Assessing the Role of Social Skills as a Moderator in the Relationship between Socioeconomic Status and Child Behavioral Problems

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Abstract

This study examines the role social skills play as a moderator in the relationship between socioeconomic status (SES) and behavioral problems in children. It was hypothesized that social skills would buffer the effect of SES on behavior problems. Data were collected as part of a larger study on family interactions in families of preschoolers with and without developmental disabilities. Participants consisted of 47 families, with a focal child aged 3-5 years, residing in Stanislaus County. Parents completed questionnaires assessing their SES, as well as the focal child's social skills and behavior problems. Results indicated that, though SES did not significantly predict child behavior problems, the link between SES and behavior problems was moderated by child social skills when mothers were rating children's externalizing behaviors. Moderation was not found for fathers' ratings of child behavior problems. For both mothers and fathers, child social skills were found to significantly predict most types of behavior problems. Finding from this study indicate that targeting child social skills in therapeutic interventions may help reduce childhood behavioral problems.

Keywords: socioeconomic status, child behaviour problems, social skills

Introduction

The influence of socioeconomic status (SES) permeates throughout an individual's lifespan. SES has been found to affect the overall functioning of an individual, including physical and mental health. (DeCarlo Santiago, Wadsworth, & Stump, 2011). Low SES has been widely accepted to significantly impact the development of children, including the manifestation of internalizing and externalizing problem behaviors (Letourneau, Duffett-Leger, Levac, Watson, & Young-Morris, 2011). Research has shown that poverty-related stress exacerbated anxiety and depression symptoms for children, which can be a detriment during development (DeCarlo Santiago et al., 2011). Furthermore, children with SES disadvantages have been found to be three times more likely to have mental health problems compared to children with a more privileged background (McGrath & Elgar, 2015).

The American Psychological Association (n.d.) defines SES as the social position an individual has in society. SES is typically measured by combining an individual's education, income, occupation, and employment status (American Psychological Association, n.d.). Research has shown that the degree to which a child's surrounding environment affects their developmental potential is largely determined by the combination of variables that encompass SES measures (Letourneau et al., 2011). The socioeconomic position in terms of family economics and educational aspects as SES indicators have been shown to have a strong influence on a child's health and well-being (Hosokawa et.al., 2018).

Many potential mechanisms by which SES might influence the occurrence of behavioral problems have been found throughout the years. Developmental research has traced the influence of SES on behavior problems to early childhood experiences and prenatal exposure to maternal stress (Repetti, Taylor, & Seeman, 2002). Moreover, the absence of a maternal figure and indirect psychosocial consequences relating to the

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socioeconomic position of an individual have also been shown to underlie SES impact on behavior problems (McGrath & Elgar, 2015). Leijten, Raaijmakers, Orobio de Castro, and Matthys (2013) suggested that disruptive problem behaviors in children are more strongly associated with problematic parenting practices in disadvantaged families, which often have smaller social networks and less access to resources to provide them with parenting assistance and advice. Furthermore, maternal education has also been linked to a child's social and emotional competence (Hartas, 2011). Studies have found that socio-economic disadvantage and lack of maternal educational highly influence competencies in children (Hartas, 2011). Similarly, children living with families experiencing socioeconomic disadvantages were found to have lower cognitive skills and a higher risk for behavior problems (Hartas, 2011). There seems to be a persistent trend showing a relationship between family SES and children's social and behavioral skills.

Extensive research has been conducted that examines the negative effects of growing up in a disadvantaged environment, and the impact it has on child development. Singh and Ghandour (2012) stated that children living in the most disadvantaged neighborhoods, and with parents with less than a high school education, had higher odds of developing social behavioral problems than children living in a more advantaged environment (Singh and Ghandour, 2012). A longitudinal study conducted by Gilliam (2017) found that living in low-income communities, parenting, and other proximal family risk factors assessed in early childhood were predictors of conduct problems during middle childhood and more serious forms of anti-social behavior in adolescence and early adulthood. Furthermore, Rubio-Codina, Attanasio, and Grantham-McGregor (2016) findings stated that large developmental deficits associated with poverty from early ages were strongly mediated by parental education, especially maternal education, and the quality of the home environment. Quality of employment and number of work hours have also been associated with parental health, parent relationship with child, and child development (Nicholson, Strazdins, Brown & Bittman, 2012). Nicholson et al. (2012) findings suggested that job combinations that include extensive work hours and poorer quality jobs are associated with elevated rates of parental mental health problems, less time spent in developmentally important activities with children, and socio-emotional developmental difficulties for children.

