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Buffering Effects of a Family-Based Intervention for African American Emerging Adults

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Abstract

This study focused on the buffering effects of Adults in the Making (AIM), a family-centered preventive intervention, on the link between life stress and increases in risk behaviors among 347 rural, southern African Americans as they left high school. Of the families, 174 were assigned to the prevention condition and 173 to a control condition. Emerging adults reported risk behaviors at pretest, posttest (7 months after pretest), and long-term follow-up (10 months after posttest). A significant Life stress $\times$ Prevention condition interaction emerged: Increases in risk behaviors were significantly greater among emerging adults in the control condition who experienced high stress levels than among those in the prevention condition who experienced equally high stress levels.

Keywords

African Americans; family process; intervention; prevention; stress; youth/emergent adulthood

The transition from adolescence to emerging adulthood involves pervasive contextual and social role changes that can increase young people's involvement in health-risk behaviors, including marijuana use, excessive drinking, and sexual intercourse while using substances (Kogan et al., 2008; Schulenberg, Sameroff, & Cicchetti, 2004). The stress this transition engenders is particularly salient for risk behavior trajectories among emerging adult populations who confront sociodemographic stressors (French, Finkbiner, & Duhamel, 2002). For example, after leaving high school, rural African American emerging adults confront environments that provide minimal opportunities and resources for employment or continuing education to help them embark on beneficial life paths. Some who see no pathway to adequate subsistence or attainment of life goals may cope by drinking excessively, using marijuana, or having sexual intercourse (Fergus & Zimmerman, 2005). Not all emerging adults, however, evince increases in risk behaviors when they confront sociodemographic stressors that include opportunity limitations. Resilience theory highlights the importance of stress-buffering processes during such critical transitions (Luthar, 2006). This theory and the research it sponsors explain why some youths who experience many stressors do not succumb to their negative effects. Often, these stress-buffering effects originate at the family level, and family protective processes have been shown to alter the effects of risk factors such as life stressors. For example, family support, communication, and monitoring reduce the effect of life stress on adolescent and young adult conduct problems, substance use, and sexual risk (Fergus & Zimmerman, 2005).

Buffering hypotheses usually have been studied using both contemporaneous and longitudinal research designs in which stressors, buffering processes, and outcomes have

been observed as they unfold over time in the population (Cohen & Wills, 1985). With observational designs, validating the causal status of the buffering effect is difficult, particularly if exposure to the buffering process occurs over an extended period (Rutter, 2005). The use of randomized prevention trials is one way to determine whether an environmental factor has attained causal status. Through the implementation of such trials, a causal relationship between a buffering effect and the alteration of a targeted outcome's course can be tested (Cowan & Cowan, 2002; Rutter, 2005). Random assignment also rules out confounds such as history, maturation, repeated testing, and statistical regression (Cook & Campbell, 1979) and enhances statistical power as much as fivefold over epidemiological approaches (McClelland & Judd, 1993).

In this brief report, we use this heretofore-untried approach to testing family processes' buffering-promoting properties in the presence of contextual stressors through random assignment to a prevention program. We tested buffering hypotheses with African American emerging adults participating in a family-centered risk behavior prevention trial, the Adults in the Making (AIM) prevention program, designed to increase family protective processes and self-regulatory competence. We hypothesize that (a) increases in emerging adults' life stress will forecast increases in their health risk behaviors, including binge drinking, marijuana use, and having sex while intoxicated, and (b) random assignment to AIM will attenuate the influence of life stress on risk behaviors. Below, we describe the theoretical and empirical bases for these hypotheses.

Stress-coping theory conceptualizes substance abuse and risky sexual activity as consequences of life stress and negative life events (Wills, Sandy, Yaeger, Cleary, & Shinar, 2001). Life stress is a risk factor for adolescent substance use because it precipitates emotional distress and perceptions of limited efficacy and control (Fergus & Zimmerman, 2005). Studies with adolescents have found initiation and escalation of these risk behaviors to be positively related to life stress and negative life events in cross-sectional and prospective epidemiological surveys (Aseltine & Gore, 2000; Unger, Hamilton, & Sussman, 2004). In addition to life stress and negative life events, African Americans in rural Southern communities often experience racial discrimination (Brody, Chen et al., 2006), a particularly pernicious stressor that induces frustration, anger, and anxiety (Pearlin, Schieman, Fazio, & Meersman, 2005), adversely affecting physical and mental health and forecasting increases in substance use (Williams, Neighbors, & Jackson, 2003). Thus, we hypothesize that life stress, defined as a combination of negative life events and racial discrimination, will forecast increases in African Americans' risk behaviors during the post-high-school transition in rural Southern communities.

The AIM program was designed to buffer the negative impact of life stress on rural African Americans and to prevent increases in risk behavior by increasing the provision of family-based buffering processes, such as emotional and instrumental support, vocational coaching and advocacy, and racial socialization. The curriculum was informed by studies of protective processes among rural African Americans demonstrating that, despite their challenging circumstances, many rural African Americans display positive psychological adjustment and low levels of risk behavior across adolescence (Brody, Murry et al., 2004; Vazsonyi, Trejos-Castillo, & Young, 2008). These studies indicate that emotional and instrumental support from caregivers contribute to low levels of internalizing problems, externalizing problems, and substance use among rural African American adolescents (Brody & Ge, 2001). Social cognitive theory (Bandura, 1997) suggests that, in supportive, affectively positive, and communicative relationships, family members model task-oriented problem-solving skills. To the extent that emerging adults observe these skills, they will approach stressful events with direct action rather than avoidance and anger.

Vocational coaching and advocacy is a key element of effective support for rural African American emerging adults (Kogan & Brody, in press). Vocational coaching includes talking to young adults about future jobs and education, helping them plan, and instilling confidence for pursuing their plans (O'Brien & Fassinger, 1993; Rainey & Borders, 1997). Parents' vocational support is linked with adolescents' vocational aspirations and achievements, career decisiveness, commitment, and self-efficacy (Ferry, Fouad, & Smith, 2000; Hargrove, Creagh, & Burgess, 2002). Protective family processes also include racial socialization and strategies for dealing with discrimination. Stevenson (1997) suggested that the most effective approach to racial socialization involves teaching about the realities of racism while emphasizing ways to succeed despite the obstacles it produces. African American adolescents who receive adaptive racial socialization are optimistic, future oriented, able to cope with discrimination, and unlikely to internalize negative racial messages (Brody, Murry et al., 2006; Murry & Brody, 2002).

An additional goal of the AIM curriculum was to enhance youths' self-regulatory competence, which includes the ability to set and attain goals, to persist, and to anticipate the consequences of different behavioral choices. The literature indicates that self-regulated African Americans are less likely to become involved with substance use and other risk behaviors than are similar youths who evince lower levels of self-regulation (Brody & Ge, 2001; Wills, Gibbons, Gerrard, Murry, & Brody, 2003). In addition, the provision of protective family processes such as those targeted in the AIM curriculum have been found to facilitate the development of self-regulatory competence (Brody & Ge, 2001; Brody, Murry et al., 2004). Thus, we hypothesized that participation in AIM would reduce the impact of life stressors on increases in risk behaviors.

METHOD

Participants

Participants were 347 African American students in the last 2 years of secondary school (M age = 17.7 years) who resided in six rural counties in Georgia. We targeted age 17 because it marks the beginning of the transition into emerging adulthood, a time when rural African Americans increase risk behaviors that carry negative health consequences (French et al., 2002). In the counties from which the sample was drawn, families live in small towns and communities where poverty rates are among the highest in the nation and unemployment rates are above the national average (Proctor & Dalaker, 2003). Although their caregivers worked an average of 38.5 hours per week (standard deviation [SD] = 11.1 hr), 42% of participants lived below federal poverty standards, and another 15% lived within 150% of the poverty threshold. These families, representative of the areas in which they lived (Boatright, 2005), can be described as working poor.

Schools in the counties from which the participants were recruited provided lists of students in the targeted age range. Families were contacted by phone in random order to discuss participation. Of 740 families screened for eligibility, 560 (76%) were eligible to participate. Of these, 347 (58%) families agreed to take part in the study; refusal rates were similar across the intervention and control conditions. The reason most commonly given for nonparticipation was lack of time. Of participating families, 174 were assigned to the intervention condition and 173 to the control condition. Families provided data at pretest (2.5 months preintervention), posttest (7.1 months after pretest), and long-term follow-up (17.3 months after pretest). Of the families, 312 (90%), completed the posttest and 302 (87%) completed the long-term follow-up assessments. Family and youth demographic characteristics did not differ between the intervention and control groups at any assessment point (see Results). To preserve random assignment, the analyses included all intervention

families who completed the pretest regardless of the number of prevention sessions they attended, an intent-to-treat analysis.

The families who completed the pretest had an average of 2.37 children. In 58.5% of families, the target youth was a girl. Of the families, single mothers headed 46.5%, married parents headed 33.2%, separated mothers headed 17.1%, and cohabiting partners headed 3.2%. A majority of the mothers, 78.7%, had completed high school or earned a general education diploma (GED); the median family income of \$1,948.25 per month was representative of the sampled population (Boatright, 2005).

Procedures

Research staff initially contacted the families, with follow-up contacts from community liaisons who resided in the counties in which the participants lived and maintained connections between the researchers and the communities. Families were initially recruited into the overall project but were informed that they could be assigned to an intervention condition. Each family was paid \$100 at each assessment. To enhance rapport and cultural understanding, African American university students and community members who did not know the families' condition assignments served as field researchers to collect data. During each data collection, one home visit lasting 2 hours was made to each family. At the home visits, self-report questionnaires were administered to mothers and youths in an interview format. Each interview was conducted privately, with no other family members present or able to overhear the conversation. At all data collection points, mothers consented to their own and the youths' participation, and the youths assented to their own participation. The data were collected in 2006 through 2008 in eight rural Georgia counties.

Intervention implementation and fidelity—On the basis of the research reviewed, AIM targets enhancement of developmentally appropriate protective family (e.g., vocational coaching, advocacy) and youth (e.g., self-regulatory competence) processes. The AIM program consists of six consecutive weekly meetings held at community facilities. Each meeting includes separate, concurrent training sessions for parents and youths, followed by a joint parent–youth session during which families practice the skills they learned in their separate sessions. Concurrent and family sessions each last 1 hour; thus, parents and youths receive 12 hours of prevention training.

Parents in the prevention condition were taught to provide developmentally appropriate emotional and instrumental support, to provide ongoing racial socialization that included strategies for dealing with discrimination, to provide occupational and educational mentoring, to promote autonomy and adult responsibility, and to encourage responsible decisions about risk behaviors. Program content was delivered by narrators on videotapes, which also depicted family interactions illustrating targeted behaviors. Group leaders presented the prevention curriculum, organized role-playing activities, guided discussions among parents, and answered parents' questions. Youths in the prevention condition were taught to develop a future orientation, to plan to meet goals, to identify people in their communities who could help them attain goals, to cope with barriers and racial discrimination, and to formulate self-care strategies. Videotapes were also used in the youth sessions, along with structured activities, role-playing, and group discussions.

African American group leaders with good interpersonal and group facilitation skills were selected to deliver AIM. These leaders took part in three training sessions over a 4-day period. Before conducting any intervention sessions, group leaders demonstrated their mastery of the prevention curriculum and the prescribed method of presenting it. Eight teams, each of which included three group leaders, conducted a total of 36 prevention groups. Group size ranged from 4 to 13 families, with an average of 8 families and 16

individuals attending each session. Of the pretested families, 67% took part in four or more prevention sessions, with 35% attending all six sessions, 8.6% attending three sessions, 5.2% attending two sessions, and 4.0% attending one session. Families took part in an average of four sessions. To decrease barriers to attendance, transportation and child care were provided if families requested them.

Each team of group leaders was videotaped while conducting program sessions. For each group, two parent and two youth sessions were selected randomly and scored for adherence to and coverage of the prevention curriculum. Coverage of the curriculum components exceeded 80% for parent and youth sessions. Reliability checks were conducted on 20% of the fidelity assessments; the intraclass correlation between judges was .76.

Measures

Demographics

Monthly income, maternal age, and number of children in the household were recorded. Maternal education was measured on a scale ranging from 1 = *grades 1 to 4* to 10 = *doctorate or professional degree*. Poverty status was based on per capita income and federal guidelines.

