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A Sibling Comparison Study
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Honors Thesis

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Department: Psychology

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Abstract

Prior research has suggested a link between self-esteem in children and adolescents and the parenting styles and behaviors of their parents. Research has identified dimensions of warmth, control, autonomy support, trust, flexibility, and demandingness as potential variables explaining this relationship. Existing literature has been limited by confounding variables such as genetic influences, home environment, race, culture, and socioeconomic status, as well as by a lack of longitudinal data. The current study uses a sibling comparison design to control for the influence of these genetic and environmental variables and allow for a more accurate estimate of the link between parenting and self-esteem. It uses data from the Children of the National Longitudinal Survey of Youths (CNLSY), which includes 11,545 biological offspring of women who participated in the National Longitudinal Survey of Youth, 1979 (NLSY79). The data on parenting styles and behaviors was taken from a survey of adolescents' perceptions of parental involvement, autonomy, disharmony, and intimacy. Self-esteem was measured using the Rosenberg Self-Esteem Scale. A significant association was found between intimacy and self-esteem scores in the population estimate; however, this association was not significant in the sibling-comparison model. Results suggest that links between self-esteem and parenting behaviors are confounded by background variables within families.

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Introduction

Self-esteem is the positive or negative view one has of themselves as a whole and the thoughts and feelings that make up this evaluation (Rosenberg et al. 1995). Gecas (1982) further defines self-esteem as having two distinct dimensions: competence and moral worth. Competency refers to the extent individuals feel capable and powerful, while worth refers to the extent an individual feels they are valued and appreciated (Cast & Burke, 2002). High self-esteem is an indication of worth and competence, while low self-esteem indicates feelings of worthlessness and inability. Self-esteem emerges during childhood and has been shown to be developmentally important for emotional and educational functioning in children (Yaffe, 2021). High self-esteem has been linked to many beneficial outcomes. Research has found a positive and significant relationship between self-esteem and grades in school (Rosenberg et al. 1989). High self-esteem has also been correlated with better mental health and coping, and less externalizing problems (Pinquart & Gerke, 2019). Low self-esteem during adolescence has been correlated with poor health, criminal behaviors, anxiety, eating disorders, depression, and suicidality (Aremu et al. 2019). It is hypothesized that delinquency correlated with low self-esteem occurs when adolescents seek to lessen feelings of negative self-worth by engaging with delinquent groups. When an individual feels unworthy in conventional activities, turning to delinquent activities where he or she can succeed may be appealing. (Rosenberg et al. 1989). Additionally, low self-esteem has been found to put children at risk for peer victimization and other social problems (Van Geel et al. 2018).

Self-esteem theory is one explanation of how an individual's self-esteem is formed. This theory suggests that self-esteem is established by principles such as

reflected appraisal, social comparison, and self-attribution (Rosenberg et al. 1989). Reflected appraisal implies that one's feelings about themselves are impacted by the way one believes others see them, while social comparison implies that individuals judge themselves by comparisons to others, and self-attribution suggests that individuals' feelings about themselves are based on observations and conclusions they form about their actions (Rosenberg et al. 1989). Self-esteem can also be impacted by environmental factors. Previous studies have indicated that socio-economic status is significantly related to self-esteem—with individuals with higher socio-economic status indicating higher levels of self-esteem (Francis & Jones, 1996). Cultural differences may also have an effect on self-esteem ratings. Schmitt and Allik (2005) measured self-esteem of participants from 53 nations and found it to be variable across cultures.

Prior research has suggested a link between self-esteem in children and adolescents and the parenting styles and behaviors of their parents. Existing literature largely identifies authoritative parenting as the optimal style for fostering self-esteem in adolescents. Authoritative parenting is defined by high warmth and high control with increased parental autonomy support, and research has found it to have a positive association with self-esteem (Pinquart & Gerke, 2019). Uninvolved parenting (low warmth, low control) and authoritarian parenting (low warmth, high control) have been associated with lower levels of self-esteem in offspring (Pinquart & Gerke, 2019). Permissive parenting (high warmth, low control) has had more complex results, and no significant associations with self-esteem have been found (Pinquart & Gerke, 2019). Additionally, it has been suggested that the type of control exerted by parents (coercive control vs. positive control) may influence self-esteem (Pinquart & Gerke, 2019).

