psychologically controlling, they have more difficulty with their emotion regulation. An explanation for this is a possible negativity bias, which CGT therapy could help with. Furthermore, it is likely that observable PC does contribute to the overall, perceived PC from the adolescents' perspective, and is thus related to the young person's ER. Psychoeducation and system-based interventions could be beneficial to make parents aware of the connection between parental behavior as adolescents experience it and their ER.

Strengths and Limitations

The biggest strength of this study was the application of multiple research methods. We are one of the first studies to research if adolescent-perceived parenting or observed parenting is more important for ER in adolescents. We used both self-report and observational methods in this study to obtain more objective measurements of parenting and ER. Another strength of this study was that we used a sample of adolescents with clinical depression. Where other research mostly focuses on a normative sample or a sample of adolescent with symptoms of depression, we were able to recruit and study a vulnerable subsample of clinically depressed adolescents. A third strength of this study was that adolescent's reported on their parents PC, instead of the parents reporting on their own PC. Research shows that adolescent-perceived parental PC is more perceptible compared to other reporters (Cui et al., 2014). The adolescent-perceived parental PC could be an important predictor of the adolescent's social emotional development (Cui et al., 2014; Morris et al., 2007).

A limitation of the study is the limited sample size of our depressed adolescents. We wanted to include more depressed adolescents, but unfortunately were unable to find more willing depressed adolescent participants. A bigger sample size could have been the difference between finding a trend effect for adolescent-perceived PC in depressed adolescents and possibly finding significant results. Another limitation of the study is that our

data was cross-sectional. This withholds us from making causal interpretations about parental PC and AS, and adolescent ER. It is thus possible that the adolescents dysregulated ER could bring out more psychologically controlling parental behavior or that the adolescents regulated ER could bring out more autonomy supportive parental behavior (Cui et al., 2014). As our data was cross-sectional, readers interpreting these data should exercise caution.

Conclusion

In conclusion, the current study found that adolescents with diagnosed depression showed significantly lower adaptive ER. Rather than focusing on depressive symptoms, this study is among the first to find a relationship between diagnosed depression and lower adaptive ER in adolescents. This highlights the importance of teaching adolescents long-term tools, such as adaptive ER strategies, to help prevent the recurrence of depression and hopefully increase their quality of life. Second, our findings show that observed and perceived parental PC and AS in middle adolescence are not related to adolescent ER. Finally, we found a trend effect suggesting that when adolescents with clinical depression experience their parents as more psychologically controlling, they have more difficulty with their emotion regulation. CGT interventions could be a valuable therapy form in these family dynamics, but future research is needed to solidify this. Lastly, it is likely that observable PC does contribute to the overall, perceived PC from the adolescents' perspective, and is thus related to the young person's ER. It is worthwhile to further investigate this. Psychoeducation and system-based interventions in a clinical setting could be beneficial to make parents aware of the connection between parental behavior as adolescents experience it and their ER.

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