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Promoting “Healthy Futures” to Reduce Risk Behaviors in Urban Youth: A Randomized Controlled Trial

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Abstract

There is increasing evidence of the interconnection between educational and health outcomes. Unfortunately wide disparities exist by both socioeconomic status and race/ethnicity in educational and vocational success. This study sought to promote urban youths' career readiness as a way to reduce involvement in risk behaviors. Two hundred primarily African-American youth (ages 14-21) were recruited from a pediatric primary care clinic. Youth randomized to the intervention received three motivational interviewing sessions focused around expectations and planning for the future. Baseline and 6-month follow-up assessments included measures of career readiness and risk behavior involvement (i.e., physical fighting, alcohol and marijuana use). At 6-months, youth randomized to the intervention condition showed increased confidence in their ability to perform the behaviors needed to reach their college/career goals. Additionally, youth randomized to the intervention arm showed decreased fighting behavior (adjusted rate ratio: .27) and marijuana use (adjusted rate ratio: .61). Assisting urban youth in thinking and planning about their future holds promise as a way to reduce their involvement in risk behaviors. This study also demonstrated that motivational interviewing may hold promise for promoting positive behaviors (i.e., career readiness).

Keywords

adolescent; positive youth development; health and educational disparities

Studies have shown that adolescent involvement in risk behaviors has potential life-altering consequences, including addiction, unintended pregnancies and births, and incarceration, events that may inhibit a successful transition to adulthood (Gillmore, Gilchrist, Lee, & Oxford, 2006; Upchurch, 1993). Decades of research have demonstrated that youth risky

behaviors are correlated and tend to co-occur, thereby possibly suggesting a common etiology to problem behavior involvement (Hair, Park, Ling, & Moore, 2009; Jessor & Jessor, 1977; Sullivan, Childs, & O'Connell, 2010). This paper will present the results of a randomized controlled trial to reduce urban youth's involvement in multiple risk behaviors by targeting a common promotive factor, career readiness. Higher educational attainment and greater occupational status have been consistently linked to improved health outcomes (Evans, Wolfe, & Adler, 2012). The Healthy Futures intervention provided youth in a pediatric primary care clinic access to three motivational interviewing sessions focused around vocational expectations and planning. Through discussions about future career goals and skill-building activities the intervention was designed to identify barriers to accomplishing career goals (including risk behavior involvement) as well as facilitate planning for the future. These activities were hypothesized to result in reduced involvement in risk behaviors at 6-months.

Disparities in Career Readiness: Implications for Health and Educational Outcomes

One of the main developmental milestones of adolescence and early adulthood is identity formation, which includes the development of plans for the future, including vocational and career plans (Erickson, 1968; Nurmi, 1991). In order to create these plans, an individual must accomplish numerous decisional tasks which range from awareness of the need to make a decision, exploration of various career options, and progress and commitment to a choice (Germeijs, Verschueren, & Soenens, 2006). The accomplishment of these tasks requires specific knowledge, skills, and behaviors as well as noncognitive factors such as motivation, engagement, and self-efficacy (Lombardi, Conley, Seburn, & Downs, 2013). Unfortunately, some literature suggests that lower socioeconomic and racial/ethnic minorities have lower levels of these career readiness attributes, (Borowsky, Ireland, & Resnick, 2009; Guthrie, Butler, & Ward, 2009; Kao & Tienda, 1998). The lack of career readiness may contribute to the educational aspiration-expectation gap that exists for minority students whereby aspirations for college attendance are high while expectations (and actual attendance) are not (Kirk et al., 2012).

Studies attempting to understand the connection between career readiness and health are limited. However, research linking the broader construct of future orientation, defined as one's aspirations, expectations, and plans for the future (see Lindstrom Johnson, Blum, & Cheng, 2014 for a review of its conceptualization), has associated greater future thought with improved health outcomes such as reduced drug use, sexual risk taking behaviors, and involvement in violence (Borowsky et al., 2009; Seginer, 2009; Steinberg et al., 2009). Future thinking has been shown to promote resiliency and protect against alcohol and drug use for urban low-income youth (Ostaszewski & Zimmerman, 2006). Thus interventions that seek to promote planning for the future may represent a promising strategy to improve both health and educational outcomes. These strategies may be particularly important for urban youth who may grow up in environments less supportive of hope as evidenced by lower graduation rates, higher unemployment, and exposure to violence.

