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Natural Mentoring Relationships among Adolescent Mothers: A Study of Resilience

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Abstract

This study focused on natural mentoring relationships between nonparental adults and African American adolescent mothers. Data were collected from 93 adolescent mothers over five time points, starting in the adolescent mothers' senior year of high school and ending five years post-high school. We found that having a natural mentor was related to fewer depressive symptoms and fewer anxiety symptoms over time. Natural mentor presence also modified the relationship between stress and mental health problems over time. Facilitating these natural mentoring relationships between adolescent mothers and nonparental adults may be a useful strategy for promoting healthy development within this population.

Introduction

Adolescent childbearing is a phenomenon that has received substantial research attention over the last few decades. The results of many early studies indicated that teenage childbearing was predictive of negative outcomes for both young mothers and their offspring (Furstenberg, Brooks-Gunn, & Chas-Lansdale, 1989; Hoffman, Foster, & Furstenberg, 1993; Maynard, 1996). More recently, however, researchers have identified alternate explanations for the negative outcomes found in previous studies (e.g., unequal access to resources such as education, employment, and safe housing) and have suggested that by ignoring pre-existing disadvantage, researchers and policy-makers have overstated the negative effects of teenage childbearing (Geronimus, 1997; Hotz, McElroy, & Sanders, 1997; SmithBattle, 2007). Furthermore, as researchers have begun to study more diverse groups of adolescent mothers over time, they have found considerable variability in long term outcomes (Oxford et al., 2005; SmithBattle, 2007), suggesting that many adolescent mothers have been able to overcome the challenges associated with teenage childbearing. These recent findings suggest that resilience theory may provide a useful approach for studying long term outcomes among adolescent mothers because a resilience model focuses on factors that promote successful adjustment despite adversity.

Resilience theory

In addition to being more likely than their counterparts to come from disadvantaged backgrounds (Coley & Chase-Lansdale, 1998; Jaffee, 2002; Maynard, 1995), adolescents who become pregnant are also more likely to have performed poorly in school (Coley & Chase-Lansdale, 1998; Maynard, 1995), received low levels of social support, and been the victims of sexual abuse (Boyner & Fine, 1992). Additionally, adolescent mothers are more likely than their non-childbearing peers to originate from communities with high poverty rates and limited educational and employment opportunities (Wilson, 1987). These findings

indicate that adolescent mothers already differ from other adolescents in their experiences and opportunities prior to their pregnancy. The addition of an early pregnancy may increase economic hardship and create additional obstacles to obtaining an education for young mothers (Edin, 2000; Jaffee, 2002; Musick, 1993).

Due to intersections between race/ethnicity and poverty, low-income African American adolescent mothers face a unique set of risks. Experiences with race-related social, economic, and political marginalization may cause African American adolescent mothers to be at increased risk for negative outcomes (Geronimus, 2003). In addition to marginalization or exclusion from societal resources, personal experiences with racial discrimination may result in poorer physical and mental health outcomes, as well (Williams, Neighbors, & Jackson, 2003). Furthermore, Geronimus (2003) suggests that the moral condemnation our society casts on urban, low-income, African American adolescent mothers may directly affect their psychological well-being and the willingness of others to offer them support and encouragement.

Limited resources, competing demands, and increased responsibilities may result in increased psychological distress among adolescent mothers (Bebbington, Hurry, & Tennant, 1990; Wasserman, Brunelli, & Rauh, 1990). This psychological distress may be manifested in a variety of ways, including symptoms of depression and anxiety. In fact, researchers have documented heightened symptoms of depression (Deal & Holt, 1998) and anxiety (Jaffee, 2002) among adolescent mothers. Nevertheless, researchers have identified some adolescent mothers who have been able to successfully adapt to adolescent motherhood (Garcia Coll & Vazquez Garcia, 1996; Oxford et al., 2005).

Resilience theory helps explain why some youth who experience adversity are able to thrive in the face of risk (Luthar & Cicchetti, 2000; Zimmerman & Arunkumar, 1994). The resilience process refers to positive adjustment among youth who have been exposed to one or more risk factor(s) (Fergus & Zimmerman, 2005). Risk factors increase the likelihood of developing negative outcomes. Promotive factors, on the other hand, contribute positively to youth outcomes (i.e., compensatory factors) and/or buffer youth from negative outcomes associated with risks (i.e., protective factors). Promotive factors may be individual assets (e.g., self-efficacy) or resources from an individual's environment (e.g., mentors). Resilience theory is a useful approach for estimating outcomes among at-risk populations because it allows researchers to focus on factors that may predict positive development within these populations. Thus, a resilience approach is unique because it focuses on strengths within the individual and the individual's environment as opposed to solely focusing on deficits and blaming at-risk populations for their own problems.

Few researchers have used a resilience approach to discover specific factors that may counter or protect adolescent mothers from the negative outcomes associated with the risks they face. Of the few researchers who have investigated promotive factors for this population, some have found that the presence of a strong supportive relationship may contribute significantly to resilience among African American adolescent mothers (Carey, Ratliff, & Lyle, 1998; Klaw, Rhodes, & Fitzgerald, 2003; Rhodes, Ebert, & Fischer, 1992).

Social support

Several researchers have identified social support as a predictor of psychological outcomes among adolescent mothers. Specifically, researchers have found that adolescents who report low levels of social support during pregnancy experience poorer health during pregnancy and greater symptoms of depression in comparison to pregnant teens with higher levels of support (Stevenson, Maton, & Teti, 1999). Additionally, researchers have found more depressive symptoms among adolescent mothers with low social support post-pregnancy

(Burchinal, Follmer, & Bryant, 1996). Consistent with these findings, researchers have found beneficial effects of higher levels of social support for adolescent mothers' well-being (Cutrona, 1989; Davis, Rhodes, & Hamilton-Leaks, 1997; Turner, Grindstaff, & Phillips, 1990; Unger & Wandersman, 1988). Although most of these studies of social support and maternal well-being have focused on support provided by adolescent mothers' parents and/or romantic partners, some studies have examined the potential positive effects of relationships with nonparental supportive adults on adolescent mothers' psychological well-being (Rhodes et al., 1992; Rhodes et al., 1994).

