

Socioeconomic status and child mental health: The role of parental emotional well-being and parenting practices

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Abstract

Objective: This study examined the role of parental emotional well-being and parenting practices as mediators of the association between familial socioeconomic status (SES) and child mental health problems. **Method:** The sample included 2,043 5th-7th graders (50.7% female) participating in the second wave of the Bergen Child Study. Children completed the Strengths and Difficulties Questionnaire, parents reported family economy and education level, emotional well-being (measured with the Everyday Feelings Questionnaire), and the use of disciplinary and affirmative parenting practices (measured using the Family Life Questionnaire). **Results:** Path analyses were conducted to examine the associations between SES and externalizing and internalizing problems. Results supported a model where family economy was associated with externalizing problems through parental emotional well-being and parenting practices, whereas maternal education level were associated with externalizing problems through discipline. Direct association between paternal education levels and externalizing problem was not mediated by parenting. For internalizing problems, we found both direct associations with family economy and indirect associations with family economy through parental emotional well-being and parenting. **Conclusions:** The results suggest that parental emotional well-being and parenting practices are two potential mechanisms through which low socioeconomic status is associated with child mental health problems.

Keywords: Bergen Child Study, Socioeconomic status, Internalizing and externalizing problems, Family process

Introduction

Socioeconomic disadvantage in childhood is related to both immediate and persisting impairments in mental health and well-being (Bradley & Corwyn, 2002; Poulton et al., 2002; Velez, Johnson, & Cohen, 1989). Children and adolescents who grow up in families with a lower socioeconomic status (SES) have both more internalizing symptoms such as anxiety and depression, and externalizing symptoms such as aggressiveness, opposition and hyperactivity, compared to those raised in more affluent families (Starfield, Riley, Witt, & Robertson, 2002; Starfield, Robertson, & Riley, 2002).

One of the main perspectives guiding research into potential pathways mediating the association between SES and child mental health has focused on family processes (Conger & Elder, 1994; Elder & Caspi, 1988). The family process model predicts that family economy affects children's socioemotional development through influencing the psychological well-being of parents and thereby their parenting practices (Conger & Elder, 1994; Elder & Caspi, 1988). Elder and colleagues conducted a pioneering series of studies on the association between economic hardship, punitive and harsh discipline and children's well-being in families of the Great Depression. In a study of 167 children aged 11-14.5 years, they found that the direct association between economic distress and childhood socioemotional functioning was fully mediated by negative, rejecting tendencies of fathers towards their daughters (Elder, Nguyen, & Caspi, 1985). Several other studies have found that parenting that lacks warmth and involvement, and where harsh and erratic discipline is practiced, is associated with aggressiveness, hostility and opposition, and symptoms of anxiety and depression in children and adolescents (Ge, Conger, Lorenz, & Simons, 1994; Ma, Han, Grogan-Kaylor, Delva, & Castillo, 2012; Patterson & Stouthamer-Loeber, 1984; Skinner, Elder, & Conger, 1992).

Contemporary studies of the family process model have also supported its predictions. Using a sample of 205 boys aged 12-14 years, Conger et al. (1992) found that economic pressures were associated with parental depression which was related to parental characteristics such as hostility, discipline, and lack of involvement/warmth. Parental characteristics were in turn associated with both positive and negative adjustment for the adolescent, but explained more of the variance in negative adjustment (such as antisocial behavior, and depression and hostility measured with the SCL-90). Conger, Patterson, and Ge (1995) replicated their previous findings using one low SES sample of 75 boys, and one middle-class sample of 215 boys, all in 6th or 7th grade. Although the structural relationship between economic stress, parental depression and adolescent deviant behavior appeared in both samples, the magnitude of the associations were greater in the sample with lower socioeconomic status, and the model was more robust for mothers than for fathers.

During the last decade, several others have produced findings in support for the family process model. Mistry, Vandewater, Huston, and McLoyd (2002) found perceived economic pressure to be related to parental psychological distress (financial worry, efficacy and depression) in a sample of 419 single-parent families with children aged 5-12 years old. Distressed parents were less effective in their disciplinary practices and less affectionate towards their children, which in turn predicted lower ratings of social behavior and more behavior problems reported by teachers. Parke et al. (2004) found economic pressure to be associated with parental depression, which was related to hostile parenting which in turn was associated with childhood adjustment problems (a combination of internalizing and externalizing problems measured with the CBCL) in a sample of 111 European American and 167 Mexican American fifth graders and their families. Finally, Benner and Kim (2010) tested the family process model in a sample of 444 Chinese American early adolescents and their families. They found that economic pressures was related to parental depressive

symptoms which in turn was associated with hostile and coercive parenting, and less involved and nurturing parenting. Maternal hostile parenting was related to adolescent's academic outcomes (grade point average) and symptoms of depression and delinquency, whereas paternal nurturing and involvement were related to academic outcomes only.