Career Readiness Interventions

A wide variety of career readiness interventions exist in U.S. secondary schools and after-school programs; unfortunately few have been rigorously evaluated (Catalano, Bergund, Ryan, Lonczak, & Hawkins, 2004; Hooker & Brand, 2010). Interventions have attempted to address minority and low socioeconomic students' gaps in knowledge and experience by placing students in supervised work positions, exposing students to college settings or various careers, and providing information and building skills (e.g., magnet schools) (Dykeman et al., 2001). These interventions have produced mixed results. This may be due to the importance of non-cognitive factors such as motivation, engagement, and self-efficacy. Some research suggests that these may be more important in promoting outcomes as they may provide the impetus to engage in the process of creating an occupational future (Gushue, Scanlan, Pantzer, & Clarke, 2006; Ladany, Melincoff, Constantine, & Love, 1997).

The primary-care clinic represents an underutilized location for career readiness interventions. Part of recommended pediatric practice is the provision of clinician guidance around academic competence and the skills and behaviors necessary to transition to adulthood (American Academy of Pediatrics, 2008; American Medical Association, 1997). Placing a career planning intervention in a primary care clinic may have additional benefits as it may facilitate access to youth who due to negative educational experiences are disengaged from their school environment or youth who are at an especially high risk for negative future expectations (Suh & Suh, 2007). Additionally, the primary care clinic facilitates access to services that may assist youth in overcoming health related obstacles to their future (e.g., health conditions, addiction).

Current Study

The Healthy Futures intervention takes a positive youth development (PYD) perspective, which is based on the belief that successful adult development is not the absence of involvement in risk behaviors, but the presence of developmentally appropriate skills (Lerner & Benson, 2003). There is some evidence that generally a PYD approach and more specifically a focus on the future can effectively reduce risky sexual behaviors, substance use, and involvement in violence (Gloppen, David-Ferndon, & Bates, 2010; Guerra & Bradshaw, 2008). One research-based intervention, Possible Selves (Osyerman, Bybee, & Terry, 2006), has improved youth's planning skills by having participants create actionable goals and identify obstacles to reaching their hoped for future self. A school-based randomized controlled trial indicated that Possible Selves is associated with improvements in school attendance, academic performance, and depressive symptoms, but did not explore other health outcomes.

The Healthy Futures intervention seeks to understand additional health implications of a career readiness intervention taking advantage of the strengths of locating such an intervention in a pediatric primary care clinic. Building on the Social Cognitive Theory (Bandura, 1977), the intervention focuses on identifying and overcoming environmental and behavioral barriers to future plans as well as improving self-efficacy through skill-building

activities. These activities are facilitated through motivational interviewing (MI), an evidence-based counseling approach (Britt & Hudson, S.M., Blampied, M.L., 2004; Feldstein Ewing, Wray, Mead, & Adams, 2012; Naar-King, 2011) that recognizes that individuals are at different stages of readiness to change and attempts to motivate towards change by exploring ambivalence. This paper examined 6-month findings of a randomized controlled trial on both career readiness outcomes and risk behavior involvement. Specifically, influence of the intervention on risk behaviors (i.e., violence involvement and drug and alcohol use) that have been shown to negatively impact a successful transition to adulthood was investigated (see Gillmore, Gilchrist, Lee, & Oxford, 2006; Upchurch, 1993).

Methods

Participants

Participants were 200 patients in an urban pediatric primary care clinic in the United States recruited from 2008-2011. The clinic serves a primarily African-American population of children and adolescents between the ages of 0-24 with more than 90% on medical assistance. Participants were eligible for inclusion if they were between the ages of 14 and 21, had attended or were currently attending high school in the local public school system, and were not currently enrolled in a self-contained classroom (indicating the receipt of intense special education services). As recruitment occurred in a primary care clinic the patient population was expected to reflect the general population.