Natural mentors

Natural mentors are nonparental supportive adults who are a part of adolescents' social networks (e.g., extended family members, neighbors, family members' friends). Although operational definitions of natural mentors have varied, most researchers agree that natural mentoring relationships occur between an older and more experienced adult mentor and a younger, less experienced mentee and that these relationships serve to provide mentees with support, guidance, and encouragement (Levinson, Darrow, Klein, Levinson, & McKee, 1978; Rhodes et al., 1992; Zimmerman, Bingenheimer, & Notaro, 2002). Researchers suggest that natural mentoring relationships may be more prevalent in the African American community due to a heightened emphasis on intergenerational relationships both within and outside of the family system (Stack, 1974). In particular, older African American women often take on the role of *other mothers* or *play mothers* (surrogate parents) and contribute substantially to the development of African American youth (Collins, 1987). These relationships with surrogate mothers may be particularly valuable for adolescent mothers as they take on new roles and responsibilities associated with parenthood.

Moreover, research findings suggest that natural mentoring relationships may provide a unique set of benefits to adolescent mothers. Although support received from adolescent mothers' parents and partners has been found to be related to adolescent mothers' well-being, researchers have found that relationships with parents and partners can also be significant sources of stress, unwanted interference, and conflict (Caldwell, Antonucci, & Jackson, 1998; Royce & Balk, 1996). In contrast, relationships with natural mentors have been found to be highly supportive and minimally conflictual (Rhodes et al., 1992). In fact, Rhodes and colleagues (1992) suggest that relationships with natural mentors may help adolescent mothers cope more effectively with the conflict they experience in their relationships with their parents and partners.

In a study of 129 African American adolescent mothers, Rhodes and colleagues (1992) found that participants who reported having a natural mentor demonstrated lower levels of depression than those who did not have a natural mentor. They also found that participants with a mentor and participants without did not differ in reported stress or in levels of social support received (not including mentor support). Rhodes et al. (1992) concluded that natural mentoring relationships may positively influence mental health outcomes by contributing to adolescents' ability to cope with stressful relationships and benefit from their available social networks. Rhodes' study was one of the first to identify the potential effects of natural mentors on adolescent mothers' psychological well-being, however, the use of a cross sectional study design was a significant study limitation.

In a similar study, Rhodes, Contreras and Mangelsdorf (1994) analyzed the potential effects of natural mentoring relationships on mental health outcomes among a group of 54 urban Latina adolescent mothers. They found that adolescent mothers who reported having a natural mentor demonstrated fewer symptoms of depression and anxiety than their counterparts. As in the previous study, Rhodes and colleagues found no differences in stress exposure or social support resources between the group of participants with natural mentors

and the group without mentors. Adolescents with natural mentors also reported receiving more intangible support (e.g., emotional support, guidance) from their mentors than they received from their mothers. Again, the results of this study support the hypothesis that natural mentoring relationships help adolescent mothers cope more effectively with stress, and thus promote more positive psychological outcomes. These results also suggest that adolescent mothers may benefit from mentor support above and beyond the benefits associated with maternal support. Yet, this study was also limited by the use of a cross sectional design. Notably, the inclusion of a longitudinal study design would have allowed for a more thorough exploration of the potential for natural mentors to help protect adolescent mothers from the negative effects of stress.

Present study

Although researchers have documented a host of risk factors and negative outcomes associated with adolescent childbearing, few researchers have investigated potential promotive factors for adolescent mothers. Findings from previous studies reflect a positive association between the presence of a natural mentor and adolescent mothers' well-being. These results are noteworthy, however, researchers have failed to assess for potential long-term mentoring effects on psychosocial outcomes among adolescent mothers. Whereas data collected at one time point helps identify potential relationships between variables, data collected at multiple time points allows researchers to further investigate the nature of these relationships. By examining longitudinal data, researchers can determine if the identified relationship is potentially sequential. Additionally, researchers can study effects over time and assess for long- vs. short-term outcomes. Longitudinal research can provide for a developmental analysis and contribute to our understanding of identified relationships. Thus, a number of key insights can be gained from conducting longitudinal research on natural mentoring relationships among adolescent mothers.

In this study, we assessed potential natural mentoring effects on adolescent mothers' well-being as they transitioned from adolescence into adulthood. Researchers have found that adolescent mothers may be at increased risk for depression and anxiety. Furthermore, stress associated with the transition from adolescence into adulthood may exacerbate pre-existing stressors and increase adolescent mothers' risk status. We tested whether having a natural mentor during the senior year of high school (a key transitional period) may have affected mental health trajectories among a sample of African American adolescent mothers. In an attempt to uncover how natural mentors may be affecting adolescent mothers' psychological well-being, we tested whether the presence of a natural mentor modified the relationship between stress and mental health problems over time. We controlled for participants' age, socioeconomic status (SES), and parental support in an effort to isolate the relationship between natural mentor presence and participants' psychological well-being. This study included five time points of data collected over six years. We hypothesized that adolescent mothers who reported having natural mentors during their 12th grade year (or what would have been their 12th grade year for those who dropped out of school) would demonstrate greater decreases in symptoms of depression and anxiety over time. We also hypothesized a weaker relationship between stress and mental health problems over time among participants with natural mentors.

Methods

Participants

This study's sample consisted of 93 African American adolescent mothers who were pregnant and/or parenting during their senior year of high school (or what would have been their senior year for those who dropped out of school). All of the mothers in this sample

were the primary care providers for their children. Twenty-seven of the participants were pregnant during their senior year of high school and went on to deliver and be the primary care providers for their children. Three of these pregnant adolescents already had one child and one pregnant mother already had two children. Overall, 23 participants were pregnant with their first child, 57 participants had one child and 13 participants had two children by their senior year of high school. Participants who were pregnant with their first child did not differ from parenting mothers on SES ($t_{[90]} = -.25$; ns), age ($t_{[91]} = -.60$; ns), or natural mentor presence ($\chi^2_{[1]} = .46$; ns).

