ORIGINAL ARTICLE

Relationships of a Brief Measure of Youth Assets to Health-promoting and Risk Behaviors

DAVID A. MURPHEY, Ph.D., KELLY H. LAMONDA, M.A., JAN K. CARNEY, M.D., AND PAULA DUNCAN, M.D.

Purpose: **To test the utility of a brief measure of developmental assets for predicting risk and health-promoting behaviors.**

Methods: **Six "assets" questions were added to an existing school-based survey of health-related behaviors. "Asset" questions dealt with students' grades in school, their communication with parents about school, students' perceptions of their role in school decision-making, students' participation in after-school activities and volunteering, and students' perceptions that they "matter" in their community. Participants were 30,916 Vermont students in grades 8–12. The sample included approximately equal numbers of girls and boys. It was 92% white. Fifty-nine percent of students' mothers had completed at least some postsecondary education (according to student report). Data were analyzed by Chi-square techniques and logistic regression.**

Results: **Number of assets (0–6) was negatively related to students' engagement in each of seven risk behaviors, and positively related to three health-promoting behaviors. The effects of number of assets were in most cases independent of demographic variables. Among the six assets, academic success (grades in school) contributed the greatest effect for most of the outcome measures; however, each of the assets contributed significant independent effects to multiple risk- and health-behaviors.**

Conclusions: **Students' assets, even if relatively few, may make important contributions to wellness, independent of other well-established demographic factors.** © *Society for Adolescent Medicine, 2004*

KEY WORDS:

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Gender
Positive youth development
Protective factors
Risk behaviors

Interest in measures of positive youth development has grown markedly in recent years. In particular, there is a groundswell of interest at a grassroots, community level for youth indicators that describe aspects of positive well-being. Traditional social indicators for this population have focused on a number of risk behaviors: most notably, alcohol, tobacco, and other drug use; sexual activity; and violence. Although undeniably important from a public health perspective, the typical set of "negative" indicators fails to delineate what society desires for its young people. Because a critical task for any culture is to prepare youth for positive, productive adult roles, the absence of "positive" guideposts for this work represents a substantial gap.

Although no single conceptual framework dominates the literature at this time, there is nevertheless emerging consensus regarding characteristics of the settings youth inhabit, the relationships they have with significant others, and the competencies and dispositions they possess, that contribute to their optimal development [1].

Search Institute has published extensive data on 40 "developmental assets of youth." Their results from a large national, nonrepresentative sample of youth show a cumulative effect of assets linked to reduced likelihood of engagement in high-risk behaviors and increased likelihood of participation in "thriving behaviors" [2].

Many states have expressed interest in, and several have taken specific steps toward, a systematic collection of data on youth assets [3]. However, an obstacle to this progress has been uncertainty about which measures to use and, in particular, how to address this need in a way that makes efficient use of existing resources. Survey costs are only one consideration; equally, if not more important, are concerns that schools are already over-burdened with assessment responsibilities. Thus, a brief measure of assets that could be incorporated within an established survey would be desirable.

A brief measure is also of interest as a screening-and-intervention tool for providers of adolescent health care. With appropriate professional training, guidance from health care providers, even in the context of a routine visit, could be an effective component of a more comprehensive community-based effort to address teens' well-being [4].

The present study sought to determine the utility of including a small number of "asset" items within an existing school-based survey. We were interested in testing patterns obtained using 40 assets [2] with a much shorter list of assets, and in assessing the contribution of assets to youth outcomes, relative to the contributions of other demographic variables well-established as risk or protective factors: race/ethnicity, gender, grade level, and mother's education level.

Rationale for Selection of Assets Measures

The 40 assets identified by the Search Institute are not all equally well-supported by the scientific literature [5,6]. Our selection was further informed by a review of a number of frameworks of positive youth development [1,7–9] wherein we sought to identify common constructs. In addition, our choices were constrained by the limited number of item "slots" available to us within an existing survey. For this reason, we chose asset constructs we believed might be adequately represented by a single item.

Grades in School

Academic success is a measure of both competence and engagement with school. Academic achievement has been linked to avoidance of cigarette smoking, alcohol, and marijuana; to delayed initiation of sexual intercourse, and to lower emotional distress [1,7].