A limitation of the previous empirical work on the family process model is that studies have focused exclusively on the economic aspect of socioeconomic status. This limitation has been recognized in the literature, and further studies that examine other indicators of socioeconomic status, such as parental education levels, have been called for (Conger, Conger, & Martin, 2010). Family economy and parental education levels may have differential influences on family processes and child adjustment (Duncan & Magnuson, 2003), and act through different pathways. Whereas economy influence children's mental health through the processes described earlier, parental education levels may affect children's mental health through a direct influence on parenting. Higher maternal education levels are associated with increased knowledge about childrearing and child development, and more supportive mothering (Morawska, Winter, & Sanders, 2009; Waylen & Stewart-Brown, 2010). Increased maternal knowledge about parenting is related to fewer early childhood behavior problems (Benasich & BrooksGunn, 1996; Huang, Caughy, Genevro, & Miller, 2005). Few studies have investigated the influence of paternal education levels on fathering. One study found that highly educated fathers had more positive engagement with their school-aged children (Blair, Wenk, & Hardesty, 1994). Others have found paternal education to have little influence on such involvement, although with younger children, after controlling for other factors such as father's age, relationship satisfaction, supportive work-family interface and the residential status of the father (Castillo, Welch, & Sarver, 2011; Volling & Belsky, 1991).

Furthermore, studying individual markers of socioeconomic status enables us to investigate their unique contributions to child adjustment. In a previous publication from the Bergen Child Study, it was found that family economy was associated with a wide range of mental health problems, whereas parental education levels had more specific associations with externalizing problems (Bøe, Øverland, Lundervold, & Hysing, 2012). Similarly, Huisman et al. (2010) found that poor family economy was associated with both externalizing and internalizing problems whereas lower maternal education levels were associated with internalizing problems only. Thus, extending the framework of the family process model to also include parental education enables us to study the unique and combined influences of parental education and family economy on family processes and child adjustment.

In addition, few studies of the family process model have considered comorbidity. Epidemiological studies of child and adolescent mental health problems have found large degrees of overlap between diagnostic groups (Ford, Goodman, & Meltzer, 2003; Heiervang et al., 2007; Merikangas et al., 2010). A further extension of the family process model would therefore be to conduct analyses where different domains of mental health problems are included simultaneously in the analyses.

Gershoff et al. (2010) have suggested that there has been an over-reliance on North American children and parents in studies of parenting. Parenting practices are normative and highly culturally influenced, and theories developed from North American samples may not apply to other countries and cultures (Dasen & Mishra, 2000). Cultures also differ in the extent they judge certain parenting practices as physically or emotionally abusive (Korbin, 2003). The use of particular parenting techniques is moderated by mother's perceptions of normativeness, and the extent to which children respond with aggression or anxiety to perceived negative events (such as corporal punishment and yelling) is moderated by children's perception of the normativeness of such techniques (Gershoff, et al., 2010). In fact,

the association between use of harsh corporal punishment and children's aggression and anxiety symptoms is stronger in samples where such punishment is least normative (Lansford et al., 2005). Taken together, the findings on cultural differences in parenting practices suggest a need for more studies of the association between parenting and children's mental health using non-North American samples.

The first aim of the current study was to investigate associations between SES, measured by parent perception of family economy and parental education levels, parental emotional well-being, and parenting practices in a Norwegian sample. Secondly, we wanted to assess whether associations between SES indicators and internalizing or externalizing child mental health problems are mediated through parental well-being and parenting practices. Based on previous findings, we hypothesized that 1) the effect of family economy on childhood mental health problems is mediated by parental emotional well-being in turn influencing parenting behaviors, and 2) that the effect of maternal education level on mental health problems is mediated by parenting behaviors. There are conflicting findings in the literature regarding the influence of paternal education level on fathering. This precludes us from forming very strong expectations with regards to possible pathways through which paternal education levels may influence childhood mental health problems. Still, we hypothesized that the direct effect of paternal education levels on mental health problems would be mediated by parenting.

Method

Participants

The current analyses are based on data from the Bergen Child Study, a series of cross-sectional multi-phase surveys of children born between 1993 and 1995 living in Bergen, the second largest city in Norway (see <http://www.uib.no/bib> for more information). In 2006 when data were collected, Bergen had a total population of around 242,000, approximately 8% of the population were immigrants of which 6% were from non-Western countries (Statistics Norway, 2009).

The present study uses data from the second cross-sectional study (wave two) carried out in 2006 (previously described by Heiervang & Goodman, 2011), when the children were in fifth to seventh grade (11-13 years old), a target population of 9,218. Mean age was 11.8 ($SD = 0.8$), with 52% females. In the first, screening phase of this wave, parents, children and teachers completed questionnaires on a total of 5,781 children (teacher data is not included in the following study). All parents who took part in the screening phase were invited to participate in the second phase (see flowchart in Figure 1), which involved detailed psychiatric assessment using the Development and Well-Being Assessment (DAWBA; R. Goodman, Ford, Richards, Gatward, & Meltzer, 2000). The participants provided information about their children using a special website that required logging in with a unique identification number and password. Responses from 2,043 participants were obtained. The study was approved by the Regional Committee for Medical Research Ethics in Western Norway and the National Data Inspectorate.

Instruments

SES was assessed by asking parents to report their level of education by choosing one of the following response options: compulsory education (< 11 years); additional technical qualification (2-3 additional years); additional academic qualification (2-3 additional

years); up to four years at college/university; more than four years at college/university. Parents were also asked to rate their family economy as very poor, poor, fair, good or very good. In addition, the DAWBA includes one question about having ever experienced a serious financial crisis (equal to losing three months of income), and one question about current experiences of economic difficulties. Amongst those who rated their family economy as poor or very poor, 51.4% had experienced a financial crisis, whereas 74.3% confirmed that they were currently experiencing economic difficulties.