This study included participant data taken from the fourth wave (the participants' senior year of high school) of an 8-wave longitudinal study of high school dropout in a large, high-poverty, Midwestern city. Study inclusion criteria included an eighth-grade GPA of 3.0 or lower and the absence of an emotional or developmental disability. Participants were interviewed each year of high school and four times across the five years following high school. The current study included data taken from the senior year of high school and data collected over the following 5 years. Participants in the fourth wave of data (senior year of high school) included 770 youth (90% response rate from wave-1 sample). One hundred and four female participants reported that they were either pregnant or parenting during their senior year of high school. Ninety-eight of the 104 pregnant or parenting mothers identified as African American. Given our interest in the unique experience of African American adolescent mothers, we only included the African American adolescent mothers in the current study. Two of the 98 African American mothers were excluded from the analyses due to missing data on one or more Level-2 predictor variables. Response rates ranged from 85 to 99% across time points. Given that our analytic method (hierarchical linear modeling) allowed for some missing Level-1 data, our final analyses included all African American adolescent mothers with at least two waves of data ($n = 93$).

Procedure

This study received approval from both the Institutional Review Board at the University of Michigan and the staff at the schools where data were collected. Participants completed structured interviews conducted by six male and female, African American and white interviewers. Interviews lasted approximately 50 to 60 minutes. Attempts were made to match participants and interviewers by race and gender. Self-report questionnaires (paper-and-pencil format) were administered following the interview to collect information about participants' drug and alcohol use. Participants who were enrolled in school in the 9th through 12th grade years were called from their classrooms and interviewed at school. Participants who were not enrolled in school were contacted and interviewed at home or at a location specified by the participant. Data collection in the years following high school completion involved contacting participants and interviewing them at home or at a specified location in the community.

Measures

Measures in this study included both intraindividual measures and interindividual measures. Intraindividual measures included variables that were expected to vary across time (e.g., depressive symptoms). Interindividual measures included participant characteristics (i.e., age, SES) and our main predictor variable (presence of a natural mentor in adolescent mothers' 12th grade year). Means, standard deviations, and Cronbach's alphas for the study outcome variables are reported in Table 1.

Intraindividual measures- Level 1

Depressive symptoms—Depressive symptoms were assessed using six items from the Brief Symptom Inventory (Derogatis & Spencer, 1982). Participants were asked about the

frequency with which they have felt uncomfortable during the past week due to various problematic symptoms (e.g., feelings of worthlessness, feeling no interest in things). Response options ranged from 1 (not at all uncomfortable) to 5 (extremely uncomfortable).

Anxiety symptoms—Six items from the Brief Symptom Inventory (Derogatis & Spencer, 1982) were used to measure symptoms of anxiety. Participants were asked how frequently (within the past week) they had felt uncomfortable because of various problems (e.g., feeling fearful, suddenly scared for no reason). Response options were the same as the ones previously described for depressive symptoms.

Stress—The Perceived Stress Scale was used to measure participants' experiences with stress (Cohen, Kamarck, & Mermelstein, 1983). This 14-item measure asked participants to indicate how frequently they have experienced stress-related feelings and thoughts within the past month. Items included "In the last month, how often have you felt that you had so many problems that you could not deal with them?" and "In the last month, how often have you found that you could not deal with all the things that you had to do?" Response options ranged from never to very often on a scale of 1 to 5. These items were summed and averaged to yield an average stress score.

Parental support—Participants were asked about support received from their mothers and fathers (Procidano & Heller, 1983). Five items were used to assess maternal support, and then the same 5 items were reworded to assess for paternal support. Items included "I have a deep sharing relationship with my mother/father," and "I rely on my mother/father for emotional support." Respondents rated how true the statements were for them: response options ranged from 1 (not true) to 5 (very true). The five maternal support items were summed and averaged to yield a maternal support variable; the same was done with the paternal support items. Participants who reported no contact with the parental figure in question were assigned a score of 0 for this variable.

Interindividual measures- Level 2

Natural mentor—Participants were asked, "Is there an adult 25 years or older who you consider to be your mentor? That is, someone you can go to for support and guidance, or if you need to make an important decision, or who inspires you to do your best?" If participants responded in the affirmative, they were asked, "What is his/her relationship to you?" If participants identified a parent or step-parent as their mentor, they were asked the first question again, but asked to identify someone other than a parent or person who raised them. Participants who identified a mentor who was not a parent, step-parent, or person who raised them qualified as having a natural mentor. This item was used to create a dichotomous natural mentor variable (0 = no mentor, 1 = mentor).

Demographics—Information was collected regarding participant age, SES, and the number of children participants had. Participants were asked to provide their date of birth, which was used to calculate their age. Average participant age during the 12th grade year was 17.66 (SD = .65). As an indicator of SES, participants were asked about their parents' occupations. These occupations were assigned prestige scores (Nakao & Treas, 1990a, 1990b) which ranged from 29.28 (private household work) to 64.38 (professional). If both parents had occupations, the higher of the two prestige scores was used. The mean for the sample was 35.73 (SD = 7.54). Participants were also asked to report the total number of children they had.

Data Analytic Strategy

We used hierarchical linear modeling (HLM) to create growth curves for the outcomes in this study (Raudenbush & Bryk, 2002). HLM conceptualizes two levels of analysis. The first level (Level 1) consists of each individual's observed development (e.g., development of depressive symptoms) over time determined by a set of individual parameters. The second level (Level 2) consists of individual characteristics that may predict variance in individual growth over time (e.g., possession of a natural mentor) (Bryk & Raudenbush, 1987). We used HLM to estimate 1) how the psychological outcomes in this study changed over time, 2) whether individuals demonstrated different trajectories over time and, if they did, 3) whether having a natural mentor predicted these differences in trajectories. We completed two sets of analyses for each outcome variable. First, we estimated within-person models (Level-1) for each outcome variable to determine patterns of growth over time. Then we used individual-level characteristics (Level-2 predictors) to explain differences in growth across individuals.