Procedures

Potentially eligible participants were identified from the clinic roster and were contacted by mail to introduce the study; a follow-up by phone call was utilized to confirm eligibility. If eligible, participants provided written consent if over the age of 18 and parental consent and participant assent if under the age of 18. Procedures for this study were approved by the Johns Hopkins School of Medicine Institutional Review Board. After obtaining consent/assent, participants completed a baseline and a 6-month follow-up interview that asked about both risk behavior involvement and career readiness. The interview included face-to-face questions and, in order to improve the validity of data collection, participants also utilized an audio-assisted device for a portion of the interview. Interviews took approximately 45 minutes to complete and participants received \$20 and \$30 respectively as remuneration for their time. All assessments took place in the clinic and were proctored by a trained research assistant blind to intervention status.

After completion of the baseline interview, youth were randomized into intervention or comparison arms using numbered sealed envelopes. Based on educational level and future aspirations youth were divided into three groups: career planning (i.e., freshman or sophomore youth; n=72), job (i.e., junior or senior students who did not desire to go to college; out of school youth; n=43), or college (i.e., junior or senior students who desired to go to college; n=55). Using a random number generator, youth within groups were then randomly assigned to condition. This randomization scheme allowed for testing of intervention effects on youth at different developmental stages and differentiation of activities offered to assist with varying aspirational goals.

All participants were invited to participate in bi-annual job and college fairs held at the clinic and received a monthly newsletter containing information about local opportunities to build their resume. Participants in the intervention arm also received 3 in-person MI sessions (approximately 1 every other month), which took place at the clinic with follow-up contact via phone or email after each session (i.e., in the in-between month). The MI sessions were facilitated by master's level educators trained in MI. Fidelity to the principles of MI was assessed through supervisor oversight and case-management meetings. Intervention activities were not part of a clinic visit, although clinicians were informed if their patient was taking part in the Healthy Futures intervention. Activities in each session provided opportunities for the youth to discuss their goals for the future, identify barriers to accomplishing these goals (including involvement in risk behaviors), practice the skills necessary to accomplish these goals (e.g., research careers, explore jobs and educational programs, develop their resume, complete applications), and link them to community resources. Explicit efforts were made to create cognitive dissonance around involvement with violence, substance use, and unsafe sexual practices and stated future plans, as the research team identified these behaviors as both prevalent and possibly negatively influencing vocational plans. For example, the MI coach might ask youth about the barriers to accomplishing their future plans. This conversation could be facilitated by a statement such as "I sometimes see in the youth that I work with that having a child before they are ready, their involvement with the law, and their drug use preventions them from accomplishing their goals. Why might some of these be/not be a problem for you?".

Measures

Demographic information was collected from each participant at baseline including information about their age, gender, race, living situation, parenting status, educational status, current grades, and mother's education level. Additionally, youth were asked a series of questions to both provide information about their current readiness to engage in behaviors to support their educational/vocational plans. Questions varied by group (i.e., career planning, job, or college); questions asked youth to indicate on a scale of 1 to 10 both the importance and their confidence in engaging in certain behaviors to support their educational/vocational plans (Center for Evidence-Based Practices, 2010). Sum scores of importance were created by adding items together to create an index. Specific behaviors assessed were as follows: career planning youth were asked about visiting the guidance counselor, saving money for after college, and preparing for the PSAT; job youth were asked about researching positions, applying for jobs, interviewing for positions, and organizing their resume; and college youth were asked about researching colleges, taking the SAT/ACT, applying to college, researching financial aid, and applying for the FAFSA.

Involvement in risk behaviors was assessed using questions from the United States Youth Risk Behavior Surveillance System (Centers for Disease Control and Prevention, 2011); a biennial nationally representative survey measuring the prevalence of youth involvement in wide variety of risk behaviors. This study used questions that asked about youth involvement in violence (e.g., fighting), and substance use (e.g., alcohol and marijuana). Questions assessed number of times the youth reported involvement in the risk behaviors in the past 30 days.

Career readiness outcomes were assessed using a variety of different measures. The Career Behaviors and Knowledge scale (Casey Family Foundation, 2013) consisted of 18 questions assessing the presence of skills needed for the workplace as well as information about how to get resources to support future aspirations ($\alpha=.88$). Participants responded by answering whether a statement such as “I know where to find information about job training” is not like them, somewhat like them, or very much like them. The My Vocational Situation Survey (Holland, Daiger, & Power, 1980) is a commonly used measure to assess career readiness and it includes 17 true or false questions that measure a youth’s understanding of his or her strengths, weaknesses, and goals. Item examples include “I do not know what my strengths and weaknesses are” and “My estimates of my abilities and talents vary a lot from year to year” (Kruder-Richardson= .78). Youth were also asked about their needs and difficulties in pursuing a future career. A series of eight questions assessed informational difficulties (e.g., I need information about how to get the necessary training for my chosen career) and more structural difficulties (e.g., I don’t have the money to follow the career I want most). Answer choices were summed with a higher score indicating more needs.

Analysis

Analyses were conducted in SPSS v. 21 (SPSS Inc., 2009). Descriptive analyses were performed to assess demographic data and outcome measures at the baseline and 6-month follow-up assessments. Analyses were performed for outcomes at the 6-month follow-up assessment while controlling for participant’s age, gender, and baseline outcome finding. The analyses were conducted according to treatment group assignment, regardless of participants’ adherence to the assigned intervention sessions. Because risk behavior involvement was zero-inflated, negative binomial regression was applied to model these variables (Byers, Allore, Gill, & Peduzzi, 2003). Given that the outcomes are event counts during the past 30 days, the regression coefficients from the negative binomial regression analyses can be interpreted as the logarithm of the ratios of event rates for the intervention and comparison groups. Standard linear regression was used to model career readiness outcomes.

Results

Recruitment and Participation

Figure 1 presents the study recruitment yield and number of follow-up assessments at 6-months. Of the 419 youth assessed for eligibility, 30% ($n=127$) were ineligible. The remainder of non-enrolled youth were not interested ($n=88$) or refused consent ($n=4$). Therefore our participation rate was 68.5% (i.e., successfully randomized/possibly randomized (which includes not interested and refusal of consent)). No significant differences by gender or age were found between enrolled and not-enrolled youth. The 200 youth who completed baseline interviews were randomly assigned to the intervention ($n=101$) or comparison groups ($n=99$). At the 6-month follow-up, 87% of youth were interviewed, with equal amounts of attrition in the intervention and comparison groups ($n=13$).

The mean age of youth in the study was 16.59 (SD 2.08) and 16.77 (SD 1.98) for the intervention and comparison groups and 38.4% and 42.6% were male respectively. There were no significant differences between youth in the intervention and comparison groups at baseline with respect to demographic characteristics or dichotomous involvement in risk behaviors (see Table 1 for more detailed comparisons and significance tests). Youth who were lost to follow-up were more likely to be older and not in high school. There were no differences in baseline risk behavior involvement between those lost to follow-up and those that remained in the study.

Baseline Characteristics

Table 2 shows that intervention and comparison groups were comparable at baseline with respect to frequency of engagement in risk behaviors (e.g., number of times engaged in specific risk behavior in the past 30 days). Significant differences between intervention and comparison groups were identified with respect to career readiness; the intervention group had stronger baseline career readiness as measured by the Career Behaviors and Knowledge, My Vocational Situation, and Motivations/Aspirations scales. Baseline differences were controlled for in assessments of intervention effects.

Intervention Effects

Of the 101 youth randomized to the intervention condition, 72 received the intervention, with 60% of these youth receiving the full intervention (i.e., 3 MI sessions). After 6-months, youth randomized to the intervention condition in the career planning group rated the importance of the selected educational/vocational behaviors as greater than control youth (t-test -3.79 ; $p < .00$; see Table 3). These youth also gained confidence in their ability to perform these behaviors (t-test -2.73 ; $p = .01$) as did youth in the job group (t-test -2.10 ; $p = .05$). No significant improvements were found for youth randomized to the college condition, though scores for the intervention condition were higher than the control condition.

As shown in Table 4, after adjusting for age, gender, and baseline behavior, there were significant intervention effects for a reduction in fighting behavior (adjusted rate ratio: .27; 95% CI: .13-.56) and marijuana use (adjusted rate ratio: .61; 95% CI .39-.95). A rate ratio of .27 for 30-day reports of fighting at the follow-up assessment translated into a 63% reduction in the mean 30-day report of fights for subjects in the intervention group, compared with the control group. Regarding marijuana use, the reduction for subjects in the intervention group was 39%. While all career readiness outcomes were in the correct direction, none reached the level of statistical significance. Analyzing the results by sub-group showed that the physical fighting findings were driven by a significant decrease in the career planning sub-group (adjusted rate ratio: .33; 95% CI .16-.66). The decrease in marijuana usage was not clearly explainable due to a single group difference. The career planning and job sub-groups showed significant improvements in Career Behaviors and Knowledge ($b = .58$; 95% CI .37-.98 and $b = .72$, 95% CI .42-1.03 respectively).

Discussion

The Healthy Futures intervention shows promise in its ability to reduce involvement in risk behaviors (e.g., fighting and marijuana use) that may negatively impact urban adolescents' and young adults ability to achieve their future goals. Additionally, this intervention was novel in its use of a primary care clinic. Results suggest that the clinic setting may be an opportune place in which to engage youth in discussions about their future, particularly in the context of conversations about risk-behavior involvement. These findings support research that has demonstrated an association between youth's future orientation and their involvement in risk behaviors and highlights the value of interventions that seek to promote career readiness (Borowsky et al., 2009; Gushue et al., 2006; Seginer, 2009; Steinberg, 2008).

Research has suggested that a focus on the present, rather than the future, makes youth more likely to make choices that have a negative impact on their long-term health and wellbeing (Steinberg, 2008). In contrast modifications to the value of future goals or the expectations for achieving those goals (i.e., expectancy-value theory) can support behavior change (Wigfield & Eccles, 2000). Brain reorganization during adolescence, including the maturation of the cognitive control systems and their integration with the limbic system, provides adolescents' with a greater ability to more accurately make these assessments (Casey, Jones, & Hare, 2008; Steinberg, 2008). Therefore, future plans may be a particularly salient topic during adolescence upon which to intervene to reduce involvement in risk behavior and improve health trajectories.

MI appears to be a developmentally appropriate tool through which to discuss future plans, in particular behavioral barriers to the future, with its focus on building relationships, working collaboratively, and supporting autonomy (Naar-King, 2011). Focusing on future goals has been cited as a recommended strategy for developing discrepancy and building motivation to change in adolescent MI interventions (D'Amico et al., 2011; Walker, 2011). While MI has been traditionally focused on a single problem behavior (Naar-King, 2011), this study suggests that framing an intervention around future goals may allow for discussion and resolution of multiple problem outcomes. To the authors' knowledge this is the first study to use MI to focus on career planning; a recent study successfully used MI to improve academic outcomes including class participation and academic behaviors (Strait, Smith, McQuillin, Terry, Swam, & Malone, 2012)

A recent meta-analysis identified positive and lasting effects of MI focused on adolescent substance use outcomes, such as tobacco, alcohol, marijuana, and other illicit drug use (Jenson et al., 2011). Our intervention builds on this work by focusing on career readiness and finding substance use effects for marijuana usage and reduced physical fighting. One possible explanation is that future success may be directly associable with these behaviors. For example, involvement in physical fighting at school can lead to suspension and marijuana use is associated with decreased attention ability and motivation (Lisdahl & Price, 2012; Thoma et al., 2011) and is discoverable in drug testing increasingly used in job hiring. Youth may have already experienced the negative consequences of these behaviors and

therefore these may have appeared to be more important to change than their involvement in drinking.

Interestingly, measures of career readiness while improved, did not show statistically significant improvements between the intervention and comparison groups. This may suggest a need for broader measures of career readiness than were included in this study, perhaps ones that explicitly focused on the non-cognitive factors such as motivation, engagement, and self-efficacy which our intervention more directly addressed (Lombardi et al., 2013). This statement is supported by the fact that the intervention group in our study did show improvements in the more programmatic measures assessing the importance of and confidence in behaviors to support educational/vocational outcomes. The measures of career readiness in this study represent more terminal outcomes (e.g., vocational identity), which may take longer than the 6-month follow-up time frame to modify, particularly for youth living in low-resourced environments with many barriers to success. As is indicated by the aspiration-expectation gap (Kirk et al., 2012), aspirations may appear to be “false futures”. The lack of career readiness outcomes may also be a result of the wide age and developmental range that were included in our intervention. While no clear answers appeared through sub-group analyses, it may be that career readiness is more modifiable for younger youth, for whom various pathways to career advancement (i.e., school success and completion) are still available.

Limitations

This study is not without its limitations. The sample for this study was chosen from an urban, low-income population seeking health care from a pediatric primary care clinic, which reduces the ability to generalize findings. Participants in our sample may have had more stable home lives as evidenced by the existence of insurance or attendance at well-child visits. Participants also may have been more likely to have complex medical conditions requiring more contact with a primary care clinician. Additionally, this paper only presents 6-month results; a longer length of follow-up is needed to explore whether reductions in health risk behaviors are sustained as well as to explore whether career readiness changes with the passage of more time. Additional studies should include measures of sexual risk-taking, which were not available in our dataset, but could influence the successful transition to adulthood (i.e., STIs and pregnancy). We also did not include a validated assessment of motivational interviewing fidelity, which would have enhanced our ability to causally link the Healthy Futures intervention with improvements in career readiness and reductions in risk behaviors. Finally, our comparison group did receive career advice and opportunity to attend career workshops which would decrease our ability to detect differences between the groups. This further accentuates our positive findings.

Implications

Career readiness represents an understudied, but developmentally appropriate intervention point upon which to intervene to reduce youth involvement in risk behavior. Most interventions designed to change unhealthy adolescent behaviors are predicated on the idea that a youth believes that they have a future. This study takes this a step further to investigate whether a youth's future aspirations and plans for the future can be strengthened

and in doing so reduce their involvement in risk behaviors. The interconnection between health and educational outcomes has long been recognized. A dual focus on preventing risk behaviors while simultaneously promoting developmental assets is needed to ensure that all adolescents successfully transition to adulthood.

The relatively recent concern and movement to support career readiness interventions further highlights the value of this approach. Beginning in the early 1990's with the funding of the School-to Work Opportunities Act (STWOA), the U.S. Congress has provided support for work-based learning, vocational integration into academic curriculum (e.g., Science, Technology Engineering and Mathematics (STEM) curriculum), and career planning resources (Hooley, Marriott, & Sampson, 2011). With the emergence of the Common Core standards (National Governor's Association,), there has been a renewed focus on ensuring that students obtain the skills that they need to be college and career ready. This attention emphasizes the importance of both understanding what it takes to be career ready as well as the value of these interventions in supporting educational, vocational, as well as health outcomes. This broad breadth of outcomes can provide further justification for the funding of these interventions as cost-savings can be accrued through numerous pathways. While more work is needed to test the effectiveness of career readiness interventions, they have the potential to address root causes of educational and health outcomes as well as disparities.

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Figure 1. Healthy Futures Flow Diagram

Table 1**Demographics and Risk Behavior Involvement at Baseline by Intervention Group**

		Intervention (n=101)	Comparison (n=99)	Test Statistic^a (P-Value)
Age		16.59 (2.08)	16.77 (1.98)	.60 (.55)
Gender				
	Male	42 (42.6%)	38 (38.4%)	.21 (.19)
Race				
	Black	98 (97.0%)	94 (94.9%)	.56 (.50)
	Other	3 (3.0%)	5 (5.1%)	
Living with				
	Both Parents	13 (12.9%)	18 (18.2%)	1.90 (.17)
	Mother Only	63 (62.4%)	63 (63.6%)	
	Father Only	5 (5.0%)	5 (5.1%)	
	Other	20 (19.8%)	13 (13.1%)	
Is a Parent				
	Yes	10 (9.9%)	7 (7.1%)	.52 (.61)
Educational Status				
	High School Student	67 (66.3%)	68 (68.7%)	.02 (.88)
	High School Grad/GED	29 (28.7%)	25 (25.3%)	
	Dropout, no GED	5 (5.0%)	6 (6.1%)	
Grades				
	Mostly A's & B's	62 (61.4%)	56 (57.1%)	.37 (.57)
	Mostly C's & D's	39 (38.6%)	42 (42.9%)	
Maternal Education ^b				
	Some college	37 (36.6%)	36 (36.4%)	.58 (.45)
	High school diploma/GED	42 (41.6%)	34 (34.3%)	
	Dropout, no GED	15 (14.9%)	25 (25.3%)	
In a Physical Fight ^c		18 (17.8%)	13 (13.1%)	.84 (.44)
Drank Alcohol ^{c, d}		24 (25.0%)	18 (18.8%)	1.10 (.38)
Used Marijuana ^c		17 (16.8%)	20 (20.2%)	.38 (.59)