Life stress

The life stress construct was composed of negative life events and perceived racial discrimination. On a 12-item checklist of negative stressful events (Ge, Conger, Lorenz, & Simons, 1994), youths indicated whether each event had occurred during the previous 6 months. The items concerned events that the youths experienced directly; for example, having a serious accident, ending a romantic relationship, or getting in trouble with the police. Because this instrument is an index rather than a psychometric scale, internal consistency could not be computed. Perceived racial discrimination was assessed with the Racist Hassles Questionnaire, an eight-item measure that our research group developed in cooperation with focus groups of rural African Americans. The items, based on experiences that the focus groups identified as common in their communities, include “How often have you been ignored, overlooked, or not given service because of your race?” “How often have you been watched or followed while in public because of your race?” and “How often have you heard or been told an offensive racist joke or comment?” Youths indicated the frequency of discriminatory experiences during the previous 6 months on a scale ranging from 1 = *never* to 4 = *several times*. Coefficient alpha for the scale exceeded .85 across waves. The negative stressful events measure and perceived discrimination measure were standardized and summed to form the life-stress construct.

Risk behaviors

Youths reported their substance use with two items adapted from the Monitoring the Future survey (Johnston, O’Malley, Bachman, & Schulenberg, 2007). Youths indicated the number of times during the previous month that they had used marijuana and drunk three or more alcoholic beverages (beer, wine, wine coolers, whiskey, gin, or other liquor) at one time. As part of a series of items on sexual risk behavior, youths responded to the item, “How many times in the past month were you drunk or high when you had sex?” Past month counts on each of the three items were summed to form the risk behavior outcome measure.

RESULTS

Plan of Analysis

We assessed attrition and group equivalence on demographic and study variables to establish the representativeness of the sample and the appropriateness of randomization. Then we used hierarchical linear models to examine the unique contributions of life stress, participation in AIM, and their interaction to growth in risk behavior. We estimated two-level models to model growth in youths' risk behavior across time. Following Bryk and Raudenbush's (1992) notation, we regressed target age on risk behavior as the Level 1 model:

$$\text{Risk}_{ti} = \pi_{0i} + \pi_{1i} \times \text{Age}_{ti} + e_{ti},$$

where i indexes targets and t indexes different time points of the study nested in targets; π_{0i} and π_{1i} are the intercept and slope, respectively, of growth in risk behavior; and e_{ti} is the Level 1 error. The Level 2 model treated π_{0i} and π_{1i} as random variables. In the unconditional model, the Level 2 parameters were as follows:

$$\begin{aligned}\pi_{0i} &= \gamma_{00} + U_0, \text{ and} \\ \pi_{1i} &= \gamma_{10} + U_1,\end{aligned}$$

where γ_{00} is the grand mean of risk behavior across targets, and γ_{10} is the slope of age regressed on risk behavior, indicating the rate of change in risk behavior across time. U_0 and U_1 are the errors of π_{0i} and π_{1i} , respectively. After establishing the unconditional model, we ran conditional models by regressing predictors (e.g., life stress, group assignment) on the slope of risk behavior (i.e., π_{1i}). We estimated two models to test the research hypotheses. First, we sought to determine whether life stress would predict the slope of risk behavior. In a second model, we added random assignment to AIM and the interaction between life stress and random assignment to AIM. Responses to the risk behavior indicators followed a Poisson distribution; this is true of most count variables in which respondents are asked how many times they engaged in sensitive or illegal behaviors. Accordingly, we executed the analyses using a program for multilevel modeling with Poisson distributed outcomes as implemented in STATA 10.0.

Sample Equivalence at Baseline and Attrition

Table 1 presents the means for sociodemographic characteristics and study variables for the AIM and control groups, as well as the t/χ^2 values for the group comparisons. The analyses revealed no differences in any of the sociodemographic characteristics or study variables at pretest, thus confirming pretest equivalence and effective randomization. In a series of attrition analyses, we compared participants who provided data at posttest and long-term follow-up with those who did not on sociodemographic characteristics and study variables (life stress, experimental conditional, and risk behavior). Attrition affected only experimental condition: Families assigned to AIM were more like to attrite than were those assigned to the control condition at pretest ($\chi^2 = 8.24, p = .003$) and follow-up ($\chi^2 = 4.59, p = .024$). To examine further the potential influence of attrition bias, we compared the AIM participants who provided data at posttest and long-term follow-up with those who did not on sociodemographic characteristics at baseline; no significant differences emerged.