Our Level-1 analysis allowed us to partition the total variance in each outcome variable into intraindividual variance and interindividual variance. This partitioning allowed us to calculate the intraclass correlation coefficient (ICC) associated with each outcome variable. The ICC allowed us to determine whether participants differed in growth trajectories for each outcome. The ICC also reflected the proportion of variance that lay across participants (Raudenbush & Bryk, 2002). The results of our Level-1 models also allowed us to establish the pattern of average growth (fixed effects) that best represented the data for each outcome variable. We included time-varying covariates (e.g., linear, quadratic, cubic terms) to determine which shape of change best fit the data for each outcome (fixed effects) and to assess for variations in these growth patterns across individuals (random effects). Our Level-1 models were as follows:

$$Y_{ti} = \pi_{0i} + \pi_{1i} \text{WAVE}_{ti} + \pi_{2i} \text{WAVE}_{ti}^2 + \pi_{3i} \text{WAVE}_{ti}^3 + e_{ti} \quad (1)$$

In the mixed models (models including both Level-1 and Level-2 predictors), we included stress as a time-varying predictor variable and maternal and paternal support as time-varying control variables. We added our main Level-2 predictor (the presence of a natural mentor) to all slopes that varied randomly to determine how much this variable helped to explain differences in growth across individuals. We also added the mentor variable to the stress slope to determine if the relationship between stress and our outcome variables varied as a function of mentor presence. We included age and SES as Level-2 control variables in all models. Preliminary analyses indicated that the number of children participants had was not correlated with study outcome variables so we did not include this variable as a Level-2 control variable in our mixed models. Given that the models with only the linear terms (i.e., without the quadratic and cubic terms) provided the best fits for our data (for both outcome variables), our mixed models were as follows:

$$\begin{aligned} Y_{ti} = & \pi_{0i} + \pi_{1i} \text{WAVE}_{ti} + \pi_{2i} \text{STRESS}_{ti} + \pi_{3i} \text{MATERNAL_SUPPORT}_{ti} + \\ & \pi_{4i} \text{PATERNAL_SUPPORT}_{ti} + e_{ti} \\ \pi_{0i} = & \beta_0 + \beta_{01} \text{MENTOR} + \beta_{02} \text{AGE} + \beta_{03} \text{SES} + r_{0i} \\ \pi_{1i} = & \beta_{10} + \beta_{11} \text{MENTOR} + \beta_{12} \text{AGE} + \beta_{13} \text{SES} + r_{1i} \\ \pi_{2i} = & \beta_{20} + \beta_{21} \text{MENTOR} + \beta_{22} \text{AGE} + \beta_{23} \text{SES} + r_{2i} \\ \pi_{3i} = & \beta_{30} \\ \pi_{4i} = & \beta_{40} \end{aligned} \quad (2)$$

Results

Natural Mentors

Fifty-seven of the 93 participants (61%) reported having a natural mentor. The natural mentors identified were primarily female extended family members (i.e., grandmothers, aunts, and cousins) and older siblings. Other roles included god-parent, parent's friend, neighbor, and minister.

HLM Analyses

Level-1 model for depressive symptoms—The linear model best represented the average change in depressive symptoms between 12th grade (initial status for this study) and five years post-high school ($t = -1.17$, 92 df, *ns*). The growth term was not statistically significant, however, the results indicated that participants varied across initial status ($\chi^2 = 214.44$, 92 df, $p < .01$) and their linear pattern of change ($\chi^2 = 169.29$, 92 df, $p < .01$). These findings reflect growth terms operating in opposite directions (cross effects) for study participants. The reliability estimates for both initial status (.54) and the linear growth term (.38) were acceptable. According to the ICC, 48% of the variance in changes in depressive symptoms over time was across individuals.

Final model for depressive symptoms—All of the results from the mixed model for depressive symptoms can be found in Table 2. Higher levels of maternal ($t = -2.83$, 326 df, $p < .01$) and paternal ($t = -4.11$, 326 df, $p < .01$) support predicted fewer depressive symptoms over time. Higher reported stress was associated with more depressive symptoms over time ($t = 2.24$, 88 df, $p < .05$). The relationship between stress and depressive symptoms was weaker among participants with natural mentors ($t = -1.97$, 88 df, $p = .05$). The presence of a natural mentor was not predictive of depressive symptoms at initial status, however, we found that participants who had a natural mentor presented greater decreases in depressive symptoms over time ($t = -3.23$, 88 df, $p < .01$). Figure 1 illustrates differences in growth in depressive symptoms for participants depending on whether or not they had a natural mentor. The variance components results indicated that the variance for initial levels of depressive symptoms ($\chi^2 = 135.99$, 88 df, $p < .01$) and the linear growth term ($\chi^2 = 115.71$, 88 df, $p < .05$) were not completely explained by this model. This indicates that other variables may account for individual differences in the growth of depressive symptoms among this group of adolescent mothers.

Level-1 model for anxiety symptoms—The linear model best represented the mean change in anxiety symptoms over time. Again the coefficient associated with the linear growth term ($t = -1.26$, 92 df, *ns*) was not statistically significant, however, participants varied across initial status ($\chi^2 = 194.30$, 92 df, $p < .01$) and their linear pattern of change ($\chi^2 = 164.87$, 92 df, $p < .01$). All of the reliability estimates were acceptable (initial status = .51; linear growth term = .40). Forty-five percent of the variance in changes in anxiety symptoms over time was across individuals.