In addition to financial hardships and social disadvantages, social skills have also been found to play an important role in predicting behavior problems. A longitudinal study conducted by Izard, Fine, Schultz, Mostow,Ackerman, and Youngstrom (2001), found that the level of emotional intelligence and social skills of a child at age 3 had long term effects on social behavior at age 8. Specifically, children who had good emotional intelligence were able to make socially acceptable statements to their peers and emphasize with them, which led to prosocial behavior (Izard et al., 2001). Furthermore, poor social skills have been linked to depression, anxiety, and aggressive behaviors as children grow older (Baker, Blacher, Crnic, & Edelbrock, 2002). Other studies have also found low social and emotional skills to be associated with increased behavioral problems (Schell et al., 2015). Research has indicated that the total social skills of a child are significantly correlated with internalizing and externalizing problems behaviors (Koblinsky, Kuvalanka, & Randolph, 2006).

Social skills and SES have both been associated with behavior problems, but research has rarely examined the interaction within these variables. The purpose of this study is to further expand the existing research on connections between SES and child development by analyzing the relation between family SES, children's social skills, and their behavior problems. This study examined the role social skills plays as a moderator in the relationship between socio-economic status and behavior problems in children. It is hypothesized that social skills serve the role of influencing the strength between socio-economic status and behavior problems. In other words, analyses will test whether having strong social skills can weaken the impact of low SES on child behavior problems. Findings from this study could help identify points of intervention to improve child behavior problems before they worsen, limiting the negative impact of behavior problems on the rest of a child's life.

Methods

Participants

Participants consisted of 47 children aged 3 to 5 and their families from Turlock and Modesto areas. The participant families consisted of a "focal child"

(preschool child aged 3-5), parents, siblings, and other family members who are part of the household.

Procedure

Data were collected as part of a larger study on family interactions in families of preschoolers with and without developmental risk. The larger study recruited children with developmental risk, as well as typically developing children. For the current study, typically-developing and children at developmental risk were included, and developmental risk was treated as a covariate in data analyses. All children were administered intelligence tests as a part of the larger study, using the Wechsler Preschool and Primary Scales of Intelligence, 4th Edition (WPPSI-IV). Children who scored less than 85 (below average) on the WPPSI-IV, or whose parents reported that they had been diagnosed with a developmental disability, were placed in the "developmental risk" group.

After recruitment, families were contacted by the laboratory coordinator to schedule each visit to the university. The research assistant or principal investigator obtained an informed consent form from the parents, and then gave each parent a pack of questionnaires to complete. Each parent was instructed to complete questionnaires separately to avoid discussing their responses. Parents were encouraged to return their questionnaires at their following visit. After the parent signed the consent form, informal assent was obtained from the child, then testing with the WPPSI-IV commenced. Testing with the WPPSI-IV was performed either by the principal investigator (a licensed clinical psychologist), or by trained research assistants (masters-level graduate students in either behavior analysis or counseling, trained and supervised by the principal investigator). Parents completed a packet of several questionnaires, of which 3 were used in the current study. Parents were encouraged to return their completed questionnaires when they arrived for their second university visit. Questionnaires were then checked for completion by trained research assistants. Any incomplete items, or items for which the response was unclear, were addressed immediately with the parent at their second visit. If items were left incomplete after the visit, the principal investigator made attempts to collect any remaining questionnaire data by phone. Questionnaire data were scored and entered by trained and supervised research assistants, with regular checks for reliability and accuracy.

Families received 3 forms of incentives to encourage participation in the study. Families received gift cards for participation in each phase of the study: $40 for participation in the initial intellectual assessment, $20 for completion of parent questionnaires, and $40 for participation in the family visit. In addition to monetary incentives, a brief written summary of the child's intellectual functioning (written by supervised and trained research assistants) was provided, and focal children and their siblings were allowed to pick from a "prize bin" of small toys or stickers (each with a value of less than $1) each time they visited the university.

