

# Factors Associated with Aggressive Behavior of Rural Middle School Students

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## **Aggressive behavior in schools**

Aggressive behavior in schools is a widespread problem that can damage a school's climate, adversely affect students' academic learning and emotional development, and precipitate extreme incidents of violent behavior, including suicide and homicide (Adams and Russakoff, 1999; Hoover, Oliver, and Hazler, 1991; Head, 1996; Olweus, 1993). To the extent that we can better assess and understand the network of factors associated with aggressive behavior, we will be better able to reduce the prevalence of this problem.

## **Approach**

In this study a comprehensive theoretical framework is employed to examine the network of relationships between verbal and physical aggressive behavior and theoretically-derived measures of beliefs and attitudes, perceived norms, perceived efficacy, behavioral intentions, and concurrent behaviors (see Figure 1). This study extends the recent work with an urban middle school sample of Bosworth and colleagues (1999) to our rural middle school sample; while at the same time incorporating additional theoretically important constructs not previously considered in Bosworth's or other published research.

Reported here are results of our initial analyses using one wave of cross-sectional data only.

## **Bullying versus Aggressive Behavior**

Part of this study is based on comparisons with Bosworth's (1999) findings in an urban middle school sample. While the items employed to create Bosworth's and our dependent variables are very similar, Bosworth uses the term ***bullying***, while we prefer the term ***aggressive behavior***, believing that bullying implies repeated behavior and/or a power imbalance. Further, we employ separate measures of *physical* and *verbal* aggressive behavior, validated by our factor analysis results. Our verbal and physical aggression factors consist of three items each (see table 5). Bosworth's one bullying factor consists of four verbal aggression items and one physical aggression item, so it is primarily a measure of verbal aggression.

## Sample

Data are from the first (baseline) of four linked assessments for a six-school longitudinal intervention study in a rural Northern California county. This study is part of a national violence prevention demonstration program funded by the federal Center for Substance Abuse Prevention.

The analysis sample consists of all 395 participating students from grades 6, 7, and 8 with positive parental consent (consent rate = .89).

Additional elementary-level students also are participating in the main intervention study but are not included in these analyses.

## Measures

Each construct was measured by a 3-item subscale derived from our theoretical framework (see Figure 1). This framework builds on Fishbein and Ajzen's (1975, 1989) *theory of reasoned action* and was developed in close collaboration with our site-based evaluation work group.

Factor analyses were performed within each of five construct domains (*beliefs and attitudes, perceived peer norms, perceived self-efficacy, behavioral intentions, and behaviors*), and results strongly supported the conceptualized structure of constructs within each domain (see Tables 1 through 5).

Coefficient alphas for these measures in this sample range from .65 to .89, with a median of .78.

## Hypotheses

- H1. Males will self-report more physical aggressive behavior, while verbal aggression will be reported similarly by both genders.
- H2. Factors found by Bosworth (1999) to be associated with bullying in a urban middle school sample will similarly be associated with physical and verbal aggression in this rural middle school sample:  
(a) *beliefs supportive of violence*, (b) *belonging at school*, (c) *confidence in using non-violent strategies*, (d) *intentions to use non-violent strategies*, and (e) *misconduct*.
- H3. Additional theoretically-derived factors not considered by Bosworth also will be associated with verbal and physical aggressive behavior:
- *beliefs* regarding trusting communication;
  - *perceived peer norms* regarding use of a) aggression b) drugs and alcohol, and c) trusting communication;
  - *perceived self-efficacy* in: a) refusal of negative activities, and b) accepting help;
  - *intentions* to a) refuse negative activities, and b) accept help; and
  - trusting communication *behavior*.

# Analyses

H1. Independent sample t-tests between male and female participants.

