

**AREA SPECIFIC SELF-ESTEEM, VALUES, AND
ADOLESCENT SUBSTANCE USE**

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ABSTRACT

The use of illicit and licit drugs continues to be a major public health concern. Many prevention and drug education programs address this issue by attempting to enhance self-esteem. The idea is that increased levels of self-esteem will serve as a protective factor in decreasing the motivation and increasing the resistance to use drugs. This study explored the relationship between area specific self-esteem and adolescent substance use. Participants ($n = 700$) completed a self-report questionnaire which included items measuring the use and expected use of selected substances. Results indicated significant differences in home and school self-esteem scores between users/expected users and non-users of a given substance for all 14 behavioral measures. Additionally, the peer, home, and school sub-scales as a set were found to distinguish between users and non-users for all 14 behavioral measures. Results should be of value to those designing prevention programming.

INTRODUCTION

The use of illicit and licit drugs continues to be a major public health concern. Drug use among adolescents continues to have perilous implications for this population. Use of cocaine, methamphetamine, heroin, and steroids among young people has been steady, and alcohol remains the drug of choice among teenagers (National Institute of Health, 2006). Drug use poses threats to cognitive development, has a negative impact on health, increases risk of death, intentional and accidental injury, and is correlated with other high risk-taking behavior (Hawkins, Catalano, & Miller, 1992; Stueve & O'Donnell, 2005). Additionally, more than 430,000 deaths due to long-term tobacco use occur annually in the United States (Mokdad, Marks, Stroup, & Gerberding, 2004). The vast majority of adults who are smokers began smoking cigarettes while adolescents (MacKay & Duran, 2007). To address alcohol, tobacco, and other drug use among adolescents, many prevention programs have included self-esteem components. The idea is that increased levels of self-esteem will serve as a protective factor, decreasing the motivation for and increasing the resistance to use drugs.

According to Dalgas-Pelish (2006), high levels of self-esteem are necessary to effectively manage social and peer pressures, family stresses, and decisions that affect children's health and their development throughout childhood. Adolescents with high levels of self-esteem also have a better state of mental health. According to a study by Wilkinson (2004), self-esteem serves as the mediator between mental health and peer attachments. Healthy relationships between adolescents and their peers and adults are reflected in adolescents' high levels of self-esteem.

Low levels of self-esteem have been correlated with increased risk behaviors such as deviant social behaviors, poor health, and depression (Daane, 2003; Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Trzesniewski, Donnellan, Moffitt, Robins, Poulton, & Caspi, 2006). Additionally, Donnellan et al. (2005) found pre-adolescents with low self-esteem tended to increase aggressive behavior with age and had a higher chance of externalizing problems (i.e., antisocial behavior and delinquency).

Adolescents who have reported strong social support from family and friends have been found to be at low levels of risk for suicide or mental illness (Henry & Slater, 2007). Parental connectedness served as a protective factor against the engagement in high risk activity. Strong and healthy parental attachments have also been found to foster high levels of self-esteem in adolescents and diminish risk of injury to self and others. Further research has suggested that youth with low levels of parental and school attachments were at an increased risk for depression and other mental health and physical problems (Trzesniewski et al., 2006; Wilkinson, 2004). The positive effects of self-esteem have been found to extend to areas beyond familial attachments. Adolescents in middle and junior

high schools who were well attached to the school had a lower likelihood of consuming alcohol, lower intention to use alcohol, and perceived their peers as less likely to use (Henry & Slater, 2007).

Although the positive effects of self-esteem have been well-noted in the literature, limitations continue to exist in establishing relationships between drug use and self-esteem. In their review of methodological and statistical limitations in self-esteem research, Schroeder and co-workers (1993) found that previous research studies presented methodological flaws making it difficult to determine a causal relationship between level of self-esteem and drug use. Their work underscored the need for rigorous methodology and consensus of self-esteem constructs in future self-esteem studies.

As noted by Young and Werch (1990) a number of years ago, researchers have not appeared to have established a consensus as to what is or is not self-esteem. This still appears to be the case. Studies that address the role of self-esteem and health behavior among young people often lack a clear operational definition of self-esteem. In the study we report here, we used an area specific measure of self-esteem, which provides a measure within the contexts of home, school, and peers. Most of the research to date concerning self-esteem and adolescent behavior has used a global measure of self-esteem. Few studies of self-esteem and adolescent risk-taking behavior have assessed area specific self-esteem. A replication study of global measures of self-esteem suggested that global self-esteem is influenced by a combination of other factors (Stephan & Maiano, 2007).

Other studies have also indicated benefits to examining area specific self-esteem. In Quatman and Watson's (2001) study of adolescent self-esteem, the authors suggested that re-examining the validity of global self-esteem will require taking apart the construct and putting it into multiple domains to glean results that effectively measure the role of area specific self-esteem on adolescent behaviors. Area specific self-esteem studies that have examined self-esteem, within specific contexts such as peers, school, and home, have been beneficial to understanding adolescents' concepts of self and deviant behavior (Winkinson, 2004; Young, Denny, Donnelly, Rodriguez, & Hawkins, 2002; Young, Donnelly, & Denny, 2004). For example, Young, Donnelly, and Denny (2004) found youth who did not engage in sexual behavior had higher levels of home and school self-esteem. Glendinning's (2002) study of self-esteem and smoking in youth found that global self-esteem was not related to smoking; however, when examining area specific self-esteem among peer groups and peer cultures, links were found among levels of peer self-esteem, isolation, and both early onset and long-term smoking.

Some researchers have addressed the issue of substance use and area specific self-esteem (Emery, McDermott, Holcomb, & Marty, 1993; Young & Werch, 1990; Young, Werch, & Bakema, 1989). In each of these studies researchers found high home and school self-esteem to be a protective factor against the use of a number of different substances. Peer self-esteem was found to have little relationship to drug use. These studies were conducted some time ago. In each

study the researchers analyzed each aspect of self-esteem and substance use separately, instead of examining how the different aspects of self-esteem work in combination to distinguish between users and non-users. While in each study home and school self-esteem was found to be statistically related to substance use, no measures of effect size were reported.

This present study was undertaken to determine whether area specific self-esteem remains a salient factor in explaining substance use among today's youth. In addition, the study examined how different aspects of self-esteem might work both separately and in combination to distinguish between users and non-users. Finally, the study did more than report statistical significance, also including measures of effect sizes. The study is important because program planners continue to include self-esteem components in substance abuse prevention programs. Thus, identification of the role of area specific self-esteem in substance use can inform prevention efforts.

METHOD

Participants

Participants in the study were $N = 700$ students in grades 6-12 from a single southern school district. School officials had requested that a study of health behaviors, including substance use behaviors, be conducted in their district.

Testing Instrument

The testing instrument was a questionnaire which included items designed to elicit demographic information, measures of area specific self-esteem, and measures of various health behaviors, including substance use. Area specific self-esteem was measured using the Kelley Short-Form of the Hare Self-Esteem Scale (Kelley, Denny, & Young, 1997). This scale measures self-esteem in three areas: peer, home, and school. Questions dealing with substance use included 14 different measures addressing the use of tobacco, alcohol, marijuana, and other illegal drugs. This included ever use, current use, and expected use of cigarettes, smokeless tobacco, alcohol, and marijuana as well as ever and current use of "other illegal drugs."

Procedures

The study was reviewed and approved by the institutional review board prior to any data collection activity. Students voluntarily, and with active parental consent, completed the questionnaires, anonymously, in their regular classroom setting. All statistical procedures were performed using SAS programs. Data were analyzed using 2 way (gender x behavior) analysis of variance for each of the 14 behaviors to determine whether users and non-users differed on scores

for peer, school, and home self-esteem. Additionally, for each behavior a logistic regression was conducted using the three self-esteem measures as a set of predictor variables. The alpha level was set at $p < .05$.

