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Perceived Parental Rejection and Symptoms of Depression in Adolescents: Mediation Analysis of Hostility and Submissiveness, and Conditional Effects of Gender.

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Abstract

Upbringing marked by parental rejection may contribute to the development of symptoms of depression in later life. The current study examined how perceived parental rejection relates to symptoms of depression through a moderated mediation by interpersonal behaviour (IPB), that is hostility and submissiveness (mediators), and gender of the child (moderator). Parental rejection was hypothesised to associate with symptoms of depression. Further, children's hostile and submissive behaviours were predicted to form the indirect link between parental rejection and symptoms of depression. Lastly, girls were expected to show stronger hostile and submissive behavioural reactions to parental rejection than boys; and symptoms of depression were predicted to be higher in hostile girls and submissive boys. 157 Dutch adolescents aged between 16 and 20 reported on their perceived parental rejection on a shortened version of the 'My Memories of Upbringing' (EMBU). Depression was assessed using the Depression Anxiety Stress Scale (DASS-21). Hostility and submissiveness were measured with the Social Behaviour Inventory (SBI). Findings of the bootstrapped regression analysis using PROCESS macro found support for the prediction of symptoms of depression by parental rejection. However, this relationship was only found to be mediated by higher submissiveness. Gender only moderated the link between parental rejection and hostility. The results were discussed in the context of interpersonal complementarity, differing representations of depression and gender roles. Future research might employ different research designs, allowing for more differentiated analyses of the studied variables.

Keywords: Depression, parenting, hostility, submissiveness, EMBU

Perceived Parental Rejection and Symptoms of Depression in Adolescents: Mediation Analysis of Hostility and Submissiveness, and Conditional Effects of Gender.

Depression is a major factor contributing to the global burden of disease (GBD 2017 Disease and Injury Incidence and Prevalence Collaborators, 2018; Liu et al., 2020). For example, in the Netherlands, lifetime prevalence estimates for depression vary between 15.5% and 18.7% (De Graaf et al., 2012; Ormel et al., 2015). Depression is associated with comprised work performance and absenteeism, social isolation, and higher suicide rates, which poses a high concern for the individual and society alike (Lépine & Briley, 2011; Sartorius, 2001). The age of onset for depression is estimated in early adolescence, increasing the risk of subsequent mental disorders in later life (Ormel et al., 2015). Therefore, it is crucial to understand the factors associated with symptoms of depression in adolescents to ensure early detection and improve preventive treatment. Among the many risk factors for depression, research has identified parental rearing style and interpersonal behaviour as factors contributing to the development of symptoms of depression (Horowitz, 2004; Rojo-Moreno et al., 1999).

Parental Rejection and Symptoms of Depression

Parental rejection is a form of maladaptive parenting, which may be characterised by criticising behaviours, accusing, and bitterness towards the child (Penelo et al., 2012). Children who perceive their parents as rejective have been found to display symptoms of depression in various age groups. Perceived parental rejection was found to correlate with clinically significant symptoms of depression in adolescents and young adults aged between 13 and 22 (Khasakhala et al., 2012). In a similar vein, parental rejection has been associated with and was predictive of non-clinical symptoms of depression in early adulthood (Baker & Hoerger, 2012), adulthood (Runkewitz et al., 2006) and late adulthood (Rothrauff et al., 2009;

Weich et al., 2009). In sum, research suggests a predictive relationship between parental rejection and symptoms of depression across the life span.

Considering that the timespan between upbringing and depressive symptoms in adolescents can be long, it is likely that this relationship is maintained by a third factor. The literature reviewed above recommends further exploration of such factors (Baker & Hoerger, 2012; Rothrauff et al., 2009; Runkewitz et al., 2006), possibly considering children's behaviour as influenced by parents (Khasakhala et al., 2012; Oldehinkel et al., 2006). This may suggest examining adolescents' interpersonal behaviour to better understand the relationship between parental rejection and depression.

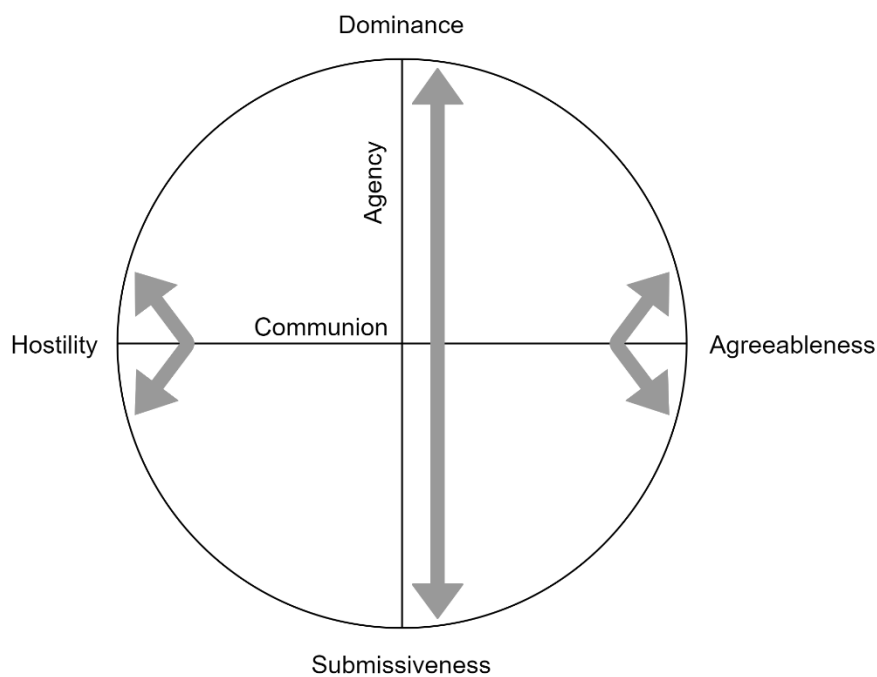
Parental Rejection and Interpersonal Behaviour