Talking With Parents About School

Communication with parents on school-related topics may be seen as a measure of a young person's closeness to his or her parent, as well as an indicator of parental involvement in this important arena. "Connectedness" to parents, and parental involvement in schooling have been linked with greater likelihood of academic success, emotional health, and avoidance of harmful behaviors [7,10].

Representation in School Decision-making

Two important, related developmental tasks of adolescence are to assume greater autonomy, and to exercise responsible decision-making. School is a natural setting for youth to practice these skills, and previous studies have shown that students who feel bonded to school experience fewer risk behaviors [7,8,11,12]. Students who feel that youth play a meaningful part in decision-making at school are probably more likely to feel a sense of positive connection with school, and to value civic engagement as young adults [1].

Participation in Youth Programs (Excluding Sports)

Youth who have opportunities to participate in constructive, supervised activity during nonschool hours may be less likely to engage in behaviors harmful to themselves or to others. Such participation also seems to foster a sense of belonging, positive peer relationships, self-esteem, and a sense of competence and efficacy [1,13]. Time spent in youth programs has been associated with several "thriving" behaviors of youth, including leadership, helping others, and overcoming adversity [5], and is associated with a number of other positive developmental outcomes [6]. Although participation in organized youth sports programs is frequently included in such constructs, in fact, some evidence suggests that its effects may not be wholly positive, especially for boys [14–16].

Volunteering in the Community

An important component of positive youth development is participation in activities that "give back" to one's community. Alternatively labeled "contribution," "generosity," or even "required helpfulness," this construct identifies an element of personal char-

acter that has face-validity as a value in our society [6,9,17].

Feeling Valued by the Community

Affirmation by one's community may be supposed to promote engagement in civic life, and to reduce the likelihood of alienation, social isolation, and socially disapproved behavior. For adolescents in particular, a sense that they are valued community members rather than social "pariahs" may be instrumental in their adopting prosocial dispositions and behaviors [1]. Scales and Leffert [6] summarize research associating this asset with more positive self-regard, greater sense of personal control and optimism, reduced delinquency, better school performance, reduced substance use, and greater participation in community activities.

Methods

The Youth Risk Behavior Survey (YRBS), developed by the Centers for Disease Control and Prevention (CDC), has been conducted biennially since 1990, primarily to measure health risk behaviors of high school students nationwide. States may add their own questions to the survey. The YRBS has demonstrated good test–retest reliability [18].

One of the assets measures examined here (grades in school, described below) is part of the "core" survey developed by CDC. One asset-question (parents talk about school, described below) was added to the Vermont YRBS in 1997. The remaining four questions were added to the 2001 Vermont survey. Vermont collects data from both a statistical random sample of students in grades 8–12 and from a sample of "volunteer" schools, which in 2001 included 93% of eligible schools and yielded responses from 78% of enrolled public school students in those grades [19]. Student participation in this anonymous survey is voluntary; participating schools used their normal policies for obtaining parental consent for student participation.

The following six items comprised the asset-measures used in this study: (a) "During the past 12 months, how would you describe your grades in school?"; (b) "How often does one of your parents talk with you about what you are doing in school?"; (c) "During an average week, how many hours do you spend in clubs or organizations (other than sports) outside of school, such as 4-H, Boys and Girls

Clubs, YWCA, YMCA?"; (d) "During an average week, how many hours do you spend helping other people without getting paid (such as helping out at a hospital, daycare center, food shelf, youth program, community service agency, or doing other things) to make your community a better place for people to live?"; (e) "How much do you agree with the following statement? Students help decide what goes on in my school." (f) "How much do you agree with the following statement? In my community, I feel like I matter to people."

For purposes of this analysis, responses to the six assets questions were dichotomized as follows: (a) *grades in school*: "mostly As" or "mostly Bs," vs. "mostly Cs," "mostly Ds," "mostly Fs" (responses indicating "none of these grades," or "not sure" were excluded); (b) *parents talking about school*: "about every day" or "about once or twice a week," vs. "about once or twice a month," "less than once a month," or "never"; (c) *participation in youth programs*: 1 or more hours in an average week, vs. "0 hours" in an average week; (d) *community volunteering*: 1 or more hours in an average week, versus "0 hours" in an average week; (e) *students help decide what goes on in school*: "strongly agree" or "agree," vs. "not sure," "disagree," or "strongly disagree"; (f) *young person is valued by the community*: "strongly agree" or "agree," vs. "not sure," "disagree," or "strongly disagree."

For purposes of this analysis, responses to the outcome measures were recoded dichotomously: smoked cigarettes in the past 30 days: "yes"/"no"; consumed alcohol in the past 30 days: "yes"/"no"; "binged" on alcohol in the past 30 days: "yes"/"no"; used marijuana in the past 30 days: "yes"/"no"; engaged in physical fighting in the past 12 months: "yes"/"no"; ever had sexual intercourse: "yes"/"no"; made a plan to commit suicide in the past 12 months: "yes"/"no"; wore safety belt while riding in a car: "always" or "almost always" vs. "sometimes" or "never or rarely"; wore helmet while riding a bicycle: "always" or "almost always" vs. "sometimes" or "never or rarely" (analysis excluded students who did not ride a bicycle in the past 12 months); exercised or participated in aerobic physical activity for at least 20 minutes on at least 3 of the past 7 days vs. on 2 or fewer days.

Analyses were performed on the full volunteer sample consisting of 30,916 student records. Demographic characteristics of the sample are reported in Table 1.

Table 1. Sample Characteristics

Total Survey Participants	30,916	% of Total
Gender		
Girls	15,275	50.0
Boys	15,256	50.0
Grade level		
8th	6,658	21.8
9th	6,852	22.4
10th	6,478	21.2
11th	5,869	19.2
12th	4,627	15.1
Ungraded	78	0.3
Race/ethnicity		
American Indian or Alaskan Native	634	2.1
Asian	454	1.5
Black	362	1.2
Hispanic	396	1.3
Native Hawaiian or Other Pacific Islander	189	0.6
White	27,646	91.9
More than one of these	412	1.4
Mother's education level		
Completed grade school or less	392	1.3
Some high school	1,746	5.8
Completed high school	7,963	26.3
Some college	4,627	15.3
Completed college	9,079	30.0
Graduate or professional school after college	4,150	13.7
"Don't know"	2,347	7.7

Table 2. Frequency of Assets

Asset	%	Total
High grades in school		74.2
Girls	80.6**	
Boys	67.8	
Parents talk about school		74.2
Girls	75.8**	
Boys	72.6	
Participation in youth programs		29.6
Girls	33.3**	
Boys	25.8	
Volunteering		47.9
Girls	50.2**	
Boys	45.5	
Help decide what goes on in school		47.5
Girls	48.1*	
Boys	46.9	
Feel valued by community		41.5
Girls	39.5	
Boys	43.4**	

   * Gender difference significant at $p < .05$.
  ** Gender difference significant at $p < .01$.

Results

Frequencies of Reported Assets, and Bivariate Relations With Demographic Characteristics

Table 2 shows the frequencies of reported assets overall, and by student gender.

Chi-square tests showed a significant effect of gender for each asset: girls were more likely to report each asset except "young person is valued by the community," which boys were significantly more likely to report.

Grade in school (students in "ungraded" settings were excluded from this analysis), and mother's education level ("don't know" cases were excluded) were also significantly related to all assets. Race/ethnicity was significantly associated with all assets, except participation in youth programs, and volunteering. (Results from these analyses of grade level, mother's education, and race/ethnicity are not shown here.)

There were significant effects of grade level, race, and mother's education for all outcome measures. There were significant effects of gender on all out-

come measures, except past-30-days alcohol consumption. (Results from these analyses are not shown here.)

Number of Assets Related to Risk and Health-promoting Behaviors

A variable was created indicating the number of assets (0–6) reported by each student. Chi-square analyses showed number of assets was significantly related to gender, grade level, race, and mother's education (results not shown).

