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## International Note: Prevailing with Extracurricular Activities in an Alcohol-Dominated Environment: Sex Differences in Resilience among Middle School Youth

Elana L. Habib<sup>a</sup>, Marc A. Zimmerman<sup>b</sup>, and Krzysztof Ostaszewski<sup>c</sup>

Elana L. Habib: ehabib@trilogyinc.org; Marc A. Zimmerman: marcz@umich.edu; Krzysztof Ostaszewski: ostasz@ipin.edu.pl

<sup>a</sup>Trilogy Inc., 1400 W. Greenleaf Avenue, Chicago, IL 60626 <sup>b</sup>Department of Health Behavior and Health Education, School of Public Health, University of Michigan, 1415 Washington Heights, Ann Arbor, MI 48109-2029, United States <sup>c</sup>Institute of Psychiatry & Neurology - Instytut Psychiatrii i Neurologii, ul. Sobieskiego 9, 02-957 Warsaw, Poland

### Abstract

Extracurricular involvement creates an outlet for adolescents to gain skills and resources that assist them in overcoming certain risks. Resiliency theory is applied to study the promotive effects of extracurricular activity involvement as this may help Polish youth overcome risks for alcohol use. Our data include 2903, 13 and 14 year old Polish adolescents. We use regression analysis to test the main and interaction effects of extracurricular involvement after adjusting for demographics and social influences. Sex differences are examined within the resilience framework. We found protective effects of extracurricular involvement for males, but only a compensatory effect for females. Implications for future research and intervention are discussed.

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Alcohol use constitutes a great risk for healthy development among Polish youth. In the past decade, approximately 27% of Polish 13 and 14 year old students reported alcohol use in the past 30 days (31% of boys and 23% of girls), and approximately 25% reported drunkenness at least once in their lives (30% of boys and 20.5% of girls) (Mazur & Malkowska-Szkutnik, 2011). Studying risk and promotive factors of adolescent alcohol use is vital because early adolescent drinking may result in unprotected sex, depression, later in life substance dependence, early pregnancy, violence, and crime (Bellis et al., 2009; Odgers et al., 2008, Viner & Taylor, 2007).

Researchers have consistently found that an adolescent models alcohol consumption behavior of those in their social network including their peers, family, and non-parental adults (Brenner, Bauermeister & Zimmerman, 2011; Ostaszewski, 2009; Mayberry, Espelage, & Koenig, 2009; Scholte et al., 2008; Elkington, Bauermeister, & Zimmerman,

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2011; Hurd, Zimmerman & Xue, 2009). Although a risky environment may predict high risk behavior, many adolescents do not experience the environment's negative effects. This suggests positive (i.e., promotive) factors assist in reducing the likelihood of alcohol use. Few researchers in Poland have studied relationships between promotive factors and adolescent alcohol use (Bobrowski 2002, 2003; Wójcik, Rustecka-Krawczyk & Ostaszewski, 2010; Ostaszewski, Rustecka-Krawczyk & Wójcik, 2011). Extracurricular activities may be one promotive factor as they contribute to positive youth development (Denault & Poulin, 2009; Mahoney et al., 2006; Ostaszewski & Zimmerman, 2006). Particularly, the *breadth of participation* (Feldman-Farb & Matjasko, 2011), or the quantity of broader categories of involvement, may have different outcomes for any particular adolescent (Eccles, Barber, Stone, & Hunt, 2003; Fredericks & Eccles, 2006). Grounded in social ecological (Bronfenbrenner, 1986) and resiliency (Gamezy, 1985; Rutter, 1987) theories, we posit that participation in a breadth of extracurricular activities buffers the relationship between social influences and alcohol use. Moreover, we explore how this relationship may differ between males and females.

## Method

Our sample included 2903 (93.5% of the original sample), 13 and 14 year old adolescents (48% males and 51.5% females) derived from data collected in 2006/2007 among middle school students in Warsaw, Poland. We attained informed consent from all stakeholders. The Bioethical Committee of the Institute of Psychiatry and Neurology in Warsaw, Poland, as well as the Human Subject Protection in the Fogarty International Center of the National Institute of Health, approved this study.