RESULTS

Results of the frequency counts revealed that participants in the study included 402 females (58%) and 288 males (42%). Participation by grade level was: grade 6 – 210 (31%), grade 8 – 72 (10%), grade 9 – 127 (18%), grade 10 – 94 (14%), grade 11 – 122 (18%), and grade 12 – 60 (9%). The vast majority of the participants (92%) reported their race as Caucasian. African Americans, Hispanics, American Indians, Asian/Pacific Islanders, and Other were also represented. This was comparable to the overall school population which was 96% Caucasian. The households that comprised this school district were, as a group, financially better off than those of school districts statewide, in that 27% of the students in the district received free or reduced-price lunches. This compares to 45% to 56%, depending on grade level, receiving free or reduced-price lunches statewide.

Frequency of Alcohol, Tobacco, and Other Drug Use Behaviors

Results indicated that a number of students have used, currently use, and intend to use alcohol, tobacco, and other drugs. For example, 32% of the participants indicated they had ever smoked cigarettes and 8.4% expected to use them when they were older. Regarding the use of smokeless tobacco products, 12.6% of the participants indicated they had ever used, while 3.8% indicated they expected to use smokeless tobacco when they were older. Fully 60% of the participants indicated they had ever used alcoholic beverages and 45.1% reported they expected to use alcohol when they were older. Marijuana had reportedly been used by 22.6% of the study participants and 9.0% indicated an expectation of future use.

Differences in Use by Gender

There were no statistically significant differences ($p < .05$) between male and female study participants regarding ever, current, or expected use of cigarettes, alcohol, or marijuana. Additionally, there were no statistically significant differences ($p < .05$) between male and female study participants regarding ever and current use of other illegal drugs or expected use of smokeless tobacco products. The only two behaviors for which there were differences between males and females were:

1. ever use of smokeless tobacco products (Chi-square = 12.69, $p < .005$); and
2. current use of smokeless tobacco products (Chi-square = 14.88, $p < .005$).

Males were more likely than females to report ever use and also reported a higher level of current use.

Differences in Self-Esteem Scores by Behavior

To determine whether self-esteem scores differed by behavior, data were analyzed using 2-way analysis of variance. Results of the 2-way (gender \times behavior) analysis of variance showed significant differences ($p < .05$) between users and non-users regarding home self-esteem for 13 of the 14 behaviors (all except expected use of smokeless tobacco). In each case, non-users and those who did not expect to use in the future exhibited higher self-esteem scores than users. There was also a significant gender \times behavior interaction for both ever and current use of smokeless tobacco products. Males who had never used smokeless tobacco had slightly higher home self-esteem scores than males who had used. Females who had never used had much higher scores than females who had used. Males who were current users of smokeless tobacco had slightly lower home self-esteem scores than males who were not current users. Females who were current users had home self-esteem scores that were far lower than females who were not current users. R^2 values for the 14 analyses involving home self-esteem scores ranged from .01 to .11 with 9 of the values .05 or above. Home self-esteem explained more of the variation in current use of cigarettes ($R^2 = .112$) than for the other behaviors.

Regarding peer self-esteem, there were significant differences between users and non-users for only 5 of the 14 behaviors. For three of the five behaviors, users had higher scores than non-users. For two smokeless tobacco behaviors (ever use and current use) there were significant gender \times behavior interactions. Males who had never used smokeless tobacco had much lower peer self-esteem scores than males who had used. Female non-users had higher peer self-esteem scores than females who had used. Males who were current users of smokeless tobacco had higher peer self-esteem scores than those who were not current users. Females who were current users had far lower peer self-esteem scores than did females who were not current users. R^2 values for the 14 analyses involving peer self-esteem scores ranged from .01 to .05 with 12 of the values less than .04. Thus, peer self-esteem explained little of the variation in any of the behaviors.

Regarding school self-esteem, there were significant differences between users and non-users for all 14 behaviors. R^2 values for the 14 analyses involving school self-esteem scores ranged from .05 to .15, with 5 of the values .10 or above and five less than .07. School self-esteem explained more of the variation in current cigarette use ($R^2 = .151$) than for the other behaviors. See Table 1.