Number of assets was significantly related to likelihood of engaging in each of the risk and health-promoting behaviors. Students reporting none of the six assets were at greatest risk of engaging in health-compromising behaviors, whereas the presence of
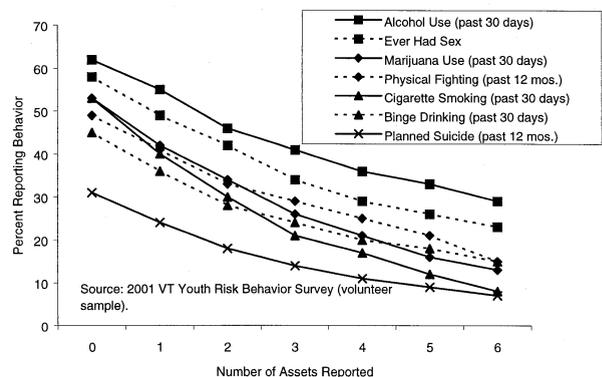

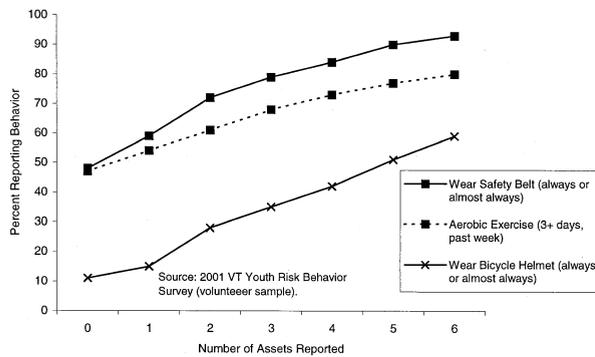**Figure 1.** *Risk behaviors decline with number of assets.*

Figure 2. *Healthy behaviors increase with number of assets.*

any one of the assets, and each additional asset (up to six) decreased the odds that a student engaged in risk-taking behavior, and increased the odds that he or she participated in health-enhancing behaviors (Figures 1 and 2).

Because number of assets could be significantly correlated with one or more demographic variables, its relationship to the outcome measures could be spurious. To examine this possibility, logistic regression models were applied, using SPSS (SPSS Inc., Chicago, IL, 1999).

Logistic Regression Models for Risk and Health-promoting Behaviors

Logistic regression is a technique appropriate when dependent measures have binary values, and where there is interest in assessing simultaneously the relative contributions of multiple predictors to the dependent measure. Effect sizes (weights) associated with each predictor estimate the contribution of that variable to predicting the outcome measure, while holding constant the effects of other predictors in the model. Estimates are expressed in terms of log odds, a measure of likelihood (odds = probability/(1-probability)). Specifically, SPSS output computes Exp[B], which is an odds ratio. Odds ratios greater than one indicate that odds of the outcome measure increase with increased values of the predictor (or relative to the reference category in the case of categorical variables); odds ratios less than one indicate that likelihood of the outcome decreases.

To examine the effect of number of assets on risk and health-promoting behaviors, independent of demographic variables, logistic regression models were created for each of the outcome measures, with gender, grade level, race, and mother's education, along with number of assets, entered in a single step

as predictors. Gender (reference category: female), and race (reference category: white) were treated as categorical variables, whereas mother's education, grade level, and number of assets were treated as interval variables. The model was statistically significant for each of the 10 outcome measures (Table 3).

More specifically, all predictors were significant ($p < .05$) in models for each outcome, except that gender was nonsignificant for past-30-day alcohol consumption, ever having had sexual intercourse, and bicycle helmet use; race was nonsignificant for frequent aerobic exercise; and mother's education was nonsignificant for past-30-day marijuana use and past-12-months suicide planning. In other words, apart from the exceptions just noted, each of the predictors made significant independent contributions (i.e., controlling for the effects of the other predictors) to the outcomes.

Girls were significantly more likely than boys to have smoked cigarettes in the past 30 days, to have planned suicide within the past 12 months, and to have worn a safety belt "always or nearly always." Boys were significantly more likely to have "binged" on alcohol, used marijuana, fought, and participated in aerobic exercise. Students with mothers having higher levels of education were significantly less likely to have smoked cigarettes, drunk alcohol, "binge" drunk, fought, and ever had sex; and more likely to have worn safety belts and bike helmets, and engaged in aerobic exercise. Higher grade level was significantly associated with greater likelihood of participation in all risk behaviors except fighting; it was significantly associated with greater use of safety belts, and lower participation in bike helmet use and aerobic exercise. Race was significantly associated with all 10 outcomes. Indeed, one or more categories of race (relative to the reference category of "white") were associated with the largest effect size among all predictors except for aerobic exercise (where gender was the greatest single predictor).