Interpersonal behaviour (IPB), also referred to as social behaviour, describes the behavioural processes occurring during interactions between individuals (aan het Rot et al., 2013). IPB can be conceptualised along two orthogonal dimensions, communion and agency, which together form the interpersonal circumplex as shown in Figure 1 (Kiesler, 1983; Leary, 1957; Wiggins, 1979). Communion is illustrated by relational behaviours and reflects the need to affiliate with others. It ranges from hostility (also termed quarrelsomeness or cold-heartedness) to agreeableness (or friendliness and warmth). The agency dimension indicates behaviours concerned with individuality, independence, power, and status. It spans from dominance (or assertiveness and assuredness) to submissiveness (or passiveness and unassuredness) (Horowitz, 2004). The dimensions of the interpersonal circumplex are thought to underly complementarity (Figure 1). Behaviours located on the hostility-agreeableness dimension evoke the same behavioural response, while behaviours on the dominance-submissiveness dimension evoke opposite responses (Fournier et al., 2010; Horowitz, 2004; Kiesler, 1983; Markey et al., 2003; Tracey, 1994). More extreme forms of interpersonal behaviour are regarded as socially maladaptive and may thus lead to interpersonal difficulties

(Horowitz, 2004; Sheffield et al., 1995). For example, hostile behaviours such as criticising and ignoring others, and submissive behaviours such as social withdrawal and passiveness can be regarded as dysfunctional behaviours in interpersonal interactions (Moskowitz, 2010; Pearson et al., 2010). For the development of such dysfunctional behaviours, childhood is considered a crucial time (McBride et al., 2007), setting the blueprint for interpersonal behaviour in later life (Shaver & Mikulincer, 2011).

Figure 1

The Interpersonal Circumplex



Note. The thin, black lines indicate the vertical and horizontal dimensions of the circumplex. The bold, grey arrows indicate complementarity for the respective dimension.

Through early interpersonal experiences, children are theorised to form cognitive structures about interpersonal behaviour. These structures are referred to as schemas and include beliefs and expectations about the self and interactions with others (Baldwin, 1992;

Beck & Alford, 2014). Parents or caretakers are thought to be the main influence on the formation of interpersonal schemas, as they are usually the main role models for interpersonal behavioural learning in the first years (McBride et al., 2007; Shaver & Mikulincer, 2011). Concerning maladaptive behaviours, this may mean that through parental rejection, children might form beliefs and expectations about interpersonal behaviour that evolves around being rejected. However, these learned schemas are not bound to the parent-child interactions. Rather, schemas are generalised ideas about interactions that are activated through situational triggers, such that schemas can guide behaviour beyond the circumstances they have been learned in (Baldwin, 1992; Beck & Alford, 2014; Farmer & Chapman, 2016; Scarvalone et al., 2005). Indeed, research suggests that the relationship between maladaptive parenting and children's interpersonal problems in later life is mediated by children's maladaptive schemas (Janovsky et al., 2020; Kaya Tezel et al., 2015; Messman-Moore & Coates, 2007; Roelofs et al., 2013). Simultaneously, complementarity may play into children's hostile and submissive behaviours in face of parental rejection. Children who perceive their parents as hostile may correspond with forming hostile behaviour patterns. Due to their superior status, parents may also be perceived as exerting dominance in their act of rejection. In this case, complementarity would expect the child to form submissive behaviour patterns. Therefore, parents might influence children's maladaptive interpersonal behaviour through interpersonal schemas and complementarity.

In line with such theorisation, perceived parental rejection was found to correlate with children's interpersonal problems (Baker & Hoerger, 2012; Winefield et al., 1990; Zimmermann et al., 2008). More specifically, perceived parental rejection and lack of emotional warmth have been associated with overly hostile and submissive behaviour in adolescence (Muris et al., 2004) and adulthood (Meesters et al., 1995), as well as in the general population (Petrowski et al., 2009). Thus, research suggests an association between

parental rejection and maladaptive interpersonal behaviour in form of hostility and submissiveness.

IPB and Symptoms of Depression

Studies have shown that certain IPBs are associated with depression (Horowitz, 2004). Associations between hostile and submissive behaviours with depression have been found in clinically depressed (Cain et al., 2012; Locke et al., 2017; Quilty, 2013) and non-depressed adult samples (Ghaed & Gallo, 2006; Rappaport et al., 2017). Maladaptive IPBs are thought to prevent the individual from making positive and rewarding social experiences, making them more vulnerable to psychological impairments (Ramírez-Uclés et al., 2018).

Although hostility and submissiveness are both linked to depression, they provide different experiences of depression. Independent of the depression severity, hostility has been found to reflect a self-critical type depression and submissiveness a dependant type of depression (Dinger et al., 2015). Hostile individuals are cold, avoid company and attack others verbally, driving social support away (Dawood et al., 2013; Horowitz, 2004). Submissive individuals fear rejection, internalise negative events and feel inferior to others. They develop dependent relationships, which might ultimately lead to the onset of depression (Dawood et al., 2013; Horowitz, 2004; Pearson et al., 2010). Therefore, although they provide different experiences of depression, hostility and submissiveness can be equally associated with symptoms of depression.

IPB as a Mediator between Parental Rearing Style and Symptoms of Depression

As discussed above, parental rejection appears to predict symptoms of depression. Considering the long timespan between the experiences of parental rejection and the measure and detection of symptoms of depression, it is likely that other factors sustain this link. Previous research has identified hostility and submissiveness as factors associated with both parental rejection and symptoms of depression. Such maladaptive IPBs in everyday life may

alienate social support and rewarding social experiences, heightening the risk of compromised mental health (Ramírez-Uclés et al., 2018). Through this, maladaptive IPBs may maintain the predictive effect of parental rejection on symptoms of depression over the years. Therefore, it may be assumed that hostility and submissiveness function as mediators in the relationship between parental rejection and symptoms of depression, which was tested in the present study.

Gender¹ in Relation to Parental Rearing Style, IPB, and Symptoms of Depression

Thus far, this study proposed the relationship between parental rejection and symptoms of depression to be mediated by hostility and submissiveness. However, to further explore this construct, gender differences should be taken into consideration. Research suggests gender differences in the perception of parental rejection, in IPB, and in symptoms of depression (Akyunus et al., 2019; Kendler & Gardner, 2014; Oldehinkel et al., 2006). Hence, gender differences likely influence the proposed indirect effect between parental rejection and symptoms of depression through hostility and submissiveness.