Using the Set of Self-Esteem Scores to Account for Variation in Behavior

To determine if the set of area specific self-esteem scores (peer, home, and school) could distinguish between users and non-users, data were analyzed using logistic regression. Results for the logistic regression analyses indicated that for males the set of self-esteem variables did distinguish between users and non-users

for all 14 behaviors. R^2 values ranged from .046 to .237. Six of the values were above .21 (Current cigarette use— $R^2 = .225$, Expected use of cigarettes when older— $R^2 = .225$, Ever use smokeless tobacco— $R^2 = .237$, Current use of smokeless tobacco— $R^2 = .214$, Expected use of smokeless tobacco when older— $R^2 = .222$, and Current use of illegal drugs— $R^2 = .230$). Two were below .11. Peer self-esteem added a unique contribution to distinguishing between users and non-users in 10 of the 14 analyses. Home self-esteem added a unique contribution in eight of the analyses. School self-esteem added a unique contribution in 12 of the 14 analyses (all except ever and expected use of alcohol).

For females, the set of self-esteem variables distinguished between users and non-users for 12 of the 14 behaviors (not for two of the smokeless tobacco behaviors). For these 12 behaviors R^2 values ranged from .104 to .218. Four of the values were above .20 (Ever smoked cigarettes— $R^2 = .218$, Current cigarette use— $R^2 = .212$, Current use of alcohol— $R^2 = .206$, Expect to use marijuana when older— $R^2 = .217$). Peer self-esteem added a unique contribution to distinguishing between users and non-users in six of the analyses. Home self-esteem added a unique contribution in 12 of the 14 analyses (all except ever use and current use of smokeless tobacco). School self-esteem added a unique contribution in 11 of the 14 analyses (all except the two smokeless tobacco questions and ever use of illegal drugs-other than marijuana). See Table 2.

DISCUSSION

The purpose of the study was to determine whether area specific self-esteem remains an important factor in explaining substance use among today's youth. In addition, the study examined how different aspects of self-esteem might work both separately and in combination to distinguish between users and non-users. Results of the study showed that when considered separately, home and school self-esteem did play a statistically significant role in drug use behavior, with peer self-esteem playing a lesser role. When these three aspects of self-esteem were considered together, this set of area specific self-esteem variables was found to play a statistically significant role in all 14 behaviors that were examined.

In addition to determining whether a statistically significant relationship exists between self-esteem and drug use, it is also important to consider the strength of the relationship. In this study, while we found a number of statistically significant relationships between a specific area of self-esteem and drug use behaviors, in few cases did self-esteem account for a substantial amount of the variation in behavior. When using all three aspects of self-esteem (peer, school, and home) together as a set to account for variation in drug use behavior, stronger relationships were found between self-esteem and drug use behavior than when one specific area of self-esteem was considered, without regard for the other two areas. Even when using the set of self-esteem variables, however, in the majority of analyses, for both males and females, the R^2 value was less than .20 and in no

Smokeless Tobacco												
Expected Use												
Mean score – User	17.37	0.37	.544	.01	18.58	3.27	.071	.01	13.53	25.25	<.001	.07
Mean score – Nonuser	16.79				19.82				17.53			
Alcohol												
Use Ever												
Mean score – User	17.02	8.02	.004	.02	19.20	16.25	<.001	.04	16.84	20.98	<.001	.06
Mean score – Nonuser	16.48					20.56			18.23			
Current Use												
Mean score – User	17.27	6.17	.002	.04	18.83	17.86	<.001	.08	16.36	18.85	<.001	.11
Mean score – Former	16.88					19.67			17.34			
Mean score – Nonuser	16.46					20.52			18.16			
Expected Use												
Mean score – User	17.18	4.95	.026	.02	19.11	15.27	<.001	.02	16.76	16.00	<.001	.05
Mean score – Nonuser	16.56					20.30			17.86			
Marijuana												
Use Ever												
Mean score – User	17.19	3.16	.076	.01	18.45	23.36	<.001	.03	15.96	34.23	<.001	.07
Mean score – Nonuser	16.70					20.17			17.81			

Table 1. (Cont'd.)