H2. Two multiple regression analyses with (1) verbal aggression, and (2) physical aggression as dependent variables; and our versions of Bosworth's five factors as independent variables:

## Bosworth's factors

- beliefs supportive of violence
- belonging at school
- confidence in using non-violent strategies
- intentions to use non-violent strategies
- misconduct

## Our factors

- beliefs supportive of aggression
- beliefs about school climate
- perceived self-efficacy in using non-violent strategies
- intentions to use non-violent strategies
- past month drug and alcohol use

H3. Multiple regression analyses with significant factors from H2 retained, and additional theorized factors from H3 added to the model.

## Results and Conclusions

H1. As hypothesized, boys reported significantly more physical aggression than girls, while no differences in verbal aggression were found (see Table 6).

H2. Three of Bosworth's five factors were significant predictors of verbal aggression (*beliefs about aggression, self-efficacy for non-violent strategies, and past month drug and alcohol use*); and two of five were significant predictors of physical aggression (*beliefs about aggression and past month drug and alcohol use*), (see Tables 7 and 9).

H3. One additional factor significantly predicted verbal aggression (*past month trusting communication*); and three additional factors significantly predicted physical aggression (*gender, perceived norms about drugs and alcohol, and past month verbal aggression*), (see Tables 8 and 10).

While our results overlapped with Bosworth's urban sample findings, it is noteworthy that in our study no behavioral intention factors were significantly related to aggressive behaviors. There is no obvious reason to suggest that this difference is related to urban versus rural environments.

However, we did find some very strong relationships beyond those reported by Bosworth. Of note is that

trusting communication during the past month was protective against verbal aggression, but not physical aggression; while verbal aggression itself was predictive of physical aggression.

The finding that perceived norms regarding alcohol and drug use, as well as use itself (our proxy for Bosworth's misconduct factor), were strong predictors of physical aggression; and alcohol and drug use a strong predictor of verbal aggression, is consistent with the known association between alcohol, drugs, and aggression, and demonstrates this to be so in several rural school environments.

The results reported here represent the initial stages of data analysis and interpretation. These have been restricted to middle school participants, one wave of data, and assessment of the direct relationships between independent variables and aggressive behavior.

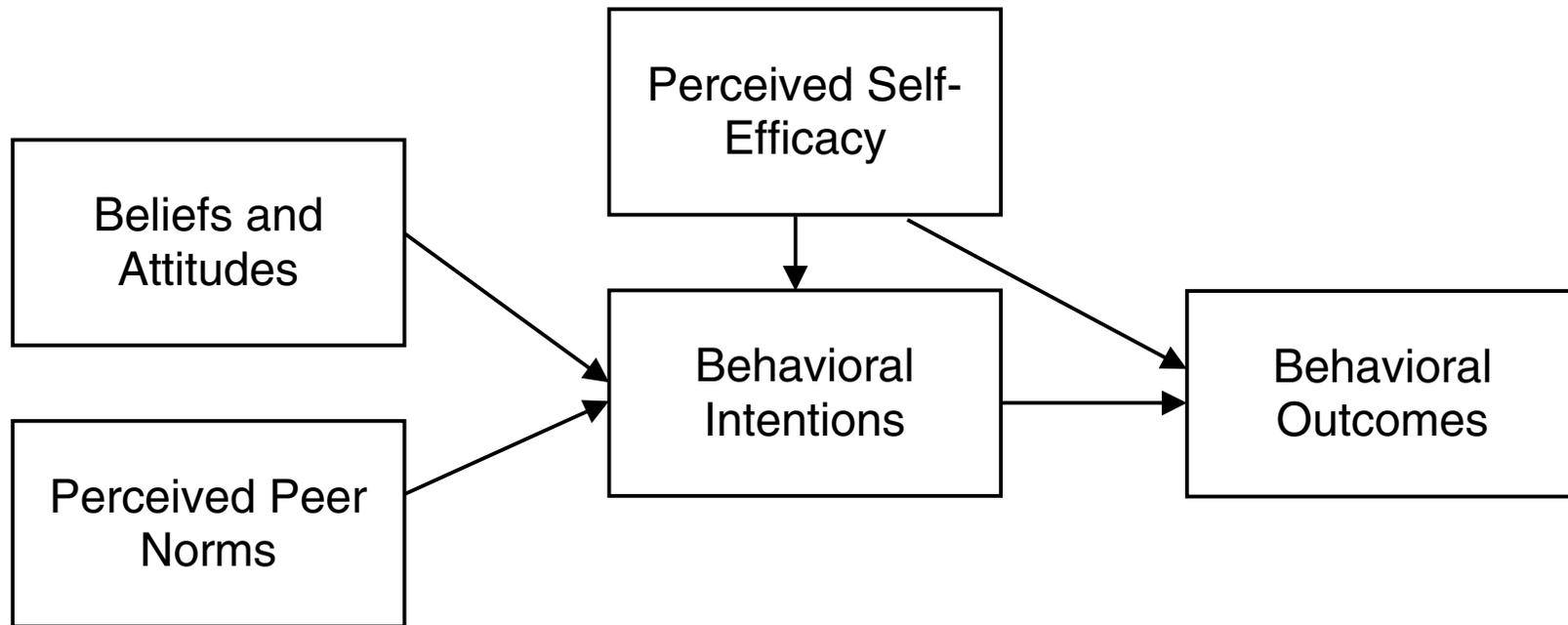
Future analyses will:

- a. employ more complex structural equation models representing the full conceptual framework;
- b. explore relationships across the four waves of linked data collected during the 18 months of the study; and
- c. be replicated on our elementary school sample of 480 4<sup>th</sup> and 5<sup>th</sup> grade students.

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**Figure 1. Factors Associated with Aggressive Behavior: Theoretical Framework**



**Beliefs and Attitudes**

- Trusting Communication
- Use of Aggression
- School Climate

**Perceived Peer Norms**

- Trusting Communication
- Use of Aggression
- Drugs and Alcohol

**Behavioral Efficacy**

- Trusting Communication
- Temptation Refusal
- Accepting Help
- Non-Violent Strategies

**Behavioral Intentions**

- Trusting Communication
- Temptation Refusal
- Accepting Help
- Non-Violent Strategies

**Behavioral Outcomes**

- Trusting Communication
- Misconduct (drug and alcohol use)
- Physical Aggression
- Verbal Aggression

**Table 1.**

**Factor Analysis Summary for Varimax Rotated Three-Factor Solution: BELIEFS AND ATTITUDES**

Item	Factor loading			Communality
	1	2	3	
B2 teachers care about what I think.	(.45)			.27
B6 this school is a safe place	.88			.80
B12 this school is a dangerous place	.86			.76
B5 walk away ... giving in		.61		.38
B8 okay to hit if insulted		.71		.63
B11 have to be ready to fight back		.79		.68
B1 asking help means you are weak			.78	.65
B4 asking for trouble if tell how feel			.83	.72
B9 talking about feelings looks weak			.53	.43
Eigenvalues	3.00	1.30	1.03	
% of variance	33.22	14.38	11.45	

Factor loadings greater than .50 are shown

**Factor B1: Beliefs about school climate**

**Factor B2: Beliefs supportive of aggression**

**Factor B3: Beliefs and attitudes about trusting communication**

**Table 2.**

**Factor Analysis Summary for Varimax Rotated Three-Factor Solution: PERCEIVED NORMS**

Item	Factor loading			Communality
	1	2	3	
C1 drink alcohol on the weekends	.67			.68
C4 smoke marijuana on the weekends	.76			.73
C6 use drugs to make you hallucinate	.79			.68
C8 drink alcohol during school	.79			.73
C14 smoke marijuana at school	.77			.69
C17 drink alcohol before school	.80			.71
C7 start a fight if you've been insulted		.74		.71
C9 threaten someone if don't get way		.62		.64
C11 make fun of someone strange		.78		.71
C13 share feelings with teachers/class			.84	.74
C15 admit when a mistake is made			.77	.67
C18 ask for help when it is a problem			.68	.68
Eigenvalues	6.20	1.38	.79	
% of variance	51.63	11.48	6.57	

