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DEPRESSION AND POVERTY AMONG AFRICAN-AMERICAN WOMEN AT RISK FOR TYPE 2 DIABETES

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Abstract

Poverty is associated with negative health outcomes, including depression. Little is known about the specific elements of poverty that contribute to depression, particularly among African-American women at risk for type 2 diabetes. This study examined the relationships of economic and social resources to depression among African-American women at high risk for the development of type 2 diabetes (N=181) using the Conservation of Resources (COR) theory as a conceptual framework. Women were assessed at three time points in conjunction with a dietary change intervention. At baseline, 40% of women reported clinically significant depression and 43.3% were below the poverty line. Depressed (CESD total score ≥ 16) women reported fewer economic assets and greater economic distress than non-depressed peers. Multivariate logistic regression analyses indicated that non-work status, lack of home ownership, low appraisal of economic situation, low self-esteem, and increased life events were significantly associated with depression at baseline. Longitudinal multivariate logistic regression models indicated that income, home ownership, future economic appraisal, life events and self-esteem predicted depression trajectories at Time 3. These results speak to the multifaceted sources of stress in the lives of poor African-American women. Interventions that address the economic and social factors associated with depression are needed.

Introduction

African-American women experience a disproportionate burden of poverty compared to White women. U.S. Department of Labor statistics have shown that African-American women are three times more likely to live in poverty than their White counterparts (1). Approximately 50% of all Black families are headed by single females and 45% of these families live in poverty (1). Poverty represents a considerable risk factor for poor health among these women. For example, African-American women living below the poverty line have been found to be at greater risk for type 2 diabetes than women with greater economic resources (2).

Depression also represents a considerable health burden for African-American women (3). One-year prevalence rates of depression among African-Americans have ranged from 2.2 to 3.1% (4-5). Although prevalence rates of depression among African-American and White women have been shown to be comparable after adjustment for socioeconomic status (SES), African-American women are overrepresented among the poor. Therefore, depression remains a significant health concern for African-American women (5). Moreover, depression has been shown to be associated with increased risk for the development of type 2 diabetes (6-7). Depression and poverty may represent cumulative or overlapping risk factors for the development of type 2 diabetes among African-American women.

Although depression among African-American women is commonly approached from the point of view of individual psychopathology, depressive symptoms among poor African-American women may also represent a response to the environment of poverty (8). The purpose of the current study was to examine the role of economic and social resources (e.g., self-esteem, social support, negative life events) as predictors of depressive symptoms among low-income African-American women at risk for the development of type 2 diabetes using an ecological approach, specifically Hobfoll's Conservation of Resources (COR) theory. The COR theory has been applied to a variety of populations and contexts including: depression among low-income pregnant African-American women (9-10), pregnancy in low-income White women (11), abortion (12), job-related burnout (13), resource loss among young, inner-city White and African American women (10), extreme stress associated with natural disasters (14) and war (15).

The COR theory proposes that individuals with greater resources are less vulnerable to loss than those with fewer resources (16). That is, when individuals with greater resources experience loss, these resources act to buffer the impact of loss and stress resulting from loss. Individuals with few resources may experience greater stress in the face of loss. Loss in the context of few resources may place greater demands on the few resources that remain. Effective use of interventions may be restricted for individuals who must use their limited resource base to respond to crises rather than focus energies on resource acquisition. Loss spirals are hypothesized to occur in the context of multiple losses when resources are committed to curtailing future loss, rather than increasing resources. This situation is hypothesized to place individuals at greater risk of future loss as coping resources decrease with each subsequent loss (14, 16).

COR theory conceptualizes human motivation as a function of the ability to control and obtain resources. Stress is hypothesized to stem from the threat of resource loss, actual loss of resources, or investment of resources without gain. The conceptual model is shown in Figure 1. This model distinguishes itself from other models of stress and coping by specifically identifying interrelationships between economic variables and psychological outcomes. Resources are defined as “objects, conditions, personal characteristics, and energies that are valued by individuals or that aid in obtaining that which is valued” (16, p.113). ‘Objects’ include cars or housing that provide a material foundation for coping with stressors. Conditions may include employment, job standing or family membership. Personal resources are defined as psychological or skill-based resources (e.g., self-esteem, work mastery). Energy resources facilitate the acquisition of other resources and may include income, credit, or knowledge (14).