Behavior	Peer	F	Prob	R ²	Home	F	Prob	R ²	School	F	Prob	R ²
Marijuana												
Current Use												
Mean score – User	16.73	1.27	.282	.01	17.75	20.82	<.001	.07	15.49	22.50	<.001	.10
Mean score – Former	17.97					19.79				17.30		
Mean score – Nonuser	16.67					20.17				17.77		
Expected Use												
Mean score – User	16.22	2.96	.086	.01	16.41	51.51	<.001	.08	14.14	61.61	<.001	.11
Mean score – Nonuser	16.88					20.11				17.71		
Other Illegal Drugs												
Use Ever												
Mean score – User	16.86	0.11	.744	.01	17.45	30.96	<.001	.05	15.19	37.85	<.001	.07
Mean score – Nonuser	16.78					20.06				17.68		
Current Use												
Mean score – User	16.73	1.52	.219	.01	17.75	18.75	<.001	.06	15.45	11.46	<.001	.07
Mean score – Former	17.97				19.79				17.30			
Mean score – Nonuser	16.67					20.16				17.77		

*F score and probability for gender × behavior interactions. Otherwise the F scores and probability shown are for main effects for behavior.

analysis was the R^2 value as high as .24. This indicates that while self-esteem does play some role in these drug use behaviors, it is far from the over-riding factor.

Most of the research to date concerning self-esteem and adolescent behavior has used a global measure of self-esteem. Little evidence exists that such global measures of self-esteem are significantly related to adolescent health behaviors. While few studies of self-esteem and adolescent risk-taking behavior have assessed area specific self-esteem, those that have been conducted have demonstrated a relationship between high levels of school and home self-esteem and lower levels of use of various substances, including tobacco, alcohol, marijuana, and other illegal drugs (Emery et al., 1993; Young & Werch, 1990; Young, Werch, & Bakema, 1989).

The present study is important because program planners continue to include self-esteem components in substance abuse prevention programs. Thus, identification of the role of area specific self-esteem in substance use can inform prevention efforts. Specifically, the importance of this study is in the identification of which area self-esteem impacts drug use and to what extent. Programs that address traditional "global" self-esteem may produce no impact and create a misleading perception of the role of self-esteem in adolescent drug use and drug use prevention.

The results of this study show that when considered alone, peer self-esteem (to a large degree one's perception of their own popularity) has little to do with adolescent drug use. Only five of the 14 behaviors were significantly related to peer self-esteem, and for two behaviors the relationship was in the wrong direction (self-esteem was higher for users). In all cases the effect size was small. The R^2 value was above .02 for only two of the 14 behaviors. Home self-esteem was more strongly related to adolescent drug use. Significant differences between users and non-users were noted for 13 of the 14 behaviors. Effect size was greater than for peer self-esteem, but still relatively small. Of the three aspects of self-esteem measured in this study, school self-esteem was most strongly related to adolescent drug use. Significant differences between users and non-users were noted for all 14 behaviors. Effect was still modest but R^2 values were .10 or above (up to a high of .15) for five of the 14 behaviors.

When considered in combination, the three aspects of self-esteem considered in this study accounted for a greater amount of the variation in drug use behavior than when considered separately. Effect sizes were still modest, but R^2 values were above .20 for four behaviors among females and six behaviors among males.

These results highlight the relationship of selected aspects of self-esteem (especially school and home) to various measures of drug use. While self-esteem does not seem to be a major factor in the use of various substances, it does appear to play a role. Program developers who wish to address self-esteem should focus on specific aspects of self-esteem, as addressed in this study, measure whether self-esteem was actually enhanced by the program, and examine whether an enhancement of self-esteem was related to a decrease in measures of drug use.