Note:

^a Statistical differences in age were calculated using an independent samples t-test; differences in gender, race, parental status, grades and risk behavior involvement were calculated using a chi-squared test; differences in living status, educational status, and maternal education were calculated using an ANOVA.

^b Four comparison youth and 7 intervention youth did not know their mother's educational status.

^c All health risk behaviors capture behaviors reported in the past 30 days.

^d This only includes youth who are under the age of 21.

Table 2

Outcome Measures at Baseline by Intervention Status

	Intervention (n=101)	Comparison (n=99)	T-test (P-value)
HEALTH BEHAVIORS			
# of Times in the Past 30 Days			
In a Physical Fight	.45 (1.79)	.34 (1.52)	-.43 (.67)
Drank Alcohol ^a	.72 (1.96)	.68 (2.14)	-.16 (.87)
Used Marijuana	1.95 (6.49)	2.79 (8.55)	.78 (.44)
FUTURE ORIENTATION OUTCOMES			
Career Behaviors and Knowledge	43.61 (5.73)	41.91 (6.27)	-2.00 (.05)
My Vocational Situation	10.78 (3.71)	9.49 (3.08)	-2.69 (.01)
Barriers/needs index	3.66 (1.36)	3.89 (1.52)	1.16 (.25)

Note:

^b Statistical differences were calculated using a chi-square test.

^a This variable only includes youth who were under the legal age of drinking of 21 years.

Table 3

Importance and Confidence in Educational/Vocational Behaviors at 6-Months

	Range	Intervention M (SD)	Control M (SD)	T-test (P-value)
IMPORTANCE				
Career Planning ^a	1-30	27.67 (2.88)	24.54 (4.06)	-3.79 (.00)
Jobs	1-40	38.39 (2.81)	36.95 (4.25)	-1.32 (.20)
College	1-50	46.52 (5.56)	46.84 (4.24)	-.24 (.81)
CONFIDENCE				
Career Planning ^a	1-30	26.96 (3.21)	24.40 (4.62)	-2.73 (.01)
Jobs	1-40	37.30 (3.27)	33.60 (7.74)	-2.095 (.04)
College	1-50	44.52 (5.55)	41.86 (7.70)	-1.47 (.15)

Note:

^a Additional analyses were run controlling for baseline differences in the importance and confidence measures for the career planning group; significance remained ($\beta=2.23$; $p<.01$ for importance and $\beta=1.76$; $p<.05$ for confidence).

Table 4

Overall Intervention Effects at 6-month Follow-up Interview

	Intervention (n=101) M (SD)	Comparison (n=99) M (SD)	Intervention versus Comparison ^a Estimate (95% CI)
HEALTH BEHAVIORS			
# of Times in the Past 30 Days ^c			
In a Physical Fight	.51 (2.31)	.48 (3.25)	.27*** (.13-.56)
Drank Alcohol ^b	.58 (1.32)	.93 (3.22)	1.42 (.86-2.36)
Used Marijuana	2.38 (7.67)	4.01 (13.17)	.61* (.39-.95)
FUTURE ORIENTATION OUTCOMES^d			
Career Behaviors and Knowledge	42.55 (7.35)	44.30 (5.48)	.66 (-.93-2.24)
My Vocational Situation	10.44 (3.91)	9.42 (3.37)	.37 (-.71-1.45)
Perception of Barriers/Needs Index	3.44 (1.65)	3.65 (1.69)	.11 (-.55-.34)

Note:

^aThese analyses controlled for age, gender, and baseline value.^bThis variable only includes youth who were under the legal age of drinking of 21 years.^cNegative binomial regression was used for these analyses.^dLinear regression was used for these analyses.

* p .05;

*** p .001