Factor loadings greater than .50 are shown

**Factor C1: Perceived norms about drugs and alcohol**

**Factor C2: Perceived peer norms about aggression**

**Factor C3: Perceived peer norms about trusting communication**

**Table 3.**

**Factor Analysis Summary for Varimax Rotated Four-Factor Solution: PERCEIVED SELF EFFICACY**

Item	Factor loading				Communality
	1	2	3	4	
E5a when in trouble, talk it over	.82				.73
E8a when afraid, talk it over	.71				.65
E14a when I'm angry, talk it over	.68				.66
E12a when insulted, talk it over		.64			.54
E16a when angry, stop to think		.79			.70
E22a when conflict, talk it over		.72			.61
E3a friend offers drugs, refuse them			.89		.81
E10a friend offers alcohol, refuse it			.88		.83
E21a friends dangerous, refuse join			.75		.71
E4a when parents try to help, listen				.76	.62
E11a when teachers help. listen				.78	.69
E18a when problem, ask for help				.56	.52
Eigenvalues	6.21	1.59	.98	.85	
% of variance	41.43	10.61	6.50	5.66	

Factor loadings greater than .50 are shown

**Factor E1a: Perceived self-efficacy for trusting communication**

**Factor E2a: Perceived self-efficacy for non-violent strategies**

**Factor E3a: Perceived self-efficacy for temptation refusal**

**Factor E4a: Perceived self-efficacy for accepting help**

**Table 4.****Factor Analysis Summary for Varimax Rotated Four-Factor Solution: BEHAVIORAL INTENTIONS**

Item	Factor loading				Communality
	4	3	2	1	
E5b smoke marijuana at school	.77				.77
E8b when afraid, talk it over	.70				.69
E14b when I'm angry, talk it over	.59				.64
E12b when insulted, talk it over		.63			.55
E16b when angry, stop to think		.78			.68
E22b when conflict, talk it over		.64			.60
E3b friend offers drugs, refuse them			.87		.81
E10b friend offers alcohol, refuse it			.85		.82
E21b friends dangerous, refuse join			.70		.74
E4b when parents try to help, listen				.69	.61
E11b when teachers help. listen				.83	.73
E18b when problem, ask for help				.54	.55
Eigenvalues	.82	.90	1.48	6.73	
% of variance	5.49	6.02	9.89	44.88	

Factor loadings greater than .50 are shown. (Factors shown in same order as Table 3).

**Factor E1b: Behavioral intentions for trusting communication**

**Factor E2b: Behavioral intentions for non-violent strategies**

**Factor E3b: Behavioral intentions for temptation refusal**

**Factor E4b: Behavioral intentions for accepting help**

**Table 5.****Factor Analysis Summary for Varimax Rotated Four-Factor Solution: BEHAVIORS**

Item	Factor loading				Communality
	1	2	3	4	
F4 drank beer	.70				.56
F11 drank hard alcohol	.86				.79
F13 felt drunk or high	.85				.78
F15 used marijuana	.75				.60
F18 used or sniffed inhalants	(.48)				(.27)
F19 used some other illegal drug	.72				.54
F14 teased someone to hurt feelings		.88			.82
F22 said something to hurt feelings		.88			.83
F23 mean to someone on purpose		.85			.78
F1 started a physical fight			.85		.79
F12 was in a physical fight			.83		.80
F24 fight with someone drinking			.56		.48
F3 tried to understand other opinion				.70	.51
F6 talked someone had problem				.81	.67
F26 asked for help with a problem				.80	.64
Eigenvalues	4.92	2.00	1.80	1.12	
% of variance	32.82	13.35	12.02	7.48	

Factor loadings greater than .50 are shown

**Factor F1: Drug and alcohol use (“misconduct”)**

**Factor F2: Verbal aggression**

**Factor F3: Physical aggression**

**Factor F4: Trusting communication**

**Table 6.****Gender Differences on VERBAL AGGRESSION and PHYSICAL AGGRESSION**

Dependent variable	Female		Male		df	t
	M	SD	M	SD		
Verbal aggression	2.71	.66	2.80	.74	381	1.25
Physical aggression	2.16	.35	2.37	.57	378	4.47*

\*p < .001.