In the present study, two hypotheses consistent with the COR theory were examined in a sample of low-income African-American women at risk for the development of type 2 diabetes: 1) fewer economic and social resources (e.g. social support, self esteem, life events) would be associated with greater levels of depressive symptoms cross-sectionally; 2) limited economic and social resources (e.g. low self-esteem, limited social support, and increased adverse life events) reported at baseline would predict sustained depression longitudinally.

This study makes contributions to three areas of the literature. First, this study documents rates of depressive symptoms among African-American women at risk for type 2 diabetes. Second, this study examines the relationship of economic and social resources to depression both cross-sectionally and longitudinally. Finally, this study extends the application of the COR theory to a sample of African-American women at midlife who are at risk for the development of a chronic disease.

Methods

The sample was drawn from a longitudinal investigation of a peer-led dietary intervention, the *Eat Well, Live Well Nutrition Program* (EWLW), designed for urban, low-income African-American women at risk for the development of type 2 diabetes. Women were recruited from a large midwestern U.S. urban area between 1995 and 1997 (17-18). A community-based social service agency recruited participants using newspaper advertisements, targeted to African-American women living in surrounding neighborhoods. Inclusion criteria included women between the ages of 25-55, and risk of diabetes due to obesity ($\geq 20\%$ of ideal body weight or body mass index of > 27), but without a current diabetes diagnosis. Women were interviewed at three time points: baseline screening (Time 1), immediately following completion of the 3 month dietary intervention (Time 2), and three months following the intervention (Time 3). The intervention consisted of 12 weekly sessions, six of which were group sessions focusing on dietary change skills, and six of which were individual sessions focusing on low-fat dietary patterns. A complete description of the intervention is described elsewhere (17).

Sample

Of the five recruitment cohorts for the EWLW study, only cohorts 4 and 5 received assessments of depression. Thus, the sample for the present study ($n=181$) consisted of women who were recruited during the latter phases of the parent study. Half of the women (49.7%) receiving the depression assessment were randomized to the experimental condition and the remainder to the control group.

Demographic information collected during Time 1 interviews indicated that the mean age of the subjects was 41 years ($SD = 8$). Twenty-four percent of women were married, 46% were single, and 29% were divorced, separated or widowed. Twenty-four percent of women obtained a high school education, with 37% of women reporting partial college level education. Sixty-three percent of women reported having one or more children living in the home with them. Average body mass index was 35.1 ($S.D. 6.0$). Average monthly income from all sources was \$1577 ($S.D. \1203). Forty-three percent of women reported income below the poverty line. Sixty-six percent of women reported working outside the home.

Women receiving depression assessment in Waves 4 and 5 of the parent study did not significantly differ from participants in Waves 1 through 3 on measures of age ($t=1.29, p=.19$), marital status ($X^2=.0001, p=.99$), total income ($t=1.32, p=.18$), work status ($X^2=.06, p=.80$), or poverty line status ($X^2=.06, p=.80$). However, women assessed for depression reported greater levels of education ($X^2=9.75, p<.008$) and slightly lower body mass index values (35.1 Waves 4 and 5 vs. 36.5 Waves 1-3, $p<.03$) than their study counterparts.

Of the 181 women receiving depression assessment at Time 1, 159 completed the Time 2 evaluation (87.8% retention) and 150 completed the Time 3 evaluation (83% retention rate). Women retained in the study across the three time points did not significantly differ on demographic or economic variables from those who did not complete the follow-up interviews.

Measures

The following measures were used to gather specific information about depressive symptoms, economic resources and economic distress, self-esteem, social support, and life events. All measures were administered at each of the three time points in an interview format to enhance participant comprehension of items.

CES-D. The Center for Epidemiologic Studies – Depression scale was developed as a 20-item pencil and paper self-report assessment of depressive symptoms (19). Participants rated the presence and extent of symptoms during the preceding 7 days on a 4-item Likert scale ranging from 1=Rarely or none of the time (less than one day) to 4=Most of the time (5-7 days of the past week). Four items were reverse scored (e.g., “I felt that I was just as good as other people”). Items were summed to form the total score. Higher scores indicated greater depressive symptoms. A score of 16 or greater has demonstrated reasonable discriminant validity between clinically documented cases of depression and non-cases (19). Inter-item and item-scale correlations have demonstrated good reliability in general population samples (coefficient alpha = .85; 19). Test-retest correlations have been reported to be $r = .57$ up to an 8-week retest

interval (19). Assessment of the use of the CES-D with African-Americans in the general population has yielded acceptable levels of reliability (20).