Beyond the general dimensions of warmth and control, several other parenting variables have been studied as links between parenting styles and self-esteem (Pinquart & Gerke, 2019). First, when parents offer support, reasoning, trust, and autonomy, children learn to trust in themselves which encourages feelings of worth (Yeung et al., 2016). A second factor is parental demandingness, which encourages children to develop competence and can lead to success which fosters self-esteem (Steinbeck, 2001). A final notable variable is parental autonomy support which helps a child gain confidence and internal value, both of which promote self-esteem (Chirkov & Ryan, 2001). Parental flexibility has also been studied in connection with adolescent self-esteem. Aremu, John-Akinola, and Desmennu (2019) found that more than half of adolescents with high self-esteem perceived their parents as flexible.

Current studies of the relationship between self-esteem and parenting styles and behaviors have been limited by several factors. Most existing literature focuses exclusively on the parenting styles defined by Maccoby and Martin, which groups parents into four categories based on levels of warmth and control (Pinquart & Gerke, 2019). Limiting the measure of parenting styles to these two dimensions neglects the study of other parenting behaviors that may also be impacting levels of self-esteem. Another deficiency in existing research is a lack of data to investigate changes in self-esteem in relation to parenting styles because of the shortage of longitudinal studies in this area (Pinquart & Gerke, 2019).

Additionally, past studies have had difficulties investigating this relationship due to genetic and environmental factors that may confound the relationship between parenting and self-esteem. When variables such as genetic influences, home environment,

race, culture, socioeconomic status, and more are not controlled for, and when a longitudinal design is not used, it is not possible to clearly interpret associations found between parenting and self-esteem. Any association found between parenting and self-esteem in a cross-sectional study that does not address these confounds could imply one or more of the following explanations that cannot be disentangled: parenting causes changes in self-esteem; self-esteem causes changes in parenting; and/or parenting and self-esteem are caused by a common causal factor rather than being causally related to one another.

The current study uses existing data from a large, nationally representative sample to attempt to fill these gaps in research. This data set follows female participants and all of their reported offspring, allowing for a sibling comparison design to be used. A sibling comparison design partially controls for the influence that genetics may have on the relationship between parenting and child outcomes. It also controls for environmental factors, as siblings tend to be raised under similar conditions. This model allows the current study to investigate the relationship between parenting and self-esteem without the influence of extraneous variables that have been present in previous research on this topic. Additionally, the use of a longitudinal study for this project allows information on the degree and direction of the relationship between parenting and self-esteem, setting it apart from cross-sectional data collection. Although absolute causal inferences cannot be made without experimentation, this quasi-experimental design allows for the relationship between the variables to be studied without many of the limitations of other correlational research designs. In addition, this project studies parenting styles and behaviors using measures of quality time, autonomy support, disharmony, and intimacy, going beyond the

general dimensions of warmth and control that have limited prior studies. I hypothesize that increased quality time, autonomy support, and parent-child intimacy during early adolescence will be associated with higher self-esteem during later adolescence, while increased disharmony will be associated with lower self-esteem.

Method

The current study will use existing data from the Children of the National Longitudinal Survey of Youths (CNLSY). This longitudinal research follows the biological children of the female participants of the previously collected data set, the National Longitudinal Survey of Youth (NLSY79). Data have been collected from this sample 17 times from 1986 to 2018 (National Longitudinal Surveys, n.d.). The population contains 11,545 identified children who were born to NLSY79 mothers, including 5,895 males (51%) and 5,648 females (49%) (National Longitudinal Surveys, n.d.). The sample has a racial breakdown of 53% non-black/non-Hispanic, 28% black, and 19% Hispanic or Latino (National Longitudinal Surveys, n.d.). Additionally, the data set contains information on multiple offspring of the same mothers, which allows for the use of a sibling comparison design. Parenting styles and behaviors were assessed using a survey completed by offspring, which were averaged across ages 10 to 13. Self-esteem was assessed using a self-report survey completed by offspring, which was averaged across ages 14 to 17. The age difference in timing of the assessment of parenting and self-esteem allows for a longitudinal assessment of the effects of parenting on self-esteem.