**Table 7.****Regression Analysis Summary for VERBAL AGGRESSION: BOSWORTH'S MODEL**

Variable	<u>B</u>	<u>SEB</u>	<u>B</u>
Beliefs about school climate	-.01	.06	-.01
Beliefs about use of aggression	.221	.05	.27***
Self-efficacy for non-violent strategies	-.169	.05	-.21**
Intentions to use non-violent strategies	-.02	.05	-.03
Past month drug and alcohol use (misconduct)	.251	.10	.14*

Note.  $R^2 = .23$  ( $p < .001$ ).

\* $p < .05$ . \*\* $p < .01$  \*\*\* $p < .001$

**Table 8.****Regression Analysis Summary for VERBAL AGGRESSION: FULL MODEL**

Variable	<u>B</u>	<u>SEB</u>	<u>B</u>
Gender	-.01	.09	.00
Beliefs about use of aggression	.24	.06	.28**
Beliefs about trusting communication	-.02	.07	-.02
Perceived norm drugs and alcohol	.02	.08	.02
Perceived norms use of aggression	.09	.08	.10
Perceived norms trusting communication	-.07	.06	-.09
Self-efficacy for trusting communication	-.02	.07	-.02
Self-efficacy for non-violent strategies	-.21	.06	-.25**
Self-efficacy for temptation refusal	.07	.05	.09
Self-efficacy for accepting help	-.02	.09	-.02
Intentions to use trusting communication	-.02	.08	-.03
Intentions for temptation refusal	-.03	.05	-.04
Intentions to accept help	-.09	.08	-.09
Past month drug and alcohol use (misconduct)	.37	.12	.19**
Past month trusting communication	-.17	.08	-.14*

Note.  $R^2 = .31$  ( $p < .001$ ).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table 9.****Regression Analysis Summary for PHYSICAL AGGRESSION: BOSWORTH'S MODEL**

Variable	<u>B</u>	<u>SEB</u>	<u>B</u>
Beliefs about school climate	-.05	.04	-.07
Beliefs about use of aggression	.12	.03	.31***
Self-efficacy for non-violent strategies	-.02	.04	-.06
Intentions to use non-violent strategies	-.04	.04	-.06
Past month drug and alcohol use (misconduct)	.44	.07	.34***

Note.  $R^2 = .31$  ( $p < .001$ ).

\* $p < .05$ . \*\* $p < .01$  \*\*\* $p < .001$

**Table 10.****Regression Analysis Summary for PHYSICAL AGGRESSION: FULL MODEL**

Variable	<u>B</u>	<u>SEB</u>	<u>B</u>
Gender (female)	-.11	.05	-.12*
Beliefs about use of aggression	.12	.04	.21***
Beliefs about trusting communication	-.06	.04	-.08
Perceived norm drugs and alcohol	.16	.05	.26**
Perceived norms use of aggression	.05	.05	.10
Perceived norms trusting communication	-.01	.04	-.02
Self-efficacy for trusting communication	-.01	.04	-.01
Self-efficacy for temptation refusal	-.01	.03	-.02
Self-efficacy for accepting help	-.02	.05	-.01
Intentions to use trusting communication	-.05	.04	-.10
Intentions for temptation refusal	-.02	.03	-.04
Intentions to accept help	-.02	.05	-.02
Past month drug and alcohol use (misconduct)	.47	.07	.38***
Past month verbal aggression	.14	.04	.22***
Past month trusting communication	-.02	.04	-.03

Note.  $R^2 = .39$  ( $p < .001$ ).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .