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**Impact of Life Skills Training
(LST)
in
Allegany County Schools:
Risk and Protective Factors**

**Longitudinal Analysis
of
2005 Sixth Grade Cohort**

(Fall 2012)

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Summary

The current analysis supports the long-term positive effects of Life Skills Training on risk and protective factors among students in Allegany County schools. Students in five schools who participated in LST in 2005 demonstrated significantly smaller increases in risk factors and significantly less decline in

protective factors between sixth and twelfth grade compared to students from similar schools who did not complete LST. Estimated effects of LST include 72.3% smaller increase in favorable attitudes towards drug use; 59.3% less perceived parental attitudes favorable to drug use; and 57.3% less lack of perceived risk of drug use.

LST in Allegany County is estimated to reduce 12th graders favorable attitudes toward drugs by 72.3% and lack of perceived risks from drug use by 57.3%.

Background

Since the 1990's substance abuse prevention has developed evidence-based prevention strategies based on the Risk and Protective Factor Model developed at the University of Washington by J. David Hawkins, Richard Catalano, and Janet Miller. The model was developed by reviewing two decades of research that identified a link between certain risk factors and several problem behaviors and between protective factors and avoidance of problem behaviors. A major strength of this model is that in addressing alcohol and other drug abuse risks for adolescents, it also addresses other negative behaviors, such as violence, delinquency, teen pregnancy, gambling and dropping out of school.

Students in schools in Allegany County participated in the Student Risk and Protective Factor Survey every odd-numbered year since 2001 including in the winter of 2011. The original survey was developed by Hawkins and Catalano and measures critical individual, school; family and community factors that have been demonstrated to either increase the likelihood of substance abuse and violence (Risk Factors) or decrease the likelihood of these behaviors (Protective Factors)¹.

Factor scores were calculated for each student on each of 32 scales. The proportion of students scoring at or above the statistical risk level on each factor was analyzed to determine areas of greatest risk and to establish prevention priorities. The survey instrument was a self-report paper and pencil form completed by students in a classroom setting. The sample for the survey was all 6th, 8th, 10th and 12th grade students in Allegany County Schools. Each risk and protective factor is represented by one or more scale consisting of one or more item from the survey. Appendix A provides a data dictionary with the item definition of each scale. Each student was given a score for each of the scales. Based on the distribution of scores for over 20,000 students in a 2001 survey in 29 rural and small-town schools in the five-county Finger Lakes region of upstate New York, standard scores (z-scores) were calculated by subtracting the mean score from each individual's score and dividing by the standard deviation. Scale scores are standardized using separate parameters for middle school (grades 6 & 8) and high school (grade 10 & 12).

¹ Note: The survey does not measure all risk or protective factors. For example, poverty is a significant risk factor.

Students with a standard score of 1 or greater on any risk factor were considered to be at-risk. A standard score of -1 or less on any protective factor was considered a lack of protection and therefore at-risk.

Life Skills Training (LST) is one the most widely used universal substance abuse prevention strategies. LST has been evaluated extensively, often in controlled settings. LST is listed on the Substance Abuse Mental Health Services Administration (SAMHSA) National Registry of Evidence-based Prevention Programs (NREPP) and is a designated Model Program on the Center for the Study of Violence Blueprint Projects list. LST is a classroom curriculum program that addresses substance abuse knowledge, perception of risk of harm from use of substances, refusal skills, communication skills and other skills needed to resist the use of substances. LST begins with 15 classroom sessions in 6th grade followed by 10 refresher sessions in 7th and nine sessions in 8th grade.

Life Skills Training was selected as a model prevention program for Allegany County because of its potential effects on many of the factors identified in the student survey. For example, LST is designed to change students' perception of risk related to use of alcohol, tobacco and other substances. Life Skills Training is a universal prevention measure in the individual domain and is also designed to increase protective factors. LST is provided with strict fidelity by trained prevention specialists from the Allegany Council on Alcoholism and Substance Abuse.

Previous research² demonstrated dramatic and significant effects of LST in reducing prevalence of substance use among Allegany County students. Estimated effects of LST included a 12.6% decrease in smoking; 41.1% decrease in drinking; 62.6% decrease in marijuana use and 52.5% decrease in other drug use.

Method

In order to determine the impact of LST on risk and protective factors, the cohort of Allegany County sixth graders in 2005 was followed longitudinally through their twelfth grade year in 2011. The Student Risk and Protective Factor Survey has been completed by all students in grades six, eight and ten in 11 Allegany County Schools in every odd numbered year since 2001. In 2011, twelfth grade students also completed the survey. The survey includes multiple items that are combined to calculate scales representing risk or protective factor in the individual, family, school and community domains. Scale scores were calculated for each student and the proportion of students who score at or above a statistical risk level was measured for the cohort in 2005 as sixth graders and compared to the same cohort in 2011 as twelfth graders.

As students age and move from one grade level to another, the probability that they will use alcohol, tobacco or other substances generally increases due to increased risk factors, decreased protective factors including reduced perception of harm, increased exposure to substances, increased acceptance by peers, adults and parents and decreased exposure to prevention strategies. In order to determine if LST results in any change in proportion of scoring at risk

² Lillis, R., (2011) *Impact of Life Skills Training (LST) in Allegany County Schools: Longitudinal Analysis of Prevalence of Substance Use in the 2005 Sixth Grade Cohort*. Evalumetrics Research Report AI-2011-1.

levels on various factors in twelfth grade compared to sixth grade, it is necessary to compare those changes to changes in a sample of students in similar schools who were not exposed to LST. The 2005 sixth grade cohort from Allegany County schools in which LST was not offered was selected to serve as the comparison group. These schools have also participated in the Risk and Protective Factor Survey every odd numbered year since 2001.

Results

Two sets of factors were selected for analysis. The first set includes those factors that are targeted by LST and are most likely to be addressed in LST learning objectives. The second set includes those factors that were shown to have the strongest statistical relationship to students' reported use of alcohol and other substances.

Table 1 shows the proportions of students scoring at the risk level for factors targeted by LST. Column two shows the proportion of students in LST schools at risk on selected factors when they were in sixth grade in 2005 and column three shows proportions for the same cohort in 2011 when they were in twelfth grade. Columns four and five show similar results for students in non-LST schools. In both groups the proportion at risk on most LST target factors increased dramatically as students aged. However, the rate of increase was significantly less for students in schools who were exposed to LST in middle school compared to students in the comparison group who were not exposed to LST.

Students who were exposed to Life Skills Training (LST) demonstrated significantly smaller increases in the proportion of students who are at risk from targeted factors and from the factors that have the strongest relationship to substance use .

For example, LST twelfth grade students in 2011 were less likely to score at risk for favorable attitudes toward drug use than when they were in sixth grade. However, twelfth grade students in comparison schools were over three times more likely to be at risk than when they were in sixth grade.

The last two columns display the results of log linear analysis expressed as χ^2 and the corresponding probability. With the exception of favorable attitudes toward drug use and lack of social skills, the differences for all comparisons between LST and non-LST schools were statistically significant with probability of less than .001.

Table 2 shows results for factors that have the strongest statistical relationship to students' reports of substance use. In every case, students in LST schools showed significantly less increase in risk on all factors.

Table 1

Student risk and Protective Factor Survey Pre-LST vs. Post-LST Proportions at Risk	LST Schools			Non-LST Schools			Change	Diff.	Prob.
	Proportion at Risk 2005 (gr6)	Proportion at Risk 2011 (gr12)	Change (Ratio)	Proportion at Risk 2005 (gr6)	Proportion at Risk 2011 (gr12)	Difference			
LST Target Factors	176	178	(Ratio)	306	235	(Ratio)	Difference	chi ²	Prob.
Favorable Attitudes Toward Drug Use (R)	4.5%	3.9%	0.9	1.6%	5.1%	3.1	72.3%	5.49	ns
Parental Attitudes Favorable to Drug Use (R)	1.7%	16.9%	9.9	1.0%	23.8%	24.3	59.3%	97.85	<.001
Perceived Risks of Drug Use (P)	8.5%	18.0%	2.1	4.2%	21.3%	5.0	57.9%	43.62	<.001
Parental Attitudes Favorable to Antisocial Beh (R)	6.3%	11.2%	1.8	2.9%	11.9%	4.1	55.6%	19.50	<.001
Fam History of Antisocial Behavior (R)	4.0%	16.3%	4.1	2.9%	22.1%	7.5	45.6%	64.80	<.001
Favorable Attitudes Toward Antisocial Beh (R)	8.5%	14.6%	1.7	6.9%	18.3%	2.7	35.7%	19.96	<.001
Social Skills (P)	10.8%	8.4%	0.8	5.6%	6.4%	1.1	32.1%	5.13	ns
Friend Use Drugs (R)	1.7%	19.7%	11.5	1.3%	22.1%	16.9	31.9%	91.70	<.001
Laws and Norms Favorable to Drug Use (R)	2.8%	18.0%	6.3	4.2%	30.2%	7.1	11.0%	98.70	<.001