Measures

This study used 3 parent-completed questionnaires from the larger packet of questionnaires parents completed as part of the larger study. *Family Information Form:* This was used to measure the parents income and SES. The form was broken down into 3 parts: questions regarding the mother, father, and focal child. It consisted of primarily demographical questions, formatted as multiple choice questions. Income was measured by asking parents to self-report their yearly income. *Child Behavior Checklist:* Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991) Ages 1.5-5 is a standardized parent-completed form that measures the behavioral and emotional problems of children aged 1.5 to 5 years old. The CBCL contains ratings of 99 forced-choice items and one open-ended item, which requests that the parent add any additional problems not already listed. The items ask parents to rate frequency of various behavior problems as observed in their children, including emotional reactivity, anxiety/depression, somatic complaints, withdrawal, attention problems, aggressive behavior, and sleep problems. The form also includes three open-ended questions for parents to describe physical and mental disabilities, and possible concerns about the child (Achenbach & Edelbrock, 1991). For each of the 99 scale questions, parents are able to respond 0 (Not True), 1 (Somewhat or Sometimes True) or 2 (Very True or Often True). Three index scores can be calculated from the CBCL: Internalizing problems (such as anxiety and depression symptoms), externalizing problems (such as aggression and rule-breaking), and total problems (a summary score that includes all behavior problems in the measure). High scores on the CBCL indicate greater emotional and behavioral problems.

Preschool and Kindergarten Behavior Scales-2: Social skills were assessed using the Preschool and Kindergarten Behavior Scales–Second Edition (PKBS-2, Najarian et al., 2010). This is a norm-referenced, standardized instrument designed to evaluate the social skills and problem behaviors of children aged 3 to 6 years. The PKBS-2 has been recognized as a strong measure of prosocial skills and also contains many items that address other constructs of interest, such as problem behaviors and emotional knowledge (Najarian et al., 2010). The social skills scale, used in the current study, includes items that describe positive social skills that are characteristic of well-adjusted children aged 3-6 years. Items are scored using a 4-point rating scale (0= never, 1= rarely, 2= sometimes, 3= often). High scores indicate well-developed social skills.

Results

Zero-order correlations were initially run between all variables to identify relevant covariates to include in the study. Variables were included as covariates in the study if they were found to significantly correlate with the outcome variable (either internalizing, externalizing, or total CBCL ratings). Developmental group was included as a covariate for mother analyses, as this variable was significantly associated with CBCL ratings (See Table 1). For fathers, child gender, child race, and developmental group were found to be significant covariates when correlation analyses were run (See Table 2).

Table 1
Results of Correlation Analyses for Mothers' CBCL Ratings

	1	2	3	4	5	6
1. Mother Years of Education	1					
2. Mother PKBS	.305*	1				
3. Mother CBCL Internalizing	-.135	-.621**	1			
4. Mother CBCL Externalizing	-.096	-.520**	.810**	1		
5. Mother CBCL Total Problems	-.183	-.632**	.928**	.929**	1	
6. Developmental Group	-.375**	-.570**	.430**	.292*	.432**	1

*Note. ** p < 0.01*
**p < 0.05*

Table 2
Results of Correlation Analyses for Fathers' CBCL Ratings

	1	2	3	4	5	6	7	8
1. Father Years of Education	1							
2. Father PKBS	.275	1						
3. Father CBCL Internalizing	-.309	-.761**	1					
4. Father CBCL Externalizing	-.386*	-.629**	.786**	1				
5. Father CBCL Total Problems	-.332*	-.771**	.922**	.893**	1			
6. Developmental Group	-.248	-.572**	.605**	.481**	.539**	1		
7. Child Gender	.097	.331*	-.260	-.259	-.314*	-.356*	1	
8. Recoded Child Race	-.276	-.266	.355*	.298	.305	.292*	-.024	1

*Note. ** p < 0.01*
**p < 0.05*

Then, linear regression analyses were conducted via the PROCESS macro for SPSS (Hayes, 2013) to test whether social skills would moderate the relationship between socioeconomic status and child behavioral problems. First, predictor variables (SES and PKBS) were mean-centered to control for multi-collinearity. To test the moderating role of social skills on socioeconomic status in relation to child behavioral problems, an interaction variable was created by multiplying the years of education by the PKBS ratings for both mothers and fathers.

