

Appendix B

STATISTICAL APPENDIX

Return Rate

There was a return rate on surveys of 84% (277 districts out of 330). Of these 277, 21% (57 districts) had pre- and post behavioral outcome data based on student surveys. These districts had data for Year I of the Health Protection Fund (1993 school year) and for Year V (1997 school year). This represents 17% of the total number of districts (57 out of 330). There were 220 districts with program data but not pre-post outcome data.

Within this 21% for specific behavioral risk behaviors:

- 51% had pre-post outcome data for tobacco use in middle school (10% of the 277, 9% of the 330).
- 81% had pre-post outcome data for tobacco use in high school (17% of the 277, 14% of the 330).
- 58% had pre-post outcome data for alcohol use in middle school (12% of the 277, 10% of the 330).
- 96% had pre-post outcome data for alcohol use in high school (20% of the 277, 17% of the 330).
- 60% had pre-post outcome data for marijuana use in middle school (12% of the 277, 10% of the 330).
- 86% had pre-post outcome data for marijuana use in high school (18% of the 277, 15% of the 330).
- 32% had pre-post outcome data for violence in middle school (6% of the 277, 5% of the 330).
- 58% had pre-post outcome data for violence in high school (12% of the 277, 10% of the 330).

Of the eight pre-post outcome data change categories of risk behaviors:

- 2% had pre-post outcome data in one change category of risk behavior.
- 0% had pre-post outcome data in two change categories of risk behavior.
- 19% had pre-post outcome data in three change categories of risk behavior.
- 33% had pre-post outcome data in four change categories of risk behavior.
- 4% had pre-post outcome data in five change categories of risk behavior.
- 16% had pre-post outcome data in six change categories of risk behavior.
- 2% had pre-post outcome data in seven change categories of risk behavior.
- 24% had pre-post outcome data in all eight change categories of risk behavior.

Behavior Rates

The rates below represent data from student-based behavior surveys on the local level available for those districts with pre-post outcome data compared with data from two large state surveys.

- Local Rates: Local Youth Risk Behavior Survey, local Johnson Institute Survey, and/or local American Drug and Alcohol Survey, 1993 and 1997, middle and high school grades. MRYBS (Youth Risk Behavior Survey, Massachusetts Department of Education), 1993 and 1997, 9-12th grades. H&A (Health and Addictions Survey, Massachusetts Department of Public Health), 1993 and 1996, 7-8th grades, 9-12th grades.

	Local Rate %	MYRBS %	H&A %
YrI tobacco use in high school	29	30	33
YrV tobacco use in high school	27	35	35
YrI tobacco use in middle school	17		22
YrV tobacco use in middle school	15		21
YrI alcohol use in high school	49	47	49
YrV alcohol use in high school	46	53	53
YrI alcohol use in middle school	20		28
YrV alcohol use in middle school	21		26
YrI marijuana use in high school	25	20	29
YrV marijuana use in high school	27	31	43
YrI marijuana use in middle school	7		7
YrV marijuana use in middle school	10		10
YrI violence in high school	22	41	
YrV violence in high school	18	35	
YrI violence in middle school	14		
YrV violence in middle school	14		

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Percent Pre-Post (Yr I to Yr V) that Decreased, Stayed the Same, and Increased on Behaviors

	Decreased	Stayed the Same	Increased
Tobacco use in high school	50	11	39
Tobacco use in middle school	48	21	31
Alcohol use in high school	49	4	47
Alcohol use in middle school	39	22	39
Marijuana use in high school	39	6	55
Marijuana use in middle school	12	21	67
Violence in high school	58	15	27
Violence in middle school	44	28	28

Relationships between Individual Program Practices and Behavior Reductions (All p values are one-tailed)

In each table showing the relationships, either a Pearson's correlation (*r*) or an independent samples t-test (*t*) is reported. For those relationships based on a t-test, the means of the groups are given for the behavior rate. In all cases, the mean for the group that reported engaging in the program practice (yes) is given first, followed by the mean for the group that reported not engaging in the program practice (no). *p*=significance level, *n*=number of responses.

I. Exposure to Health Education

1. & 2. Hours of Health Education and Prevention Education as Policy

CSHE Program Practice	Behavior	<i>r</i>	<i>t</i> (<i>m</i>)	<i>p</i>	<i>n</i>
Health hours received in 11th	High school alcohol	-.26		.03	50
Health hours received in 11th	High school marijuana	-.28		.02	48
Health hours received in 12th	High school tobacco	-.26		.04	46
Health hours received in 12th	High school marijuana	-.33		.01	48
Health hours required in 12th	High school violence	-.35		.03	29
Health hours received throughout high school (grades 9-12)	High school marijuana	-.25		.04	48
Percent of health hours received in non-health class (academics)	High school violence	-.46		.004	33
Tobacco policy requires students who violate to participate in prevention ed	High school tobacco		1.76 (-4.63, -.14)	.04	45

3. Skills Instruction in Health Education

CSHE Program Practice	Behavior	<i>r</i>	<i>p</i>	<i>n</i>
Amount of time teaching role-play and skills rehearsal	High school violence	-.27	.06	33
Amount of time teaching how to generate alternative solutions	High school marijuana	-.35	.005	49
Amount of time teaching how to generate alternative solutions	Middle school alcohol	-.25	.08	33
Amount of time teaching media literacy	Middle school marijuana	-.24	.08	34

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4. Health Curriculum Framework

CSHE Program Practice	Behavior	r	t (m)	p	n
Training provided to teachers to match framework w/curriculum	High school tobacco		2.01 (-4.32, 1.22)	.02	46
Practice integration with other components of CSHE	High school violence		1.60 (-2.22, .36)	.06	33
Degree that course scheduling is obstacle (less to more)	High school marijuana	.26		.03	49
Degree that course scheduling is obstacle (less to more)	Middle school tobacco	.25		.09	29
Degree that support by non-health staff is obstacle (less to more)	High school marijuana	.23		.05	49

II. Involvement of Important Others

A. Adults 1. School Health Staff

CSHE Program Practice	Behavior	r	t (m)	p	n
Frequency coordination w/ physical education	Middle school violence	-.51		.015	18
Any coordination w/ physical education	Middle school tobacco		1.40 (-1.26, 1.00)	.10	20
Any interdisciplinary instruction w/ physical education	Middle school violence		4.14 (-1.25, 1.00)	.0005	18
Frequency interdisciplinary instruction w/ family & consumer sciences	Middle school tobacco	-.47		.01	24
Frequency collaboration w/ school health services	Middle school marijuana	-.37		.015	34
Any collaboration w/ school counseling/psychological services	High school marijuana		2.74 (1.65, 6.00)	.01	49
Any collaboration w/ school counseling/psychological services	High school alcohol		1.86 (-1.46, 2.50)	.06	51

2. Academic Teachers

CSHE Program Practice	Behavior	r	t (m)	p	n
Frequency interdisciplinary instruction w/ ELA	Middle school marijuana	-.29		.045	34
Frequency interdisciplinary instruction w/ science	Middle school marijuana	-.43		.005	34
Frequency interdisciplinary instruction w/ history & SS	Middle school marijuana	-.39		.01	34
Frequency interdisciplinary instruction w/ math	Middle school marijuana	-.31		.035	34
Frequency interdisciplinary instruction w/ science	High school marijuana	-.21		.07	49
Any interdisciplinary instruction w/ science	Middle school alcohol		1.71 (.44, 4.25)	.07	33
Any interdisciplinary instruction w/ math	High school violence		1.63 (-3.09, -.50)	.06	33

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3. Parent Involvement

CSHE Program Practice	Behavior	t (m)	p	n
Health curriculum development & review	Middle school tobacco	1.79 (-2.20, 1.33)	.04	29
Health curriculum development & review	Middle school alcohol	1.83(-.16, 4.25)	.045	33
Health curriculum development & review	Middle school violence	1.37 (-1.29, .00)	.10	18
Health homework assignments	Middle school tobacco	1.85 (-1.86, 1.83)	.04	29
School health advisory council	Middle school tobacco	2.87(-1.37, 2.50)	.004	29
School health advisory council	High school tobacco	2.43(-3.34, 7.60)	.03	46

4. Community Involvement through Participation on School Health Advisory Council

CSHE Program Practice	Behavior	t (m)	p	n
Public Health Department	High school tobacco	1.73 (-3.45, 1.15)	.05	46
Public Health Department	Middle school tobacco	1.57 (-2.20, 1.33)	.06	29
Local hospital	Middle school violence	1.63 (-2.00, -.50)	.06	18
Clergy	Middle school tobacco	1.86 (-3.50, .58)	.03	29
Clergy	Middle school alcohol	2.29 (-2.16, 2.66)	.01	33
Clergy	Middle school marijuana	1.66 (1.69, 4.23)	.05	34
Clergy	High school violence	1.96 (-3.25, .41)	.03	33

B. Peer Participation in School Health

1. Peer Health Educators

Percent Served and Settings

CSHE Program Practice	Behavior	r	p	n
Percent of students served	High school marijuana	-.25	.045	47
		t (m)		
Health courses	High school marijuana	1.89 (.21, 4.75)	.03	48
Health courses	Middle school tobacco	1.67 (-2.75, .92)	.05	29
Health courses	High school tobacco	1.91 (-3.68, 1.00)	.03	46
Non-health courses, such as academics	Middle school tobacco	1.37 (-3.00, -.10)	.09	29
Conflict resolution/mediation sessions	Middle school alcohol	3.66 (-2.05, 3.92)	.0005	32
Conflict resolution/mediation sessions	Middle school marijuana	1.93 (1.90, 5.07)	.03	33
Conflict resolution/mediation sessions	Middle school violence	1.90 (-1.64, .00)	.04	18
Conflict resolution/mediation sessions	Middle school tobacco	1.63 (-2.52, .91)	.05	29
Assembly programs	High school tobacco	1.40 (-3.28, .43)	.08	46
Assembly programs	Middle school marijuana	1.31 (2.23, 4.29)	.10	34
Discussion/support groups	High school marijuana	1.97 (.47, 5.61)	.03	49
Discussion/support groups	High school tobacco	2.45 (-3.79, 2.50)	.01	46
Discussion/support groups	High school violence	1.98 (-2.40, 3.33)	.04	33
Discussion/support groups	Middle school violence	2.25 (-1.73, .14)	.02	18
Discussion/support groups	Middle school alcohol	1.46 (-.68, 2.41)	.07	33

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Activities and Training

CSHE Program Practice	Behavior	t (m)	p	n
Talking about personal problems w/in conflict resolution	Middle school tobacco	2.82 (-5.16, 3.80)	.01	17
Talking about personal problems w/in conflict resolution	Middle school alcohol	2.19 (-3.14, 1.00)	.02	19
Talking about personal problems w/in conflict resolution	Middle school violence	3.71 (-2.86, .50)	.003	11
Demonstration of health skills w/in assemblies	High school tobacco	1.93 (-11.00, -1.85)	.05	32
Giving information about risk behavior w/in discussion	High school tobacco	1.84 (-7.00, -2.64)	.03	34
Demonstration of health skills w/in discussion	High school marijuana	1.99 (-8.00, 1.24)	.02	36
School health advisory council	Middle school tobacco	2.04 (-1.83, 2.40)	.03	29
School health advisory council	Middle school violence	4.14 (-1.25, 1.00)	.0005	18
School health advisory council	High school marijuana	1.57 (.94, 5.30)	.06	49
		r		
Training on demo of health skills	High school marijuana	-.34	.005	49
Training on demonstration of health skills	High school tobacco	-.19	.10	46

III. Local Program Evaluation Efforts

CSHE Program Practice	Behavior	t (m)	p	n
District written improvement plan includes goals for CSHE	Middle school tobacco	2.62 (-2.18, 2.28)	.005	29
District written improvement plan includes goals for CSHE	Middle school alcohol	1.87 (-.56, 4.30)	.04	33
District written improvement plan includes goals for CSHE	Middle school marijuana	1.79 (2.37, 5.40)	.04	34
District written improvement plan includes goals for CSHE	Middle school violence	4.14 (-1.25, 1.00)	.0005	18
Evaluation of health-related school policies	Middle school tobacco	1.81 (-2.61, 1.36)	.04	29
Evaluation of goals or outcomes in health education	Middle school tobacco	2.51 (-2.30, 3.50)	.01	29
Evaluation of goals or outcomes in health education	Middle school violence	4.14 (-1.25, 1.00)	.0005	18
Evaluation of goals or outcomes in health education	Middle school marijuana	1.51 (2.66, 5.57)	.08	34
Evaluation of health education curriculum	High school marijuana	1.92 (1.20, 6.33)	.04	49
Evaluation of staff development in health education	Middle school tobacco	1.76 (-2.61, 1.36)	.04	29

Regression Models

Middle School Tobacco Use

The overall model was significant, $F=3.91$, df 3, 20, $p=.02$. The adjusted R Square was .28.

