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Positive Social Interaction Offsets Impact of Low Socioeconomic Status on Stress

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Abstract

Background—Stress is associated with unhealthy behaviors and premature morbidity and mortality, especially among those of low socioeconomic status (SES). Clarifying the roles of stress-related risk and protective factors can guide interventions designed to reduce stress and improve health among socioeconomically disadvantaged populations.

Purpose—(1) Replicate prior research showing that lower SES is associated with higher stress in a predominantly racial minority, socioeconomically disadvantaged sample, and (2) test the hypothesis that different types of social support (a protective factor) mitigate the deleterious effects of SES on self-reported perceived stress.

Methods—Low-income patients ($N = 508$, 54% male, 68% Black, $M_{\text{age}} = 28$) from a publicly-funded clinic completed self-report measures as part of a larger trial. Structural equation modeling tested the hypothesized associations among SES, social support, and stress.

Results—Individuals of lower SES, $\beta = -0.27$ (0.08), $p < .01$, and lower overall social support, $\beta = -0.47$ (0.05), $p < .001$, reported higher stress. Social support moderated associations between SES and stress, with participants with lower SES benefitting the most from social support. Positive social interaction was the strongest moderator, $\beta = 0.20$ (0.08), $p = .01$.

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Conclusions—The associations among SES, stress, and social support corroborate prior research. One specific type of social support (viz., positive social interaction) was particularly important for decreasing stress among socioeconomically disadvantaged persons. Future research to confirm the associations among these factors is needed to inform theory and intervention design.

Keywords

social support; socioeconomic status; stress; resilience; protective factor

1.0 Introduction

Individuals from socioeconomically disadvantaged backgrounds, on average, demonstrate worse health behaviors,¹ health outcomes,² and die earlier³ than their wealthier, more educated, and employed peers. One proposed mechanism to explain these health disparities is stress.³ Greater stress contributes to several unhealthy behaviors for those with low socioeconomic status (SES),⁴ with low SES being indirectly related to unhealthy behaviors through perceived stress.⁵ Thus, low SES contributes to high stress, and both low SES itself and high stress put individuals at higher risk for unhealthy behaviors. Identifying modifiable protective factors may inform stress management interventions for low SES individuals.

Social support may be a protective factor to offset stress, possibly contributing to decreases in unhealthy behaviors among socioeconomically disadvantaged individuals.^{6–8} One limitation of current research is that social support has not been studied more granularly to understand how different types may help to offset stress for socioeconomically disadvantaged individuals.⁹ Types of social support include affectionate, emotional/informational, tangible, and positive social interaction.¹⁰ See definitions and example survey questions assessing the four social support types in Table 1. Our sample provided an opportunity to study different types of social support among a sample of mostly low SES and racial minority individuals, for whom stress may be particularly harmful to health.¹¹

To replicate prior research in a novel sample (predominantly racial minority and urban dwelling), we examined whether lower SES would be associated with higher stress. To extend prior research, we tested the novel hypothesis that social support would mitigate effects of SES on stress. We explored different types of social support to increase specificity of findings.

2.0 Method

2.1 Participants

In this secondary analysis, participants were patients attending a publicly funded sexually transmitted disease (STD) clinic and in a randomized controlled trial (RCT) to evaluate a sexual risk reduction intervention¹². Inclusion criteria for the RCT were age 16 or older and sexual risk behavior past three months. Exclusion criteria were severe mental impairment, current inpatient substance use treatment, HIV infection, and planning to move out of area in the next year. Of 2,766 patients approached, 2,677 (97%) agreed to be screened, 1,322

(49%) were eligible, and 1,010 (76%) consented and completed baseline surveys. Participants were randomly assigned to complete a general health ($n = 508$) or a sexual health ($n = 502$) survey. The current sample consisted of general health survey participants. We chose the general health survey participants because the questions about the main variables (social support, stress) were assessed in that survey and not in the sexual health survey.

2.2 Procedures

A research assistant met with patients in a private room and obtained verbal consent for screening. Those who were eligible and interested provided written, informed consent. Participants completed an audio computer-assisted self-interview, allowing low-literacy individual to participate, in a private room. Participants viewed an intervention video as part of the RCT (unrelated to stress) and were reimbursed \$30. All procedures were approved by participating institutional review boards.

2.3 Measures

2.3.1 Demographic information—We obtained information on participant demographics; a race dummy variable was created: white, black, and other.

2.3.2 Socioeconomic status (SES)—SES was a latent factor indicated by these categorical variables: annual family income, highest grade completed in school (education), and current employment status.

2.3.3 Perceived stress—Three items from the Perceived Stress Scale (PSS)⁷ assessed stress in the last month: “How often have you felt difficulties were piling up so high that you could not overcome them?”; “How often have you felt that you were unable to control the important things in your life?”; and “How often have you felt that things were going your way?”. Participants rated each item 0 (*never*) to 4 (*very often*); higher scores indicate higher stress levels (including recoding item 3). The PSS has been reliable and valid with urban populations;^{13,14} internal consistency was adequate in this study (Cronbach’s $\alpha = 0.68$). Items served as indicators of a latent stress construct.

2.3.4 Social support—The 19-item Medical Outcomes Study-Social Support survey¹⁰ assessed perceived support. Participants were asked, “How often is each of the following types of support available to you if you need it?” with responses from 1 (*none of the time*) to 5 (*all of the time*). The scale included four types of support: emotional / informational (“Someone to give you good advice about a crisis”), tangible (“Someone to help with daily chores if you were sick”), affectionate (“Someone to love and make you feel wanted”), and positive social interaction (“Someone to get together with for relaxation”). We summed each type and types served as indicators for a latent social support factor. Following recommendations, each type score was transformed on a 0–100 scale¹⁰; higher values indicated higher support. This measure is reliable in racial minority samples ($\alpha = 0.93$)¹⁵ and also in our sample ($\alpha = .97$).

2.4 Data Management and Analysis

Data were analyzed using structural equation modeling (SEM) in Mplus.¹⁶ We controlled for age, race, and sex in all models.¹⁷ Model fit was assessed using the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root-mean-square error of approximation (RMSEA). Indicators of acceptable fit are CFI > .90, TLI > .90, and RMSEA < .06.^{18,19} To test moderation, we created latent interaction terms using the Mplus function XWITH. Herein, we report standardized coefficients.

Responses were missing for 0.39% to 3.54% of participants per variable. The variable with the most missing responses was income; all other variables were missing less than 0.40% of cases. We used multiple imputation to replace missing values, a widely-accepted method for dealing with missing data.²⁰

3.0 Results

3.1 Descriptive Statistics

Participants were 508 individuals (54% male, 68% Black, $M_{age} = 28$). Participants reported feeling moderately stressed. Their reported levels of social support were similar to other samples.¹⁰ See Table 2 for sample characteristics.

3.2 Measurement Model

We tested the fit of measurement models including three latent constructs (SES, social support, and stress) and correlations among all constructs. To identify latent constructs, variance was fixed at 1.²¹ With this method, the sample mean of each latent construct is 0 and each 1-unit change in a latent construct can be interpreted as a change of 1 standard deviation (SD). We allowed correlations between (a) residuals of the highly-correlated social support types affection and positive social interaction²² and between (b) stress items that were not reverse scored. The measurement model fit the data well, $\chi^2(30, N = 508) = 34.54$, CFI = 0.99, TLI = 0.99, RMSEA = 0.02. All factor loadings were positive and significant, $ps < .001$.

3.3 Structural Model and Direct Associations

We tested a structural model including a latent social support construct, which included all four social support types. Overall fit indices were unavailable because latent interaction terms were included in the model.²³ However, the structural model in Figure 1 fit well prior to the addition of interaction terms, $\chi^2(57, N = 508) = 82.88$, CFI = 0.97, TLI = 0.95, RMSEA = 0.03, and accounted for 32% of the variance in stress.

Prior to the addition of interaction terms, individuals with lower SES, $\beta = -0.27$ (0.08), $p < .01$, and lower overall social support, $\beta = -0.47$ (0.05), $p < .001$, reported higher stress. In separate models, higher stress was also associated with lower social support of each type: affectionate, $\beta = -0.37$ (0.05), $p < .001$, tangible, $\beta = -0.40$ (0.05), $p < .001$, positive social interaction, $\beta = -0.33$ (0.05), $p < .001$, and emotional/informational, $\beta = -0.41$ (0.05), $p < .001$. Individuals with higher SES also reported higher overall social support, $\beta = 0.12$ (0.06), $p < .05$. SES was not directly related to affectionate support, $\beta = 0.02$ (0.06), $p = .67$, but

was positively related to tangible support, $\beta = 0.11$ (0.05), $p < .05$, positive social interaction, $\beta = 0.11$ (0.06) $p < .05$, and emotional/informational support, $\beta = 0.15$ (0.05) $p < .01$.

3.4 Social Support as a Hypothesized Protective Factor, Moderating Associations between SES and Stress

After adding interaction terms, overall social support moderated the association between SES and stress, $\beta = 0.19$ (0.09), $p < .05$. Although there was a strong, negative SES-stress association for those one SD below the mean in social support, $\beta = -0.55$ (0.15), $p < .001$, this association disappeared for those one SD above the mean, $\beta = -0.13$ (0.13), $p = .32$. This pattern of results, whereby social support reduced stress particularly for those with low SES, can be seen in Figure 2a.

We also investigated social support types separately as moderators of the association between SES and stress. These models showed that three types of social support offset the negative impact of SES on stress, including positive social interaction, $\beta = 0.19$ (0.07), $p < .01$, affectionate support, $\beta = 0.17$ (0.09), $p = .05$, and tangible support, $\beta = 0.16$ (0.08), $p < .05$. Emotional/informational social support was non-significant, $\beta = 0.12$ (0.10), $p = .26$. Next, we included all significant interactions in the same model, systematically pruning the model for parsimony. We found affectionate support to have the weakest effect on the SES-stress association, $\beta = -0.06$ (0.15), $p = .69$, followed by tangible support, $\beta = 0.06$ (0.07), $p = .47$. Following the removal of these non-significant interaction terms, positive social interaction remained a significant moderator of the SES-stress association, $\beta = 0.20$ (0.08), $p = .01$, indicating that, for those with below average positive social interaction, lower SES was associated with higher stress. Although there was a strong, negative SES-stress association for those one SD below the mean in positive social interaction, $\beta = -0.57$ (0.15), $p < .001$, this association disappeared for those one SD above the mean, $\beta = -0.12$ (0.12), $p = .32$. Thus, as seen in Figure 2b, at lower levels of SES, those with higher levels of positive social interaction reported less stress than those with lower levels of positive social interaction. When considering all types simultaneously, positive social interaction showed evidence of playing the most important role in offsetting the impact of SES on stress.

4.0 Discussion

We utilized data from a sample largely comprised of racial minority, socioeconomically disadvantaged individuals at a public clinic to examine one protective factor (viz., social support) to better understand associations between SES and stress. Lower SES was associated with higher stress, beyond age, sex, and race, consistent with prior literature.²⁴ People with higher social support reported lower stress, consistent with the stress-buffering, or protective, effects of social support.⁷ Consistent with hypotheses and one previous study, overall social support mitigated the negative impact of low SES on stress.²⁵

A novel contribution of this study involved the investigation of a more nuanced typology of social support to increase the specificity of our findings. Emotional/informational support had the strongest direct associations with stress in our socioeconomically disadvantaged sample, meaning that higher levels of advice giving, problem solving, and emotional

validation were directly related to lower stress. However, positive social interaction emerged as the most important type of social support in offsetting the impact of SES on stress, particularly for those who were very socioeconomically disadvantaged. Positive social interaction may be especially helpful in stress reduction for these individuals because it allows them to experience positive affect in a way that tangible support (e.g., childcare) would not and in a way distinct from the general, nonspecific positive affect that affectionate support offers. It may also reduce stress for the very socioeconomically disadvantaged through social comparison with others, prompting cognitive reappraisal.²⁶

Our results suggest a process of resilience, in which positive social interaction may be a protective factor that offsets typically expected higher levels of stress among socioeconomically disadvantaged and/or racial minority individuals.²⁷ Resilience is not a trait; rather, it is a dynamic process that can be represented by adaptation or posttraumatic growth among a population from whom there is evidence of higher likelihood of a negative trajectory due to adversity.²⁸ Adaptation or posttraumatic growth can be positive traits, developmental milestones, behaviors, or health outcomes.²⁹ Specifically, these results support the protective model of resilience, which posits that, despite adversity (low SES), a negative outcome (stress) can be mitigated by a protective factor (social support).^{30,31} Resilience research has begun to influence and improve health interventions for disadvantaged populations, with more calls for resilience research on individuals who are at high risk for health problems.^{27,30,32} Because SES can be difficult to change, resilience research can help researchers learn from these individuals who may have protective factors to cope with adversity as well as—or better than—higher SES peers. Other research might simulate our methods by investigating hypothesized protective factors as moderators of traditionally negative health outcome pathways for populations with adversity.

Because stress is linked to unhealthy behaviors and poor health outcomes, stress management is vital to disease prevention for socioeconomically disadvantaged individuals. Stress management interventions with socioeconomically disadvantaged individuals might seek to increase positive social interaction, specifically, to allay distress, improve health behaviors,³³ and delay premature morbidity and mortality. Continued investigation might explore whether positive social interaction can be generalized as a protective factor against stress for other populations. By identifying positive social interaction as particularly important for low-SES individuals, our analyses showcase the value of investigating types of social support. By doing so, we can better identify specific targets for intervention. Positive social interaction should be viewed as only one of many approaches to preventing unhealthy behaviors, morbidity, and early mortality among socioeconomically disadvantaged populations.^{27,34,35}

4.1 Strengths and Limitations

Our sample included socioeconomically disadvantaged, primarily Black and African-American adults—an important sample in which to study stress due to higher stress levels that originate from socioeconomic hardship and racial discrimination.^{17,36} However, participants in our study came from one STD clinic, possibly limiting generalizability. A further sample limitation is that we did not have specific information about ethnicity,

national origin, or immigrant status for participants; thus, results might be different for those different subgroups. There may be something about the population in this sample that enhances responses to positive social interaction and other populations might respond better to other social support types. Our study benefitted from the use of an advanced statistical approach (viz., SEM), which allowed us to account for measurement error and inter-correlations among variables. However, the data were cross-sectional, limiting our ability to assess causal relationships (i.e., whether changes in social support were associated with changes in stress). A longitudinal study assessing relations among SES, stress, and types of social support would clarify temporal associations. Although we were able to investigate types of social support, improving on prior research, limitations of secondary data prevented us from considering other protective factors against stress (e.g., personality traits, coping styles). It would be helpful for future research to also specify the therapeutic agent of positive social interaction, possibly including relaxation, distraction, or humor.

4.2 Conclusions

Overall social support was protective against stress for low SES individuals, and one specific type—positive social interaction—played the strongest role in mitigating the negative effect of very low SES on stress. Whereas the lowest SES individuals without high support reported more stress than high SES peers, the lowest SES with high positive social interaction reported similar levels of stress as their lower-risk, higher SES peers. Facilitating positive social interaction appears to be an important and feasible stress reduction intervention target for low-SES and/or racial minority individuals.

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Figure 1.

Results of structural equation model testing associations between SES, social support and stress. * $p < 0.05$, ** < 0.000 . Age, race, and sex were covariates. SES, stress, and social support are latent factors. For the Perceived Stress Scale (PSS), the second item had a low factor loading in this sample and was dropped.

Figure 2.

Social support moderates the association between socioeconomic status and stress. (A) Overall social support as a latent construct moderates the association between SES and stress, $\beta = 0.19$ (0.09), $p < 0.05$. (B) Positive social interaction as a moderator of the association between SES and stress, $\beta = 0.20$ (0.08), $p < 0.01$. The figure depicts the association between SES and stress for those with below average SD below the mean) and above average (1 SD above the mean) levels of social support and positive social interaction. as well as 95% confidence intervals, Age, sex, and race included as covariates.

Table 1.

Definitions and example survey items of social support types.

Social support type	Definition	Example item (MOS-SS)
Positive Social Interaction	Uplifting encounters with others, perhaps over shared interests	“Someone to get together with for relaxation”)
Affectionate	Physical touch and feelings of love	“Someone to love and make you feel wanted”
Tangible	Providing logistic assistance, such as help with a task	“Someone to help with daily chores if you were sick”
Emotional/Informational	Advice giving, problem solving, and emotional validation in a crisis	“Someone to give you good advice about a crisis”

Source: Sherbourne and Stewart (1991, Medical Outcomes Study-Social Support (MOS-SS) survey.

Table 2.

Characteristics of 508 individuals from a publicly-funded STD clinic in upstate New York.

Characteristic	N (%)
Sex (assigned at birth)	
Male	272 (54)
Female	236 (47)
Age	M = 27.9, SD = 9.0, Range = 16–63
Marital Status	
Married	25 (5)
Divorced	27 (5)
Separated	30 (6)
Single (never married)	421 (83)
Widowed	
Annual Family Income	
< \$15,000	258 (51)
\$15,000 to \$30,000	155 (31)
\$30,000 to \$45,000	50 (10)
> \$45,000	27 (5)
Employment Status	
Unemployed	253 (50)
Part-time	100 (20)
Full-time	155 (31)
Education Level	
< 12th grade	136 (27)
GED	91 (18)
High school diploma	96 (19)
Some college	(23)
College degree or more	69 (14)
Race	
African American	345 (68)
White	92 (18)
Other	92 (18)
Perceived Stress	M 5.4, SD 2.5, Range = 0–12
Social Support (Overall)	M = 67.7, SD = 24.7, Range = 0–100
Affectionate	M = 72.6, SD = 28.1, Range = 0–100
Emotional/Informational	M = 65.6, SD = 27.3, Range = 0–100
Tangible	M = 64.8, SD = 30, Range 0–100
Positive Social Interaction	M = 72.4 SD = 26.6, Range 0–100