Economic Resources. A variety of economic resource data were collected including: employment status, total monthly income, sources of income (e.g., “employment, significant other salary, other adult in home salary, children’s fathers, other family or friends, selling items that you make, doing work for other people, any other money earned, AFDC, food stamps, SSI (Disability), unemployment benefits, veterans benefits?”), type of work, hours of work per week, home ownership, ownership of an automobile, existence of a checking and savings account, monetary savings, and total savings. Status relative to the poverty line was calculated using total income adjusted for family size using the 1995 poverty threshold tables from the U.S. Bureau of the Census (21).

Economic Distress. Perceived levels of distress regarding specific economic variables were assessed. Items included: difficulty in “making ends meet”, difficulty in paying bills, whether money is “left over at the end of the month”, appraisal of past economic situation (e.g., “Would you say your past economic situation is getting better, staying the same or getting worse?”), satisfaction with current economic situation (“very, somewhat or not at all satisfied”), and appraisal of economic outlook (e.g., “pretty hopeful, more or less hopeful, or not hopeful at all”).

Self-Esteem. Self-esteem was measured using a 10-item scale developed by Rosenberg (22-23). Items used in the measure included: “I feel that I am a person of worth, at least on an equal plane with others”, “I take a positive attitude about myself”, “I feel that I have a number of good qualities.” Items were rated on a 4-point Likert scale ranging from 1=strongly disagree to 4=strongly agree. Negative items were reversed scored. A total mean score (range: 1-4) was computed for each respondent whereby higher scores indicated higher levels of self-esteem. Inter-item correlations found in the current sample indicated acceptable levels of reliability (coefficient alpha = .87).

Social Support. The degree of perceived social support from family and friends was evaluated using the Provision of Social Relations scale (24). Items evaluating family support included: “No matter what happens, I know that my family will always be there for me should I need them,” and “I know my family will always stand by me.” Items that evaluate perceived friend support included: “I feel very close to some of my friends,” and “I have at least one friend I could tell anything to.” Items were rated on a 4-point Likert scale ranging from strongly agree to strongly disagree. Negatively worded items were reverse scored. A total score (range: 1-4) was computed with higher scores indicating higher levels of overall perceived support from family and friends. Inter-item correlations found in the current sample indicated good reliability (coefficient alpha = .90).

Life Events. The Family Inventory of Life Events and Changes (FILE) measure (25) was used to assess significant changes and losses to family life during the past 12 months. Nine dimensions were evaluated: intra-family strains, marital changes, pregnancy, economic changes, work-family transition, illness, loss (e.g. family death, divorce), transitions, and legal violations. Individuals were asked to rate whether events described in each of 71 items occurred during the previous 12 months. Items were weighted and summed to form 9 subscales and a single total

score. Higher scores indicated greater impact of family changes. Inter-item correlations found for the total score indicated acceptable levels of reliability in the current sample (coefficient alpha = .88).

Statistical Analyses

The sample was stratified by depression status using the CESD total score: women with clinically significant depression ('depressed'; CESD total score ≥ 16) and those with subthreshold depressive symptoms ('non-depressed'; CESD total score ≤ 15). Bivariate analyses were conducted to compare depressed and non-depressed women on economic and social resource variables using chi-square and Student's t-test analyses. Multivariate logistic regression models were conducted using PROC LOGISTIC in SAS Version 8.0 (26) to assess the relationship of economic and social resource variables to depression status (depressed vs. non-depressed) at Time 1. Multivariate logistic regression models were used to predict depression trajectories at Time 1-Time 3 from economic and social resource variables at Time 1. In each of the regression models, group assignment (experiment vs. control) and education level were entered into the models as initial covariates in order to control for systematic variance.

Results

Forty percent (n=73) of women reported clinically significant depressive symptoms at baseline evaluation. Twenty-eight percent (n=45) of women reported clinically significant depressive symptoms at the Time 2 evaluation. At Time 3, 26.7% (n=40) of women reported these symptoms. Of the 73 women meeting clinical criteria at baseline evaluation, 53.2% (n=33) continued to report significant symptoms levels at Time 2. Similarly, 57.4% (n=35) of depressed women at baseline continued to report significant depressive symptoms at Time 3.