Child mental health problems were measured using the self-report version of the Strengths and Difficulties Questionnaire (SDQ; R. Goodman, 1997). The SDQ asks about 25 attributes divided between five scales that generate scores for emotional symptoms, conduct problems, hyperactivity-inattention, peer problems and prosocial behavior (R. Goodman, 1997, 1999). In the current study, the peer problems and emotional problems subscales were combined into an internalizing problems scale, while the conduct problems and hyperactivity-inattention subscales were combined into an externalizing problem scale, as suggested by A. Goodman, Lamping, and Ploubidis (2010) for analyses in low-risk epidemiological samples.

Parenting practice was measured using the Family Life Questionnaire (FaLQ) developed by Robert Goodman (Institute of Psychiatry, Kings College London) and available in Appendix 1 of Last, Miles, Wills, Brownhill, and Ford (2012). The FaLQ was included as part of the DAWBA (R. Goodman, Ford, Richards, et al., 2000) administered in phase two. The majority of respondents completing the DAWBA were “Mothers” (63.5%), other respondents were “Both parents” (14.9%), “Parent” (i.e. gender of parent was not specified, 10.1%), “Fathers” (10.4%) and others (e.g. grand-/foster-/step parents, 1.1%). The FaLQ consists of four scales: Affirmation (consisting of four items related to the child-parent relationship), Discipline (consisting of four items related to punishment), Rules (consisting of two items measuring structure and organization within the family) and Special allowances

(consisting of two items related to over- and underinvolvement from parents). Participants are asked to indicate how well the descriptions in the questionnaire apply to their child using four ordered response options (not at all, a little, a medium amount and a great deal). In the current study three scales from the FaLQ were used: Affirmation, Rules and Discipline. Last, et al. (2012) found the internal consistency and test-retest reliability of Affirmation and Rules to vary between moderate and very good, whereas the Discipline subscale had a poor internal consistency. In order to test the factor structure of the three subscales (Affirmation, Rules and Discipline) in the current sample, a confirmatory factor analysis with maximum likelihood estimation was run. Goodness of fit indices suggested a reasonably good fit for a three-factor solution ($\chi^2 [41] = 209.301, p < .001, CFI = 0.939, RMSEA = 0.050, 90\% \text{ confidence interval [CI] for RMSEA} = 0.043\text{-}0.057$). Although the χ^2 -test was significant, other, less stringent, indices are usually more relied on when evaluating model fit (Brown, 2006).

The emotional well-being of the children's caretakers was measured using the self-report version of the Everyday Feelings Questionnaire (EFQ; accessible from <http://www.youthinmind.info/EFQ>) which is designed to be used in a non-clinical population. The EFQ was included as part of the DAWBA (R. Goodman, Ford, Richards, et al., 2000) administered in phase two. The EFQ consists of 10 items that measure symptoms related to depression, anxiety as well as items reflecting psychological well-being, such as optimism, self-esteem and coping. There are five response options (none of the time, a little of the time, some of the time, most of the time, and all of the time) reflecting the frequency of experiencing each feeling in the past four weeks. Well-being items are reverse scores, meaning that higher scores represent higher levels of distress and lower levels of well-being. The EFQ was administered as part of the DAWBA and completed by the same responders as for the FaLQ described above. Uher and Goodman (2010) found the EFQ to be internally consistent with all items loading strongly on a single common factor, and item-response

theory analysis showed that the ten items had excellent sensitivity and good information content. In order to test the factor structure of the EFQ in the current sample, a confirmatory factor analysis with maximum likelihood estimation was run. The model fit indices for a one-factor solution were acceptable ($\chi^2 [35] = 398.347, p < .001, CFI = 0.927, RMSEA = 0.079, 90\% CI for RMSEA = 0.072-0.086$), again, relying on CFI and RMSEA indicators for evaluation of model fit.

Statistical analysis

Children taking part in both phases (with complete information) and children only taking part in the first phase were compared on SES variables and SDQ subscale means with Pearson chi square tests and unequal samples *t*-tests. Correlation analysis was used to measure associations between SES, parental emotional well-being and parenting characteristics.

Based on previous findings in the literature, we expected the direct effect of our SES indicators on externalizing and internalizing problems to be mediated by parental emotional well-being and/or parenting practices. The first step in model development therefore consisted of fitting a model where all the direct paths from the SES indicators to externalizing and internalizing problems were constrained to zero, whereas other paths were estimated freely. The next step involved inspecting the modification indices to see if this model could be improved by respecification. Jöreskog (1993) suggested that model respecification should start by iteratively freeing constraints on the parameters where the largest modification index (MI) and expected parameter change (EPC) value is observed, before re-testing the model. This approach may also solve problems with high MI and EPC values in *additional* parameters. This purely statistical approach must be accompanied by a theoretical rationale for why certain parameters are freed, in order to establish a model that gives meaning theoretically as well as fits the data statistically (Brown, 2006). The same analytical approach was used for the analysis where comorbidity was taken into account. In this analysis,

externalizing and internalizing problems were included simultaneously in the same model and allowed to correlate.

Model fit were evaluated according to the recommendations by Hu and Bentler (1999) for use with maximum likelihood estimation; standardized root mean square residual (SMR) values close to 0.08 or below, Comparative Fit index (CFI) close to 0.95 or greater, and root mean square error of approximation (RMSEA) close to, or below, 0.06 indicates good fit between the target model and the observed data. If the upper limit of the 90% confidence interval (CI) of the RMSEA is below 0.08, this indicates additional support for the model (Brown, 2006). The classic goodness-of-fit index χ^2 , is also reported, but the other fit indices will be relied more heavily upon when evaluating model fit, as the χ^2 has very stringent assumptions and is sensitive to inflation by sample size and thereby routinely rejects solutions with a large N (Brown, 2006).

All statistical analyses were conducted in version 12.1 of STATA for Windows7 (StataCorp, 2011) with the exception of the confirmatory factor analyses and path analyses which were carried out in Mplus for Windows, version 6.1 (Muthén & Muthén, 1998-2011).

Results

Sample characteristics

Characteristics of participants taking part in phase one only and those taking part in both phases of the second BCS wave are shown in Table 1. Parents of participants who took part in both phases had higher education and better perceived family economy. The children in this full information sample had somewhat lower hyperactivity and conduct scores, but effect sizes were small. The remaining analyses were conducted on the full information sample of 2,043 respondents (50.7% female; 37.6% 5th graders, 36.2% 6th graders and 26.2% 7th graders).

SES, parental emotional well-being and parenting characteristics

The association between socioeconomic status indicators, parenting style and parental emotional well-being can be seen in Table 2. The correlation between maternal and paternal education levels was moderate and correlations between perceived family economy and parental education small. Perceived family economy was negatively correlated with parental EFQ scores, while associations with parenting practices (FaLQ) were mostly insignificant and/or trivial (r s from .002 to .064). Maternal education was significantly correlated with Discipline, but the correlations were insubstantial (r s from -.011 to .072). The correlations within the different parenting practices subscales varied from trivial to moderate (r s from -.135 to .347).

Path analysis of SES on externalizing and internalizing problems

A correlation matrix between the SES indicators, the potential mediators and internalizing and externalizing problems can be seen in Table 3. The FaLQ scale Rules was neither correlated with any of the SES indicators, nor with internalizing or externalizing problems and was therefore not included in the path analyses. Figures 2–3 depicts the final path models and the path diagrams specifies both direct and indirect paths linking perceived family economy and parental education to externalizing/internalizing problems. Unstandardized coefficients (shown outside brackets) as well as the standardized (STDYX) coefficients (shown in brackets) are shown in the figures. In order to enhance readability of the figures, only the paths with significant coefficients are included.

Externalizing problems

The model where the direct paths from SES indicators to externalizing problems were constrained to zero fitted the data poorly, $X^2(3) = 51.60, p < .001, SRMR = 0.032,$

RMSEA = 0.089 (90% CI = 0.069-0.111), CFI = 0.886. Modification indices suggested that improvements could be made to the model by freeing the direct path from paternal education levels to externalizing problems (MI = 46.433, EPC = -0.315, STDYX EPC = -0.151). Freeing this path and re-running the model resulted in a model with good fit to the data, $\chi^2(2) = 4.623$, $p = 0.0991$, SRMR = 0.007, RMSEA = 0.025 (90% CI = 0.00-0.057), CFI = 0.994. No further improvements were suggested by the modification indices. The resulting path model can be seen in Figure 2 (paths with significant coefficients shown).

FIGURE 2 HERE

The indirect paths from family economy to externalizing problems through parental emotional well-being and discipline (-0.006, SE = .001, $p < .001$), and through parental emotional well-being and affirmation (-0.006, SE = 0.002, $p < .001$) were both significant, as was the indirect path from maternal education levels to externalizing problems through discipline (-0.017, SE = 0.007, $p = 0.009$). Overall, the model explained 11.5% of the variance in externalizing problems.

Internalizing problems

The model where all direct paths from the SES indicators to internalizing problems were constrained to zero yielded a poor fit to the data, $\chi^2(3) = 31.470$, $p < .001$, SRMR = 0.025, RMSEA = 0.068 (90% CI = 0.048-0.091), CFI = 0.911. Modification indices suggested that the direct path from family economy to internalizing problems (MI = 21.221, EPC = -0.399, STDYX EPC = -0.106) should be added. Respecification by freeing this path and resulted in a model with good fit $\chi^2(2) = 10.002$, $p = 0.0067$, SRMR = 0.012, RMSEA = 0.044 (90% CI = 0.020-0.073), CFI = 0.975. No further improvements were suggested by the modification indices. The resulting path model can be seen in Figure 3 (paths with significant coefficients shown).

FIGURE 3 HERE

The indirect path from family economy to internalizing problems through parental emotional well-being and discipline was significant (-0.002 , $SE = 0.001$, $p = 0.006$). The indirect path from family economy to internalizing problems through parental emotional well-being and affirmation was borderline significant (-0.003 , $SE = 0.001$, $p = 0.056$). Overall, the model explained 5.2% of the variance in internalizing problems.

Comorbidity analysis

The model where the direct paths from SES indicators to internalizing/externalizing problems were constrained to zero fitted the data poorly, $X^2(6) = 72.679$, $p < .001$, $SRMR = 0.036$, $RMSEA = 0.074$ (90% CI = 0.059-0.089), $CFI = 0.930$. Modification indices suggested that the direct path from paternal education to externalizing problems should be freed ($MI = 40.450$, $EPC = -0.263$, $STDYX EPC = -0.126$). Re-running the model after respecification improved model fit ($X^2[5] = 31.422$, $p < .001$, $SRMR = 0.024$, $RMSEA = 0.051$ [90% CI = 0.035-0.069], $CFI = 0.972$), but modification indices suggested that further improvements could be obtained by freeing the direct path from family economy to internalizing problems ($MI = 19.011$, $EPC = -0.342$, $STDYX EPC = -0.091$). Re-running the model after freeing this path resulted in a model with good fit, $X^2(4) = 12.103$, $p = 0.0166$, $SRMR = 0.014$, $RMSEA = 0.032$ (90% CI = 0.012-0.053), $CFI = 0.992$, and modification indices did not suggest further improvements to the model. The resulting path model can be seen in Figure 4 (available as an online supplement, paths with significant coefficients shown).

The indirect paths from family economy to externalizing problems through discipline (-0.006 , $SE = 0.001$, $p < .001$) and affirmation (-0.006 , $SE = 0.002$, $p < .001$) were significant, as was the indirect path from family economy to internalizing problems through discipline (-0.002 , $SE = 0.001$, $p = 0.008$). The comorbidity model accounted for 11.2% of the variance in

externalizing problems, and 5.2% of the variance in internalizing problems.

FIGURE 4 TO BE MADE AVAILABLE ONLINE

Discussion

In the present study, we found support for a model where family economy was associated with externalizing problems through parental emotional well-being and parenting practices, whereas maternal education level were associated with externalizing problems through discipline. There appeared a direct association between paternal education levels and externalizing problem that was not mediated by parenting. For internalizing problems, we found both direct associations with family economy and indirect associations with family economy through parental emotional well-being and parenting. Better family economy was associated with fewer externalizing problems through a negative association with parental emotional distress, which in turn was positively associated with use of discipline and negatively associated with use of affirmation. Higher maternal education levels were directly associated with less use of discipline, which in turn was related to fewer externalizing problems. A similar pattern of indirect associations between family economy and internalizing problems were observed, but we also found a significant direct association. For paternal education levels, there was a significant direct path to externalizing problems, but not internalizing problems. There was also a significant direct association between parental emotional well-being and both internalizing and externalizing problems. The overall pattern of associations was preserved in the analysis where externalizing and internalizing problems were allowed to correlate. This suggests that although externalizing and internalizing problems are related and may coexist, there are nevertheless differences in how each domain of mental health problems is associated with SES.

Although associations between economic distress, poor parental mental health, maladaptive parenting and childhood mental health problems have been replicated in prior studies using North American samples (e.g., Conger, Ge, Elder, Lorenz, & Simons, 1994; Conger, et al., 1995; Mcleod & Shanahan, 1996), to our knowledge only one prior study have reported this using a Nordic sample. The study included 527 Finnish 12-year-olds and their parents who experienced an economic recession during the 1990s (Leinonen, Solantaus, & Punamaki, 2002; Solantaus, Leinonen, & Punamäki, 2004). The results confirmed that financial hardship affected children's mental health through negative changes in parental mental health and parenting quality. This showed that, even in a Nordic welfare country with a social security system that to some extent buffers families against economic crisis, the family process model accounted for mediation of effects on child mental health. Also the current study generally supports this model, although the strengths of the associations were somewhat weaker than in the Finnish study. Other measures of family economy, but also a better economic situation in Norway with less disparity might have contributed to these attenuated associations.

Maternal education influenced externalizing problems through direct associations with discipline. This suggests that higher educated mothers make less use of disciplinary practices, which in turn is associated with fewer symptoms of childhood externalizing problems. In general, mothers with a lower SES have been found to use more direct control practices with their children (see Hoff, Laursen, & Tardif, 2002 for review), and parental education levels have been found to directly influence the use of harsh disciplinary practices with boys (Simons, Whitbeck, Conger, & Wu, 1991). The current study demonstrates that these associations also appear in a society prohibiting the use of corporal punishment (Bitensky, 1997) and presumptively more likely to judge certain parenting practices as physically or emotionally abusive (Korbin, 2003). Furthermore, these parenting practices may

even have greater negative consequences for children's mental health in a country such as Norway, where the use of harsh discipline is non-normative (Lansford, et al., 2005).

We found a direct association between paternal education levels and externalizing problems, but there were no significant paths from paternal education levels to parenting practices. The lack of association may suggest that education levels play less of a role for fathering than for mothering, or that the association between parental education levels and externalizing problems are mediated by mechanisms not included in our model. It could also suggest that fathers are less involved in parenting compared to mothers.

There was also a direct association between parental well-being and child mental health not mediated by parenting. This was not surprising, as there are other pathways through which parental mental health problems may be transmitted to children, such as heritability (S. Goodman & Gotlib, 1999; Ramchandani & Psychogiou, 2009). We were unable to assess such alternative pathways in the current study.