The outcome variable determined thirty day alcohol use, while also incorporating a question on lifetime alcohol use by recoding those without lifetime alcohol use as zero (0=Never, 1=Not in the last month; 7=40+ times) (Johnston, O'Malley, & Bachman, 1988). Demographic variables included maternal education (1=Completed elementary school; 4=Completed college or university); and family composition (1=Lives with both parents; 0=Does not live with both parents). The social influences variable derived from questions in three different scales measuring quantity of non-familial adults and peers who used alcohol (1=None; 5=All) and older sibling's frequency of alcohol use. We calculated the average of all three (or two if the participant did not have an older sibling) variable z scores, and assigned that score to the participant. We created the breadth of participation construct by dividing the 10 after-school activities (in addition to a self-report option) participants could have identified on the questionnaire into four larger categories: church, sports, performance arts, and interest groups. Each participant received one if she/he was involved with an activity in that category; and accordingly, we summed these scores (Denault & Poulin, 2009).

We imputed data for our final variables using SPSS Multiple Imputation. A four-step hierarchical multiple regression analysis tested for main or interaction effects grounded in a resiliency approach (Fergus & Zimmerman, 2005). We performed a three-way interaction to examine the effects of gender.

## Results and Discussion

The final regression model for *males* indicated main effects for the demographic block ( $F(2, 1259)=4.41, p<.05$ ), the social influence variable ( $F$ -change (1, 1258)=301.57,  $p<.001$ ) and breadth of participation ( $F$ -change (1, 1257)=15.87,  $p<.001$ ). We also found an interaction effect between social influences and breadth of participation ( $F$ -change (1, 1256)=12.21,  $p=.01$ ). The final model for males explained 21.3% of the variance in alcohol use. Figure 1 illustrates the interaction effect for males. Yet, as seen in Table 1, the effects of breadth of participation, differed for males and females. In an environment containing a high level of social risks, a greater breadth of participation reduced the likelihood the male adolescent would drink as compared to male youth who were involved in less of a breadth of participation. Thus, the protective model of resiliency for breadth of participation was found for males, but only a compensatory model of resiliency was supported for females' breadth of participation. Figure 2 demonstrates a significant three-way interaction between gender, social influences, and breadth of participation  $F(9, 2625) = 103.78, p<.001$  ( $\beta=.129, p<.05$ ). It suggested females who are exposed to a riskier environment drink more than males even in the midst of participating in a greater breadth of activities.

Our findings contribute to our understanding of resiliency theory because researchers rarely study breadth of participation as a potential promotive factor. Extracurricular activities offer an outlet for adolescents to learn social roles and competencies. The more breadth of participation, the more likely such positive exposures occur and transpire across a wider range of social contexts (Jacobs et al., 2005; Scheier, et al., 1999). Furthermore, this study expands our understanding of resiliency theory to a sample of Polish adolescents. The youth in our sample represent one of the first generations of youth under new democratic rule. It is possible that resiliency may be somewhat different depending on the socio-political context, especially regarding extracurricular activities because the breadth of opportunities for youth may be greater in a more open and free society. Notwithstanding limitations, this study warrants further examination to understand depth of participation as it may also provide useful insights for alcohol prevention intervention (Feldman-Farb & Matjasko, 2012). Our results extend resiliency theory and suggest that its application to Polish youth can help inform strengths-based interventions for them.

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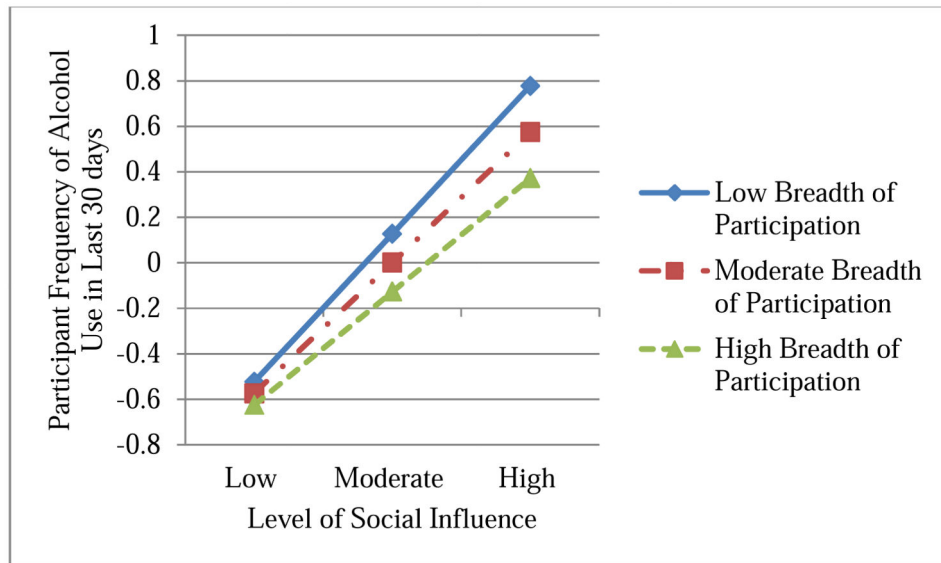
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## References