Number of assets was negatively associated with the likelihood of past-30-day use of cigarettes, alcohol, "binge" drinking, and marijuana; ever having had sexual intercourse; and fighting or suicide planning within the past 12 months. Number of assets was positively associated with use of car safety belts and bicycle helmets, and with frequent aerobic exercise. With each additional asset, a student's chances of engaging in these risk behaviors declines significantly, and his or her chances of adopting health-promoting practices significantly increases.

The six assets were also examined singly for independent contribution to risk and positive behav-

Table 3. Effect-sizes[a] (and 95% Confidence Intervals) Associated with Predictors for Each Outcome (Total Sample)

Dependent Measure	Number of Assets	Mother's Education	Grade Level	Gender[b]	Race[c]	Model χ^2 ($df = 10$)
Cigarette smoking, past 30 days	*1.48 (1.45–1.52)*	*1.19 (1.15–1.22)*	1.35 (1.32–1.38)	*1.41 (1.32–1.50)*	1.48–2.92	2393**
Alcohol use, past 30 days	*1.26 (1.24–1.29)*	*1.04 (1.01–1.06)*	1.45 (1.42–1.48)	ns	1.51–4.57	2063**
Binge drinking, past 30 days	*1.28 (1.25–1.31)*	*1.03 (1.00–1.05)*	1.51 (1.48–1.55)	1.17 (1.10–1.24)	1.56–4.02	2016**
Marijuana use, past 30 days	*1.41 (1.38–1.44)*	ns	1.42 (1.39–1.45)	1.26 (1.18–1.33)	2.09–3.82	2306**
Physical fighting, past 12 months	*1.24 (1.21–1.26)*	*1.11 (1.07–1.13)*	1.30 (1.27–1.33)	2.58 (2.43–2.74)	2.11–1.91	2353**
Ever had sexual intercourse	*1.31 (1.28–1.34)*	*1.21 (1.17–1.24)*	1.87 (1.83–1.91)	ns	1.79–4.67	4465**
Planned suicide, past 12 months	*1.39 (1.35–1.42)*	ns	*1.04 (1.01–1.07)*	2.12 (1.97–2.29)	1.72–1.49	1039**
Frequent aerobic exercise, past 7 days	1.29 (1.27–1.32)	1.12 (1.09–1.14)	*1.22 (1.20–1.25)*	1.79 (1.69–1.89)	ns	1622**
Regular car safety belt use, past 12 months	1.46 (1.42–1.49)	1.35 (1.31–1.39)	1.03 (1.01–1.06)	*1.61 (1.51–1.72)*	1.54–1.50	2317**
Regular bicycle helmet use, past 12 months	1.41 (1.37–1.43)	1.41 (1.37–1.44)	*1.17 (1.14–1.19)*	ns	2.94–1.58	2146**

[a] Effect sizes are adjusted odds ratios (Exp[B]). Odds ratios shown in non-italics indicate the proportional increase in the odds of the outcome associated with an increase in the predictor values (or, for categorical predictors, contrasted with the reference category). Odds ratios shown in italics indicate the proportional increase in likelihood of the *inverse* of the outcome. For example, with each additional asset, the odds for *not* having smoked cigarettes in the past 30 days increase by a factor of 1.48.
[b] Reference category is female.
[c] Reference category is white; significant effect sizes for other race/ethnicity categories vary within range shown; not all race/ethnicity categories are significantly different from the reference category; see text for details.
** Significant at $p < .001$.

iors. Among the six assets, "grades in school" was a significant independent predictor for all behaviors, and was associated with the highest effect sizes for all behaviors, except planned suicide, and exercise: in the total sample odds ratios ranged between 2.95 (cigarette smoking: students with higher grades less likely to be recent smokers, controlling for other factors) and 1.41 (exercise: students with higher grades more likely to report regular aerobic exercise, controlling for other factors). For planned suicide, the most important asset was "matter in the community" (odds ratio: 2.35: students feeling they matter less likely to have planned suicide, controlling for other factors). For aerobic exercise, the most important asset was "volunteer in the community" (odds ratio: 1.53: students volunteering more likely to report frequent exercise, controlling for other factors). "Participation in youth programs" made nonsignificant contributions to binge drinking, physical fighting, and planned suicide. "Volunteering in the community" made nonsignificant contributions to recent alcohol use, having ever had sex, and planned suicide. "School decision-making" made nonsignificant contributions to planned suicide. All other adjusted effect sizes associated with each of the six assets were significant (data available [from the authors] on request).