Data for mothers and fathers was run separately, with SES and PKBS scores being used as predictor variables, the interaction term, and relevant covariates all entered into the regression model. Results of the regression analyses for mothers are depicted in Tables 3-5 and in Tables 6-8 for fathers.

First, a PROCESS analysis was run to test whether mother PKBS scores moderated the relation between mother years of education and mother CBCL externalizing ratings. Results indicated that the interaction between mother years of education and PKBS was significant, providing support for the hypothesis that social skills moderated the relationship between SES and child externalizing behavior problems (See Table 3).

Table 3
Results of Linear Regression to Test That Mother Reported Social Skills Would Moderate the Relationship Between Socioeconomic Status and Child Behavioral Problems

Predictor	*B*	*SE*	*β*	*t*	*p*
Mother Years of Education	.48	.58	.11	.83	.41
Mother PKBS	-.191	.11	-.33	-1.81	.08
Interaction Mother Years of Education & PKBS	.06	.03	.34	2.14	.04 *
Developmental Group	.78	4.05	.03	.19	.85

Note: Dependent Variable = Mom CBCL Externalizing Score
** Significant at the 0.05 level.*

Next, a PROCESS analysis was run to test the moderation model with mother CBCL internalizing ratings as an outcome. Results indicated that moderation was not significant, but there was a trend towards significance. Moreover, PKBS was found to significantly predict mother CBCL internalizing ratings (See Table 4).

Table 4
Results of Linear Regression to Test That Mother Reported Social Skills Would Moderate the Relationship Between Socioeconomic Status and Child Behavioral Problems

Predictor	*B*	*SE*	*β*	*t*	*p*
Mother Years of Education	.31	.54	.07	.53	.60
Mother PKBS	-.26	.11	-.41	-2.44	.02*
Interaction Mothers Years of Education & PKBS	.05	.03	.27	1.86	.07
Developmental Group	3.64	4.10	.13	.89	.38

Note: Dependent Variable = Mom CBCL Total Problems Score
** Significant at the 0.05 level.*

For mothers' CBCL internalizing ratings, moderation was not significant. However, analyses revealed PKBS to be a significant predictor of CBCL internalizing scores (See Table 5).

Table 5
Results of Linear Regression to Test that Mother Reported Social Skills Would Moderate the Relationship Between Socioeconomic Status and Child Behavioral Problems

Predictor	*B*	*SE*	*β*	*t*	*p*
Mother Years of Education	.472	.58	.10	.81	.42
Mother PKBS	-.29	.11	-.48	-2.76	.009 *
Interaction Mother Years of Education & PKBS	.028	.03	.16	1.03	.307
Developmental Group	3.82	4.04	.14	.95	.350

Note: Dependent Variable = Mom CBCL Internalizing Score
** Significant at the 0.05 level.*

PROCESS analysis was used to test the moderation model with fathers' CBCL internalizing and externalizing ratings as an outcome. Results showed no significant moderation. Yet, PKBS was shown to be a significant predictor in both outcomes (See Tables 6 & 7).

Table 6
Results of Linear Regression to Test That Father Reported Social Skills Would Moderate the Relationship Between Socioeconomic Status and Child Behavioral Problems

Predictor	*B*	*SE*	*β*	*t*	*p*
Father Years of Education	-.19	.44	-.05	-.43	.67
Father PKBS	-3.42	.08	-.61	-4.19	.000 *
Interaction Father Years of Education & PKBS	-.01	.02	-.05	-.50	.62
Developmental Group	2.82	3.38	.12	.84	.41
Child Gender	-2.32	2.62	-.10	-.89	.38
Recoded Child Race	3.15	2.48	.14	1.27	.21

Note: Dependent Variable = Dad CBCL Internalizing Score
** Significant at the 0.05 level*

Table 7
Results of Linear Regression to Test That Father Reported Social Skills Would Moderate the Relationship Between Socioeconomic Status and Child Behavioral Problems

Predictor	*B*	*SE*	*β*	*t*	*p*
Father Years of Education	-.62	.44	-.185	-1.40	.17
Father PKBS	-.23	.08	-.484	-2.88	.007*
Interaction Father Years of Education & PKBS	.02	.02	-.111	-.89	.38
Developmental Group	-.49	3.36	-.025	-.15	.89
Child Gender	-4.46	2.60	-.234	-1.71	.096
Recoded Child Race	1.70	2.47	.089	.688	.496

Note: Dependent Variable = Dad CBCL Externalizing Score
** Significant at the 0.05 level.*

For fathers' CBCL total problem ratings, no significant moderation was found. However, results indicated that child gender and PKBS scores were significant predictors of father reported CBCL total problem scores. (See Table 8).