Tests of the Study Hypotheses

We began by testing the unconditional model for the risk behavior growth construct by regressing youth age on risk behavior. Age in years was allowed to vary across targets at the pretest ($M = 17.73$), posttest ($M = 18.31$), and long-term follow-up ($M = 19.16$) assessments. The model fit index from STATA for this and subsequent analyses is a Wald χ^2 . This statistic is used to evaluate the overall fit of the data to the model. A significant Wald χ^2 indicates a good fit; for the unconditional model, $\chi^2 = 4.51, p < .034$. The mean risk behavior slope was .043 ($p < .05$), and the variances around the intercept and slopes were significant, .81 and .05, respectively (for both, $p < .05$).

Table 2 presents the results of the analyses that tested the study hypotheses. Model 1 demonstrated a good fit to the data. The results were consistent with the first hypothesis. Life stress was associated with a significantly greater rate of increase in risk behavior across time ($p < .05$). Model 2 added random assignment to AIM; this model also fit the data well. Participation in AIM, independent of the influence of life stress, significantly decreased the slope of risk behavior ($p < .05$). Model 3 tested the hypothesis that participation in AIM would moderate or buffer the contribution of life stress to the slope of risk behavior. The model demonstrated a good fit to the data. Participation in AIM and life stress continued to contribute significantly to the slope of risk behavior. As predicted, the interaction between participation in AIM and life stress was also significant ($p < .05$). The association between life stress and the slope of risk behavior was less for youths who took part in AIM than for those in the control group ($p < .05$). To illustrate the buffering finding, Figure 1 presents the risk behavior slopes for each Life stress $\times$ Prevention condition combination plotted at plus or minus two standard deviations from the mean of life stress.

Conclusion

Using a longitudinal, randomized prevention design, we tested a model of the links from life stress, AIM, and their interaction to increases in risk behaviors among African American youths across late adolescence and emerging adulthood. The results indicated that (a) life stress forecast increases in risk behavior; (b) participation in AIM forecast lower rates of increase in risk behaviors compared with assignment to the control condition; and (c) the impact of life stress on risk behavior was reduced when youths participated in AIM. Taken together, the results support the stress-buffering hypothesis that the study was designed to test.

The efficacy of AIM in buffering life stress can be attributed to several factors, the most important of which is the research base that guided its development. The AIM program was envisioned and designed using an approach that is consistent with recommendations presented in reports issued by the Institute of Medicine (1994) and the National Institute of Mental Health (1998). Both agencies emphasized the importance of basing an intervention's theoretical model on research conducted with populations similar to those who will receive the intervention. Our longitudinal, epidemiological research programs enabled us to identify malleable protective processes for adolescents and emerging adults, such as the provision of developmentally appropriate emotional and instrumental support, vocational coaching and advocacy, and racial socialization that includes strategies for dealing with discrimination. Although longitudinal, developmental analyses informed the selection of malleable intervention targets, these studies could not determine whether the protective processes unambiguously affect changes in risk behaviors over time. Translation of these protective processes into AIM intervention targets, which we then manipulated experimentally, bolsters their importance in deterring risk behavior. The targeting of these particular protective processes was well timed from a developmental perspective because they equip

emerging adults to deal with the challenges associated with accessing occupational and educational opportunities in resource-poor rural contexts.

The primary purpose of this study was to test the buffering hypothesis that random assignment to the AIM prevention group versus a control group would interact with life stress to predict increases in risk behaviors. Specifically, we predicted that adolescents experiencing high levels of life stress who were assigned randomly to the control condition would evince greater increases in risk behavior than would similar adolescents assigned randomly to AIM. This hypothesis was based on resilience (Luthar, 2006) and stress-buffering (Cohen & Wills, 1985) theories, as well as on Rutter's (1985) proposal that protective processes have their greatest effects on youths at highest risk. Rutter posited that protective processes augment at-risk youths' inhibitory controls and enhance competencies that lead to positive developmental outcomes. Our results were consistent with this thesis; among youths experiencing high levels of life stress, those assigned randomly to AIM displayed lower rates of risk behaviors than did similar youths assigned randomly to the control condition. Thus, consistent with theory, the provision of family support at a developmentally important juncture inhibited risk behaviors that affect health and well-being.