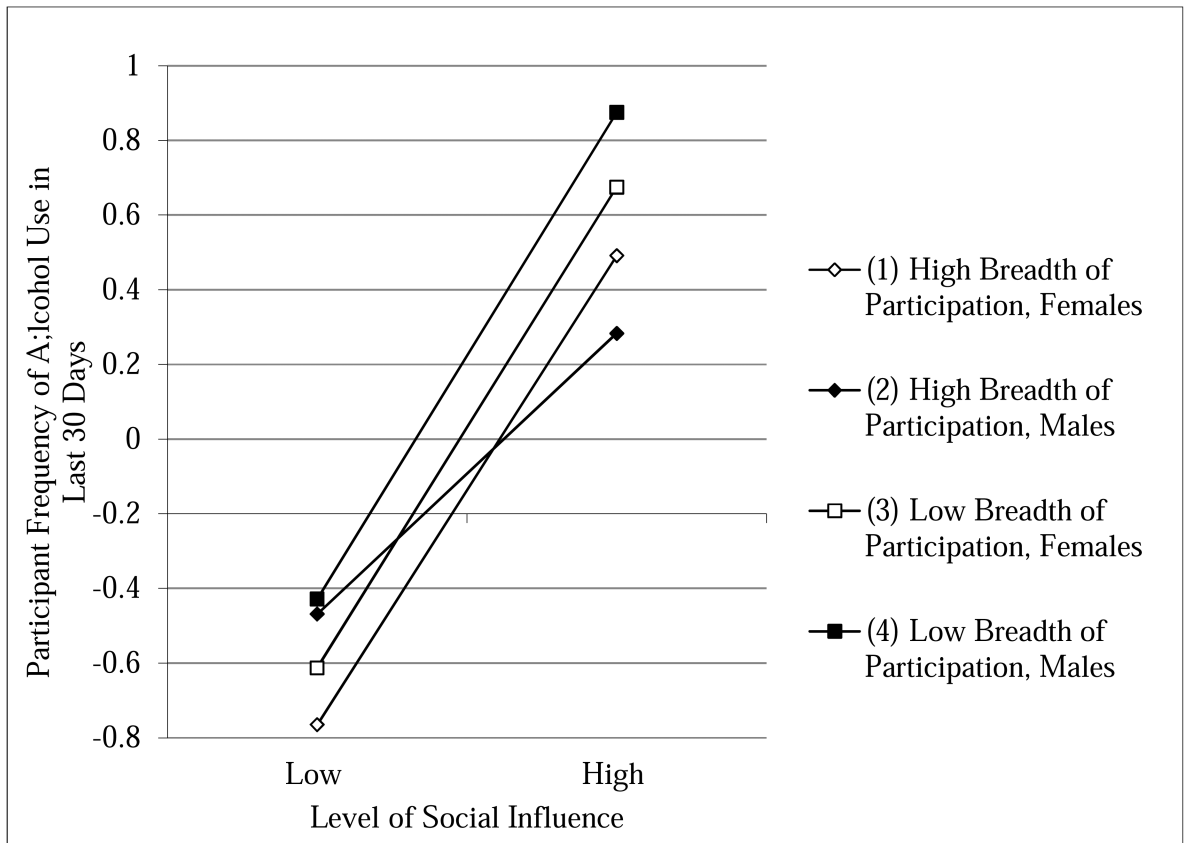
- Bobrowski K. Poczucie koherencji oraz inne zasoby odpornosciowe a uzywanie substancji psychoaktywnych przez mlodzi. *Alkoholizm i Narkomania*. 2002; 15(2):221–239. Sense of coherence, other resistance resources and adolescent substance use.
- Bobrowski K. Sposoby spedzania wolnego czasu przez mlodzi a uzywanie substancji psychoaktywnych. *Medycyna Wieku Rozwojowego*. 2003; 1(2):91–104. Adolescents' free time activities and substance use. [PubMed: 14704493]