Table 2

Student risk and Protective Factor Survey Pre-LST vs. Post-LST Proportions at Risk	LST Schools			Non-LST Schools			Diff.	chi ²	Prob.
	Proportion at Risk 2005 (gr6)	Proportion at Risk 2011 (gr12)	Change	Proportion at Risk 2005 (gr6)	Proportion at Risk 2011 (gr12)	Change			
Most Significant Predictors of Alcohol Use	176	178	(Ratio)	306	235	(Ratio)	Difference		
Perceived Availability of Drugs (R)	3.4%	16.9%	4.9	1.3%	23.8%	18.2	72.9%	87.31	<.001
Parental Attitudes Favorable to Drug Use (R)	1.7%	16.9%	9.9	1.0%	23.8%	24.3	59.3%	97.85	<.001
Perceived Risks of Drug Use (P)	8.5%	18.0%	2.1	4.2%	21.3%	5.0	57.9%	43.62	<.001
Friend Use Drugs (R)	1.7%	19.7%	11.5	1.3%	22.1%	16.9	31.9%	91.70	<.001
Rebelliousness (R)	9.1%	16.9%	1.9	8.8%	20.9%	2.4	21.5%	21.06	<.001
Antisocial Behavior (R)	2.3%	7.9%	3.5	2.6%	8.5%	3.3	-6.3%	15.16	<.001
Sensation Seeking (R)	10.2%	25.8%	2.5	17.3%	30.6%	1.8	-42.8%	30.35	<.001
Little Commitment to School (R)	2.3%	8.4%	3.7	4.2%	8.9%	2.1	-76.3%	11.58	<.001

Discussion

Results of this longitudinal cohort analysis indicate that students who attend Allegany County schools who were exposed to Life Skills Training (LST) demonstrated significantly smaller increases in the proportion of students at risk from factors targeted by LST and for factors that have the strongest relationship to substance use. This analysis is limited to a quasi-experimental design, that is, neither students nor schools could be randomly assigned to receive the LST intervention. However, the comparison schools have student- enrollment, demographics and low transiency rates very similar to the schools with LST.

Thus, it is likely that LST was a significant factor in reducing substance use related risk factors among twelfth grade students.

Appendix A
Risk and Protective Factor Survey
Factor (Scale) Definitions
October 2000

COMMUNITY: Low Neighborhood Attachment (R1)

I like my neighborhood.

If I had to move, I would miss the neighborhood I now live in.

COMMUNITY: Community Disorganization (R2)

How much do each of the following statements describe your neighborhood:

crime and/or drug selling.

fight.

lots of empty or abandoned buildings.

lots of graffiti.

COMMUNITY: Personal Transitions and Mobility (R3)

Have you changed homes in the past year?

How many times have you changed homes since kindergarten?

Have you changed schools in the past year?

How many times have you changed schools since kindergarten?

COMMUNITY: Laws and Norms Favorable to Drug Use (R4)

How wrong would most adults in your neighborhood think it was for kids your age:

to use marijuana.

to drink alcohol.

to smoke cigarettes.

If a kid drank some beer, wine or hard liquor (for example, vodka, whiskey, or gin) in your neighborhood would he or she be caught by the police?

If a kid smoked marijuana in your neighborhood would he or she be caught by the police?

If a kid carried a handgun in your neighborhood would he or she be caught by the police?

COMMUNITY: Perceived Availability of Drugs & Handguns (R5)

If you wanted to get some beer, wine or hard liquor (for example, vodka, whiskey, or gin), how easy would it be for you to get some?

If You wanted to get some cigarettes, how easy would it be for you to get some?

If you wanted to get some marijuana, how easy would it be for you to get some?

If you wanted to get a drug like cocaine, LSD, or amphetamines, how easy would it be for you to get some?

If you wanted to get a handgun, how easy would it be for you to get one?

COMMUNITY: Opportunities for Prosocial Involvement (P1)

Which of the following activities for people your age are available in your community?

sports teams.

scouting.

boys and girls clubs.

4-H clubs.

service clubs.

COMMUNITY: Rewards for Prosocial Involvement (P2)

My neighbors notice when I am doing a good job and let me know.

There are people in my neighborhood who encourage me to do my best.

There are people in my neighborhood who are proud of me when I do something well.

FAMILY: Lack of Supervision and Rules (R6)

My parents ask if I've gotten my homework done.

My parents want me to call if I'm going to be late getting home.

Would your parents know if you did not come home on time?

When I am not at home, one of my parents knows where I am and who I am with.

The rules in my family are clear.

My family has clear rules about alcohol and drug use.

FAMILY: Poor Discipline (R7)

If you drank some beer or wine or liquor (for example, vodka, whiskey, or gin) without your parents' permission, would you be caught by your parents?

If you skipped school would you be caught by your parents?

If you carried a handgun without your parents' permission, would you be caught by your parents?

FAMILY: Family Conflict (R8)

People in my family often insult or yell at each other.

People in my family have serious arguments.

We argue about the same things in my family over and over.

FAMILY: Family History of Antisocial Behavior (R9)

Has anyone in your family ever had a severe alcohol or drug problem?

Have any of your brothers or sisters ever:

drunk beer, wine or hard liquor (for example, vodka, whiskey or gin)?

smoked marijuana?

smoked cigarettes?

taken a handgun to school?

been suspended or expelled from school?

About how many adults have you known personally who in the past year have:

used marijuana, crack, cocaine, or other drugs?

sold or dealt drugs?

done other things that could get them in trouble with the police like stealing, selling stolen goods, mugging or assaulting others, etc)

gotten drunk or high?

FAMILY: Parental Attitudes Favorable Toward Drug Use (R10)

How wrong do your parents feel it would be for you to:

drink beer, wine or hard liquor (for example, vodka, whiskey or gin) regularly?

smoke cigarettes?

smoke marijuana?

FAMILY: Parental Attitudes Favorable to Antisocial Behavior (R11)

steal anything worth more than \$5?

draw graffiti, or write things or draw pictures on buildings or other property (without the owner's permission)?

pick a fight with someone?

FAMILY: Attachment (P3)

Do you feel very close to your mother?

Do you share your thoughts and feelings with your mother?

Do you feel very close to your father?

Do you share your thoughts and feelings with your father?

FAMILY: Opportunities for Prosocial Involvement (P4)

My parents give me lots of chances to do fun things with them.

My parents ask me what I think before most family decisions affecting me are made.

If I had a personal problem, I could ask my mom or dad for help.

FAMILY: Rewards for Prosocial Involvement (P5)

My parents notice when I am doing a good job and let me know about it.

How often do your parents tell you they're proud of you for something you've done?

Do you enjoy spending time with your mother?

Do you enjoy spending time with your father?

SCHOOL: Little Commitment to School (R13)

How often do you feel that the school work you are assigned is meaningful and important? (#55)

How interesting are most of your courses to you? (#56)

How important do you think the things you are learning in school are going to be for your later life? (#57)

Now, thinking back over the past year in school, how often did you...

Enjoy being in school? (#58a)

Hate being in school? (#58b)

Try to do your best work in school? (#58c)

During the LAST FOUR WEEKS how many whole days have you missed...

because of illness (#59a)

because you skipped or “cut” (#59b)

for other reasons (#59c)

SCHOOL: Opportunities for Prosocial Involvement (P6)

In my school, students have lots of chances to help decide things like class activities and rules. (#60)

There are lots of chances for students in my school to talk with a teacher one-on-one. (#61)

Teachers ask me to work on special classroom projects. (#62)

There are lots of chances for students in my school to get involved in sports, clubs, and other school activities outside of class. (#63)

I have lots of chances to be part of class discussions or activities. (#64)

SCHOOL: Rewards for Prosocial Involvement (P7)

My teacher(s) notices when I am doing a good job and lets me know about it. (#65)

The school lets my parents know when I have done something well. (#66)

I feel safe at my school. (#67)

My teachers praise me when I work hard in school. (#68)

PEER-INDIVIDUAL: Rebelliousness (R14)

I do the opposite of what people tell me, just to get them mad.

I ignore rules that get in my way.

I like to see how much I can get away with.