Final model for anxiety symptoms—The final fixed effect results for this model are displayed in Table 3. Higher levels of paternal support predicted less symptoms of anxiety over time ($t = -2.52$, 87 df, $p < .05$). Higher levels of perceived stress predicted more anxiety symptoms over time ($t = 2.36$, 87 df, $p < .05$); however, this relationship was weaker for participants with a natural mentor ($t = -2.43$, 87 df, $p < .05$). Participants who had a natural mentor demonstrated less steep increases in anxiety symptoms over time ($t = -2.43$, 87 df, $p < .05$). Figure 2 shows differences in anxiety symptom growth among participants depending on whether or not they had a natural mentor. This model did not completely explain the variance for initial status ($\chi^2 = 134.81$, 87 df, $p < .01$) or the linear parameter (χ^2

= 115.97, 87 df, $p < .05$) indicating that other variables may explain individual differences in growth patterns of anxiety symptoms over time.

Discussion

The results of this study indicate that natural mentors may be a powerful promotive factor for African American adolescent mothers. As researchers have recently noted, long-term outcomes among adolescent mothers vary and a number of young mothers have been able to avoid the negative outcomes associated with the risks they face (Oxford et al., 2005; SmithBattle, 2007). Our findings suggest that a relationship with a natural mentor may promote resilience within this population.

Natural mentors and mental health

We found that having a natural mentor moderated the relationship between stress and depressive symptoms as well as the relationship between stress and anxiety symptoms among African American adolescent mothers. Thus, natural mentors may have helped youth be resilient in the face of stress. This finding was consistent with our hypothesis and may have a number of possible explanations. By modeling effective coping strategies, natural mentors may help adolescent mothers cope more effectively with stress and experience fewer symptoms of depression and anxiety. Also, natural mentors may provide emotional support to adolescent mothers and thus, provide adolescent mothers with a safe outlet for expressing their emotions and requesting guidance (Rhodes, 2005). In addition, natural mentors may provide material aid or physical assistance (e.g., assist with childcare) that may help to buffer against the negative outcomes associated with stress. Regardless of the type of support (e.g., emotional, material) natural mentors provide to adolescent mothers, just feeling supported may be the most influential factor affecting adolescent mothers' psychological well-being. Garcia Coll & Vazquez Garcia (1996) suggest that it is the experience of being ostracized and isolated that leads to negative psychological outcomes among adolescent mothers. Alternatively, feeling supported may bring some level of normalcy to an adolescent mother's experiences and promote healthier long-term outcomes (Oxford et al., 2005).

We also found that participants with natural mentors demonstrated less symptoms of depression and anxiety over time. In addition to moderating the relationship between stress and mental health outcomes, natural mentors may be contributing independently to healthier psychological outcomes among adolescent mothers. Through their interest in and commitment to adolescent mothers, natural mentors may cultivate a more positive self-appraisal among adolescent mothers and add to young mothers' perceptions of self-worth (Rhodes, 2005). By promoting healthier self images among adolescent mothers, natural mentors may be reducing adolescent mothers' vulnerabilities to mental health problems. These findings are consistent with previous results regarding the potential promotive effects of natural mentors on adolescent mothers' psychological well-being (Rhodes et al., 1992; Rhodes et al., 1994). Findings from the current study suggest that natural mentors may have long-term promotive effects on adolescent mothers' mental health. The fact that these findings remained after controlling for a variety of potentially spurious variables further supports this conclusion.

Limitations

Several limitations of this study, however, should be noted. Participants were only asked about the presence of a natural mentor during their senior year of high school. Thus, we do not know when these relationships began or if they persisted beyond participants' senior year of high school. Klaw and colleagues (2003) found that African American adolescent

mothers with natural mentoring relationships that endured over two years postpartum were more likely than their counterparts without mentors to stay in school or graduate. This finding indicates that relationship length may be an important variable for predicting youth outcomes. Considering that the natural mentors identified in our study were primarily family members and friends of family members, it is reasonable to speculate that most of the natural mentoring relationships in our study were long-term relationships. Nevertheless, our findings may indicate that having a natural mentor during a key transitional time in adolescent mothers' lives may significantly influence adolescent mothers' long-term outcomes even when these relationships are not long-lasting.

A second limitation of this study is that we did not assess for any individual characteristics that may have both contributed to participants' ability to form relationships with natural mentors and contributed to more positive mental health trajectories. It is possible, for example, that the more socially-skilled and resourceful participants in this study were more likely to form natural mentoring relationships and also less likely to experience symptoms of psychopathology. Thus, we cannot be certain of the direction of effects. Nonetheless, we did attempt to address this shortcoming by conducting analyses of within-individual change over time and testing a stress-buffering model of mentor effects.

A third limitation of this study is that we did not collect data on support received from the father of adolescent mothers' children or from adolescent mothers' partners. Researchers have found that receiving support from children's fathers or romantic partners may be associated with adolescent mothers' psychological well-being (Royce & Balk, 1996). Controlling for partner support may have allowed us to better isolate the relationship between having a natural mentor and adolescent mothers' psychosocial outcomes. Nevertheless, we did control for both maternal and paternal support which may have been more influential on adolescent mothers' outcomes given that an overwhelming majority of participants in this study resided with a parent throughout the five years of this study and only 15% of participants reported being married or living with a partner at any time during the study. Future studies that assess for support received from a variety of different relationships and, in addition, explore aspects of the relationships beyond the provision of support will be helpful in furthering our understanding of how significant relationships may influence the psychological well-being of adolescent mothers.

Another limitation of this study is the unique character of the sample. Our sample comprised 93 African American, female, pregnant/parenting adolescents with 8th grade GPAs at or below 3.0. African American adolescent mothers tend to face a distinct set of risks. In addition, restricting our sample to adolescent mothers with 8th grade GPAs at or below 3.0 may have limited our sample to lower-achieving adolescent mothers who may have been at increased risk for negative outcomes. Yet, it is important to note that by participants' 12th grade year their GPAs were more normally distributed, indicating that our sample included a range of lower- and higher-achieving adolescent mothers. Future studies that focus predominantly or exclusively on higher-achieving African American adolescent mothers may be beneficial in furthering our understanding of resilience within this population.