Discussion

This study lends support for the use of a brief measure of youth assets for understanding risk and health-promoting behaviors in a variety of student populations. The number of assets (0–6) students report having bears strong relationships to other well-established correlates of risk and wellness behaviors (grade level, gender, ethnicity, mother's education). With each additional self-reported asset, students were less likely to report having engaged in seven health-compromising behaviors, and were more likely to report having engaged in three health-

promoting behaviors. Moreover, number of assets was significantly associated with the likelihood of these behaviors, independent of the effects of grade level, gender, race/ethnicity, and mothers' education level.

For many of the outcome behaviors the effect size associated with having an additional asset rivaled that associated with an additional grade in school, or additional years of mother's education. For example, the frequency of cigarette smoking in the past 30 days within the total sample is 23.7%. Holding constant the effects of grade level, gender, mother's education, and race/ethnicity, each additional asset is associated with a decrease in the odds of smoking, in terms of probability, a decrease by 27%. Thus, in this example, the base frequency of 23.7% declines to 17.3%. In comparison, several additional years' of mother's education (e.g., from high school only to some college) is associated with a decline in the base frequency to 20.7%. Thus, having information about youth assets adds appreciably to our understanding of adolescent risk and health-promoting behaviors, and improves upon predictive models that rely simply on demographic variables, such as income, race/ethnicity, and family structure [20].

One important implication of these results is that meaningful enhancement of well-being is within reach, even for students who are in difficult circumstances. In other words, one need not have all six assets to be doing well; the addition of even one or two assets makes a difference in realizing a more healthy lifestyle. This finding is consistent with other research that illustrates the cumulative influence of assets [2].

In that regard, the disparities in asset levels by gender, mother's education level, and race/ethnicity are disturbing. However, more significantly for the emerging study of positive youth development, this assets model appears to have weaker explanatory power when applied to nonwhite youth. Assets-related differences among racial/ethnic subgroups have previously been reported as small [2,5]; findings from the present study suggest this issue deserves further investigation with samples representative of ethnic/racial diversity.

Limitations

There are several limitations to the findings reported here. First, although the data may be fairly considered as representative of the Vermont student population in grades 8–12, they do not represent youth of this age group who are not in public school. In addition, students in alternative, publicly funded educational settings are underrepresented. School dropouts and youth in alternative schools may have higher levels of risk behaviors. Numbers of respondents in nonwhite racial/ethnic groups are relatively small here, and the types of analyses used here should be replicated with larger and more nationally representative populations. Nonetheless, the sample in this study can be considered to be far less vulnerable to self-selection biases that have limited other assets-measurement efforts [2].

Data on assets, risk behaviors, health-promoting behaviors, and demographic data are from students' self-reports. Although national studies of the YRBS suggest that such self-reports, when provided in a context that ensures students' anonymity, are reliable [18], they cannot be assumed to be without bias. Mother's education, although widely considered an important proxy measure for family socioeconomic status, does not provide a direct measure of family income, which may be an important covariate.

The data reported here are all cross-sectional; therefore, no conclusions can be drawn regarding the direction of causality. Students who avoid risky behaviors and follow health-promoting ones may have more opportunities, for example, to volunteer in their communities, to participate in youth programs, to feel valued, and even to talk with their parents about school, than students whose behavior follows a different pattern. Likewise, in particular the use of drugs or alcohol, or depressive symptoms, would in many cases interfere with earning high grades in school. Experimental and/or longitudinal studies would be required to determine the direction of any such effects.

Conclusions

The findings reported here should encourage broader use of assets measures in multiple settings that serve young people. In particular, assessment of youth assets at health care or counseling visits can supplement the usual problem focus.

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