Source	t	b	p
Local evaluation of health education goals & outcomes	-1.76	-.35	.09
Peer health educators working in health classes	-1.54	-.28	.13
Frequency interdisciplinary instruction w/ FCS	-1.36	-.27	.18

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High School Tobacco Use

The overall model was significant, $F=5.97$, df 3, 42, $p=.002$. The adjusted R Square was .25

Source	t	b	p
Parents on school health advisory council	-2.71	-.35	.01
Peer health educators working in discussion groups	-2.42	-.31	.02
Training for teachers on matching curriculum w/framework	-1.79	-.23	.07

Middle School Alcohol Use

The overall model was significant, $F=5.72$, df 3, 28, $p=.003$. The adjusted R Square was .31.

Source	t	b	p
Peer health educators working in conflict resolution	-2.55	-.41	.01
Clergy on the school health advisory council	-1.31	-.20	.19
Parents curriculum development and review	-1.10	-.18	.28

Middle School Marijuana Use

The overall model was significant, $F=4.05$, df 3, 29, $p=.01$. The adjusted R Square was .22.

Source	t	b	p
Interdisciplinary instruction w/ history social science	-1.55	-.27	.13
Peer health educators working in conflict resolution	-1.53	-.24	.13
Interdisciplinary instruction w/ science	-1.30	-.23	.20

High School Marijuana Use

The overall model was significant, $F=4.52$, $df=5$, 39, $p=.002$. The adjusted R Square was .29.

Source	t	b	p
Skills instruction in generating alternative solutions	-3.06	-.39	.004
Peer health educators working in health classes	-2.56	-.34	.01
Health hours received in the 11th grade	-2.09	-.27	.04
Time for course scheduling less of an obstacle	1.61	.21	.11
Percent students served by peer health educators	-1.60	-.20	.11

Middle School Violence

The overall model was significant, $F=3.54$, $df=2$, 15, $p=.05$. The adjusted R Square was .23.

Source	t	b	p
Frequency of coordination w/ physical education	-1.71	-.39	.10
Peer health educators working in discussion groups	-1.18	-.27	.25

High School Violence

The overall model was significant, $F=4.91$, $df=3$, 25, $p=.008$. The adjusted R Square was .30.

Source	t	b	p
Peer health educators working in discussion groups	-2.05	-.33	.05
Receiving health in non-health classes, such as academics	-1.67	-.28	.10
Clergy on school health advisory council	-1.43	-.24	.16

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Comparison of Pre-Post Districts with Non Pre-Post Districts on Demographics

The table below represents demographics on which the districts were compared to assess the similarities or differences between those districts with pre-post outcome data and those remaining districts without pre-post outcome data (non pre-post).

	Pre-Post	Non Pre-Post
Kind of community--Urban	23% (n=13)	20% (n=44)
Kind of community--Suburban	56% (n=32)	53% (n=116)
Kind of community--Rural	21% (n=12)	27% (n=60)
Average district enrollment	4464 (n=57) w/out Boston 3405 (n=56)	2916 (n=219)
Average high school enrollment	1277 (n=57) w/out Boston 957 (n=56)	851 (n=219)
Average middle school enrollment	804 (n=57) w/out Boston 627 (n=56)	531 (n=219)
Average number of high schools	1 (n=57)	1 (n=21)
Average number of middle schools	1 (n=57)	1 (n=219)
Average Massachusetts Comprehensive Assessment System (MCAS) 10th grade ELA score	232 (n=55)	233 (n=196)
Average MCAS 10th grade Math score	223 (n=55)	224 (n=196)
Average MCAS 10th grade Science score	227 (n=55)	228 (n=196)
Average MCAS 8th grade ELA score	239 (n=51)	239 (n=175)
Average MCAS 8th grade Math score	229 (n=51)	230 (n=175)
Average MCAS 8th grade Science score	228 (n=51)	228 (n=175)
Average percent students eligible for free and reduced lunch	19 (n=56)	18 (n=215)
Average percent minority	13 (n=57)	10 (n=219)