Table 8
Results of Linear Regression to Test That Father Reported Social Skills Would Moderate the Relationship Between Socioeconomic Status and Child Behavioral Problems

Predictor	*B*	*SE*	*β*	*t*	*p*
Father Years of Education	-.33	.41	-.09	-.81	.43
Father PKBS	-.38	.08	-.70	-5.04	.000 *
Interaction Father Years of Education & PKBS	-.004	.02	-.02	-.20	.84
Developmental Group	-1.61	3.15	.07	-.513	.61
Child Gender	-5.28	2.44	-.24	-2.17	.04*
Recoded Child Race	1.47	2.31	.07	.64	.53

Note: Dependent Variable = Dad CBCL Total Problems Score
** Significant at the 0.05 level.*

Results showed that when mothers had few years of education, whether or not their child's level of social skills made a significant impact on how mothers perceived their child's behavior problems (See Figures 1 & 2). Mothers with few years of education whose children also had low social skills reported significantly more child behavior problems than mothers with few years of education whose children had high social skills. When mothers had many years of education, their children's social skills had little impact on their perceptions of child behavior problems.

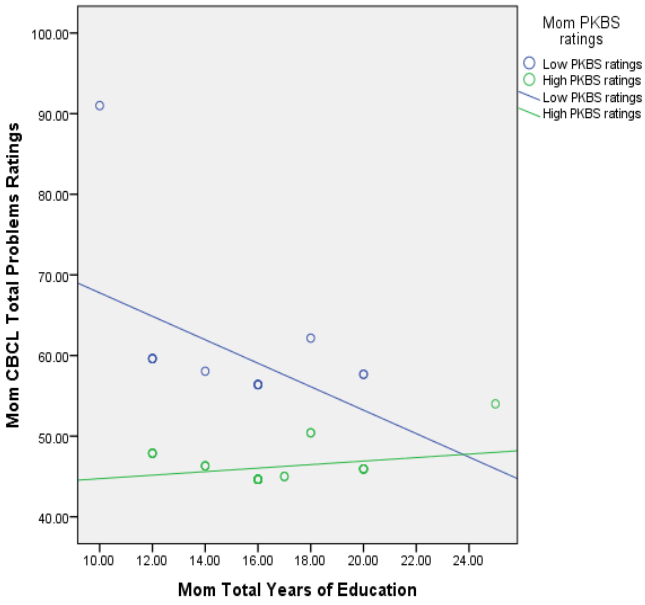

Figure 1. SES & Social Skills Interaction for Mother CBCL Externalizing Problems Ratings

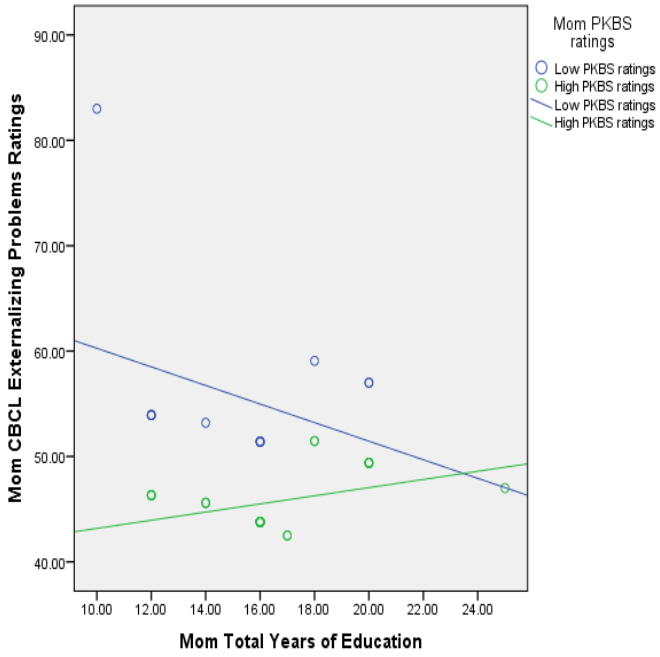

Figure 2. SES & Social Skills Interaction for Mother CBCL Total Problems Ratings

Discussion

The purpose of the present study was to examine whether social skills would serve to moderate the relationship between socio-economic status and child behavioral problems. The results of this study provided partial support for the proposed hypothesis. Specifically, for mothers, social skills buffered the effect of SES on externalizing and total behavior problems. Also, results indicated that social skills predicted child behavior problems for mothers' and fathers' ratings.

Contrary to expectations, SES did not predict behavior problems. This finding suggests that when considered on its own, SES had no significant effect on the child's behavior problems. These results might arise, in part, from the lack of variability in relation to the family's SES. It is important to recognize that although this study did not find SES to be a predictor of behavior problems, there is extensive research that provides important data that highlight the big impact SES can have on a child's overall well-being. For example, problem behaviors have been strongly associated with poor parenting practices in low SES households (Leijten et al., 2013). Similarly, a study done on alcoholic families found that most behavioral problems in children were predicted by family SES (Fitzgerald, Sullivan, Ham,Zucker, Bruckel, Schneider, & Noll, 1993).

Moreover, social skills were also found to be a significant predictor for most types of behavioral problems. Results from this study adds to the existent literature that addresses the role a child's social skills plays in predicting internalizing and externalizing problem behaviors (Koblinsky et al., 2006). Analyses indicated that when moderation was not found, social skills served as a strong predictor for most behavior problems reported by mothers and fathers. This finding is consistent to previous research that found a relationship between social skills and behavior problems in urban preschoolers (Koblinsky et al., 2006).

A child's developmental risk was found to be a significant predictor of behavior problems for both mothers' and fathers' ratings. This finding is parallel to previous research in which children with developmental delays were found to have a greater use of maladaptive strategies and a lower use of adaptive strategies than children who were typically developing (Gerstein, Pedersen y Arbona, Crnic, Ryu, Baker, & Blacher, 2011). Moreover, decreased risk for developmental delay and lower levels of maladaptive behavior have been linked to improved relationships between mothers and their child (Pedersen, Crnic, Baker, & Blacher, 2015). Furthermore, a study conducted by Bagwell, Molina, Pelham, and Hoza (2001) found that childhood ADHD predicted poor peer relations and an impairment to their social functioning. These findings provide support and are consistent to the findings of this study in which a child's developmental risk served as a significant predictor to behavioral problems.

Limitations

Even though partial evidence was found to support the hypothesis, there are important factors that should be taken into consideration which may have influenced the outcomes of this study. Sample size plays a crucial role in the ability to identify certain outcomes, such as main effects. Having a relatively small sample size may have not provided enough statistical power to detect a significant interaction between social skills and SES on child behavior problems. While there is evidence for the effect socioeconomic status has on behavior problems, the lack of representation of the general population in this study may have been a factor that affected the outcome. The mean income of the sample was relatively high, and did not fall under the federal poverty level. The underrepresentation of low SES may have slightly weakened the ability to predict significant outcomes.

Other limitations to note are the cross-sectional nature of this study, and the convenience sample. This study's cross-sectional design means that the results are correlational, which limits generalizability and reduces the ability to determine causation. Moreover, having a convenience sample could have added to the underrepresentation of the general population. Another important thing to note is the possibility of response bias. Since all data was parent self-reported, participants may not respond truthfully, either because they cannot remember or because they wish to present themselves in a socially acceptable manner.

Conclusion

The main finding of this study was that social skills moderated the effect SES has on child behavioral problems. It is crucial to target children's social skills in low-income families, in order to have the biggest impact on reducing behavior problems. Furthermore, social skills were found to be a significant predictor for behavior problems. Research has shown that targeting problem behaviors early on in a child's development can have a substantial positive impact on the rest of their lives (Gilliam, 2017). By applying effective and practical early prevention, we could make a significant contribution to the prosperity of children and the overall functioning of communities (McArdle et al.,2011). Moreover, developing these strengths may decrease or buffer problematic behaviors, and increase overall social and emotional health. (Marshall, 2015).

This study indicates that parents and professionals should be alerted to the importance of helping a child build strong prosocial skills. We should start targeting social skills in therapeutic interventions for children who come from a low SES background, to help reduce the impact behavioral problems may have later in life.

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