Also, our assessment of anxiety and depressive symptoms only included the presence of several core symptoms of these internalizing disorders. We did not ask participants about the duration of these symptoms or the level of distress or impairment they were experiencing. In addition, participants were not interviewed by clinicians. Thus, we were unable to determine whether any of the participants were experiencing clinical levels of depression or anxiety. Nevertheless, researchers have demonstrated impaired functioning among adolescents experiencing sub-clinical levels of psychopathology (McClure, Rogeness, & Thompson, 1997). Furthermore, researchers have identified the presence of subclinical symptoms as a

risk factor for the future onset of psychopathology (Sadek & Bona, 2000). Thus, we believe our findings are meaningful, even if some or all of our participants were only experiencing subclinical levels of psychopathology.

Finally, the sample size is relatively small. This limitation is frequently faced by researchers interested in studying at-risk adolescent populations (Rhodes et al., 1992; Rhodes et al., 1994), and is particularly an issue for researchers interested in studying these populations over multiple time points (Klaw et al., 2003). Our small sample size may have resulted in limited statistical power to detect small effects in the relationships studied. Yet, we found several theoretically consistent findings, suggesting that the effects of natural mentors may be robust even after controlling for several other variables.

Implications and conclusion

In light of the relationship between maternal and child well-being, the positive effects of natural mentors on adolescent mothers' well-being may be multiplicative. Researchers have documented the detrimental effects of parental internalizing disorders (Beardslee, Versage, Van de Velde, Swatling, & Hoke, 2002; Dadds, 2002) on child well-being. By protecting adolescent mothers from negative psychosocial outcomes, natural mentors may not only be affecting the lives of these young women, but also helping to promote a healthier and safer environment for young mothers' children.

The results of this study suggest that encouraging the formation of natural mentoring relationships may be an effective strategy for promoting resilience among African American adolescent mothers. Adolescent mothers could benefit from learning how to identify supportive nonparental adults in their lives and how to cultivate relationships with these adults. Likewise, informing extended family members and adults that work with adolescent mothers of the potential positive effects associated with natural mentoring relationships may help motivate these adults to take advantage of mentoring opportunities.

Programs that provide opportunities for at-risk adolescent mothers to interact and naturally develop relationships with nonparental adults may be particularly beneficial. Programs such as Healthy Start (Duggan et al., 2000) and the Nurse-Family Partnership (Olds, 2006), for example, provide at-risk mothers with opportunities to have extended contact with nonparental adults (e.g., paraprofessionals, nurses) through frequent home visits wherein natural mentoring relationships may be likely to develop. Additionally, programs geared toward helping and supporting adolescent mothers could invite important nonparental adults in adolescent mothers' lives to program meetings and activities. Alternatively, these programs could involve adult community members who may be especially able to connect with and support young mothers (e.g., former adolescent mothers).

Creating environments where adolescent mothers and familiar adults can form mentoring relationships naturally may lead to more influential and enduring mentoring relationships, particularly in comparison to mentoring relationships wherein adults and youth are paired through formal programs. Several researchers have suggested that some formal mentoring relationships may be more vulnerable to early termination due to mismatches between mentees and mentors (a lack of chemistry), poor relationship quality, and a lack of commitment and follow-through by mentors and mentees (Grossman & Rhodes, 2002; Styles & Morrow, 1992; Rhodes, 2002). Whereas, allowing mentoring relationships to form naturally in a supportive environment may protect these relationships from some of the early-termination risks faced by some formal mentoring relationships.

Findings from this study indicate that natural mentors may have long-term promotive effects on adolescent mothers' psychosocial outcomes. Although researchers have studied

previously the relationship between natural mentors and adolescent mothers' psychosocial outcomes (Klaw et al., 2003; Rhodes et al., 1992; Rhodes et al., 1994), this is one of the first studies to examine this relationship longitudinally among a group of African American adolescent mothers transitioning into adulthood. In addition, the findings from this study indicate that relationships with natural mentors may moderate the relationship between stress and psychological outcomes over time. Future studies that collect more in-depth information about natural mentoring relationships (e.g., duration, types of support provided) among larger and more diverse samples of adolescent mothers will be helpful for further exploring the underlying mechanisms of these relationships and better understanding the true potential of these relationships to promote resilience among at-risk populations.

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References

- Beardslee, WR.; Versage, EM.; Van de Velde, P.; Swatling, S.; Hoke, L. Preventing depression in children through resiliency promotion.. In: McMahon, RJ.; Peters, RD., editors. The effects of parental dysfunction on children. Kluwer Academic/Plenum Publishers; New York: 2002. p. 71-86.
- Bebbington P, Hurry J, Tennant C. Adversity and symptoms of depression. *International Journal of Social Psychiatry*. 1990; 34:163–171. [PubMed: 3225138]
- Boyner D, Fine D. Sexual abuse as a factor in adolescent pregnancy and child maltreatment. *Family Planning Perspectives*. 1992; 24:4–11. [PubMed: 1601126]
- Bryk AS, Raudenbush SW. Application of hierarchical linear models to assess change. *Psychological Bulletin*. 1987; 101:147–158.
- Burchinal MR, Follmer A, Bryant DM. The relations of maternal social support and family structure with maternal responsiveness and child outcomes among African American families. *Developmental Psychology*. 1996; 32:1073–1083.
- Caldwell CH, Antonucci TC, Jackson JS. Supportive/conflictual family relations and depressive symptomatology: Teenage mother and grandmother perspectives. *Family Relations*. 1998; 47:395–402.
- Carey G, Ratliff D, Lyle R. Resilient adolescent mothers: Ethnographic interviews. *Families, Systems and Health*. 1998; 16:347–366.
- Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *Journal of Health and Social Behavior*. 1983; 24:385–396. [PubMed: 6668417]
- Coley RL, Chase-Lansdale PL. Adolescent pregnancy and parenthood: Recent evidence and future directions. *American Psychologist*. 1998; 53:152–166. [PubMed: 9491745]
- Collins PH. The meaning of motherhood in Black culture and Black mother/daughter relationships. *Sage: A Scholarly Journal on Black Women*. 1987; 4:3–10.
- Crockenberg S. Infant irritability, mother responsiveness, and social support influences on the security of infant-mother attachment. *Child Development*. 1981; 52:209–217.
- Cutrona CE. Ratings of social support by adolescents and adult informants: Degree of correspondence and prediction of depressive symptoms. *Journal of Personality and Social Psychology*. 1989; 57:723–730. [PubMed: 2795439]
- Dadds, MR. Learning and Intimacy in the families of anxious children.. In: McMahon, RJ.; Peters, RD., editors. The effects of parental dysfunction on children. Kluwer Academic/Plenum Publishers; New York: 2002. p. 87-104.
- Davis AA, Rhodes JE, Hamilton-Leaks J. When both parents may be a source of support and problems: An analysis of pregnant and parenting female African American adolescents' relationships with their mothers and fathers. *Journal of Research on Adolescence*. 1997; 7:331–348. [PubMed: 12292603]