Economic Resources and Depression. In order to assess the relationship between economic stressors and depressive symptoms, the sample was stratified by depression status (≥ 16 total score). Depressed women did not differ significantly on social demographic variables such as age, marital status, level of educational attainment, or number of children living in the home or body mass index at baseline evaluation. Significant differences were observed in economic resources and economic appraisal variables by depression status. Responses to economic variables by depression group are shown in Table 1. Depressed women were less likely to work outside the home with a substantially larger proportion of income dependent on earned wages. Likewise, depressed women were more likely to live below the poverty line than non-depressed women. Depressed women were also less likely to own assets such as homes, automobiles, checking accounts, savings accounts or alternative sources of savings.

With respect to appraisal of their economic situation, depressed women were more likely to report greater difficulty in making ends meet and paying bills than non-depressed women (shown in Table 2). Fewer depressed women reported the availability of money left over at the end of the month than non-depressed women. Depressed women were more likely to rate their recent economic situation as "getting worse" with less optimism for the future at Time 1 evaluation.

Depression and Social Resources. Differences in social resource variables by depression status are presented in Table 3. Depressed women reported lower levels of self-esteem and total social support than their non-depressed counterparts. Depressed women showed significantly greater numbers of life events at baseline compared to non-depressed women. In order to evaluate the association of different types of life events with depression at baseline, FILE subscale scores were correlated with CES-D total scores. Results indicated that the Intra-Family Strains ($r = .19$, $p < .008$) and Losses (e.g. family member death or divorce; $r = .24$, $p < .001$) subscales were significantly correlated with baseline depression scores. No significant associations were found between depression and the other FILE subscale scores.

Logistic Regression Models. In order to assess the extent to which economic and social resource variables were associated with depression status at baseline evaluation, multivariate logistic regression models were calculated. In order to increase the parsimony of the logistic regression models, two levels of analysis were conducted. Direct logistic regression analysis using forward selection was used to identify the most salient economic asset and appraisal variables of the 11 collected. In this model, all economic variables were entered into the model simultaneously as there were no hypotheses about the relative importance of each variable (27). Results indicated that three variables were significantly associated with depression at Time 1: work status ($p < .01$), home ownership ($p < .03$), and appraisal of recent economic situation ($p < .01$, Wald X^2 (df=4) 21.53, $p < .0002$, $R^2 = .15$). These variables were used in subsequent cross-sectional model analyses.

Multivariate logistic regression models using sequential selection were calculated to evaluate the relationships of economic and social resource variables to depression at Time 1. Sequential logistic regression is used to specify the order of variable entry into the model (27). For each model, education level and group assignment (experimental vs. control group) were entered as a covariates in the first step. These variables were not significantly associated with depression status in any of the models. A full model and four alternative models were calculated. The full model was comprised of the covariates (education and group assignment), the primary economic resource variables (work status, home ownership, economic appraisal) and social resource variables (social support, self-esteem, and the weighted life events score). Alternative models (Models 2-4) examined the relative contribution of each of the social resource variables. A final model (Model 5) was calculated to assess the contribution of the economic variables alone. Results for each of the models are shown in Table 4. Model 3 accounted for the greatest proportion of variance in depression status. In this model, work status ($p < .02$), home ownership ($p < .02$), appraisal of recent economic situation ($p < .001$), self-esteem ($p < .003$), and life events ($p < .005$) were significant predictors (Wald X^2 (7)=33.62, $p < .0001$, $R^2 = .24$). These results indicated that women who reported no work outside the home, lack of home ownership, low appraisal of their recent economic situation, low self-esteem, and greater numbers of life events were at greatest risk for clinically significant depressive symptoms at baseline.

Predicting Depression Trajectories from Baseline to Follow-Up

Multivariate logistic regression analyses were conducted to predict depression patterns across the three time points using economic and social resource variables measured at Time 1. Inspection of depression scores indicated that women could be classified into three depression trajectories: women reporting significant depression symptoms at all three time points ($n=27$; *persistent*);

women with *intermittent* depression (2 or fewer time points; n=30), and women without significant depressive symptoms at all 3 time points (*non-cases*; n=93).

A two-step process was utilized to conduct these analyses. Selection of economic predictors from the 11 available variables was conducted using direct logistic regression with forward selection. From this analysis, total income ($p<.003$), home ownership ($p<.05$), and appraisal of future economic situation ($p<.01$) were significant predictors of depression trajectories (Wald X^2 (3) 21.62, $p<.0001$, $R^2=.16$). These variables were used in subsequent analyses.

Multivariate logistic regression models using sequential selection were calculated to evaluate the predictive value of baseline economic and social resource variables on depression trajectories. Education level and group assignment (experiment vs. control) were entered into the models as covariates. As before, neither variable significantly contributed to any of the models. A full model and three alternative models were calculated. The full model was comprised of the covariates, the primary economic predictors (total income, home ownership, future economic appraisal), and social resource variables (social support, self-esteem, and the weighted life events score). Alternative models (Models 2-3) examined the relative contribution of each of the social resource variables, excluding social support. A final model (Model 4) was calculated to assess the contribution of the economic variables alone. Results for each of the models are shown in Table 5. In the Full Model, social support and life events did not meet entry criteria ($p<.5$) and therefore did not contribute to the overall model. Model 2 explained the greatest proportion of the variance (25%, Wald X^2 (7) 33.5, $p<.0001$). The results from Model 2 indicate that lower total income, lack of home ownership, low baseline self-esteem, and increased number of life events significantly predicted the likelihood of sustained depression over a 6-month period. Post-hoc analysis of the association of the FILE subscales with depression trajectories indicated that only the Losses subscale (family member death or divorce) was associated with persistent depression over time.

Discussion

An ecological approach to depression and poverty using the COR theoretical framework was applied to a sample of low-income, urban African-American women participating in a community-based dietary change intervention. In this sample, 40% of women reported clinically significant levels of depressive symptoms at baseline evaluation. Of these, more than 50% continued to report significant levels of depression six months later. These findings are similar to high rates of depression found in previous studies of low-income, African-American women (3, 28). Consistent with observations by Brown (5) and Barbee (8), depression may be a greater problem among low-income African-American women than SES-adjusted prevalence rates would suggest.

The majority of women depressed at baseline were persistently depressed six months later. The average episode duration for major depressive disorder has been found to be 8-12 weeks (29). More than 50% of women in our sample reported clinically significant levels of depressive symptoms that exceeded this average episode duration by three months. This suggests that African-American women with economic and social stressors may be at risk for longer periods of depressive symptoms.

The high rate of depression found in this study also raises questions about the impact depression may have on the development of diabetes for these women. Few studies have examined the impact of depression on diabetes risk and management in populations of color (30). Fewer still have examined these relationships in the lives of impoverished African-American women. If poverty places women at greater risk for persistent depression (8) and type 2 diabetes (2), the interaction of these comorbid diseases on medical and emotional outcomes may be substantial. More work is needed to examine these relationships in this population.

The association of depression to economic and social resources was evaluated at baseline evaluation and longitudinally. At baseline, lack of home ownership, non-work status, low appraisal of one's recent economic situation, low self-esteem, and greater numbers of life events were associated with clinically significant levels of depressive symptoms. These findings are consistent with other studies that have reported associations between these variables: depression and major life events (31-32), depression and self-esteem (33-34), depression, social support and unemployment (35), and stress and home ownership (36). These findings are also consistent with COR theory predictions that individuals with fewer resources would experience greater psychological distress (11).

Examination of the impact of economic and social resources on depression trajectories indicated that these variables significantly contributed to the prediction of persistent depression over time. The best fitting model indicated that decreased total income, lack of home ownership, poor appraisal of one's future finances, low self-esteem, and greater number of life events at baseline predicted sustained depression at Time 3. These findings are consistent with the cross-sectional models as well as previous work on the relationship of depression to self-esteem and life events. In terms of economic predictors, work status, home ownership, and past economic appraisal contributed significantly to the baseline models. Longitudinally, total income, home ownership, and future economic appraisal contributed significantly to persistent depression trajectories. These results suggest support for the role of economic as well as psychological components to the experience of depression.

With these findings in mind, there are a number of limitations to the current study. A self-report measure of depression was used. Self-report measures lack the diagnostic specificity inherent in more rigorous depression assessment methods (e.g., diagnostic interviewing). The clinical caseness threshold established by Radloff (19) was used to provide clinical relevance to depression scores. Second, all measures were gathered using participant interviews. It is possible that participants might underestimate their depressive symptoms in the presence of an interviewer. Our data would suggest that this bias was not present in light of the relatively high levels of depressive symptoms. Third, women completing depression assessments were slightly more educated and had lower body mass index scores than women who did not receive the assessments, thereby calling into question the generalizability of these findings to the larger sample. Interestingly, we observed these relationships among women with greater social resources (i.e. more education). It would be reasonable to expect that these relationships would hold true for women with lower educational attainment as well. Moreover, education level was not a significant covariate in any of the logistic regression models. Finally, the results of this study suggest that predisposing economic and social resource deficits may influence depression symptoms six months later. Although the longitudinal data highlight the role these variables

may play in sustaining depression, this data does not speak to the order in which poverty and depression may have occurred. It is possible that limited economic and social resources may precede as well as follow depressive episodes.

Evidence from this study suggests that depression may be in part as much a function of environmental stressors (i.e. poverty, life events) as an expression of inherent individual psychopathology. Economic assets and appraisal of one's economic situation figured prominently in both the baseline and prospective models suggesting that these factors may play a role in the way women perceive their present and future situations. Consistent with the COR theory, loss (e.g., death or divorce) and lack of resources (e.g., lack of homeownership) may contribute to the stress experience placing poor women under greater stress and risk for the development of depression. These findings are consistent with recent work by Holahan and colleagues in which a preponderance of negative life events and psychosocial resource depletion were associated with increased depression over time (37-38).

The longitudinal models lend support to the existence of these relationships over time. Women who began the study with depressive symptoms were at greater risk of persistent depression six months later if they had lower income, did not own their own home, rated their future economic situation poorly, had lower self-esteem and greater family loss (e.g., death or divorce). This provides some support for Hobfoll's spiral theory of stress over time (14, 16). That is, women with fewer resources may be at greater risk for continued resource loss and unable to buffer the impact of future losses. This downward resource spiral appears to have mental health implications. Women with the fewest resources were at greatest risk for persistent depression at Time 3.

An interesting finding is that lack of homeownership was a significant predictor of depression in both the cross-sectional and longitudinal models. This finding lends support to the COR principle that investment in resources without gain, in this case payment of rent without accrued equity, contributes to perceived stress (16). The absence of homeownership was associated with baseline depression and predicted sustained depression six months later. There are many factors associated with homeownership that may influence the development of depression including residential stability, the quality of the physical environment, marital relationships, and health and well-being.

Lack of homeownership may provide some insight into the extent of residential stability for women in our sample. Homeownership is one of the strongest predictors of residential permanence. Residential transiency has been found to be associated with academic and behavioral problems among youth (39-40). It is possible that impermanence may have a psychological impact on women as well.

Quality of the physical environment as a function of maintenance and repair of housing may also play a role. A number of studies have shown that renters and landlords are less likely than homeowners to perform maintenance and repair to their structures (41-42). Women who do not own homes may experience less control over their living environment, influencing or contributing to depression.

Homeownership has been found to have a negative effect on marital dissolution (43). In a study of 575 married couples, Hampton (44) found that property and financial assets were negatively associated with marital disruption for African-American couples. It is possible that homeownership (or lack thereof) may serve as a correlate of marital stability in the prediction of depression. Similarly, homeownership has been found to be negatively associated with conflict and violence between spouses (45), potentially serving as an index of the quality of the psychological home life for women.

Homeownership has also been associated with better health for women, after controlling for income and education (46). In a study of lung cancer mortality, married women living in an owner occupied house with access to a car were 2.5 times less likely to die from lung cancer as those living in rented housing without access to a car (47). Women who do not own homes may be more at risk for poorer health, with implications for the development or persistence of depression. Studies on the relationship of general personal well-being and homeownership have found that the latter enhances social status (48-49), behavioral changes that serve to protect investments (50-52), changes in cognitive schema that results when people accumulate assets (53), life satisfaction (54-56), physical and emotional well-being (47, 57-58), and future orientation and self-efficacy (59) compared to renters.

Individually and collectively economic factors merit greater consideration in their relationship to mood symptoms. Results from the current study speak to the multiple impinging environments present in the lives of poor African-American women. Economic stressors, low self-concept, negative life events, and depressive symptoms co-existed for a large minority of women in our sample. Understanding the role of economic variables in the development and persistence of depression in African-American women has the potential to inform individual- and policy-level interventions designed to support the physical and mental health of poor women at risk for chronic disease. Interventions that address both the economic and social contributors to depression may be most likely to effect lasting positive outcomes.

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Table 1: Baseline Economic Characteristics of African-American Women for Total Sample, Depressed and Non-Depressed Subsamples

	Total Sample (N=181)		Depressed (CESD \geq 16) (N=73)		Non-Depressed (CESD \leq 15) (N=108)		p^a Value
Employment Status	N	%	N	%	N	%	
Work outside home	120	66.3%	40	54.8%	80	74.1%	.007*
None	61	33.7%	33	45.2%	28	25.9%	
Total Monthly Income Mean (S.D.)	\$1577	\$1203	\$1306	\$1077	\$1770	\$1256	.01*
Proportion Earned Income Mean (S.D.)	70.7%	40.8%	78.1%	37.3%	60.2%	43.5%	.007*
Poverty Line Status							.007*
Above	94	56.7%	30	44.1%	64	65.3%	
Below	72	43.3%	38	55.9%	34	34.7%	
Occupation							NS
Service worker	4	3.4%	3	7.5%	1	1.3%	
Unskilled	4	3.4%	0	0	4	5.1%	
Semi-skilled	25	21.2%	10	25%	15	19.2%	
Skilled	9	7.6%	4	10.0%	5	6.4%	
Sales/Clerical	28	23.7%	10	25.0%	18	23.1%	
Semi-Professional	30	25.4%	8	20.0%	22	28.2%	
Manager	11	9.3%	3	7.5%	8	10.3%	
Administrator	7	5.9%	2	5%	5	6.4%	
Hours Worked per Week Mean (S.D.)	38.6	13.7	41.4	12.1	37.1	14.3	.09
Own Home							.03*
Yes	56	30.9%	16	21.9%	40	37.0%	
No	125	69.1%	57	78.1%	68	63.0%	

	Total Sample		Depressed		Non-Depressed		<i>p</i> Value
	N	%	N	%	N	%	
Own car or other motor vehicle							.02*
Yes	117	64.6%	40	54.8%	77	71.3%	
No	64	35.4%	33	45.2%	31	28.7%	
Checking Account							.04*
Yes	115	63.5%	40	54.8%	75	69.4%	
No	66	36.5%	33	45.2%	33	30.6%	
Savings Account							.008*
Yes	96	53.0%	30	41.1%	66	61.1%	
No	85	47.0%	43	58.9%	42	38.9%	
Alternate Savings							.02*
Yes	60	33.2%	17	23.3%	43	39.8%	
No	121	66.8%	56	76.7%	65	60.2%	
Value of Total Savings Mean (S.D.)	\$2148	\$11,495	\$1953	\$11727	\$2294	\$11385	NS

^aBivariate analyses made between depressed vs. non-depressed subsamples.

*Significant $p < .05$

Table 2: Baseline Economic Appraisal Variables for Total Sample, Depressed and Non-Depressed Subsamples

	Total Sample (N=181)		Depressed (CESD ≥ 16) (N=73)		Non-Depressed (CESD ≤ 15) (N=108)		<i>p</i> ^a Value
	N	%	N	%	N	%	
Making Ends Meet							.02*
Very hard	50	27.6%	27	36.9%	23	21.3%	
Hard	42	23.2%	17	23.3%	25	23.2%	
Not hard, not easy	74	40.9%	28	38.4%	46	42.6%	
Easy	13	7.2%	1	1.4%	12	11.1%	
Very easy	2	1.1%	0	0	2	1.9%	
Difficulty Paying Bills							.03*
Yes	84	46.4%	41	56.2%	43	39.8%	
No	97	53.6%	32	43.8%	65	60.2%	
Money Left Over at End of Month							.04*
Yes	66	36.5%	20	27.4%	46	42.6%	
No	115	63.5%	53	72.6%	62	57.4%	
Past Economic Situation							.0002*
Getting better	74	41.1%	22	30.1%	52	48.6%	
Staying the Same	61	33.9%	21	28.8%	40	37.4%	
Getting Worse	45	25.0%	30	41.4%	15	14.0%	
Satisfaction - Economic Situation							.07
Very satisfied	11	6.1%	3	4.1%	8	7.5%	
Somewhat satisfied	79	43.9%	26	35.6%	53	49.5%	
Not at all satisfied	90	50%	44	60.3%	46	42.9%	
Economic Outlook							.009*
Pretty hopeful	94	52.2%	28	38.4%	66	61.7%	
More or less hopeful	62	34.4%	32	43.8%	30	28.0%	
Not hopeful at all	24	13.3%	13	17.8%	11	10.3%	

^aBivariate analyses made between depressed vs. non-depressed subsamples.