The data on parenting styles and behaviors will be taken from a measure established by Hart et al. (1999). The first domain asked participants about their engagement and

shared activities with their parents over the past week and month. On the monthly level, items included “within the past month have you and your parents gone to the movies together,” and “within the past month have you and your parents gone shopping to get something for you, such as clothes, books, records, or games.” The measure of weekly activities included items such as “within the last week have you and your parents done things together such as build or make things, cook, or sew,” and “within the last week have you and your parents worked on schoolwork together.” Possible responses were “yes” and “no,” and the number of “yes” responses was used to measure levels of parent-child activity. Second, participants were asked their perception of how they are parented, including questions relating to autonomy, disharmony, and intimacy. Samples of these items include “how much say do you have in making up the rules about watching television?” (four-point scale ranging from “no say at all” to “a lot of say”), “how often do you argue with your parents about the rules about doing your homework?” (three-point scale ranging from “frequently” to “hardly ever”), and “how close do you feel to each of your parents?” (four-point scale ranging from “extremely close” to “not very close), respectively. The scales of parent-child activity, autonomy, disharmony, and intimacy have shown adequate reliability in past reports (e.g., Hart et al., 1999).

Self-esteem was measured using the Rosenberg Self-Esteem Scale. This is a 10-item scale that uses self-report to evaluate positive and negative feelings about the self (Rosenberg, 1965). It is a widely used, reliable, and valid resource. Items are scored on a four-point Likert scale ranging from “strongly agree” to “strongly disagree.” Sample items include “at times I think I am no good at all,” “I am able to do things as well as other people,” and “I feel that I’m a person of worth.” Items will be summed to give a

self-esteem score for each individual. In addition to the measures listed above, several additional variables were also included in the analyses as control variables. These variables included race/ethnicity, birth order, maternal age at childbirth, biological sex, and family income. The current study tested the effects of parenting on self-esteem using multilevel path analysis in Mplus 8.1 (Muthen & Muthen, 2017).

Results

Descriptive Statistics

The mean self-esteem scores for participants in the study were 1.81 out of 3.70 with a range of 2.70. The standard deviation of the self-esteem scores was .40. The maternal age at childbirth of participants included a mean of 25.11 out of 44 with a range of 34 and a standard deviation of 5.81. Birth order of the child had a mean of 1.96 with a maximum of 11, a range of 10, and a standard deviation of 1.14. Average household incomes for participants were \$21,574.49 out of \$352,731.17. The range was \$352,731.17 with a standard deviation of \$26,183.55. The average autonomy scores were 2.37 out of 4 with a standard deviation of .84 and a range of 3.25. The measure of joint activities generated a range of 1, a mean of .51 out of 1, and a standard deviation of .24. Average intimacy scores were 2.29 out of 3.40 with a range of 2.40 and a standard deviation of .37. Lastly, the disharmony measure yielded a range of 2 with a mean of 1.60 out of 3 and a standard deviation of .53.

Correlations

Correlations were calculated to test the relationship between adolescent self-esteem and the parenting variables of disharmony, intimacy, autonomy, and joint activities. Parental intimacy from ages 10 to 13 was found to be positively associated with self-esteem from ages 14 to 17, $r(1141) = .11, p < .001$. Furthermore, parental disharmony from ages 10 to 13 was found to be negatively correlated with self-esteem from ages 14 to 17, $r(1510) = -.095, p < .001$. No other significant correlations between the variables were detected.

Primary Analyses

In the population model (which compares children from different families), there were no significant associations found from reports of autonomy, disharmony, or joint activity (ages 10-13) to self-esteem in later adolescence (ages 14-17). However, intimacy was significantly linked to self-esteem outcomes, such that those who reported greater intimacy with their parents went on to report higher self-esteem scores in later adolescence (see Table 1).

Additionally, there were significant relationships between income, race, and birth order and self-esteem scores. Those with greater income reported higher self-esteem scores, as did Black participants in comparison to non-Hispanic white participants (see Table 1). Conversely, birth order was negatively associated with self-esteem when children from different families were compared, which indicated that children with larger families reported lower self-esteem than children with smaller families. There were no significant associations between reported self-esteem scores and either Hispanic ethnicity or maternal age at childbirth.

In the sibling comparison model, there were no significant links between the parenting variables of autonomy, disharmony, joint activity, or intimacy and self-esteem scores. However, there was a significant association found between a child's sex and their self-esteem during late adolescence (see Table 1). Consistent with the population estimates, there was no significant association between maternal age at childbirth and self-esteem scores within families. Additionally, no significant associations were found between income or birth order and self-esteem outcomes within families.

Table 1

Predictor variable	Predicting Self-Esteem at ages 14-17	
	β (S.E.)	<i>z</i>
Estimated Associations between families (population estimates)		
Autonomy (ages 10-13)	0.01 (0.013)	0.64
Disharmony (ages 10-13)	-0.03 (0.02)	-1.39
Joint Activity (ages 10-13)	0.01 (0.05)	0.29
Intimacy (ages 10-13)	0.10 (0.03)	3.04**
Income	0.00 (0.00)	4.42***
Hispanic	-0.02 (0.01)	-1.56
Black	0.07 (0.01)	5.42***

Birth order	-0.047 (0.01)	-5.25***
Maternal age at childbirth	-0.14 (0.00)	-1.68
<hr/>		
Estimated Associations within families (sibling comparison)		
Autonomy (ages 10-13)	0.02(0.03)	0.96
Disharmony (ages 10-13)	-0.07 (0.04)	-1.72
Joint Activity (ages 10-13)	0.18 (0.10)	1.82
Intimacy (ages 10-13)	0.01 (0.09)	0.06
Income	0.00 (0.00)	1.46
Birth order	-0.01 (0.01)	-1.03
Sex	-0.06(0.01)	-5.68***
Maternal age at childbirth	-0.00 (0.00)	-0.22

Note: Hispanic and Black participants assessed in reference to White, non-Hispanic participants. Sex: 0 = male, 1 = female. * $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Discussion

The present study investigated the relationship between parenting behaviors and self-esteem outcomes during adolescence. I hypothesized that higher levels of joint activity, autonomy, and intimacy would be associated with higher self-esteem outcomes, while higher levels of disharmony would be associated with lower self-esteem outcomes. Results revealed no significant links between self-esteem and autonomy, joint activity,

disharmony, or intimacy when comparing siblings within families; however, a significant relationship between intimacy and self-esteem was found in the population model, when comparing individuals from different families. Additionally, significant relationships were discovered between self-esteem outcomes and income, race, and birth order in the population model. The sibling comparison model also revealed an association between a child's sex and their self-esteem outcomes, such that girls reported lower levels of self-esteem as compared to their brothers.

Previous literature has suggested that certain parenting behaviors may be linked to self-esteem outcomes in adolescence. Specifically, parenting characterized by high warmth, control, and autonomy support have been identified in connection to high self-esteem. The present study yielded results that are somewhat inconsistent with past findings. For instance, Wairimu et al. (2016) found that parental autonomy support was positively associated with self-esteem in adolescence, while the current study found no significant relationship. Furthermore, the current study found no significant connection between disharmony and self-esteem, while a previous study found parent-adolescent conflict to be negatively associated with adolescent self-esteem (Li & Warner, 2015). It is possible that these associations were not found in the current study's sibling comparison model partially due to the many family-level confounding variables that were controlled by using this design. Indeed, a significant negative bivariate correlation was found between disharmony and self-esteem. No information was found in previous literature about the relationship between quality time spent with parents and self-esteem outcomes. Otherwise, McAdams et al. (2016) found a positive relationship between parent-child closeness and affection and self-worth in adolescence, which is consistent with the

current study's findings of a positive relationship between parent-child intimacy and self-esteem in the population model. Nevertheless, the lack of an association in the sibling-comparison model suggests that this effect may be attributable to genetic or environmental variables existing within the family.

Limited prior research was found looking at the relationship between family size and self-esteem; however, a study by Watkins and Astilla (1980) looking at Filipino adolescents found no significant influence of family size, birth order, or their interaction on self-esteem outcomes. The population model in the current study suggests that children from larger families may experience lower self-esteem than children from smaller families. It is possible that this inconsistency is due to cultural differences in Filipino households, as the current study used data from a diverse sample of families with many different racial, ethnic, and cultural backgrounds. The current study found associations between income and self-esteem such that higher income is related to higher levels of self-esteem; this result is consistent with those found in existing literature. For instance, Jackson et al. (2010) found household income to be one of the most important variables predicting self-esteem, with children from more affluent families having higher self-esteem than those from less affluent families. The current study found that Black participants had significantly higher self-esteem scores than non-Hispanic white participants, which is consistent with findings of prior literature. In one such study, Bachman et al. (2011) found that both male and female African American participants in a sample of high school students reported higher self-esteem scores than Hispanic, Asian-American, and White participants. These results remained consistent when adjusted for GPA, plans for college, and parent education levels (Bachman et al., 2011).

There have been mixed findings in relation to gender-differences in self-esteem, and results tend to differ across the span of adolescence. Jackson et al. found no gender difference in overall self-esteem in participants who were an average of 12 years old; however, gender was correlated to several domains of self-concept (academic, appearance, athletic, and behavioral self-concept; 2010). In contrast, Supervía et al. (2023) found girls in a sample of participants ages 12-18 to have higher self-esteem than boys; however, this effect was small. Additionally, a small gender-difference in self-esteem was found consistently across age, measure, and country in a large meta-analysis by Kling et al. (1999), indicating that males scored slightly higher on self-esteem measures than females under a variety of conditions. Similarly, Helwig and Ruprecht (2017) found that males and females have different patterns of self-esteem from early adolescence up to around age 30, with females consistently reporting lower levels of self-esteem. The current study supports these findings, as female participants reported lower self-esteem than their male siblings in the sibling comparison model. This suggests that girls experience lower self-esteem outcomes than boys in late adolescence, even when controlling for genetic and environmental factors.

Limitations and Strengths

The present study was limited in several ways. One source of limitation in this research is that it was not possible to control for the baseline self-esteem of each participant at ages 10-13. The Rosenberg Self-Esteem Scale was not administered to participants ages 10-13, which prevented the collection of self-esteem data necessary to rule out the possibility that results were based on continuity of self-esteem over time rather than any outside factors. Another limitation of this research design is that it only

considers the period from ages 10 to 17. Adolescence has been observed to be a critical period of change in self-esteem; Helwig and Ruprecht (2017) found that self-esteem declines in early adolescence and begins to recover during late adolescence and young adulthood. Despite this understanding, it is still notable that self-esteem could be more strongly impacted by parenting behaviors at a different life stage that was not captured by this study. A final limitation is the non-experimental design used in this study. Due to its lack of randomization, the sibling comparison model is a quasi-experimental design that cannot infer causal relationships in the way that true experiments can. This allows for the possibility that parenting behaviors do not cause changes in self-esteem outcomes, even if correlations are found between these variables.

Despite its limitations, the study has many strengths. The data set is large and contains a nearly equal number of male and female participants. It is longitudinal, which permits the inference of directionality, and when sampling weights are used, the findings generalize the U.S. population. The sibling-comparison model allows for confounds such as genetics and home environment to be controlled for; this is a unique advantage that many other studies examining parenting and self-esteem lack. The current study also looks at several variables that are not often included in similar research. Beyond the commonly referenced parenting dimensions of warmth and control—studied here as intimacy and autonomy—the present study considers measures of quality time and disharmony. This acknowledges a broader set of factors that can influence the parent-child relationship and its impact on self-esteem.

Implications and Future Directions

Results of the current study imply that further research is needed on self-esteem outcomes and the possible parenting behaviors that may promote high or low self-esteem. It is possible that future research accounting for variables such as parental support, trust, demandingness, and flexibility—in addition to the variables tested in the present study—may lead to a deeper understanding of this topic. These studies should consider using multiple reporting measures such as a combination of self-report measures, parent-report measures, and interviewer observation. Additionally, subsequent studies should establish a baseline for each participant's self-esteem to rule out the possibility that self-esteem outcomes are merely a reflection of previous self-esteem patterns. Finally, more research is needed on other periods of childhood to identify possible impacts of parenting behaviors on self-esteem at different life stages.

Future studies using a sibling comparison model should be conducted to better understand the differences in self-esteem outcomes between male and female siblings. This may include studying different types of self-concept such as the academic, appearance based, athletic, and behavioral self-concept dimensions identified by Jackson et al. (2011). Using these findings, researchers should continue to work towards identifying possible parenting strategies that can address deficits and increase self-esteem in female offspring. Overall, by addressing the limitations of the current study and expanding on its discoveries about gender differences in self-esteem within families, future studies have the capability of expanding the knowledge available to parents about optimal parenting behaviors for high self-esteem outcomes.

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