Table 2. Results of Logistic Regression Analyses

Behavior	Wald χ^2	Prob	R ²	Percent concordant	Peer		School		Home	
					Prob	Confidence interval	Prob	Confidence interval	Prob	Confidence interval
Cigarettes										
Ever use										
Females	52.88	<.0001	.218	74.1	<.0001	.73-0.88	.0006	1.09-1.25	<.0001	1.06-1.25
Males	26.56	<.0001	.146	70.5	.0013	.78-0.94	.0053	1.04-1.24	.0035	1.04-1.24
Current smoking										
Females	43.57	<.0001	.212	76.0	.0032	.73-0.94	.0033	1.05-1.31	<.0001	1.11-1.32
Males	30.09	<.0001	.225	79.0	.0157	.73-0.97	<.0001	1.14-1.46	.0164	1.02-1.27
Expected use										
Females	26.53	<.0001	.145	73.4	.8882	.89-1.15	.0038	1.05-1.31	.0287	1.01-1.21
Males	23.30	<.0001	.225	79.5	.4594	.91-1.24	<.0001	1.15-1.52	.3991	.07-0.40
Smokeless Tobacco										
Ever use										
Females	9.30	.0255	.070	68.7	.9219	.84-1.21	.8285	.87-1.19	.0208	.87-1.19
Males	37.98	<.0001	.237	76.0	<.0001	.68-0.85	<.0001	1.14-1.39	.1729	.97-1.18
Current use										
Females	4.33	.2281	.057	64.6	.5573	.81-1.46	.9671	.77-1.31	.1720	.94-1.39
Males	25.12	<.0001	.214	79.1	<.0001	.58-0.82	.0006	1.11-1.45	.1927	.95-1.25
Expected use										
Females	8.18	.0423	.119	81.9	.9564	.76-1.29	.0095	1.07-1.64	.8719	.81-1.19
Males	21.51	<.0001	.222	79.5	.3251	.66-0.95	<.0001	1.18-1.58	.8223	.88-1.17

Alcohol										
Ever use										
Females	33.04	<.0001	.130	68.5	.0023	.81-0.95	.0016	1.05-1.23	.0010	1.04-1.19
Males	15.85	.0012	.082	64.1	.0004	.78-0.93	.0589	1.00-1.18	.1995	.97-1.15
Current use										
Females	39.76	<.0001	.206	74.1	.0001	.73-0.91	.0005	1.07-1.27	.0004	1.06-1.23
Males	22.41	<.0001	.163	71.4	.0005	.73-0.92	.0075	1.04-1.26	.0177	1.02-1.25
Expected use										
Females	31.82	<.0001	.119	67.3	<.0001	.75-0.89	.0063	1.03-1.19	.0067	1.02-1.15
Males	9.60	.0222	.046	59.9	.1277	.86-1.02	.1986	.97-1.13	.0410	1.00-1.18
Marijuana										
Ever use										
Females	29.11	<.0001	.119	70.2	.0008	.77-0.93	.0027	1.04-1.23	.0102	1.02-1.17
Males	20.33	<.0001	.116	69.0	.0154	.79-0.99	.0033	1.04-1.25	.0341	1.01-1.21
Current use										
Females	25.17	<.0001	.113	68.8	.2837	.83-1.06	.0155	1.02-1.25	.0078	1.03-1.21
Males	26.56	<.0001	.151	73.1	.0183	.77-0.98	.0073	1.04-1.26	.0010	1.07-1.31
Expected use										
Females	34.88	<.0001	.217	79.0	.1708	.79-1.04	.0013	1.08-1.35	.0012	1.06-1.29
Males	23.59	<.0001	.192	78.0	.8179	.85-1.14	.0007	1.10-1.42	.0781	.99-1.25
Other Illegal Drugs										
Ever use										
Females	24.12	<.0001	.123	70.7	.0614	.78-1.00	.0508	1.00-1.23	.0015	1.05-1.25
Males	22.56	<.0001	.165	74.3	.0383	.76-0.99	.0003	1.04-1.24	.0677	.99-1.24
Current use										
Females	16.21	.0010	.104	70.2	.0577	.72-1.00	.3506	.93-1.22	.0024	1.06-1.31
Males	25.32	<.0001	.230	80.5	.0289	.69-0.98	.0097	1.05-1.41	.0011	1.09-1.44

They should also keep in mind that since self-esteem accounted for a relatively small amount of the variation in drug use behaviors, programs that have self-esteem enhancement as the main focus may not be highly effective in preventing drug use.

Study Limitations

This study was based on data collected from a single school district in the rural south, so results may not necessarily be generalizable to other settings. Additionally, data were self-reported and have all of the potential problems that go with this type of data. In spite of these limitations, however, we believe that this study does make a contribution to the literature and results should be considered by program planners and those developing substance use prevention interventions.

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