Recalled parental rearing style, self-esteem, and psychopathological symptoms in the general population*

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The enduring impact of perceived parental behavior on self-esteem as well as anxiety and depression in adults is still unknown. In a large random route sample (age range 18–92), 4,747 subjects were asked to complete questionnaires about recalled parental rearing, self-esteem, anxiety, and depression. Structural equation modeling was used, and the data from the mother and the father version of the FEE (a questionnaire for recalled parental rearing) were analyzed separately. A model proposing that self-esteem mediates the relationship between parental behavior and psychopathological symptoms fits the data rather well (CFI = .95, RMSEA = .05, TLI = .94). Hence, the recalled authoritative parental style is positively associated with self-esteem which, in turn, predicted the degree of anxiety and depression. This model holds to the same extent for men and women of all ages (18–92), thus reflecting the important role parental styles play in the occurrence of psychopathological symptoms throughout life.

Key words: self-esteem, recalled parental rearing, anxiety, depression

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Highlights:

• Recalled authoritative parental style is positively associated with self-esteem.
• Self-esteem predicts the degree of anxiety and depression.
• The model holds to the same extent for men and women as well as young and aged.

Some aspects of parenting behavior experienced in childhood may represent a vulnerability factor for psychopathology and a predictor of self-esteem in adolescence (Furnham & Cheng, 2000; Milevsky, Schlechter, Netter, & Keehn, 2007). Self-esteem is acquired through learning derived from the perceived approval or disapproval of significant others such as parents (Conte, Plutchik, Picard, Buck, & Karasu, 1996). Over decades, studies have examined the impact of parenting styles on the development of self-esteem in adolescence or young adulthood based on longitudinal data (Shahimi, Heaven, & Ciarrochi, 2013; Boudreault-Bouchard et al., 2013; Furnham & Cheng, 2000). Due to methodological challenges of retrospectively observed parental rearing, only a few studies have investigated the ongoing influence of remembered parenting behavior on the self-esteem of adults and its mediating effect on psychopathology (Hesari & Hejazi, 2011; Sonnal & Towell, 2001; Betts Trueman, Chiverton, Stanbridge, & Stephens, 2012).

Early researchers like Lewin postulate three different styles (authoritarian, democratic and laissez-faire) (Lewin, Lippitt, & White, 1939). Lamborn and colleagues (1991) named also an indulgent and a neglectful rearing style (Lamborn, Mounts, Steinberg, & Dornbusch). In contrast, the theory by Maccoby and Martin, very popular today, proposes four styles (authoritarian, authoritative, permissive, and rejecting) (Maccoby, 2007). Despite the multitude of different parenting styles postulated, among parenting styles with high overall parental involvement two main styles can be distinguished: the authoritative and the authoritarian parenting style (O’Reilly & Peterson, 2014). Authoritative parenting is characterized by emotional warmth, acceptance, and support as well as an adequate proportion of control. In contrast, authoritarian parenting is described by a rather dictatorial contact combined with highly controlling behavior, high discipline, and less emotional warmth and affection towards the child (Baumrind, 1982).

Concerning self-esteem in adolescence, the highest scores for self-esteem were observed in authoritative and indulgent homes whereas low self-esteem was prevalent in authoritarian or neglectful households (Milevsky, Schlechter, Netter, & Keehn, 2007; Martínez & García, 2007; Garcia & Gracia, 2009). Children with a high level of self-esteem show self-reliance, independence, achievement-orientation, and self-control, which are characteristics promoted by an authoritative parenting style (Baumrind, 1982).

Even though “affectionless control”, as in the authoritarian parental rearing style, accounted for about 13% of the variance in self-esteem (Oliver & Paull, 1995) and a lack of control correlates negatively with self-esteem, the impact of parental control on self-esteem is not unidirectional and exclusive (Furnham & Cheng, 2000). Although children receiving more than mid-range discipline show...
higher levels of self-esteem than children receiving less than mid-range discipline (Renk, McKinney, Klein, & Oliveros, 2006; Slicker, 1998), discipline shows not to be a significant predictor anymore, when the variables acceptance and autonomy as in the authoritative parenting style are taken up in the calculations. (Renk et al., 2006). These data clearly show the different influences of parental styles on the development of a child’s self-esteem up to young adulthood (see also Mogonea & Mogonea, 2014; Raboteg-Saric & Saric, 2014). In addition, different characteristics of parental styles account for a similar proportion of the variance of self-esteem. Therefore, it is still unknown which of the specific characteristics of the two main parenting styles predict the strength of self-esteem with which magnitude if included in one model, especially in adults.

In a similar study by Petrowski and colleagues (2014), an association between the parental rearing style and psychopathological symptoms in adulthood mediated by resilience has already been demonstrated. Both resilience and high self-esteem represent a protective factor in dealing with stress (Mann, Hosman, Schaalma, & Vries, 2004, Steinhard & Dolbier, 2008). While resilience refers primarily to the ability to resist (the ability to maintain one’s health despite adversity) (Herrman et al., 2011), self-esteem represents a more comprehensive construct not only in threatening situations but in everyday life as well. Self-esteem influences how we handle ourselves and our environment (Kernis, 2003). Therefore, a relationship between the parental rearing style and psychopathological symptoms mediated by self-esteem would expand the findings on resilience.