- Deal L, Holt V. Young maternal age and depressive symptoms: Results from the 1988 National Maternal and Infant Health Survey. *American Journal of Public Health*. 1998; 88:266–270. [PubMed: 9491019]
- Derogatis, LR.; Spencer, PM. The Brief Symptom Inventory (BSI): Administration scoring and procedures manual-I. Division of Medical Psychology, Johns Hopkins University School of Medicine; Baltimore, MD: 1982.
- DuBois DL, Silverthorn N. Natural mentoring relationships and adolescent health: Evidence from a national study. *American Journal of Public Health*. 2005; 95(3):518–524. [PubMed: 15727987]
- Duggan A, Windham A, McFarlane E, Fuddy L, Rohde C, Buchbinder S, et al. Hawaii's Healthy Start Program of home visiting for at-risk families: Evaluation of family identification, family engagement, and service delivery. *Pediatrics*. 2000; 105:250–259. [PubMed: 10617732]
- Edin K. What do low-income single mothers say about marriage? *Social Problems*. 2000; 47:112–133.
- Fergus S, Zimmerman MA. Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health*. 2005; 26:399–419.
- Furstenberg FF, Brooks-Gunn J, Chase-Lansdale L. Teenaged pregnancy and childbearing. *American Psychologist*. 1989; 44:313–320. [PubMed: 2653141]
- Garcia Coll, CT.; Vazquez Garcia, HA. Definitions of competence during adolescence: Lessons from Puerto Rican adolescent mothers.. In: Cicchetti, D.; Toth, S., editors. *Adolescence: Opportunities and challenges*. University of Rochester Press; Rochester, NY: 1996.
- Geronimus AT. Teenage childbearing and personal responsibility: An alternative view. *Political Science Quarterly*. 1997; 112:405–430.
- Geronimus AT. Damned if you do: Culture, identity, privilege, and teenage childbearing in the United States. *Social Science & Medicine*. 2003; 57:881–893. [PubMed: 12850113]
- Grossman JB, Rhodes JE. The test of time: Predictors and effects of duration in youth mentoring relationships. *American Journal of Community Psychology*. 2002; 30:199–219. [PubMed: 12002243]
- Hayes, CD. *Risking the future: Adolescent sexuality, pregnancy, and childbearing*. National Academy of Sciences Press; Washington, DC: 1987.
- Hoffman SD, Foster EM, Furstenberg FF. Reevaluating the costs of teenage childbearing. *Demography*. 1993; 30:1–13. [PubMed: 8379973]
- Hotz, VJ.; McElroy, SW.; Sanders, SG. The costs and consequences of teenage childbearing for mothers.. In: Maynard, RA., editor. *Kids having kids: Economic costs and social consequences of teen pregnancy*. Urban Institute Press; Washington, DC: 1997. p. 55-94.
- Jaffee SR. Pathways to adversity in young adulthood among early childbearers. *Journal of Family Psychology*. 2002; 16:38–49. [PubMed: 11915409]
- Johnston, LD.; O'Malley, PM.; Bachman, JG. National survey results on drug use from the Monitoring the Future Study, 1975–1997. National Institutes of Health; Washington, DC: 1988. p. 433NIH Publication No. 98–4345
- Klaw EL, Rhodes JE, Fitzgerald LF. Natural mentors in the lives of African American adolescent mothers: Tracking relationships over time. *Journal of Youth and Adolescence*. 2003; 32:223–232.
- Levinson, D.; Darrow, C.; Klein, E.; Levinson, M.; McKee, B. *The seasons of a man's life*. Knopf; New York: 1978.
- Luthar SS, Cicchetti D. The construct of resilience: Implications for interventions and social policies. *Development & Psychopathology*. 2000; 12:857–885. [PubMed: 11202047]
- Maynard R. Teenage childbearing and welfare reform: Lessons from a decade of demonstration and evaluation research. *Children and Youth Services Review*. 1995; 17:309–332.
- Maynard, R. *Kids having kids: A Robin Hood Foundation special report on the costs of adolescent childbearing*. Robin Hood Foundation; New York: 1996.
- McClure E, Rogeness GA, Thompson NM. Characteristics of adolescent girls with depressive symptoms in a so-called “normal” sample. *Journal of Affective Disorders*. 1997; 42:187–197. [PubMed: 9105960]
- Musick, JS. *Young, poor, and pregnant: The psychology of teenage motherhood*. Yale University Press; New Haven, Ct: 1993.