- Bellis M, Phillips-Howard P, Hughes K, Hughes S, Cook P, Jones L. Teenage drinking, alcohol availability and pricing: A cross-sectional study of risk and protective factors for alcohol-related harms in school children. *BMC Public Health*. 2009; 9(380)
- Brenner A, Bauermeister J, Zimmerman M. Neighborhood variation in adolescents alcohol use: Examination of socioecological and social disorganization theories. *Journal of Studies on Alcohol and Drugs*. 2011; 72(4):651–59. [PubMed: 21683047]
- Bronfenbrenner U. Ecology of the family as a context for human development: Research Perspectives. *Developmental Psychology*. 1986; 22(6):723–742.
- Denault A, Poulin F. Intensity and breadth of participation in organized activities during the adolescent years: multiple associations with youth outcomes. *Journal of Youth Adolescence*. 2009; 38:1199–1213. [PubMed: 19669900]
- Eccles J, Barber B, Stone M, Hunt J. Extracurricular activities and adolescent development. *Journal of Social Issues*. 2003; 59(4):865–889.
- Elkington K, Bauermeister J, Zimmerman M. Do parents and peers matter? A prospective socio-ecological examination of substance use and sexual risk among African American youth. *Journal of Adolescence*. 2011; 34:1035–1047. [PubMed: 21159374]
- Feldman Farb AF, Matjasko JL. Recent advances in research on school-based extracurricular activities and adolescent development. *Developmental Review*. 2012; 32(1):1–48.
- Feldman Farb, AF.; Matjasko, JL. Extracurricular activities: Recent advances in measuring extracurricular activity participation. In: Levesque, R., editor. *Encyclopedia of adolescence*. Vol. 2. New York: Springer; 2011. p. 906-916.
- Fergus S, Zimmerman MA. Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health*. 2005; 26:399–419.
- Fredericks J, Eccles J. Extracurricular involvement and adolescent adjustment: Impact of duration, number of activities, and breadth of participation. *Applied Developmental Science*. 2006; 10(3): 132–146.
- Gamezy, N. Stress-resistant children: The search for protective factors. In: Stevenson, J., editor. *Recent research in developmental psychopathology*. New York: Pergamon Press; 1985. p. 213-234.
- Hurd N, Zimmerman M, Xue Y. Negative adult influences and the protective effects of role models: A study with urban adolescents. *Journal of Youth Adolescence*. 2009; 38:777–789. [PubMed: 19636780]
- Jacobs, JE.; Vernon, MK.; Eccles, J. Activity choices in middle childhood: The roles of gender, self-beliefs, and parents' influence. In: Mahoney, JL.; Larson, RW., editors. *Organized Activities as Contexts of Development: Extracurricular Activities, After-School and Community Programs*. Erlbaum Associates; Mahwah, NJ, US: 2005. p. 235-254.
- Johnston, LD.; O'Malley, EM.; Bachman, JG. National Institute on Drug Abuse. *Illicit drug use, smoking, and drinking by America~ high school students, college students, and young adults*. Rockville, MD: U.S. DHHS; 1988.
- Mahoney J, Harris A, Eccles J. Organized activity participation, positive youth development, and the over-scheduling hypothesis. *Social Policy Report*. 2006; 20:3–32.
- Mayberry ML, Espelage DL, Koenig B. Multilevel modeling of direct effects and interactions of peers, parents, school, and community influences on adolescent substance use. *Journal of Youth Adolescence*. 2009; 38:1038–1049. [PubMed: 19636769]
- Mazur, J.; Malkowska-Szkutnik, A., editors. *Wyniki bada HBSC 2010. Raport techniczny*. Warszawa: Instytut Matki i Dziecka; 2011. HBSC results in 2010. Technical report
- Ogders C, Caspi A, Nagin D, Piquero A, Slutske W, Moffitt T. Is it important to prevent early exposure to drugs and alcohol among adolescents? *Psychological Science*. 2008; 19(10):1037–1044. [PubMed: 19000215]
- Ostaszewski, K. Determinants of health and health behaviors in Polish adolescents Review of studies conducted in 2005-2008. Warsaw: Institute of Mother and Child; 2009. Risk/protective factors in salient adolescent problem behaviors. *The Warsaw Adolescent Study*; p. 33-57.
- Ostaszewski, K.; Rustecka-Krawczyk, A.; Wójcik, M. Czynniki chroniace i czynniki ryzyka zwiazane z zachowaniami problemowymi warszawskich gimnazjalistow. *Klasy I-III*. Warszawa: Instytut