Another factor to be considered in the development of self-esteem is the nature of gender-relational patterns. Previous research is inconsistent regarding the impact of parental rearing styles in boys in contrast to girls. There is evidence that parental behavior has a greater effect on girls’ self-esteem than on boys’ (Felson & Zielinski, 1989). To be specific, girls were found to be affected more strongly by parental support and participation (Gecas & Schwalbe, 1986). In boys, the association between self-esteem and parental rearing behavior through the extension of praise, acceptance, respect, and autonomy was found to be higher than in girls (Bartle, Anderson, & Sabatelli, 1999; Heaven & Ciarrochi, 2008). But, in turn, the results also showed that the effect of autonomy on self-acceptance was gender–unspecific (de Man, 1981; Litovsky & Dusek, 1985). These differences in results might be due to non-representative and small samples. In addition, the way a parent of the opposite sex and a parent of the same sex behave with a child lead to a different association with self-esteem. Grove (1980) found that support and mild punishment by the mother enhance the self-esteem of both sexes. In contrast, the self-esteem of girls, yet not of boys, was related negatively to their mother’s controlling behavior (Grove, 1980).

Besides the research on adolescents, a few retrospective studies also investigated the influence of recalled parental rearing on the self-esteem or social adjustment of adults. Hereby, high levels of parental overprotection were associated negatively with social competence in adults (Jackson, 2007). Parents whose involvement in the parent-child-relationship fostered a warm, supportive relationship, in turn, boosted the individual’s self-worth (Grolnick, Price, Beiswenger, & Sauck 2007; Betts, Trueman, Chiverton, Stanbridge, & Stephens,
In contrast, a greater degree of perceived parental control predicts a lower level of self-esteem (Sonnak & Towell, 2001). In males, positive parental involvement directly predicted higher self-esteem and psychosocial adjustment compared to females (Betts, Trueman, Chiverton, Stanbridge, & Stephens, 2012). In general, predictive paths in males were stronger than in females. This might be explained by the potential differences experienced by males and females regarding appropriate conduct acquired during the social learning and socialization processes that resulted from parental rearing styles (see Updegraff, Madden-Derdich, Estrada, Sales, & Leonard, 2002). Furthermore, differences in their parental rearing style were also found for mothers and fathers (Cheng & Furnham, 2004; Milevsky, Schlechter, Netter, & Kehne, 2007). The memory of the father’s unconditional positive regard was related significantly to self-esteem for both men and women. The mother’s unconditional positive regard showed only a weak relationship to the women’s self-esteem (Forsman, 1989). Nevertheless, a mother’s care seems to have more influence on the self-esteem of the children than a father’s (Cheng & Furnham, 2004). Thus, it is not only the influence of the parenting styles on the strength of self-esteem which needs to be considered in a model but also its gender specificity.

Parental rearing is not only described as a predictor for self-esteem (Liu, 2003; Restifo, Akse, Guzman, Benjamins, & Dick, 2009; Muris, Meesters, & van den Berg, 2003) but also as an influencing factor for the vulnerability to psychopathology (Baker & Hoerger 2012; Liu, 2003; Restifo et al., 2009). Depressive symptoms are associated with parental rearing mediated by self-esteem (Cheng & Furnham, 2003; Liu 2003; Restifo et al. 2009; Milevsky, Schlechter, Netter, & Kehne, 2007). The strongest mediating effect of self-esteem was present for the relationship of family factors (parental care and conflict with parents) and depressive symptoms (Restifo et al., 2009). On the one hand, self-esteem mediates the relationship between maternal acceptance, psychopathological control, and depressive symptoms (Cheng & Furnham, 2003). On the other hand, the mediating effect of self-esteem on parental psychopathological control and depressive symptoms was not replicated by other investigations (Restifo et al., 2009). These divergent results might be explained by small and non-representative samples. In addition, a constraint in all of these studies might be that they exclusively evaluated depressive symptoms. However, there is a high comorbidity and overlapping symptomatology between anxiety and depression (Onken & Ströhle, 2005). Additionally, Oliver and Paull proposed already in 1995 that these results may not be specific to depression but may also apply to anxiety since parenting behavior also has an influence on the development of anxiety disorders (Greco & Morris, 2002; Hudson & Rapee, 2001). It is already known that less emotional warmth and stronger control in parenting behavior is associated with several types of anxiety disorders. (Bögels, Bamelis, & van der Bruggen, 2008; Greco & Morris, 2002). A greater degree of perceived parental control predicts a higher degree of impostor fears (Sonnak & Towell, 2001). Furthermore, overprotection is also related to anxiety disorders (Turgeon, O’Connor, Marchand, & Freeston, 2002). However, it is still unknown how self-esteem mediates the relationship between
parental rearing and anxiety disorders. Therefore, in the present study, depressive as well as anxiety symptoms are included for the first time in the calculations regarding the effects of parental rearing styles mediated by self-esteem. This way, the parallel investigation of anxiety disorders and depression enables the analysis of the mediating function of self-esteem specific to a certain disorder.

