

Examining the Social and Physical Environment of Adolescent Substance Users in Shanghai and East Baltimore



JOHNS HOPKINS
BLOOMBERG
SCHOOL of PUBLIC HEALTH

August 5, 2015

Paul Levy



Protecting Health, Saving Lives—*Millions at a Time*



Outline

- WAVE Background
- Problem
- Methods
- Results
- Conclusions
- Future Steps / Implications

WAVE

Well-Being of Adolescents in Vulnerable Environments

- A six-city global study of young people aged 15-19 in vulnerable environments; two stage study
- 6 study sites: East Baltimore, MD.; Johannesburg, South Africa; Shanghai, China; Delhi, India; Rio de Janeiro, Brazil; and Ibadan, Nigeria

Aims:

- Look at health status of adolescents in sexual/reproductive health, mental health, substance abuse, & physical safety

WAVE Phase II:

- Creating and implementing a universal survey to examine the health status of adolescents in the six study sites

(WAVE) Well-Being of Adolescents in Vulnerable Environments



Problem

- The 2012 Monitoring the Future survey shows that 6.5 percent of high school seniors smoke marijuana daily, up from 5.1 percent five years ago.¹
 - Also showed that teens' perception of marijuana's harmfulness is down, which can signal future increases in use.
 - People who used cannabis heavily in their teens and continued through adulthood showed a significant drop in IQ between the ages of 13 and 38
- According to the National Institute on Alcohol Abuse and Alcoholism, by the time they reach 8th grade nearly 50% of adolescents report they have had at least one drink and nearly 20% report having been drunk.²

¹ (2012). Nida's 2012 monitoring the future survey shows rates stable or down for most drugs . *NIDA*, Retrieved from <http://www.drugabuse.gov/news-events/news-releases/2012/12/regular-marijuana-use-by-teens-continues-to-be-concern>

² Johnston, L. D., O'Malley, P., Bachman, J. G. (2003a). Monitoring the Future national results on adolescent drug use: Overview of key findings, 2002. (NIH Publication Number 03-5374). Bethesda, MD: National Institute on Drug Abuse.

Problem

- Early onset of tobacco use, misuse of alcohol, and drug use have been shown to lead to detrimental consequences for its earliest users.¹
 - Early School Leaving, Sexual Violence, Gang Activity, Teenage Parenthood
- The quality of a neighborhood, not just the economic resources available, is strongly linked to substance use and to substance dependency.²
- Nearly all of the existing literature on adolescent substance use has been conducted with samples that are exclusively or primarily Caucasian, and when diverse samples have been used, the tendency has been to ignore ethnicity all together or to treat it as a nuisance variable and control for it in analyses.³

^{1,3} Lambert SF, Brown TL, Phillips CM, Ialongo NS. The relationship between perceptions of neighborhood characteristics and substance use among urban African American adolescents. *Am Journal of Community Psychology*. 2004 Dec ;34(3-4):205-18.

² Kadushin C., Weber E., Saxe L. The substance use system: social and neighborhood environments associated with substance use and misuse. 1998 Jun ;33(8):1681-710.



Aims of the Research

- Is the social environment associated with adolescent substance use?
 - Teacher Support
 - Friend Support
- Is the physical environment associated with adolescent substance use?
- How do these findings compare in Baltimore and Shanghai?

Survey Sample

	Baltimore n = 472		Shanghai n = 455	
	Percent	n	Percent	n
Age (15-16)	0.56	265	0.30	135
Gender (Female)	0.42	196	0.48	220
Currently in School	0.85	399	0.30	136
Currently Working	0.37	172	0.78	356
Ever Use Marijuana	0.53	244	0.04	2
Ever Use Alcohol	0.47	214	0.74	330
Ever Use Cigarette	0.27	125	0.42	189

Methods

- Code was generated using STATA to isolate groups of questions concerning teacher support, friend support, connection to neighbors, and the neighborhood infrastructure.
- These variables were examined against the outcomes of ever use of cigarettes and alcohol and current use of marijuana.
- For the purposes of this study:
 - Marijuana Use – “Smoked 5x or More in 30 Days” vs. “0x Smoked in 30 Days”
 - Ever Alcohol – “Ever Drank” vs. “Never Drank”
 - Ever Cigarette – “Ever Smoked” vs. “Never Smoked”
- Keeping gender, work status, and school status as constants, a linear regression was run comparing ever use of alcohol, ever use of cigarette, and current marijuana use.