*Significant $p < .05$

Table 3: Baseline Social Resource Variables for Total Sample, Depressed and Non-Depressed Subsamples

	Total Sample		Depressed		Non-Depressed		<i>p</i> Value
	Mean	S.D.	Mean	S.D.	Mean	S.D.	
Self-Esteem	3.16	.48	2.97	.49	3.29	.43	.0001*
Social Support	3.07	.42	2.97	.39	3.14	.44	.009*
Life Events	381.94	347.07	459.63	391.38	329.67	304.66	.01*

^aBivariate analyses made between depressed vs. non-depressed subsamples.

*Significant $p < .05$.

Table 4: Logistic Regression Models To Evaluate the Association of Depression Status at Time 1 with Economic and Social Resource Variables

Predictors	Full Model		Model 2 ^a		Model 3 ^b		Model 4 ^c		Model 5 ^d	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Group Assignment	.94	.46-1.92	1.0	.52-2.05	.94	.46-1.92	1.04	.52-2.06	1.26	.66-2.40
Education level	1.17	.89-1.53	1.20	.92-1.57	1.17	.89-1.53	1.21	.93-1.58	1.08	.85-1.36
Work status	2.56	1.16-5.64*	2.27	1.06-4.83*	2.61	1.19-5.73*	2.27	1.07-4.84*	2.30	1.13-4.70*
Home ownership	2.53	1.14-5.60*	2.53	1.17-5.52**	2.52	1.14-5.58*	2.55	1.18-5.56*	2.09	1.01-4.32*
Economic appraisal	2.17	1.37-3.44**	2.08	1.34-3.25**	2.18	1.38-3.45*	2.11	1.36-3.29*	1.97	1.31-2.97*
Self-esteem	.24	.09-.61*	.25	.10-.61**	.20	.09-.47*	.21	.09-.47**	--	--
Social support	.69	.26-1.8	.69	.27-1.77	--	--	--	--	--	--
Life events	1.0	1.00-1.00*	--	--	1.00	1.00-1.00*	--	--	--	--
		$X^2=33.62$ p=.0001 $R^2=.24$		$X^2=29.05$ p=.0001 $R^2=.21$		$X^2=34.22$ p=.0001 $R^2=.24$		$X^2=30.57$ p=.0001 $R^2=.21$		$X^2=20.71$ p=.0004 $R^2=.13$

^aLife events score was omitted.

^b Social support score was omitted.

^cSocial support and life events score were omitted.

^d Economic resource variables only.

*p<.05 **p<.0001

Table 5: Logistic Regression Models Predicting Depression Trajectories^a

Predictors	Full Model		Model 2 ^b		Model 3 ^c		Model 4 ^d	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Group Assignment	1.06	.82-1.37	.78	.38-1.58	.79	.39-1.60	.93	.47-1.83
Education level	.81	.40-1.62	1.05	.81-1.35	1.05	.82-1.37	.95	.75-1.22
Total Income	.99	.99-1.00*	.99	.99-1.00*	.99	.99-1.00*	1.00	.99-1.00*
Home ownership	2.22	1.03-4.78*	2.25	1.04-4.88*	2.18	1.01-4.68*	2.05	.97-4.32
Future Economic appraisal	1.65	1.00-2.72*	1.64	.99-2.71*	1.59	.97-2.62	1.80	1.12-2.90*
Self-esteem	.28	.12-.59**	.28	.13-.57**	.29	.14-.60	--	--
Social support	Did not meet model entry criteria		--	--	--	--	--	--
Life events	Did not meet model entry criteria		1.00	1.00-1.002*	--	--	--	--
	$X^2=30.97$ p=.0001 $R^2=.23$		$X^2=33.50$ p=.0001 $R^2=.25$		$X^2=30.75$ p=.0001 $R^2=.23$		$X^2=21.99$ p=.0005 $R^2=.17$	

^aDepression trajectory categories: Persistent, intermittent and no depression at Times 1-3. ^bSocial support was omitted.

^cSocial support and life events score were omitted ^dEconomic resource variables only. *p<.05 **p<.001

Figure 1: Conservation of Resources Theory (15). Conceptual diagram of the relationship between economic and psychological variables using the COR theory. Diagram adapted from Hobfoll & Lilly (60).