Our model explained more of the variance in externalizing problems than in internalizing problems, and others have made similar findings (e.g., Solantaus, et al., 2004). In addition to poor parenting, important risk factors for childhood internalizing problems are shy temperament (e.g., Feng, Shaw, & Silk, 2008) and insecure attachment (for review, see Colonna et al., 2011). It is likely that not having included such risk factors in our model has contributed to the relatively low proportion of explained variance in internalizing problems. It has also been suggested that, when used in community samples, the SDQ may be better at detecting externalizing and certain internalizing problems than others, which would render our results less valid for those types of problems that are likely to go undetected, such as phobias and eating disorders (R. Goodman, Ford, Simmons, Gatward, & Meltzer, 2000).

Furthermore, for internalizing problems, there were significant direct effects of family economy not accounted for by parental mental health problems or parenting practices.

Lempers, Clark-Lempers, and Simons (1989) previously obtained similar results with regards to the direct association between financial hardship and internalizing problems such as depression and loneliness. In a three-wave longitudinal study of 1,109 children spanning toddlerhood, kindergarten and second grade, Mian, Wainwright, Briggs-Gowan, and Carter (2011) found that the effects of sociodemographic risk factors on parental reports of childhood anxiety in kindergarten and in second grade were mediated by anxiety symptoms during toddlerhood. The apparent direct effect from family economy found in the current study could therefore possibly be mediated by such factors that were not accounted for in our model. Future longitudinal studies should investigate this possibility further by including more risk factors for internalizing problems obtained at an early age in their models.

Limitations

The findings from the current study should be viewed in light of several limitations. Firstly, the cross-sectional design poses some restrictions on the conclusions that can be drawn. For one, we cannot exclude the possibility of a reciprocal association between childhood mental health problems and parenting. Children are influential agents, and family relationships are reciprocal in nature (e.g., Kim, Conger, Lorenz, & Elder, 2001). Prior studies have found that behavioral problems and hyperactivity influence parenting practices (Campbell, Pierce, March, & Ewing, 1991), and in the study by Solantaus, et al. (2004), mental health problems in 8 year olds were found to predict both mental health problems as well as impaired parenting four years later. Recent research on differential susceptibility also suggests that some children are more affected than others by adverse parenting, depending on genetic and early temperamental characteristics (Pluess & Belsky, 2010a, 2010b).

Secondly, there is a possibility that children's mental health problems could affect the socioeconomic status of their parents, although this influence is limited during pre- and

early adolescence (Wadsworth & Achenbach, 2005). High levels of psychological problems in children may force parents to work reduced hours or prevent them from pursuing educational or occupational opportunities which otherwise could have benefited their socioeconomic status.

In addition, family economy is a subjective indicator of economic adversity, and data on actual family income was not available in the current study. Although reporting a poor or very poor perceived family economy was strongly related to experiencing current economic difficulties, more objective measures of income could have strengthened our findings further. Despite the differences in operationalization, our results still align well with previous studies where family economy has been defined using other, more traditional, methods.

Conclusion

The current study adds to the previous literature on socioeconomic status and parenting by demonstrating that both family economy, through parental mental well-being, and maternal education levels simultaneously and independently influence the use of disciplinary practices. Parental mental health problems also have negative influences on the use of affirmative parenting practices. Our findings may have important clinical implications. Parenting skills may be a useful candidate for clinical intervention when working with parents and children who are socioeconomically disadvantaged, and several promising evidence-based parenting programs have become available (see review by Barth et al., 2005). A recent meta-analytical review, suggest that the largest positive gains may be obtained by utilizing programs that teach parenting consistency, increases positive parent-child interactions and emotional communication skills, and adaptive control strategies (Wyatt Kaminski, Valle, Filene, & Boyle, 2008).

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Table 1

Characteristics of children participating in first phase only versus children taking part in both phases (full information sample).

	Phase 1 only	Phase 1 & 2	Statistical tests
Perceived Family Economy			
Very poor <i>N</i> (%)	14 (0.47%)	5 (0.26%)	$X^2(4) = 22.99, p < 0.001$
Poor <i>N</i> (%)	81 (2.72%)	39 (1.99%)	
Fair <i>N</i> (%)	921 (30.89%)	519 (26.48%)	
Good <i>N</i> (%)	1546 (51.84%)	1048 (53.47%)	
Very good <i>N</i> (%)	420 (14.08%)	349 (17.81%)	
Maternal Education			
Basic <i>N</i> (%)	295 (9.98%)	109 (5.58%)	$X^2(4) = 89.86, p < 0.001$
High school vocational <i>N</i> (%)	599 (20.26%)	305 (15.63%)	
High school theoretical <i>N</i> (%)	612 (20.70%)	343 (17.57%)	
College/university \leq four years <i>N</i> (%)	858 (29.03%)	634 (32.48%)	
College/university $>$ four years <i>N</i> (%)	592 (20.03%)	561 (28.74%)	
Paternal Education			
Basic <i>N</i> (%)	258 (9.02%)	147 (7.73%)	$X^2(4) = 69.43, p < 0.001$
High school vocational <i>N</i> (%)	917 (32.05%)	466 (24.51%)	
High school theoretical <i>N</i> (%)	320 (11.18%)	177 (9.31%)	
College/university \leq four years <i>N</i> (%)	728 (25.45%)	504 (26.51%)	
College/university $>$ four years <i>N</i> (%)	638 (22.30%)	607 (31.93%)	
SDQ subscales			
Hyperactivity <i>M</i> (<i>SE</i>)	2.61 (0.04)	2.46 (0.05)	$t = 2.45, p = 0.007, d = 0.069$
Conduct problems <i>M</i> (<i>SE</i>)	1.09 (0.02)	1.02 (0.03)	$t = 2.221, p = 0.013, d = 0.062$
Emotional symptoms <i>M</i> (<i>SE</i>)	1.65 (0.03)	1.65 (0.04)	$t = 0.067, p = 0.473, d = 0.001$
Peer problems <i>M</i> (<i>SE</i>)	1.12 (0.03)	1.16 (0.03)	$t = -1.018, p = 0.154, d = -0.028$

Note. 1-test: unequal variances used

Table 2

Associations between SES indicators, Family Life Questionnaire and Everyday Feelings Questionnaire.

	1	2	3	4	5	6	7
1. Family economy	-						
2. Maternal education level	0.231***	-					
3. Paternal education level	0.275***	0.503***	-				
4. Affirmation (FaLQ)	0.064**	-0.011	-0.017	-			
5. Discipline (FaLQ)	0.002	-0.072**	-0.029	-0.187***	-		
6. Rules (FaLQ)	0.039	0.024	-0.004	0.347***	0.135***	-	
7. EFQ Parent	-0.193***	-0.015	-0.045	-0.237***	0.117***	-0.125***	-

Note. FaLQ = Family Life Questionnaire, EFQ = Everyday Feelings Questionnaire.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3

Associations between Family Life Questionnaire, Everyday Feelings Questionnaire and Strengths and Difficulties Questionnaire scores

	SDQ externalizing problems	SDQ internalizing problems
Perceived Family economy	-.094***	-.135***
Maternal education level	-.123**	-.099***
Paternal education level	-.160***	-.059*
Affirmation (FaLQ)	-.177***	-.103***
Discipline (FaLQ)	.251***	.111***
Rules (FaLQ)	-.047	-.044
EFQ Parent	.146***	.166***

Note. SDQ = Strengths and Difficulties Questionnaire, FaLQ = Family Life Questionnaire, EFQ = Everyday Feelings Questionnaire.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 1.

Flowchart depicting participation in the second wave of the Bergen Child Study.

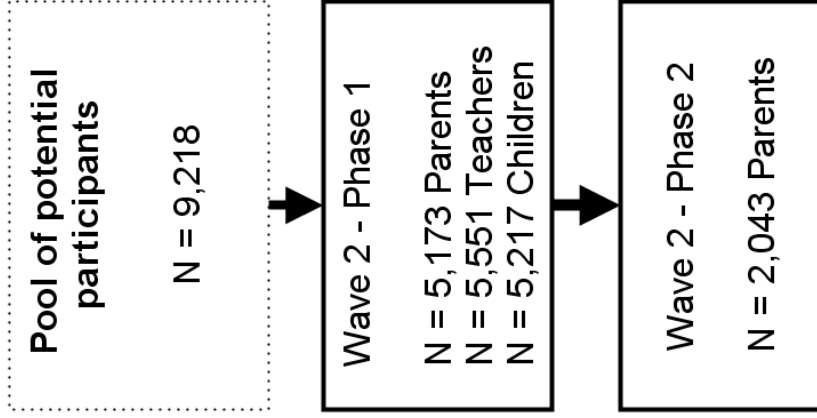


Figure 2.

Model of paths among socioeconomic status indicators, parental emotional well-being, parenting practices and SDQ externalizing problems. Estimates outside brackets are unstandardized path coefficients, estimates in brackets are standardized (STDYX). Double headed arrows indicate correlations between the exogenous variables and between the error terms of the endogenous variables. Goodness-of-fit indices: $\chi^2(2) = 4.623$, $p = 0.0991$, SRMR = 0.007, RMSEA = 0.025 (90% CI = 0.00-0.057), CFI = 0.994.

* $p < .05$, ** $p < .01$, *** $p < .001$.