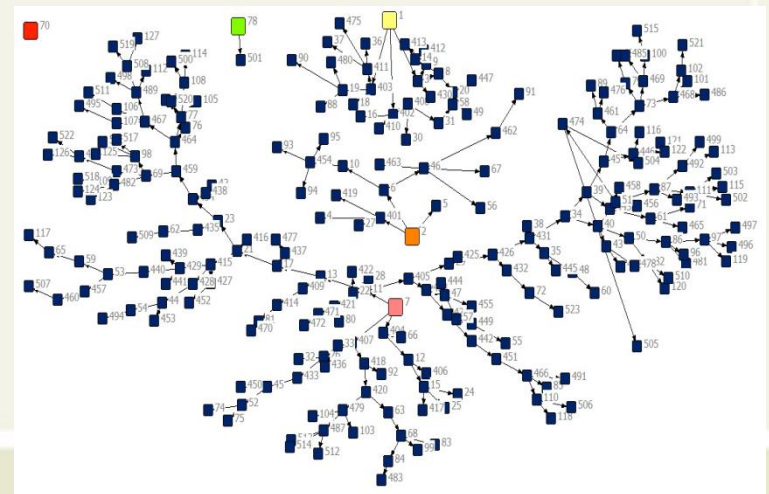
RDS = Respondent Driven Sampling

Respondent Driven Sampling Method used in every site

- A sampling method where individuals may refer others that they know to participate and those individuals may refer those they know as well
- Employs a mathematical model that can weight the sample in a certain way to help compensate for the non-random method collection.

Advantages

- Allows “hard to reach” population to take part
 - Unstably housed youth
 - Adolescents not in school



Teacher Support

	Baltimore	Shanghai
Cronbach's Alpha:	0.85	0.90
Mean:	12.73	11.03
N:	460	134

Highest Potential Score: **18**

- Higher score indicates more teacher support
- Items included
 - An adult or teacher....
 - Who really cared about you.
 - Who always wanted you to do your best.
 - Who believed that you would be successful.

0 = Never true
1 = Sometimes true
2 = Often true
3 = Always true

Teacher Support

Baltimore

	Coef.	Std. Error	P-Value
Marijuana Use	-1.44	0.67	0.032
Ever Alcohol	-0.65	0.40	0.10
Ever Cigarette	-1.11	0.45	0.015

* = Indicates statistical significance $p < .05$

Analysis controls for Gender, Work Status, and School Status

Teacher Support

Shanghai

	Coef.	Std. Error	P-Value
Ever Cigarette	-2.40	0.83	0.004
Ever Alcohol	-2.15	0.84	0.012

* = Indicates statistical significance $p < .05$

Analysis controls for Gender, Work Status, and School Status

Friend Support

	Baltimore	Shanghai
Cronbach's Alpha:	0.88	0.78
Mean:	2.90	2.39
N:	458	446

Highest Potential Score: **18**

- Higher score indicates lack of close friend to rely on
- Items Included
 - I have at least one friend who...
 - I can trust.
 - Who accepts me for who I really am.
 - I would turn to if I were in trouble.

0 = Agree a lot
1 = Agree a little
2 = Disagree a little
3 = Disagree a lot

Friend Support

Baltimore

	Coef.	Std. Error	P-Value
Marijuana Use	-0.52	0.65	0.43
Ever Cigarette	0.60	0.43	0.17
Ever Alcohol	0.21	0.38	0.58

* = Indicates statistical significance $p < .05$

Analysis controls for Gender, Work Status, and School Status

Friend Support

Shanghai

	Coef.	Std. Error	P-Value
Ever Cigarette	-0.089	0.29	0.76
Ever Alcohol	-0.55	0.30	0.061

* = Indicates statistical significance $p < .05$

Analysis controls for Gender, Work Status, and School Status

Perception of Community Cohesion

	Baltimore	Shanghai
Cronbach's Alpha:	0.90	0.85
Mean:	13.88	12.09
N:	472	455

Highest Potential Score: **27** (reverse coded)

- Higher score indicates lesser trust and perception of community cohesion.
- Items Included
 - People in this neighborhood...
 - Can be trusted.
 - Are willing to help each other.
 - Care a lot about each other.