- Psychiatrii i Neurologii w Warszawie; 2011. Promotive and risk factors in problem behaviors among Warsaw middle school students: Year 3 report
- Ostaszewski K, Zimmerman M. The effects of cumulative risks and promotive factors on urban adolescent alcohol and other drug use: A longitudinal study of resiliency. *American Journal of Community Psychology*. 2006; 38:237–249. [PubMed: 17004127]
- Rutter M. Psychological resilience and protective mechanisms. *American Journal of Orthopsychiatry*. 1987; 57(3):316–331. [PubMed: 3303954]
- Scholte R, Poelen E, Willemsen G, Boomsma D, Engels R. Relative risks of adolescent and young adult alcohol use: The role of drinking fathers, mothers, siblings, and friends. *Addictive Behaviors*. 2008; 33:1–14. [PubMed: 17490824]
- Scheier L, Botvin G, Miller N. Life events, neighborhood stress, psychosocial functioning, and alcohol use among urban minority youth. *Journal of Child & Adolescent Substance Abuse*. 1999; 9(1):19–50.
- Viner R, Taylor B. Adult outcomes of binge drinking in adolescence: Findings from a UK national birth cohort. *Journal of Epidemiology and Community Health*. 2007; 61(10):902–7. [PubMed: 17873228]
- Wójcik, M.; Rustecka-Krawczyk, A.; Ostaszewski, K. Unexpected effects of some positive factors in adolescent substance use and other problem behaviors: The Warsaw Adolescent Study. NIDA International Poster Session at the Society for Prevention (SPR) 18th Annual Meeting; Denver, CO. 2010.



**Figure 1.** Relationship between level of social influence and participant's alcohol use for low, mean, and high levels of breadth of participation for males.



**Figure 2.** Relationship between level of social influence, level of breadth of participation, and gender.

**Table 1**  
**Hierarchical linear regression model of the risk factor and protective factor, and interaction between the two in their prediction on frequency of alcohol use**

<b>Overall (n=2627)</b>				
<b>Step</b>	<b>Predictor Measures</b>	<b>Final B</b>	<b>R<sup>2</sup></b>	<b>R<sup>2</sup> change</b>
1	Demographics		0.008	0.009***
	Family Composition	0.095*		
	Maternal Education	-.026		
2	Social Influence (Risk)	0.640***	0.247	.239***
3	Breadth of Participation (Promotive)	-0.094***	0.254	.007***
4	Risk*Promotive	-0.018	0.254	0.000

<b>Males (n=1262)</b>				
<b>Step</b>	<b>Predictor Measures</b>	<b>Final B</b>	<b>R<sup>2</sup></b>	<b>R<sup>2</sup> change</b>
1	Demographics		0.007	0.007**
	Family Composition	.005		
	Maternal Education	-0.064*		
2	Social Influence (Risk)	.574***	0.199	.192***
3	Breadth of Participation (Promotive)	-0.127***	0.209	.01***
4	Risk*Promotive	-0.076*	0.213	.004*

<b>Females (n=1346)</b>				
<b>Step</b>	<b>Predictor Measures</b>	<b>Final B</b>	<b>R<sup>2</sup></b>	<b>R<sup>2</sup> change</b>
1	Demographics		0.018	.018***
	Family Composition	.154**		
	Maternal Education	.001		
2	Social Influence (Risk)	.682***	.307	.290***
3	Breadth of Participation (Promotive)	-.063*	.311	.004**
4	Risk*Promotive	.012	.311	.000

\*  $p < .05$ ,

\*\*  $p < .01$ ,

\*\*\*  $p < .001$