- Nakao, K.; Treas, J. Computing 1989 occupational prestige scores. National Opinion Research Center; Chicago: 1990a. (GSS Methodological Report No. 70)
- Nakao, K.; Treas, J. The 1989 socioeconomic index of occupations: Construction of the 1989 occupational prestige scores. National Opinion Research Center; Chicago: 1990b. (GSS Methodological Report No. 74)
- Olds D. The Nurse-Family Partnership: An evidence-based preventive intervention. *Infant Mental Health Journal*. 2006; 27:5–25.
- Oxford ML, Gilchrist LD, Lohr MJ, Gillmore MR, Morrison DM, Spieker SJ. Life course heterogeneity in the transition from adolescence to adulthood among adolescent mothers. *Journal of Research on Adolescence*. 2005; 15:479–504.
- Procidano ME, Heller K. Measures of perceived social support from friends and from family: Three validation studies. *American Journal of Community Psychology*. 1983; 11:1–24. [PubMed: 6837532]
- Raudenbush, SW.; Bryk, AS. Hierarchical linear models: Applications and data analysis methods. Sage; Thousand Oaks, CA: 2002.
- Rhodes, JE. Stand by me: The risks and rewards of mentoring today's youth. Harvard University Press; Cambridge, MA: 2002.
- Rhodes, JE. A model of youth mentoring.. In: DuBois, DL.; Karcher, MJ., editors. *Handbook of youth mentoring*. Sage; Thousand Oaks, CA: 2005. p. 30-43.
- Rhodes JE, Contreras JM, Mangelsdorf SC. Natural mentor relationships among Latina adolescent mothers: Psychological adjustment, moderating processes, and the role of early parental acceptance. *American Journal of Community Psychology*. 1994; 22:211–238. [PubMed: 7977178]
- Rhodes JE, Ebert L, Fischer K. Natural mentors: An overlooked resource in the social networks of young, African American mothers. *American Journal of Community Psychology*. 1992; 20:445–461.
- Roye CF, Balk SJ. The relationship of partner support to outcomes for teenage mothers and their children: A review. *Journal of Adolescent Health*. 1996; 19:86–93. [PubMed: 8863079]
- Sadek N, Bona J. Subsyndromal symptomatic depression: A new concept. *Depression & Anxiety*. 2000; 12:30–39. [PubMed: 10999243]
- SmithBattle L. Legacies of advantage and disadvantage: The case of teen mothers. *Public Health Nursing*. 2007; 24:409–420. [PubMed: 17714225]
- Stack, C. All our kin: Strategies for survival in the black community. Harper & Row; New York: 1974.
- Stevenson W, Maton KI, Teti DM. Social support, relationship quality, and well-being among pregnant adolescents. *Journal of Adolescence*. 1999; 22:109–121. [PubMed: 10066335]
- Styles, MB.; Morrow, KV. Understanding how youth and elders form relationships: A study of four Linking Lifetime programs. Public/Private Ventures; Philadelphia: 1992.
- Turner RJ, Grindstaff CF, Phillips N. Social support and outcome in teenage pregnancy. *Journal of Health and Social Behavior*. 1990; 31:43–57. [PubMed: 2313076]
- Unger DG, Wandersman LP. The relationship of family and partner support to the adjustment of adolescent mothers. *Child Development*. 1988; 59:1056–1060. [PubMed: 3168613]
- Wasserman GA, Brunelli SA, Rauh VA. Social supports and living arrangements of adolescent and adult mothers. *Journal of Adolescent Research*. 1990; 5:54–66.
- Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: Findings from community studies. *American Journal of Public Health*. 2003; 93:200–208. [PubMed: 12554570]
- Wilson, WJ. The truly disadvantaged: The inner city, the underclass, and public policy. University of Chicago Press; Chicago: 1987.
- Zimmerman MA, Arunkumar R. Resiliency research: Implications for schools and policy. *Social Policy Report*. 1994; 8:1–18.
- Zimmerman MA, Bingenheimer JB, Notaro PC. Natural mentors and adolescent resiliency: A study with urban youth. *American Journal of Community Psychology*. 2002; 30:221–243. [PubMed: 12002244]

Figure 1.
Growth in depressive symptoms as a function of possessing a natural mentor

Figure 2.
Growth in anxiety symptoms as a function of possessing a natural mentor

Table 1

Mean, standard deviation (SD) and Cronbach's alpha for outcome measures

	Depressive Symptoms	Alpha	Anxiety Symptoms	Alpha
	Mean (SD)		Mean (SD)	
<i>Time point</i>				
Time 1 (12 th grade)	1.94 (.93)	.84	1.77 (.93)	.90
Time 2 *	1.86 (.89)	.87	1.66 (.74)	.85
Time 3	1.84 (.77)	.83	1.66 (.69)	.82
Time 4	2.00 (.76)	.80	1.88 (.75)	.83
Time 5	1.75 (.73)	.86	1.73 (.73)	.83

* Data were not collected for one year post high school and then were collected for 4 consecutive years (Times 2–5).

Table 2

Fixed effects model for depressive symptoms

Fixed Effect	Coefficient	t-ratio (88)
Mean Initial Status		
Intercept	−0.028	−1.301
Mentor	0.208	1.323
Age	−0.045	−0.564
SES	−0.220	−1.845
Mean Linear Growth		
Intercept	0.149	3.440**
Mentor	−0.179	−3.232**
Age	0.025	0.825
SES	0.087	1.661
Stress		
Intercept	0.187	2.244*
Mentor	−0.132	−1.972*
Age	0.105	1.487
SES	0.028	0.370
Maternal Support		
Intercept	−0.158	−2.833**
Paternal Support		
Intercept	−0.206	−4.111**

*
 $p \leq .05$ **
 $p < .01$

Table 3

Fixed effects model for anxiety symptoms

Fixed Effect	Coefficient	t-ratio (87)
Mean Initial Status		
Intercept	−0.199	−0.896
Mentor	0.223	1.095
Age	0.037	0.309
SES	−0.262	−1.682
Mean Linear Growth		
Intercept	0.158	3.090**
Mentor	−0.142	−2.428*
Age	0.023	0.670
SES	0.109	1.541
Stress		
Intercept	0.144	2.360*
Mentor	−0.126	−2.010*
Age	0.187	0.923
SES	0.033	0.411
Maternal Support		
Intercept	−0.070	−0.992
Paternal Support		
Intercept	−0.124	−2.524*

*
 $p \leq .05$ **
 $p < .01$