The first influence of gender proposed here may be observed on the link between parental rejection and hostility as well as submissiveness. With regards to parental rejection, girls have been found to report more perceived parental rejection than boys (Oldehinkel et al., 2006). This has been explained by girls' higher need for affiliation (Cyranowski et al., 2000), which contrasts with more independence-seeking found in boys (Feingold, 1994). Thus, in the context of this study, it is probable that girls show stronger reactions to parental rejection in form of more prominent hostile and submissive behaviours compared to boys. This may be despite generally higher levels of submissiveness found in girls than boys, and more hostile

¹ In context of this thesis, gender is referred to the binary sex differences female and male. This is due to the available literature on this topic as well as the participants of this study.

behaviours exhibited by boys than girls (Akyunus et al., 2019; Hennig & Walker, 2008; Moskowitz et al., 1994).

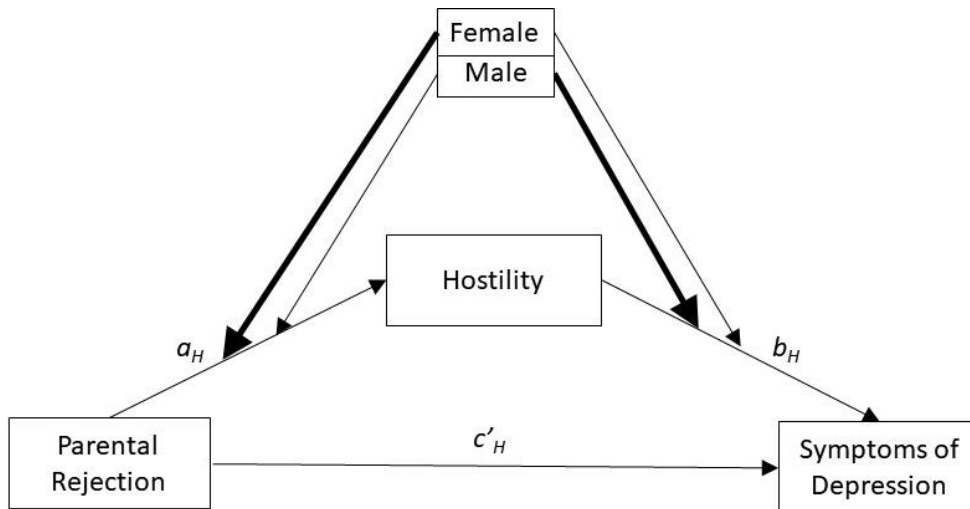
The second influence of gender may be found on the link between hostility or submissiveness and symptoms of depression. The general regard that girls are more submissive, while boys are more hostile, corresponds with social norms of stereotypically female and male behaviour (Ghaed & Gallo, 2006). Incongruencies between gender normed behaviours and gender have been proposed to negatively affect mental health (Ghaed & Gallo, 2006). Consequently, girls who exhibit more hostile behaviours, and boys who show more submissive behaviours may be more prone to symptoms of depression. Therefore, in the present study, gender was treated as a moderating factor in the aforementioned mediation model.

The Present Study

This study set out to analyse the relationship between rejective parenting as perceived by the children in relation to symptoms of depression in adolescence. This relationship was examined for the indirect effect of adolescent's hostile and submissive behaviours. Firstly, it was hypothesised that a relatively rejective parenting style is positively associated higher symptoms of depression in adolescents (pathway *c* in Figure 2 and 3; Hypothesis 1). The mediation by hostility and submissiveness was assessed in two separate models, each assessing either hostility or submissiveness as the mediator. In the first model, the relationship between perceived parental rejection and symptoms of depression was expected to be mediated by hostility (Hypothesis 2a, Figure 2). In the second model, submissiveness was expected to mediate the relationship between perceived parental rejection and symptoms of depression (Hypothesis 2b; Figure 3).

Figure 2

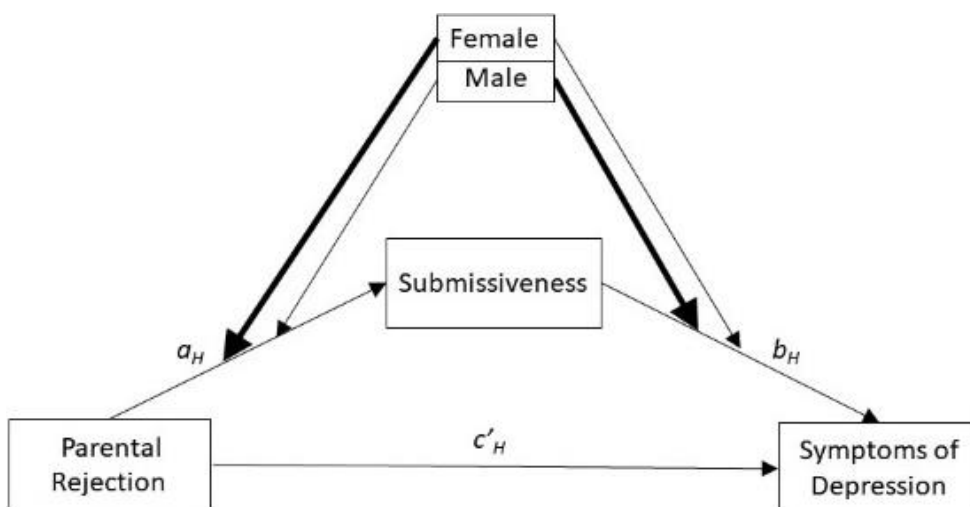
Moderated Mediation Model with Hostility as the Mediator, encompassing Hypothesis 1, 2a, and 3a



Note. Bold lines indicate the expectation for a stronger effect by the respective gender, compared to the light lines.

Figure 3

Moderated Mediation Model with Submissiveness as the Mediator, encompassing Hypothesis 1, 2b, and 3b



Note. Bold lines indicate the expectation for a stronger effect by the respective gender, compared to the light lines.

Further, gender differences in reaction to parental rearing style and on IPB were considered. For both models, gender was hypothesised to moderate the mediation effects of hostility (Hypothesis 3a) and submissiveness (Hypothesis 3b). More specifically, given girls' sensitivity to parental rejection, it was expected that girls would show higher rates of hostility and submissiveness compared to boys (Figure 2 and 3). Additionally, given the social norms on stereotypically female and male interpersonal behaviour, girls high in hostility and boys high in submissiveness were expected to show more symptoms of depression (Figure 2 and 3).

Method

The data for the present study are part of a larger, longitudinal study examining the interpersonal functioning of adolescents with and without bullying experiences. The present study used only the data from the first follow-up assessment point, creating a cross-sectional study design. Participants were recruited in their high school by a researcher who introduced the study and asked for participation. The study was also advertised on social media (Facebook and Instagram). Upon completing the large-scale baseline assessment, participants received a gym bag for compensation. The present study was approved by the psychology ethics committee of the University of Groningen.

Participants

The original study sampled 1698 people. Based on their response to a baseline questionnaire regarding their bullying history, 158 adolescents were invited to the first part of the study. These data were analysed in the present study. One participant identifying as "other gender" was deleted from the dataset, as a single person is insufficient for making inferences to any population. Therefore, the final sample used in the present study consisted of $N = 157$ adolescents from the North of the Netherlands. The characteristics of this convenience sample can be found in Table 1.

Table 1*Demographics and Variable Information According to Gender (N = 157)*

Variables	Total		Girls		Boys				
	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%			
Gender	157	100	108	68.8	49	31.2			
Nationality									
Dutch	155	98.7	107	99.1	48	98			
Other	3	1.9	2	1.9	1	2			
Mother tongue									
Dutch/ Frisian	151	96.2	103	95.4	48	98			
Other	7	4.5	6	5.6	1	2			
Bully/Victim									
Neither	76	48.4	47	43.5	29	59.2			
Victim	48	30.6	40	37.0	8	16.3			
Bully	13	8.3	9	8.3	4	8.2			
Both	20	12.7	12	11.1	8	16.3			
	<i>M</i>	<i>SD</i>	range	<i>M</i>	<i>SD</i>	range	<i>M</i>	<i>SD</i>	range
Age	17.4	0.9	16-20	17.3	0.8	16-20	17.6	1.0	16-20
Parental rejection	.6	0.51	.00-2.6	0.6	0.5	.0-2.6	0.5	0.5	.0-2.0
Hostility	2.5	0.67	.58-4.2	2.4	0.7	.6-3.9	2.6	0.6	1.0-4.2
Submissiveness	2.7	0.84	.73-4.8	2.8	0.9	.7-4.7	2.7	0.7	1.4-4.8
Depression	8.5	8.08	0-34	8.9	7.5	.0-32.0	7.5	9.2	.0-34.0

Note. Some participants indicated more than one nationality and mother tongue.

The cut-off for the depression scale was as follows: mild 10–13, moderate 14–20, and severe or extremely severe symptoms of depression 21+ (Lovibond & Lovibond, 1995).

Materials

Parental Style

The Dutch version of the Swedish self-report questionnaire Egna Minnen Beträffande Uppfostran (“My Memories of Upbringing”; Perris et al., 1980) for children (EMBU-C) was used to assess parental rearing style as perceived by the adolescents (Castro et al., 1993). Participants were asked to recall the behaviour of their biological parents (i.e., with no reference to a specific timeframe). For the present study, only the subscale rejection was analysed (Arrindell et al., 1986; Markus et al., 2003). Parental and maternal behaviour was assessed separately with the same four items (e.g., “Does your mother/father blame you for everything?”), resulting in a total of eight items. Each item was scored on a 4-point Likert scale ranging from *no, never* (0) to *yes, nearly always* (3), with an option for *not applicable* (4). Indications of *not applicable* were deleted from the dataset and the scores were mean averaged with a possible range between 0 and 24. Internal consistency of the rejection subscale was $\alpha = .79$, indicating moderate reliability.

Symptoms of Depression

The Dutch version of the Depression Anxiety Stress Scale (DASS-21) was used to assess symptoms of depression, anxiety, and stress (Lovibond & Lovibond, 1995; Wardenaar et al., 2018). For the present study, only the seven items on depression were considered (e.g. “I felt that life was meaningless”). Participants indicated their responses referring to the last seven days on a 4-point Likert scale (ranging from *not at all* [0] to *most of the time* [3]). Scores were summed up and then doubled to compare to the cut-off scores of the DASS-42 version. The possible total scores for the depression items ranged from 0 to 42, with high scores indicating high symptoms of depression. The internal consistency of the depression items was good at $\alpha = .88$.

Interpersonal Behaviour

The Dutch version of the Social Behaviour Inventory (SBI) was used to measure interpersonal behaviour, referring to the last four weeks (aan het Rot et al., 2013; Moskowitz, 1994). For the present study, only the scales for hostility (e.g., “I confronted the other[s] about something I did not like”) and submissiveness (e.g., “I let other[s] make plans or decisions.”) were used. Each scale was assessed with 12 items that were scored on a 7-point Likert scale (ranging from *never* [0] to *almost always* [6]). For each scale, scores were mean averaged, such that possible total scores of each scale ranged from 0 to 6, with high scores indicating high hostility or submissiveness. The internal consistency for hostility was $\alpha = .77$ and for submissiveness = .86, indicating moderate and good reliability, respectively.

Bullying Status

The Olweus Bully/Victim Questionnaire (BVQ) (Olweus, 1996) was used to identify bullies and victims of bullies to include as a covariate. First participants were provided with a small definition of bullying. The questionnaire consisted of 18 items, two of which identified bullies and victims of bullies by referring to their behaviour or experiences in the past month. The further 16 items inquired specific aspects about bullying and victimisation (8 items each). All items were used and scored on a 5-point Likert scale (for the two identification items answered ranged from *I do not bully others* [0] to *I bully others multiple times per week* [4], and for the specific aspects of bullying and victimisation from *Never* [0] to *Twice per week* [4]). All items were dichotomously re-coded, such that indications of zero and one were converted to zeros, and all indications of two to four were scored one. By this, four categories were created (non-involved reference group coded as 0, victims coded as 1, bullied coded as 3, and being a bully and victim coded as 4).

Procedure

Participants were asked to fill in online questionnaires between March and May 2018. The language of instruction was Dutch, and all questions had a forced-choice format. At the beginning of the questionnaire, participants consented to partake in the study. The online questionnaire inquired about participant's perceived parental style, interpersonal behaviours, and symptoms of depression. Finally, the participants were thanked and received instructions on the proceedings of the further parts of the original study, which will not be further specified here.

Analyses Plan

All analyses were carried out using SPSS version 26. Firstly, descriptive statistics of the entire sample as well as by gender (Table 1) were calculated. Further, point-biserial correlations between parental rejection, hostility, submissiveness, gender, and symptoms of depression (Table 2) were computed. For the main analyses, models 4 and 58 of PROCESS macro version 3.5 for SPSS were used (Hayes, 2017). Model 4 was run twice to analyse the relationship between parental rejection and symptoms of depression for mediation by hostility and submissiveness, respectively. Subsequently, the same two models were analysed for moderation by gender on the *a*- and *b*-paths using model 58. The conditional indirect effects for the two levels of gender were visually examined by means of simple slopes. For the main analyses, continuous variables were grand mean centred to create meaningful zeros for better interpretation. Bullying status was dummy coded, with non-involved as the reference group. Further, the bootstrapping procedure of the PROCESS macro was used with 5000 bootstraps resamples. This resampling method was intended to avoid power issues as well as non-normality issues (Preacher et al., 2007). With bootstrapping, bias-corrected and asymmetrical 95% confidence intervals (CIs) were calculated (Preacher et al., 2007). If the CIs did not contain zero, the effect was considered significant. Effects of $R^2 > .64$ were considered large,

$R^2 > .25$ moderate, and $R^2 > .04$ were considered small. An effect size of $R^2 < .04$ was considered as no effect (Ferguson, 2009). Before the moderated mediation analyses, assumption checks for regression analysis were conducted (normality of the residuals, linearity, homoscedasticity, uncorrelatedness of residuals, multicollinearity, and outliers), see Appendix.

Results

Descriptive statistics and Correlations

For an overview of the main study variables and sample characteristics, the variables summary statistics were calculated (Table 1). The mean levels of parental rejection, hostility, and submissiveness were low considering the maximum possible scores. Symptoms of depression were less than mild in the whole sample. Girls showed slightly higher means of parental rejection, submissiveness, and symptoms of depression. Only on hostility, boys scored slightly higher than girls.

Table 2

Point-biserial Correlation between Parental Rejection, Hostility, Submissiveness, Gender, and Symptoms of Depression (N = 157).

	Parental rejection	Hostility	Submissiveness	Gender	Depression
Parental Rejection					
Hostility	.23**				
Submissiveness	.26**	.06			
Gender	-.11	.11	-.06		
Depression	.32**	.13	.55**	-.08	

** $p < .01$.

Point-biserial correlations were calculated to provide an overview of the associations between the main study variables (Table 2). The correlations between parental rejection and hostility, submissiveness, symptoms of depression were significant. Further, submissiveness and symptoms of depression correlated significantly. Most correlations were weak to moderate.

Main Analysis

Hypothesis 1: Association between Parental Rejection and Symptoms of Depression.

The correlation between parental rejection and symptoms of depression was significant ($r = .32, p < .01$), confirming the first hypothesis.

Hypothesis 2a: Hostility as the Mediator between Parental Rejection and Symptoms of Depression

As shown in Figure 4, parental rejection was positively and significantly predictive of symptoms of depression (c -prime path, $b = 3.86, CI [1.18, 6.62]$), as well as hostility (a -path, $b = .25, CI [.07, .43]$). Hostility did not show predictive validity for symptoms of depression (b -path, $b = .82, CI [-.67, 2.25]$). The indirect effect of hostility on the relationship between parental rejection and symptoms of depression (ab -path) was not significant ($b = .21, CI [-.15, .74]$). Thus, hypothesis 2a could not be supported. Nevertheless, the model was overall significant, with parental rejection, hostility, and the covariates explaining 18.40% of the variance in symptoms of depression ($p < .00, R^2 = .18$).

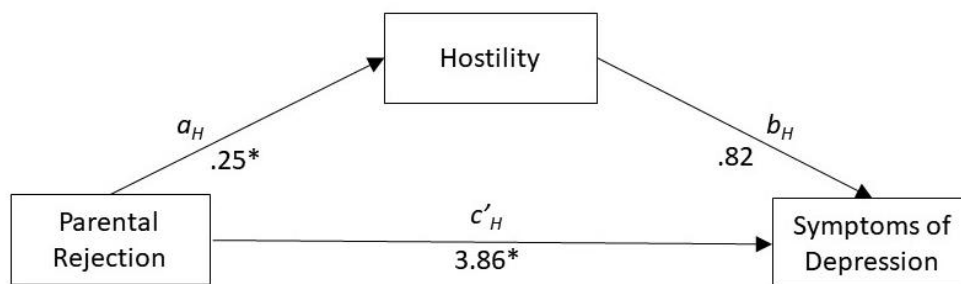
Hypothesis 2b: Submissiveness as the Mediator between Parental Rejection and Symptoms of Depression

Figure 5 displays the mediation model with submissiveness as the mediator. In the model, parental rejection was positively and significantly predictive of symptoms of depression (c -prime path, $b = 2.65, CI [.341, 4.97]$) and submissiveness (a -path, $b = .32, CI [.05, .63]$). Submissiveness was found to be positively and significantly predictive of

symptoms of depression ($b = 4.40$, CI [2.92, 5.90]). With this, the indirect effect of submissiveness on the link between parental rejection and symptoms of depression (ab -path) was significant ($b = 1.42$, CI [.22, .287]), supporting hypothesis 2b. 36.27 % of the variance in symptoms of depression was explained by all predictors ($p < .00$, $R^2 = .36$).

Figure 4

Mediation Model with Hostility as the Mediator

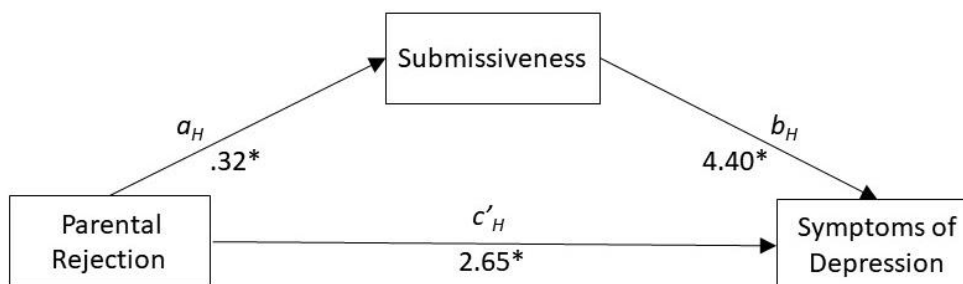


Note. Values indicate the unstandardised beta values.

* *CI did not contain zero.*

Figure 5

Mediation Model with Submissiveness as the Mediator

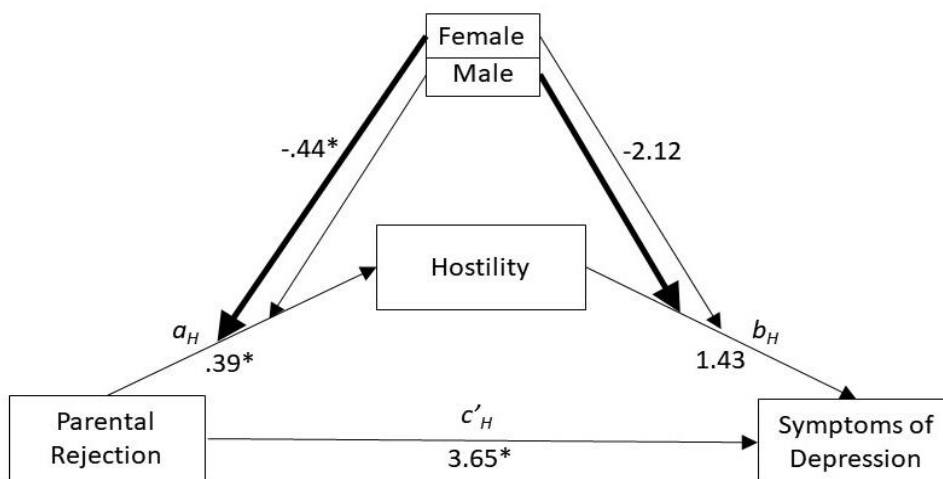


Note. Values indicate the unstandardised beta values.

* *CI did not contain zero.*

Hypothesis 3a: Moderated Mediation of Hostility

Figure 6 presents the positive and significant predictive power of parental rejection of symptoms of depression (*c*-path, $b = 3.65$, CI [.92, 6.34]), as well as hostility (*a*-path, $b = .39$, CI [.17, .61]). Hostility did not predict symptoms of depression (*b*-path, $b = 1.43$, CI [-.43, 3.19]). The effect of gender was significant on the *a*-path ($b = -.44$, CI [-.85, -.04]) but non-significant on the *b*-path ($b = -2.12$, CI [-6.01, .88]). This provided partial support for the hypothesis 3a. Nevertheless, the overall model was significant, with all predictors explaining 18.99 % of the variance in symptoms of depression ($p < .00$, $R^2 = .19$).

Figure 6***Moderated Mediation Model with Hostility as the Mediator***

Note. Values indicate the unstandardised beta values. The *b*-values for the gender moderations apply to both genders.

* *CI did not contain zero.*

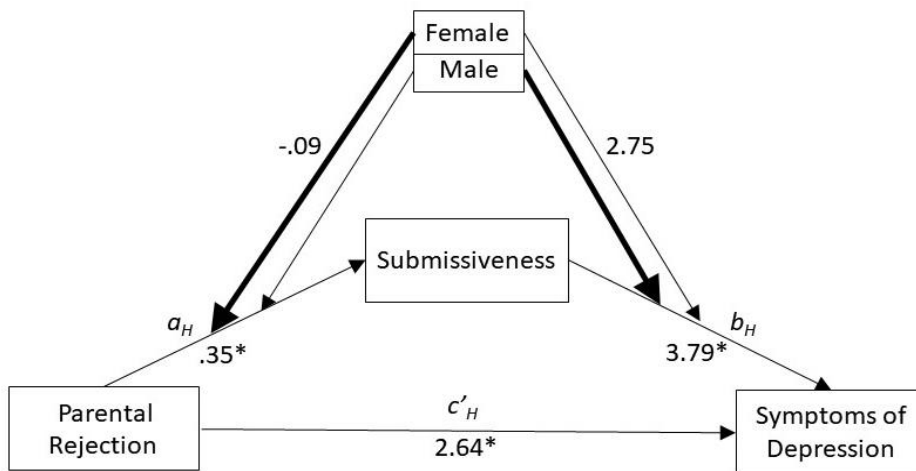
Hypothesis 3b: Moderated Mediation of Submissiveness

Figure 7 shows the indirect effect of submissiveness on the link between parental rejection and symptoms of depression, conditioned by gender. Parental rejection predicted

symptoms of depression (c -path, $b = 2.64$, CI [.33, .5.04]). and submissiveness (a -path, $b = .35$, CI [.00, .75]). Submissiveness predicted symptoms of depression positively and significantly (b -path, $b = 3.79$, CI [2.11, 5.44]). The effect of gender on the a - and b -paths were not significant ($b = -.09$ and CI [-.65, .39], $b = 2.75$, CI = [-.95, 6.45] respectively). Therefore, hypothesis 3b was not supported. The overall model was significant, all predictors account for 37.67 % of the variance in symptoms of depression ($p < .00$, $R^2 = .38$).

Figure 7

Moderated Mediation Model with Submissiveness as the Mediator



Note. Values indicate the unstandardised beta values. The b -values for the gender moderations apply to both genders.

* *CI did not contain zero.*

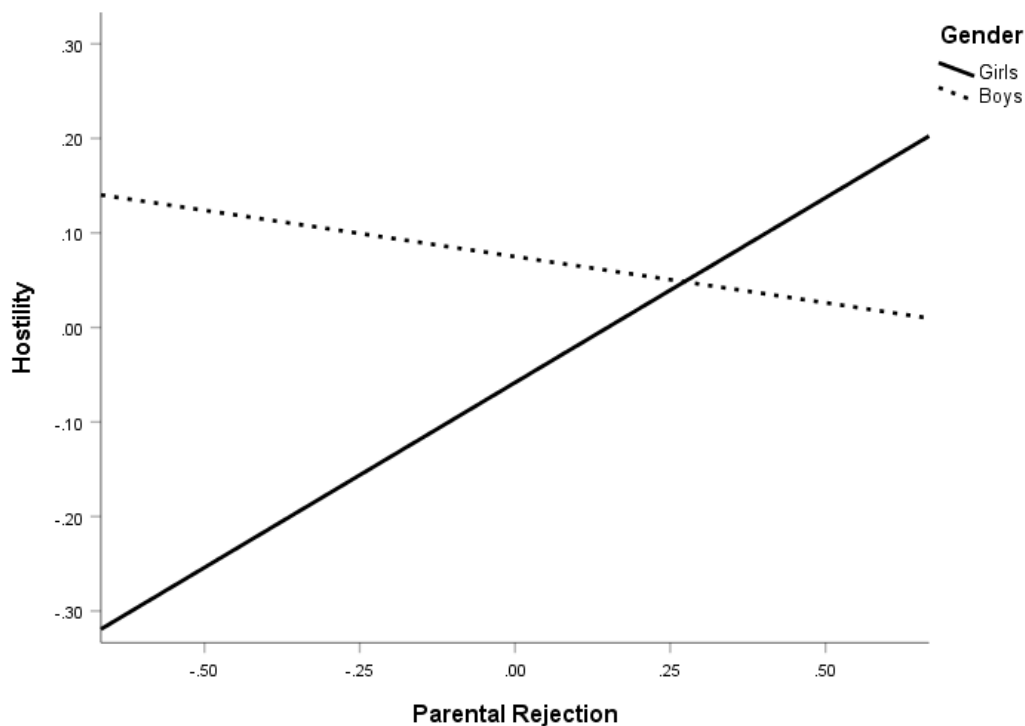
Simple Slopes

To visualise the interaction effect of gender, only the simple slope from the significant moderated mediation model was created (Figure 8). Gender moderated the relationship between parental rejection and hostility (a -path). While boys showed a slight decrease in

hostility across scores of parental rejection, girls showed increasing levels of hostility for increasing levels of parental rejection.

Figure 8

Simple Slope Showing the Interaction Effect of Gender on Parental Rejection and Hostility for Girls and Boys (a_H-path)



Discussion

The present study examined factors contributing to symptoms of depression in adolescents by analysing parental rejection and interpersonal behaviour (IPB), while considering the children's gender. Previous research found significant interrelations between these factors. However, the indirect effect of IPB and the conditional effect of gender have thus far not been analysed on the relationship between parental rejection and symptoms of depression in a single model. The present study found support for the first hypothesis, testing the relationship between parental rejection and symptoms of depression. Whereas no effect

was found for the influence of hostility on the relationship between parental rejection and symptoms of depression, submissiveness appeared to affect this link. Therefore, providing no support for hypothesis 2a, but supporting hypothesis 2b. Further, the gender of the child was only influential on the link between parental rejection and hostility, partially supporting hypothesis 3b.

In line with previous research using the same measure for perceived parental rejection, the present study found increasing parental rejection to correspond with an increase in symptoms of depression (Baker & Hoerger, 2012; Khasakhala et al., 2012; Rothrauff et al., 2009; Runkewitz et al., 2006). Therefore, the present result feeds into previous research findings on the link between parental rejection in childhood and symptoms of depression in later years. Previously, this association has been explained with various factors, such as lack of children's self-regulatory mechanisms, internalisation of negative self-beliefs (Baker 2012), lack of children's self-esteem (Plunkett 2007, Park 2021), and lack of positive and constructive communication between parents and children (Khasakhala et al., 2012). Interpersonal problems have also been identified as the indirect link between parental rejection and mental health problems in students (Saleem et al., 2019). Hostile and submissive behaviours have been identified as interpersonally problematic (Moskowitz, 2010). Thus, by examining such problematic behaviours, the present study focused on hostility and submissiveness as the factors which may translate perceived parental rejection into symptoms of depression in adolescence.

Only submissiveness, but not hostility, was found to indirectly influence the relationship between parental rejection and symptoms of depression. This indicates that not all problematic IPBs influence the link between parental rejection and symptoms of depression equally. This may be better understood by examining the single pathways of the indirect effect. Concerning the first pathway, parental rejection predicted hostility and submissiveness

in both models. These findings are in line with other research results (Meesters et al., 1995; Muris et al., 2004; Petrowski et al., 2009). The characteristics of parental rejection and the complementarity hypothesis may explain how the same experience of parental rejection may lead to different interpersonal responses, i.e. hostility and submissiveness. Parental rejection is mostly considered as cold and hostile behaviour. According to complementarity, it would evoke the same, that is hostile, response. At the same time, the act of rejection by parents may be perceived as dominant. This would account for the opposite, that is submissive, response in children in face of parental rejection. Thus, as parental rejection linked to hostility and submissiveness in the present study, the explanation for the indirect effect of submissiveness, but not hostility, must lie on the second pathway.

In contrast to studies that found both hostility and submissiveness to be associated with symptoms of depression (Cain et al., 2012; Ghaed & Gallo, 2006; Locke et al., 2017; Quilty, 2013; Rappaport et al., 2017), the present study has found submissiveness, but not hostility to be related to depression. However, the present results are in line with previous research, which found different influences of these two interpersonal behaviours on depression (Hennig & Walker, 2008). In a meta-analysis, Bird et al. (2018) found mostly submissive and hostile-submissive behaviours predictive of Major Depressive Disorder, acute depression, and chronic depression. Especially the passive and withdrawal aspects of submissive behaviours are associated with depression (Allan & Gilbert, 1997). Hostility, on the other hand, was found to be less associated with depression, and more so with anger (Smith & Frohm, 1985). Such findings, including the ones from the present study, might be explained by the different conceptualisations of depression, their corresponding characteristics, and associated behaviours.

Various theoretical frameworks examine and explain the different experiences of depression (Rost et al., 2018). For example, Blatt's model of psychopathology frames

depression along two configurations, anaclitic and introjective depression (Blatt et al., 1982). Each configuration characterises different experiences of depression and is predicted by different factors (Blatt et al., 1982). Particularly anaclitic depression has been theorised to reflect submissive behaviours (Miller & Hilsenroth, 2017). Similarly, the cognitive theory-based Schema Therapy, proposes that early maladaptive schemas can lead to psychopathology (Young et al., 2003). Especially the schema of disconnection and rejection has been found to relate to interpersonal problems in terms of being overly submissive (Thimm, 2013). Thus, the symptoms of depression measure possibly reflected only a certain depressive ‘type’, which corresponds to submissiveness, such as anaclitic depression or a certain schema. Since the study did not assess clinical symptoms of depression under the aforementioned frameworks, this explanation is only speculative and should be considered in future research.

In the present study, gender was found to influence the pathway between parental rejection and hostility, but not between parental rejection and submissiveness. Boys who reported higher levels of parental rejection showed lower levels of hostility. For girls, high levels of perceived parental rejection came along with high hostility. This finding is partly in line with research reporting higher sensitivity and stronger reactions to parental rejection in girls, compared to boys (Oldehinkel et al., 2006). It is conceivable, that the complementarity hypothesis could account for these inconsistent gender effects for the different IPBs. Girls, more so than boys, might have perceived parental rejection as hostile behaviour, evoking a hostile response in return. On the other hand, boys and girls might have equally perceived parental rejection as dominant behaviour, such that it would conjure submissive behaviours.

The relationship between the two IPBs and symptoms of depression was not found to differ for gender. This contradicts research indicating differences in hostility, submissiveness, and depression for gender (Akyunus et al., 2019; Kendler & Gardner, 2014), which reflects role differences of gender (López-Sáez et al., 2008). Role differences are framed by the social

role theory, proposing that tasks related to agency are traditionally carried out by men, while communal tasks tend to be carried out by women. This division of labour endorses gender stereotypes (Eagly & Wood, 1991). However, role theories cannot account for the present findings. Rather, the findings suggest no substantial gender differences, which would reflect the gender similarity hypothesis as proposed by Hyde (2005). Overall, research findings on gender differences seem mixed, requiring further clarification.

The present study has two main limitations. First, the parents' gender and parent-child gender interactions were not considered. Research indicated that maternal and paternal rearing styles have different consequences for the children's psychological well-being (Zimmermann et al., 2008). For example, maternal rejection has been associated with higher symptoms of depression in children than paternal rejection (Khasakhala et al., 2012). Furthermore, mothers and fathers seem to affect children differently, depending on the children's gender. For instance, girls have been found to react more strongly to paternal rejection compared to maternal rejection (Ramírez-Uclés et al., 2018). Therefore, parent-child gender interactions might function as a more sophisticated factor in the link between parental rejection and IPB, yielding more specific results.

Second, the current study operationalised IPB as a trait. However, the employed measure of IPB was originally designed to assess situational IPB. In the original measure, IPB is assessed for 20 days using the event-contingency recording method, subsequently the accumulated data is translated into a situational IPB trait (Moskowitz et al., 1994 and 2009). In the present study, IPB trait scores might be less precise due to the cross-sectional assessment of IPB.

Despite the discussed limitations, the present study provides a major strength. The effects of IPB and gender in the relationship between parental rejection and symptoms of depression were integrated and analysed in a coherent model. By this, the present study

incorporated previous findings on mediation and moderation found in the parental rejection and mental health literature (Ramírez-Uclés et al., 2018). Such integration of factors into a single model may provide a more adequate approximation of the complex processes at work.

In light of the findings and considering the strength and limitations, future research should use more adequate measures for the variables of interest and account for potential interactions, such as parent-child gender. In the present study, complementarity was assumed to underly the link between parental rejection and children's hostile and submissive behaviours. To validate this in future studies, the behavioural characteristics of perceived parental rejection may be assessed for hostility and submissiveness. This may be done by asking participants to rate the parental rejection items for hostility or dominance.

Correspondence between hostile or submissive rated parental rejection items and children's hostile or submissive behaviours respectively would provide more refined support for the mechanism of complementarity. Further, future research would benefit from employing repeated measures designs (for example, by using event-contingency recording methods), especially in order to gain more reliable interpersonal trait measures. Such trait measured of IPB could be further examined in relation to different types of depression, for example by using the Depressive Experiences Questionnaire (Blatt et al., 1976). This would provide a better understanding of the links between IPB and depression.

Nevertheless, the study's findings may cautiously inform clinical practice. Pincus and Wright (2010) argued that evaluating interpersonal functioning is an essential part of the diagnostic process, beyond symptom assessment. Therefore, therapists may be advised to inquire about parental rejection and submissive behaviours, to assess adolescents' proneness to depression. Although parental rejection may be reflected in children's hostile behaviours, hostility may not indicate proneness to depression. Training and awareness programmes for

parents and adolescents focusing on adaptive behaviour could break the cycle of complementarity and build a buffer against the risk of depression.

Conclusion

The current study found support for the link between parental rejection and of symptoms of depression. Based on the present results, this link may be explained by children's submissive, but not hostile behaviours. This might be due to certain depressive experiences relating to particular IPB, although further research is needed to understand this. Surprisingly, gender was only found to affect the link between parental rejection and children's hostility. Considering that some findings are not in line with other research findings, especially on gender differences, the discussed shortcoming of the IPB measure, and the cross-sectional design these findings may be interpreted with caution. Nevertheless, the study contributes to the understanding of symptoms of depression in adolescents in relation to their upbringing and IPB.

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Appendix

The assumptions were tested separately for each mediation model. PP Plots and follow-up Schapiro-Wilk tests suggested the data for parental rejection and symptoms of depression to be not normally distributed. However, according to the Central Limit Theorem sample sizes above 30 may already approach normality despite the data being skewed (Kwak & Kim, 2017). Moreover, bootstrapping was used for the main analysis in PROCESS macro, such that the data could be analysed despite this shortcoming. The linearity between the predictor variables (for the first mediation model: parental rejection, hostility, and the interaction terms; for the second mediation model: parental rejection, submissiveness, and the interaction terms) and the dependent variable symptoms of depression was examined by means of partial regression plots. All predictors and the dependent variable were weakly associated. The homoscedasticity assumption was tested with a scatterplot of standardised predicted values and standardised residuals, suggesting a violation of homoscedasticity. However, this issue was resolved by using robust standard errors in PROCESS macro (HC4) (Campbell, 2006; Hayes & Cai, 2007). Multicollinearity was concluded to be absent, with all VIFs < 10 (Lomax & Hahs-Vaughn, 2012). Although SPSS reported the same two outliers at residual level $|\text{residual}| > 3 \text{ SD}$ for both mediation models, none of the outliers had a Cooks distance more than 1 (highest value $D_i = .20$) and were thus not considered influential.