The buffering effects of AIM are pertinent to research on resilience, which indicates that some children and adolescents who experience many discrete and chronic stressors do not succumb to the stressors' negative effects. Our findings are consistent with this literature and extend it by documenting that participation in a family-based prevention program enhances emerging adults' ability to cope with life stresses that are associated with the transition to adulthood. The next step in this research process is to determine how AIM enhanced protective processes. We expect to find multiple loci for moderation, analogous to findings on social support in the resilience literature. This research has shown that buffering effects occur through the alteration of several types of pathways, both reducing the effects of risk factors and increasing the effects of protective factors (Luthar, 2006). Thus, we expect the protective moderation effects that AIM sponsored to involve more than one locus and include effects on factors both distal and proximal to increases in risk behavior. We hypothesize that the provision of supportive parenting and coaching protect emerging adults by heightening their ability to down-regulate negative emotions, up-regulate positive emotions, set goals, and persist in plans to attain them. Enhancing these self-regulatory skills appears to be pivotal in blocking the effects of life stress, which are often manifested through increases in negative emotions such as anger and depression, along with reductions in self-efficacy (Aseltine, Gore, & Gordon, 2000; Turner, Russell, Glover, & Hutto, 2007). Increases in negative emotions often act as proximal factors for increases in risk behaviors such as marijuana use, excessive drinking, and sexual intercourse while using substances (Allison, Adlaf, & Mates, 1997; Folkman, Chesney, Pollack, & Phillips, 1992; Martin, Tuch, & Roman, 2003). The interface between the provision of developmentally appropriate parental support and coaching and the development of behavioral and emotional self-regulation before, during, and after late adolescence clearly deserves more attention from family and prevention scientists.

The strengths of the research design notwithstanding, some limitations to the study and caveats must be noted. First, future research should determine whether AIM participation and its conventionalizing effects increased support, assistance, involvement, or communication from prosocial friends, extended family members, or other significant adults in the community. Second, the present study included only emerging adults from relatively small communities in the rural South. African American emerging adults grow up in diverse communities that vary in population density and economic status; therefore, future research should examine the study hypotheses in urban and suburban settings. These cautions

notwithstanding, the results indicate that increases in risk behaviors are a function of life stress for rural African American emerging adults and that the fostering of family processes that increase resilience can ameliorate this risk.

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Figure 1. Slope of risk behavior index plotted at plus and minus two standard deviations from the mean for life stress, by assignment to the AIM preventive intervention program or to the control condition.

Table 1

Pretest Equivalence of Experimental Conditions on Sociodemographic Characteristics and Study Variables

Variables	Experimental Condition (N = 347)					
	Prevention (n = 174)			Control (n = 173)		
	M	SD	%	M	SD	%
Sociodemographic characteristics						<i>t/χ²</i>
Monthly income (\$)	3323.7	4391.7		3097.8	3975.5	-0.47
Families in poverty			58.3			41.7
Maternal education ^a	4.7	1.3		4.7	1.5	0.30
Maternal age (years)	43.5	8.3		44.5	8.7	1.12
Children in household	2.4	1.2		2.4	2.6	0.14
Life stress score	6.7	4.6		6.1	4.4	-1.05
Risk behaviors score	2.1	0.5		2.2	0.9	1.34

^aMaternal education: 1 = grades 1 to 4, 2 = grades 5 to 8, 3 = grades 9 to 12 with no diploma, 4 = high school graduate or GED, 5 = some college or trade school with no degree, 6 = trade school diploma/certificate or associate of arts degree, 7 = bachelor's degree, 8 = some graduate training, 9 = master's degree, and 10 = doctorate or professional degree.

Table 2

AIM, Life Stress, and the Interaction Between AIM and Life Stress Predicting the Slope of Risk Behaviors Using a Poisson Distribution

Predictors of the Slope of Risk Behaviors	Model 1	Model 2	Model 3
Life stress	-.0031 *	.0033 *	.0053 *
AIM		-.0055 *	-.0051 *
Life stress $\times$ AIM			-.0040 *
Model fit, Wald χ^2 (<i>p</i>)	24.00 (.000)	30.4 (.000)	41.32 (.000)

*
 $p < .05$.