PEER-INDIVIDUAL: Impulsiveness (R16)

It is important to think before you act.

Do you have to have everything right away?

I often do things without thinking about what will happen.

Do you often switch from activity to activity rather than sticking to one thing at a time?

PEER-INDIVIDUAL: Antisocial Behavior (R17)

How many times in the past year (12 months) have you:

been suspended from school?

carried a handgun?

sold illegal drugs?

stolen or tried to steal a motor vehicle such as a car or motorcycle?

been arrested?

attacked someone with the idea of seriously hurting them?

been drunk or high at school?

taken a handgun to school?

PEER-INDIVIDUAL: Favorable Attitudes Toward Antisocial Behavior (R18)

How wrong do you think it is for someone your age to:

take a handgun to school?

steal anything worth more than \$5?

pick a fight with someone?

attack someone with the idea of seriously hurting them?

stay away from school all day when their parents think they are at school?

PEER-INDIVIDUAL: Favorable Attitudes Toward Drug Use (R19)

How wrong do you think it is for someone your age to:

drink beer, wine or hard liquor (for example, vodka, whiskey or gin) regularly?

smoke cigarettes?

smoke marijuana?

use LSD, cocaine, amphetamines or another illegal drug?

PEER-INDIVIDUAL: Perceived Risks of Drug Use (P8)

How much do you think people risk harming themselves (physically or in other ways) if they:

Smoke one or more packs of cigarettes per day?

Try marijuana once or twice?

Smoke marijuana regularly? Take one or two drinks of an alcoholic beverage (beer, wine, liquor) nearly every day?

PEER-INDIVIDUAL: Interaction with Antisocial Peers (R20)

Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have:

been suspended from school? carried a handgun? sold illegal drugs?

stolen or tried to steal a motor vehicle such as a car or motorcycle?

been arrested? dropped out of school?

PEER-INDIVIDUAL: Friends' Use of Drugs (R21)

Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have:

smoked cigarettes?

tried beer, wine or hard liquor (for example, vodka, whiskey or gin) when their parents didn't know about it?

used marijuana?

used LSD, cocaine, amphetamines, or other illegal drugs?

PEER-INDIVIDUAL: Sensation Seeking (R22)

How many times have you done the following things?

Done what feels good no matter what.

Done something dangerous because someone dared you to do it.

Done crazy things even if they are a little dangerous.

PEER-INDIVIDUAL: Rewards for Antisocial Involvement (R23)

What are the chances you would be seen as cool if you:

smoked cigarettes?

began drinking alcoholic beverages regularly,
that is, at least once or twice a month?

smoked marijuana?

carried a handgun?

PEER-INDIVIDUAL: Social Skills (P10)

You're looking at CD's in a music store with a friend. You look up and see her slip a CD under her coat. She smiles and says "Which one do you want? Go ahead, take it while nobody's around." There is nobody in sight, no employees and no other customers. What would you do now?

Ignore her

Grab a CD and leave the store

Tell her to put the CD back

Act like it's a joke, and ask her to put the CD back

It's 8:00 on a weeknight and you are about to go over to a friend's home when your mother asks you where you are going. You say "Oh, just going to go hang out with some friends." She says, "No, you'll just get into trouble if you go out. Stay home tonight." What would you do now? Leave the house anyway

Explain what you are going to do with your friends, tell her when you'd get home, and ask if you can go out

Not say anything and start watching TV

Get into an argument with her

You are visiting another part of town, and you don't know any of the people your age there. You are walking down the street, and some teenager you don't know is walking toward you. He is about your

size, and as he is about to pass you, he deliberately bumps into you and you almost lose your balance. What would you say or do?

Push the person back

Say "Excuse me" and keep on walking

Say "Watch where you're going" and keep on walking

Swear at the person and walk away

You are at a party at someone's house, and one of your friends offers you a drink containing alcohol. What would you say or do?

Drink it

Tell your friend "No thanks, I don't drink" and suggest that you and your friend go and do something else

Just say "No, thanks" and walk away

Make up a good excuse, tell your friend you had something else to do, and leave

PEER-INDIVIDUAL: Belief in the Moral Order (P11)

I think it is okay to take something without asking if you can get away with it.

I think sometimes it's okay to cheat at school.

It is all right to beat up people if they start the fight.

It is important to be honest with your parents, even if they become upset or you get punished.)