Based on the literature (Paulson et al., 1991) it can be hypothesized (1) that the influence of recalled parental rearing measured by rejection/punishment, emotional warmth, and control/overprotection on anxiety as well as on depressive symptoms is mediated by self-esteem. More specifically, an authoritative parenting style providing emotional warmth will lead to higher self-esteem. A highly rejecting and controlling parenting style will be associated with lower self-esteem. Concerning the differential effect of a mother’s and a father’s parental rearing style, based on the literature it can be hypothesized that (2) the mother’s parental rearing style might be more highly associated with the self-esteem and the psychopathology of the respondents than the rearing style of the father. With regard to the gender specificity of the model, it can be hypothesized (3) that the recalled parental behavior has a stronger effect on self-esteem and on psychopathology in women than in men. Based on meta-analytic findings (Twenge & Chambell, 2001), the effect of parental rearing on self-esteem differs by birth cohort and also decreases with age in adolescence. Therefore, the effect of recalled parental rearing on self-esteem decreases with increasing age. It can be hypothesized for adults that (4) the effect of recalled parental rearing on self-esteem is lower for the higher age groups.

Methods

Participants and Procedures

In 2006, the USUMA (Unabhängiger Service für Umfragen, Methoden und Analysen) Berlin Polling Institute selected households and participants by random-route sampling (Arbeitsgemeinschaft ADM-Stichproben, Bureau Wendt, 1994). Sixty-two percent of all contacted individuals filled out the questionnaire. Of these, only the final sample of \( N = 4,747 \) native German speakers with completed questionnaires was examined. All the participants volunteered and received a data protection declaration in agreement with the Helsinki Declaration. The participants ranged from 18 to 92 in age (\( M = 48.1, SD = 17.9 \)); 54.1% of the sample were female. The study was approved in accordance with the ethics guidelines of the “German Professional Institutions for Social Research” (Arbeitskreis Deutscher Markt- und Sozialforschungsinstitute, Arbeitsgemeinschaft Sozialwissenschaftlicher Institute; Berufsverband Deutscher Markt- und Sozialforscher).

Instruments

Recalled Parental Rearing Behavior. The Recalled Parental Rearing Behavior Questionnaire (Fragebogen zum erinnerten Elterlichen Erziehungsverhalten, FEE; Perris, Arrindell & Eisemann, 1994) is the abbreviated German version of the Swedish EMBU questionnaire (Parker, Tupling, & Brown, 1979). It is a standardized questionnaire to assess three highly interrelated dimensions of recalled parental rearing behavior for each parent, i.e., (1) Paternal/Maternal Rejection and Punishment assesses overly strict, discerning parental behavior and rejection which the child perceived as inappropriate; (2) Paternal/Maternal
Emotional Warmth assesses affectionate, supportive, praising behavior without implying any unnecessary interference from the respective parent; (3) Paternal/Maternal Control and Overprotection assesses parental behavior which the child perceived as overly apprehensive blaming, interfering, and constricting, thus reflecting a distinct orientation toward effort, performance and high expectations by the respective parent. The original version is comprised of 80 items with half of the items rating the father and the other half rating the mother. Higher scores represent more perceived Rejection and Punishment / Emotional Warmth / Control and Overprotection. Norm values are available for the long version of the FEE (Schumacher, Eisemann, & Brähler, 2000). In the ultra-short screening version with a total of only 12 items, the participants are to rate 6 for the mother and 6 for the father on a four-point Likert scale in respect to how often they had experienced a certain situation in their childhood (1 = no, never, 2 = yes, occasionally, 3 = yes, often, 4 = yes, always). In the ultra-short screen version applied here, the three scales consist of two items each for mother and father. The long version of the FEE can be seen as a valid measuring instrument. The internal consistency lies between $\alpha = .82$ and $\alpha = .93$ (Arrindell, Gerlsma, Vandereycken, Hageman, & Daeseleire, 1998). The factorial structure of the FEE was replicated in the ultra-short version of the FEE (Petrowski, Paul, Zenger, & Brähler, 2012). This shows the quality of the ultra-short version as a possible screening inventory for recalled parental rearing behavior, although internal consistencies cannot be determined due to the small number of items per factor (Petrowski et al., 2012).

Self-esteem. The German version of Rosenberg’s Self-Esteem Scale (RSES) of Ferring and Filipp (1996) was implemented. Participants are required to rate five positively and five negatively worded items on a 6-point Likert scale, ranging from 1 = strongly disagree to 6 = strongly agree. Originally construed as a unidimensional scale, Roth, Decker, Herzberg, and Brähler (2008) stated that empirical data are better reflected by a higher order latent variable influencing two latent first order variables named positive and negative self-esteem facets. The RSES showed good values for reliability and validity (Roth et al., 2008; Ferring & Filipp, 1996). The internal consistency was $\alpha = .88$ (Roth et al., 2008).

Anxiety and Depression. The Patient Health Questionnaire-4; PHQ-4 was used as a short and efficient screening tool for assessing anxiety and depression (Kroenke, Spitzer, Williams, & Löwe, 2009; Löwe et al., 2010). The two-item subscale for anxiety was derived from the General Anxiety Disorder questionnaire (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006), whereas the two-items of the depression subscale originated from the PHQ-9 (Kroenke, Spitzer, & Williams, 2003; Kroenke, Spitzer, & Williams, 2001). Both subscales assess specific symptoms that occurred during the two preceding weeks, rated on a scale from 0 = not at all to 3 = almost every day. Higher scores represent more severe symptoms. With intercorrelations of $r = .62$ (correlations between the respective item and the sum score of all other items) or higher, the PHQ shows a good construct validity. The internal consistency is $\alpha = .82$ (Löwe et al., 2010). Although the PHQ-4 does not indicate a clinical diagnosis, it provides well-founded evidence of relevant symptoms. If a subject scores three or more out of six possible points on one of the scales, this corresponds to a percentile rank of 93.4% (depression scale) or 95.2% (anxiety scale) in the general population, and his/her symptoms are a reasonable cause for carrying out further diagnostics (Löwe et al., 2010; Kroenke et al., 2009).