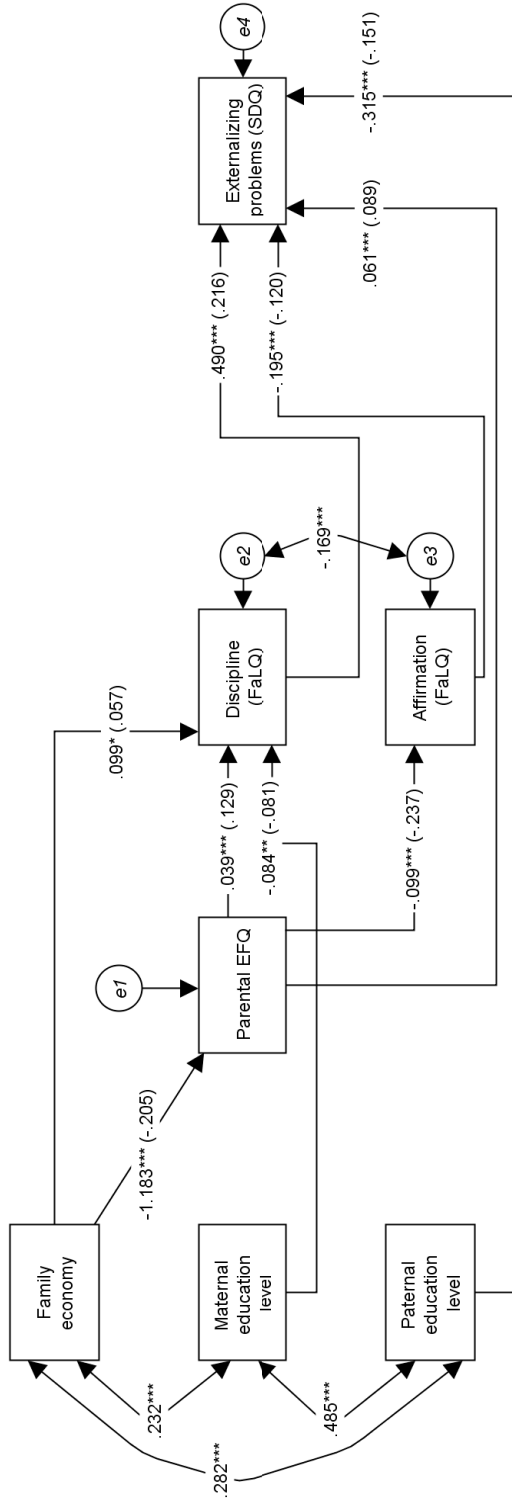


Figure 3.

Model of paths among socioeconomic status indicators, parental emotional well-being, parenting practices and SDQ internalizing problems.

Estimates outside brackets are unstandardized path coefficients, estimates in brackets are standardized (STDYX). Double headed arrows indicate correlations between the exogenous variables and between the error terms of the endogenous variables. Goodness-of-fit indices: $\chi^2(2) = 10.002$, $p = 0.0067$, SRMR = 0.012, RMSEA = 0.044 (90% CI = 0.020-0.073), CFI = 0.975.

* $p < .05$, ** $p < .01$, *** $p < .001$.

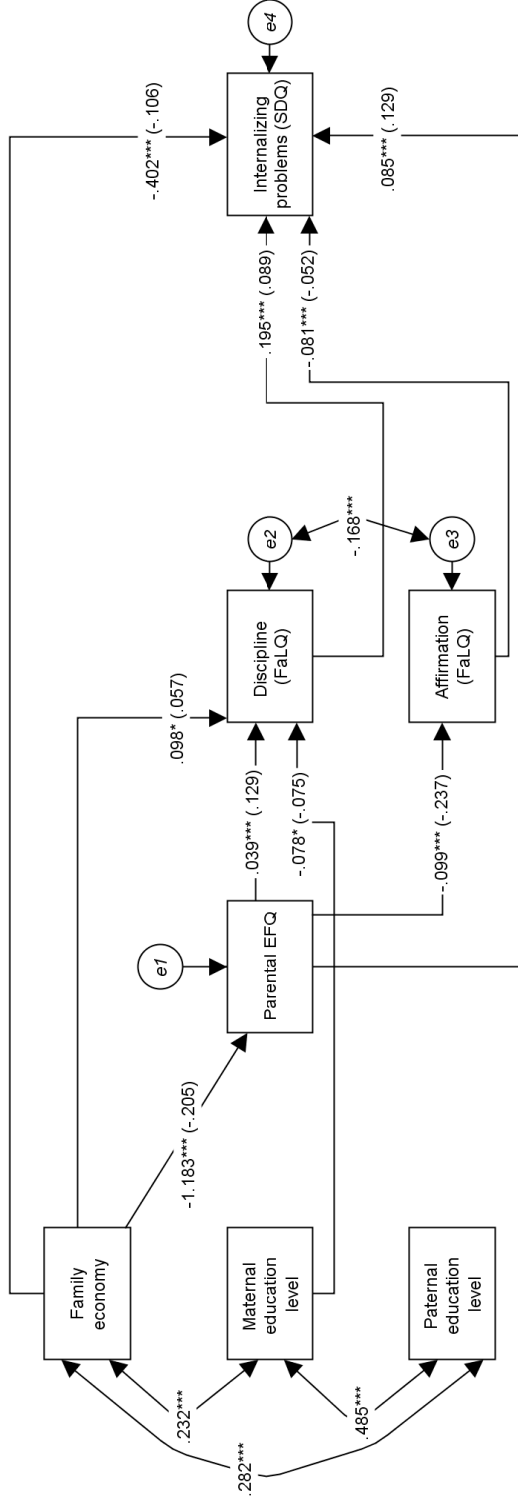


Figure 4. (To be made available as an online supplement).

Model of paths among socioeconomic status indicators, parental emotional well-being, parenting practices and SDQ externalizing and internalizing problems. Estimates outside brackets are unstandardized path coefficients, estimates in brackets are standardized (STDYX). Double headed arrows indicate correlations between the exogenous variables and between the error terms of the endogenous variables. Solid lines illustrate paths to externalizing problems and broken lines illustrate paths to internalizing problems. Goodness-of-fit indices: $\chi^2(4) = 12.103, p = 0.0166, SRMR = 0.014, RMSEA = 0.032$ (90% CI = 0.012-0.053), CFI = 0.992.

† $p = .053, *p < .05, **p < .01, ***p < .001$.