Statistical Procedure

Measurement models of all questionnaires used in this study were investigated in advance and had already been proven to have a good model fit (for further details see Petrowski, Paul, Zenger, & Brähler, 2012 for FEE-US; Roth et al., 2008 for self-esteem scale and Löwe et al., 2010 for the PHQ-4). In order to investigate the hypotheses of the present study, the three interrelated latent variables of the FEE-US were used in both models (one each for the father and the mother items) as predictors of self-esteem, which in turn predicts the amount of anxiety and depression. Statistical analyses were carried out with Amos 20 using the following model fit indices: For a good model fit, the minimum discrepancy divided by its degrees of freedom (CMIN/DF) should
be as small as possible (Arbuckle, 2009; Schermelleh-Engel, Moosbrugger, & Müller, 2003). The comparative-fit index (CFI) and the Tucker-Lewis-Index (TLI) should be higher than .95 for a good model fit (Schermelleh-Engel et al., 2003), whereby values greater than .90 are usually interpreted as indicators for an acceptable fit (Arbuckle, 2009; Kline, 2005; Schermelleh-Engel et al., 2003). Furthermore, standardized root mean square residual (SRMR) values smaller than .05 as well as root mean square error of approximation (RMSEA) values smaller than .06 indicate a good model fit, and values smaller than .08 still reflect an adequate fit (Arbuckle, 2009; Hu & Bentler, 1999). The model was estimated with the maximum likelihood method approach.

Additional analyses were conducted to test the invariance of the model across genders and different age groups using multi-group analyses (Byrne, 2004). Measurement invariance was tested in five steps using first the configural model (no constraints) and then a metric invariant model (with item loadings constraint to be equal across groups) followed by a scalar invariant model (with item loadings and item intercepts simultaneously constraint to be equal across groups) and a structural weight invariant model (additionally constraint the weights between the latent variables to be equal) and, finally, a strict invariant model (with measurement errors constraint to be equal in addition to all constraints of the previous models) (Gregorich, 2006). Following the hierarchy of these nested models, they were compared to each other. Since the $\chi^2$ statistic has often been criticized for its sensitiveness to sample size (Chen, 2007), we focused mainly on $\Delta$CFI and $\Delta$RMSEA as indicators in the comparison of models. Values $\leq .01$ indicate the invariance of the models (Cheung & Rensvold, 2002). In case of values greater than .01 we followed the procedure described by Gregorich (2006) to test for partial invariance.

The same procedure was used to test for the invariance of the model for three age groups (< age 40, $n = 1,633$; ages 40–60 $n = 1,749$; > age 60, $n = 1,365$).

### Results

The investigated sample included $N = 4,747$ participants (2,567 female and 2,180 male aged 18 to 92 ($M = 48.06$, $SD = 17.92$). $N = 2,533$ (53.4%) subjects were living with a partner, while 2,214 (46.6%) were living alone (married but separated, divorced, single, or widowed). More detailed socio-demographic characteristics of the study sample are given in Table 1.

#### Table 1

| Socio-demographic variables of the sample | Total $N = 4,747$ | Men $n = 2,180$ | Women $n = 2,567$
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Age, years</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Age range</td>
<td>18–92</td>
<td>18–92</td>
<td>18–92</td>
</tr>
<tr>
<td>Relationship status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/ living together</td>
<td>2,533 (53.4)</td>
<td>1,212 (55.6)</td>
<td>1,321 (51.5)</td>
</tr>
<tr>
<td>Married/ separated</td>
<td>60 (1.3)</td>
<td>26 (1.2)</td>
<td>34 (1.3)</td>
</tr>
<tr>
<td>Single</td>
<td>1,160 (24.4)</td>
<td>661 (30.3)</td>
<td>499 (19.4)</td>
</tr>
<tr>
<td>Divorced</td>
<td>447 (9.4)</td>
<td>165 (7.6)</td>
<td>282 (11.0)</td>
</tr>
<tr>
<td>Widowed</td>
<td>547 (11.5)</td>
<td>116 (5.3)</td>
<td>431 (16.8)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>52 (1.1)</td>
<td>19 (0.9)</td>
<td>33 (1.3)</td>
</tr>
<tr>
<td>8th grade (Hauptschule)</td>
<td>2,055 (43.3)</td>
<td>1,013 (46.5)</td>
<td>1,042 (40.6)</td>
</tr>
<tr>
<td>10th grade (Realschule)</td>
<td>1,664 (35.1)</td>
<td>680 (31.2)</td>
<td>984 (38.4)</td>
</tr>
<tr>
<td>Technical school</td>
<td>133 (2.8)</td>
<td>45 (2.1)</td>
<td>88 (3.4)</td>
</tr>
<tr>
<td>13th grade (Abitur)</td>
<td>370 (7.8)</td>
<td>154 (7.1)</td>
<td>216 (8.4)</td>
</tr>
<tr>
<td>University degree</td>
<td>304 (6.4)</td>
<td>173 (8.0)</td>
<td>131 (5.1)</td>
</tr>
<tr>
<td>High-school student</td>
<td>169 (3.5)</td>
<td>96 (4.4)</td>
<td>73 (2.8)</td>
</tr>
</tbody>
</table>
The first aim of the study was to replicate and differentiate the effect of the recalled parental rearing behavior on the level of self-esteem and the level of anxiety and depression symptoms. The hypothesized model depicted in Figure 1 fits the data rather well. Therefore, hypothesis (1), including the mediating effect of self-esteem, is confirmed. Table 2 shows the fit indices of both postulated structural equation models separately for the mother and the father version of the FEE-US. Correlation coefficients of study variables are given in Table 3.

**Figure 1.** Structural relationships between recalled parental behavior, self-esteem, anxiety, and depression.

*Note.* The two coefficients per path indicate two analyses: regular font, FEE father version; **bold**, FEE mother version; *italic*, coefficients valid for both analyses. All paths are statistically significant with $p < .05$. Error variances of predicted latent and manifest variables are not depicted for purposes of clarity. FEE-RP = Recalled parental behavior—rejection and punishment; FEE-EW = Recalled parental behavior—emotional warmth; FEE-CO = Recalled parental behavior—Control and overprotection; SE = self-esteem; GAD = General Anxiety Disorder questionnaire; PHQ = Patient Health Questionnaire.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Summary of fit indices of the structural equation model for both parent versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Chi$^2$ ($df$)</td>
</tr>
<tr>
<td>FEE-mother</td>
<td>4,747</td>
</tr>
<tr>
<td>FEE-father</td>
<td>4,747</td>
</tr>
</tbody>
</table>

*Note. $df =$ degrees of freedom; CMIN/DF = minimum discrepancy, divided by its degrees of freedom; CFI = Comparative-Fit Index; RMSEA = root mean square error of approximation; TLI = Tucker-Lewis-Index; SRMR = standardized root mean square residual.*
Table 3
Pearson correlation coefficients of the variables under study (all p < .001)

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<tbody>
<tr>
<td>Maternal RP (FEE)</td>
<td>1</td>
<td>-.21</td>
<td>.22</td>
<td>.58</td>
<td>-.11</td>
<td>.23</td>
<td>-.23</td>
<td>.18</td>
<td>.17</td>
</tr>
<tr>
<td>Maternal EW (FEE)</td>
<td></td>
<td>1</td>
<td>.25</td>
<td>-.15</td>
<td>.62</td>
<td>.19</td>
<td>.12</td>
<td>-.09</td>
<td>-.09</td>
</tr>
<tr>
<td>Maternal CO (FEE)</td>
<td></td>
<td></td>
<td>1</td>
<td>.18</td>
<td>.15</td>
<td>.70</td>
<td>-.11</td>
<td>.09</td>
<td>.06</td>
</tr>
<tr>
<td>Paternal RP (FEE)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>-.25</td>
<td>.27</td>
<td>-.21</td>
<td>.18</td>
<td>.18</td>
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<tr>
<td>Paternal EW (FEE)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.17</td>
<td>.10</td>
<td>.08</td>
<td>.08</td>
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<tr>
<td>Paternal CO (FEE)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>-.10</td>
<td>.11</td>
<td>.07</td>
</tr>
<tr>
<td>Self-esteem (RSES)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>-.40</td>
<td>-.48</td>
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<tr>
<td>Anxiety (PHQ-4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.61</td>
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<tr>
<td>Depression (PHQ-4)</td>
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Note. RP = rejection and punishment; EW = emotional warmth; CO = control and overprotection.

All but one of the fit measures indicated a good to acceptable model fit. The value of CMIN/DF indicated a relevant deviation between the data and the model since it should have been close to 3 for a correct model. However, this measure is sensitive to the sample size. Thus, in case of a high sample size, even a small misspecification would lead to the rejection of the model. In accordance with Joereskog and Soerbom (1993) we focused on the model fit indices described above, which are generally independent of the sample size.

Furthermore, all paths shown in the model are significant with a p-value < .05. The different dimensions of the FEE itself are moderately inter-correlated and predict an amount of self-esteem, which in turn predicts anxiety and depression negatively.

In addition to the main effects postulated in the structural equation models, the indirect effects of all three latent variables related to the parental rearing style on anxiety and depression were calculated according to MacKinnon, Lockwood, and Williams (2004). Regarding the parental rearing style of the father, only the indirect effects of “emotional warmth” and “rejection & punishment” on “anxiety” and “depression” (standardized values between -.07 and .11) were significant with p < .05. Referring to the mother items of the FEE-US, all indirect effects of the three dimensions of parental rearing behavior on anxiety and depression were small (standardized values between -.10 and .13) but significant with all p < .05. To sum up these results, hypothesis (2) cannot be confirmed completely, even if the variable of “control and overprotection” is significantly indirectly associated (standardized values between .11 and .13) with anxiety and depression in the mother
but not in the father version. Furthermore, all standardized path coefficients from the FEE sub-dimensions to self-esteem, anxiety and depression are of relatively small amount and vary only slightly between the mother and the father version of the questionnaire. Besides, the relationship between “emotional warmth” and “control & overprotection” in the mother version of the FEE-US is stronger than in the father version, whereas the dimensions of “control & overprotection” are more strongly related to “rejection & punishment” in fathers than in mothers.

Additional analyses were conducted to test the equivalence of the models across genders and different age groups. The results are shown in Table 4.

Table 4
Test for invariance across gender and age for both parent versions

<table>
<thead>
<tr>
<th>FEE-father</th>
<th>Chi² (df)</th>
<th>ΔChi²</th>
<th>Δp</th>
<th>CMIN/DF</th>
<th>CFI</th>
<th>ΔCFI</th>
<th>RMSEA</th>
<th>ΔRMSEA</th>
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<tbody>
<tr>
<td>Multigroup analysis gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Configural invariance model</td>
<td>1,943.318 (318)</td>
<td>6.111</td>
<td>.952</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.033</td>
</tr>
<tr>
<td>Metric invariance model</td>
<td>1,984.033 (331)</td>
<td>40.715</td>
<td>.001</td>
<td>5.994</td>
<td>.952</td>
<td>.001</td>
<td>.032</td>
<td>.001</td>
</tr>
<tr>
<td>Scalar invariance model</td>
<td>2,399.686 (351)</td>
<td>415.653</td>
<td>.001</td>
<td>6.837</td>
<td>.940</td>
<td>.012</td>
<td>.035</td>
<td>.003</td>
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<tr>
<td>Partial scalar invariance model</td>
<td>2,320.331 (350)</td>
<td>336.298</td>
<td>.001</td>
<td>6.630</td>
<td>.942</td>
<td>.010</td>
<td>.034</td>
<td>.002</td>
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<tr>
<td>Partial structural weight invariance model</td>
<td>2,331.592 (356)</td>
<td>11.261</td>
<td>.081</td>
<td>6.549</td>
<td>.942</td>
<td>.001</td>
<td>.034</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Partial strict invariance model</td>
<td>2,542.435 (388)</td>
<td>210.843</td>
<td>.001</td>
<td>6.553</td>
<td>.937</td>
<td>.005</td>
<td>.034</td>
<td>&lt; .001</td>
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<tr>
<td>Multigroup analysis age</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Configural invariance model</td>
<td>2,865.922 (548)</td>
<td>5.230</td>
<td>.933</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.030</td>
</tr>
<tr>
<td>Metric invariance model</td>
<td>2,911.275 (561)</td>
<td>45.353</td>
<td>&lt; .001</td>
<td>6.213</td>
<td>.932</td>
<td>.001</td>
<td>.030</td>
<td>&lt; .001</td>
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<tr>
<td>Scalar invariance model</td>
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<td>38.548</td>
<td>.005</td>
<td>5.077</td>
<td>.931</td>
<td>.001</td>
<td>.029</td>
<td>.001</td>
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<tr>
<td>Structural weight invariance model</td>
<td>2,966.293 (587)</td>
<td>16.469</td>
<td>.011</td>
<td>5.053</td>
<td>.931</td>
<td>&lt; .001</td>
<td>.029</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Strict invariance model</td>
<td>3,044.129 (619)</td>
<td>77.835</td>
<td>&lt; .001</td>
<td>4.918</td>
<td>.930</td>
<td>.001</td>
<td>.029</td>
<td>&lt; .001</td>
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<tr>
<td>FEE-mother</td>
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<tr>
<td>Configural invariance model</td>
<td>2,016.566 (318)</td>
<td>6.341</td>
<td>.950</td>
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<td></td>
<td></td>
<td>.034</td>
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<tr>
<td>Metric invariance model</td>
<td>2,056.543 (331)</td>
<td>39.977</td>
<td>&lt; .001</td>
<td>6.213</td>
<td>.949</td>
<td>.001</td>
<td>.033</td>
<td>.001</td>
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<tr>
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<td>190.211</td>
<td>&lt; .001</td>
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<td>.005</td>
<td>.034</td>
<td>.001</td>
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<tr>
<td>Structural weight invariance model</td>
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<td>.226</td>
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<td>.944</td>
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<td>.033</td>
<td>.001</td>
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<tr>
<td>Strict invariance model</td>
<td>2,408.901 (389)</td>
<td>153.984</td>
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<td>6.193</td>
<td>.940</td>
<td>.004</td>
<td>.033</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Multigroup analysis age</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configural invariance model</td>
<td>2,899.368 (548)</td>
<td>5.291</td>
<td>.931</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.030</td>
</tr>
<tr>
<td>Metric invariance model</td>
<td>2,934.041 (561)</td>
<td>34.673</td>
<td>.001</td>
<td>5.230</td>
<td>.930</td>
<td>.001</td>
<td>.030</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Scalar invariance model</td>
<td>2,973.912 (581)</td>
<td>39.871</td>
<td>.005</td>
<td>5.119</td>
<td>.929</td>
<td>.001</td>
<td>.029</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Structural weight invariance model</td>
<td>2,990.078 (587)</td>
<td>16.167</td>
<td>.013</td>
<td>5.094</td>
<td>.929</td>
<td>&lt; .001</td>
<td>.029</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Strict invariance model</td>
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<td>61.902</td>
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<td>4.931</td>
<td>.928</td>
<td>.001</td>
<td>.029</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Note. df = degrees of freedom; CMIN/DF = minimum discrepancy, divided by its degrees of freedom; CFI = Comparative-Fit Index; RMSEA = root mean square error of approximation.
With regard to gender, the strict invariance of the model was only confirmed for the mother version of the FEE-US. For the father version, configural and metric invariance were confirmed. As a consequence of $\Delta$CFI > .01, the constraint of equal intercepts in men and women was relaxed for one item of the subscale “emotional warmth” (“Was your mother/father able to cuddle with you?”, where women had higher intercepts than men) as indicated by the modification indices (Gregorich, 2006). This resulted in a partial strict invariance model of the father version of the FEE-US for both genders as described in Table 4. Nevertheless, hypothesis (3) had to be rejected, because the effect of the recalled parental behavior on self-esteem and on psychopathological symptoms did not differ between men and women as the weight invariance model shows.

Furthermore, the multi-group analyses revealed the strict invariance of both models across three age groups as the differences of the fit indices between the nested models were not bigger than .01. Therefore, the predictive value of the recalled parental rearing behavior did not differ in different age groups and hypothesis (4) had to be rejected.

**Discussion**

Aims of the present study were to replicate the mediating role of self-esteem on the relationship between parental rearing styles and psychopathological symptoms as well as testing the gender-specific hypothesis and differences with regard to the life span in a sample from the general population. With results of the structural equation model, the mediating role of self-esteem could be confirmed, in general. The recalled parental behavior predicts the level of self-esteem that, in turn, predicts symptoms of anxiety and depression, which have a substantial overlap as proposed ($r = .69$). Thus, the mediating role of self-esteem in the association of parental care and depressive symptoms found in earlier studies could be replicated (Liu 2003; Restifo et al. 2009). There is a high comorbidity and overlapping symptomatology between anxiety and depression as seen in the present results as well as in Onken & Ströhle, 2005. Oliver and Paull (1995) called for including anxiety symptoms for a better differentiation of the effect on depression and anxiety and this has been implemented in this study. Therefore, in the present study, depressive and anxiety symptoms are included for the first time in the calculations regarding the effects of parental rearing styles mediated by self-esteem. The present data show that, in general, there are no substantial differences between the predictive values for anxiety and depression even if self-esteem is to some extent a stronger predictor of depression than of anxiety.

Emotional Warmth in the present study was assessed by affectionate, supportive, praising behavior without implying unnecessary interference from the parents. Paulson et al. (1991), who described parental warmth (affectionate and praising behavior) in a similar way, also found a relation to self-esteem. Additionally, these findings were approved in recent replication studies (Gro鞍ick, Price, Beiswenger, & Sauck 2007; Betts, Trueman, Chiverton, Stanbridge, & Stephens, 2012). The present scale Rejection and Punishment
summarized the overly strict, discerning parental behavior and rejection which the child perceived as inappropriate. The degree of perceived parental rejection, criticism, and excessive strictness is revealed as one factor that affected self-esteem negatively in our study. The overly strict parental behavior of the scale rejection/punishment used in the present study is assessed in other studies by the scale ‘discipline’ (Weber, Metha, & Nelson, 1997). Therefore, the authors replicated that lower self-esteem is present when high parental disciplining is experienced (Weber et al., 1997). Furthermore, perceived parental control is to be mentioned as another influencing factor. Control and Overprotection in the present study were characterized by parental behavior which the child perceived as overly apprehensive, blaming, interfering, and constricting, thus reflecting a distinct orientation towards effort, performance, and high expectations by the respective parent. The present data confirm a significant negative association of highly controlling, excessively overprotective, or restrictive parental behavior and self-esteem. This is in line with results in which the perceived parental rearing style of “affectionless control” shows a significant, moderate correlation with self-esteem and depression (Sonnak & Towell, 2001). Jackson (2007) also replicated these results. However, it is in contrast to Conte et al. (1996) who showed that overprotection and over-control did not predict self-esteem. These differences in results might be due to small and non-representative samples.

Regarding the parental style of fathers, self-esteem completely mediated the relationship between the sub-scale Control and Overprotection and mental health outcomes whereas other dimensions of the fathers’ parental style as well as the mothers’ parental style were partially mediated. The predictive value of the mothers’ parental style on anxiety and depression was still significant but only to a small degree. Additionally, all of the regression weights of the recalled parental rearing on self-esteem were higher for the mother version than for the father version, but the differences were very small and therefore not of practical relevance. However, one might speculate about the tendency of mothers spending more time with their children as fathers usually are the main breadwinners. According to the Federal Statistical Office (2018), in Germany, a larger proportion of women (1,354,047) took parental leave in 2017 in order to care for their children, in contrast to men (406,423). Based on the amount of time a parent spends with his/her children, the effect of parental rearing may increase proportionally. To confirm these results, additional studies are necessary as the present cross-sectional data do not qualify for such conclusions since the information about the primary care-giver is not given.

With regard to the gender specificity of the respondents, the results of the present study revealed no differences. Thus, this study found no differences in the predictive value of the parental rearing behavior on self-esteem and psychopathological symptoms between men and women. Therefore, present results replicate the gender in-specificity of the model published in the literature (de Man, 1981; Litovsky et al., 1985). Previous results for adolescents which showed that girls were more strongly affected by parental support and participation and boys by parental praise, acceptance, respect, and autonomy could not be replicated for adults (Bartle et al., 1989; Heaven & Ciarrochi, 2008).
The same is true for different age groups. It was hypothesized that the influence of the recalled parental behavior decreased with increasing age as found in the meta-analysis by Twenge and Campbell (2001), but the results do not confirm this assumption. Therefore, the present study indicates that the relationship between the recalled parental rearing style and mental resources and deficits is similar in different cohorts and does not decrease even if additional sources for strengthening or weakening self-esteem are available over the course of life. This highlights once more the importance of the rearing style by which parents raise their children for its impact is not only measurable in adolescents but also up until old age.

The strength of this study is its large representative sample and the statistical approach to its results. However, a large sample size might easily lead to small but significant correlation coefficients. Concerning the instruments, it must be considered that anxiety and depression were evaluated based on two items. Since the PHQ shows high sensitivity, distortion might be present. Additionally, the current literature concerning the validation of the PHQ-4 is not consistent. While Kroenke and colleagues (2009) describe the PHQ-4 as a valid ultra-brief tool for detecting depression and anxiety, other research has provided evidence that the PHQ fails to detect cases of depression and anxiety (Eack, Greeno, & Lee, 2006). It should be noted that for diagnosing an anxiety or depression disorder, subsequent clinical diagnostics need to be accomplished. In addition, the retrospective assessment of recalled parental rearing behavior represents a specific problem to assessing the actual parental rearing experienced during childhood or its subjective representation (Brewin, Andrews, & Gotlib, 1993; Gerlsma, 1994). The subjective representation may reflect the present mood, errors in an individual’s autobiographical memory (un-/conscious distortions), false memories, or idiosyncratic reconstructions of an individual’s personal history. However, the existing literature did not provide any consistent and conclusive data on the mood-congruent recall of relevant personal stimuli (Brewin et al., 1993; Gerlsma, 1994; Matt, Vasquez & Campbell, 1992; Parrott & Sabini, 1990; Richter & Eisemann, 2001) nor on the validity of retrospective data of parental rearing behavior (Halverson, 1988). Therefore, longitudinal studies with independent raters ought to be considered for the validation of parental rearing practices (see Schneewind, Ruppert, Schmid, Spletet, & Wendel, 1999).

Furthermore, it should be taken into account that the sample includes young adults (age range 18–92; 3.5% were still working on their German Abitur). This would be why some participants probably still lived with their parents and were therefore still subject to the rearing behavior of their parents. So, in some cases, parental rearing behavior may not merely be recalled but also experienced.

In sum, the present results give indication for a positive association between the recalled authoritative parental style and self-esteem which, in turn, predicts symptoms of anxiety and depression negatively. In contrast, authoritarian parenting, which is characterized by a more dictatorial contact to the child, a high degree of control as well as by less emotional warmth are associated with negative self-esteem and more symptoms. Furthermore, there

PSIHOLOGIJA, 2019, OnlineFirst, 1–19
were no differences to be found in these relationships in reference to the age and gender of the respondents, which exemplifies the universality of the present results regarding these socio-demographic variables. As a practical implication, to protect their children from developing psychopathological disorders, it is desirable that parents raise their children in a climate of emotional warmth, acceptance, and support (authoritative parental style). On the side of therapists, parental rearing styles should additionally be regarded as a possible cause when analyzing psychopathological symptoms.

In future research, the important role parental styles play in the occurrence of psychopathological symptoms throughout life need to be taken into account in prevalence studies as well as in studies investigating therapeutic changes of these symptoms over time. Hereby, studies should include parental styles as covariates to therapy efficacy studies. Perhaps, existing models may be explained better by including parental styles, therefore reaching better effect sizes. Furthermore, long-term developmental studies to accompany children growing up with different parenting styles would also be of interest to counteract the problem of recall bias.

References


RECALLED PARENTAL REARING STYLE, SELF-ESTEEM, AND PSYCHOPATHOLOGICAL SYMPTOMS


Sećanje na roditeljski stil odgajanja, samopoštovanje i psihopatološki simptomi u opštoj populaciji

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Trajniji uticaj percipiranog roditeljskog ponašanja na samopoštovanje, kao i na anksioznost i depresiju u odraslim dobu i starosti je još uvek nepoznat. Uzorku slučajne putanje (eng. random route sample, prim. prev) od 4,747 stanovnika Nemačke, starosti od 18–92 godine zadati su upitnici koji se odnose na sećanje na roditeljski stil odgajanja, samopoštovanje, anksioznost i depresiju. Korišćeno je strukturalno modelovanje i podaci iz verzije za oca i verzije za majku upitnika o sećanju na roditeljsko odgajanje (FEE upitnika) su analizirani posebno. Model koji pretpostavlja da je samopoštovanje medijator odnosa između ponašanja roditelja i psihopatoloških simptoma se dosta dobro uklapa u podatke (CFI = .95, RMSEA = .05, TLI = .94). Shodno tome, sećanje na autoritativni roditeljski stil je pozitivno povezano sa samopoštovanjem, koje je s druge strane prediktor anksioznosti i depresije. Model se jednako uklapa u podatke i na poduzorcima muškaraca i na poduzorcima žena svih starosnih doba (18–92), te shodno tome reflektuje koliko je uloga roditeljskog stila važna za pojavu psihopatoloških simptoma kroz ceo život.

Ključne reči: samopoštovanje, sećanje na roditeljski stil odgajanja, anksioznost, depresija

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