0 = Agree a lot
1 = Agree a little
2 = Disagree a little
3 = Disagree a lot

Perception of Community Cohesion

Baltimore

	Coef.	Std. Error	P-Value
Marijuana Use	0.88	1.09	0.42
School Status	-3.83	1.24	0.002

	Coef.	Std. Error	P-Value
Ever Cigarette	-0.28	0.77	0.71
School Status	-2.86	0.94	0.003

	Coef.	Std. Error	P-Value
Ever Alcohol	-0.003	0.63	0.99
School Status	-2.93	0.87	0.001

* = Indicates statistical significance $p < .05$

Analysis controls for Gender, Work Status, and School Status

Perception of Community Cohesion

Shanghai

	Coef.	Std. Error	P-Value
Ever Cigarette	1.48	0.55	0.008
Gender	2.24	0.55	0.00

	Coef.	Std. Error	P-Value
Ever Alcohol	0.81	0.60	0.18
Gender	1.48	0.53	0.006
School Status	-1.65	0.71	0.022

* = Indicates statistical significance $p < .05$

Analysis controls for Gender, Work Status, and School Status

Physical Environment / Neighborhood Infrastructure

	Baltimore	Shanghai
Cronbach's Alpha:	0.89	0.90
Mean:	15.72	18.09
N:	449	445

Highest Potential Score: **33**

- Higher score indicates strong approval of neighborhood environment
- Items Include
 - My neighborhood has poor lighting.
 - My neighborhood has a poor drainage system
 - Abandoned buildings are common in my neighborhood.

0 = Agree a lot
1 = Agree a little
2 = Disagree a little
3 = Disagree a lot

Physical Environment

Baltimore

	Coef.	Std. Error	P-Value
Marijuana Use	-3.86	1.27	0.003
School Status	4.77	1.46	0.001

	Coef.	Std. Error	P-Value
Ever Cigarette	-1.42	0.93	0.13
School Status	5.11	1.13	0.00

	Coef.	Std. Error	P-Value
Ever Alcohol	-1.61	0.82	0.049
School Status	5.02	1.27	0.00

* = Indicates statistical significance $p < .05$

Analysis controls for Gender, Work Status, and School Status

Physical Environment

Shanghai

	Coef.	Std. Error	P-Value
Ever Cigarette	-1.35	0.75	0.073
School Status	2.16	0.91	0.017

	Coef.	Std. Error	P-Value
Ever Alcohol	-1.00	0.76	0.19
School Status	2.26	0.90	0.012

* = Indicates statistical significance $p < .05$

Analysis controls for Gender, Work Status, and School Status

Conclusions

- Teacher Support
 - Baltimore
 - Association with lower Marijuana Use
 - Lower Cigarette Use
 - Shanghai
 - Association with lower Cigarette Use
 - Lower Alcohol Use
- Friend Support
 - No significance found at either site

Conclusions

- Perceptions of Community Cohesion
 - Shanghai
 - Less cigarette use associated with positive feelings toward community cohesion.
 - Baltimore & Shanghai
 - Gender and School Status were both significant variables.
- Physical Environment
 - Baltimore
 - Less Marijuana Use, Alcohol Use, and In School Status were all tied to more positive feelings regarding the community environment.
 - Shanghai
 - In School Status was tied to positive feelings about community.

Acknowledgements

- Mentor: Dr. Beth Marshall
- Center for Adolescent Health
- Diversity Summer Internship Program
- Johns Hopkins Bloomberg School of Public Health
- This research was supported by funding from AstraZeneca as part of the Young Health Programme ([www.younghealthprogrammeyhp.com](http://younghealthprogrammeyhp.com) <<http://younghealthprogrammeyhp.com>>), their global community
- Special thanks to:
 - Freya Sonenstein
 - Adesola Olumide
 - Allysha Robinson
 - Lawrence Mashimbye
 - Qiguo Lian



Thank you!

Strengths

- RDS Survey Based
 - Obtain historically “hard to reach population members”
- Fairly large sample size
 - 472 Baltimore
 - 455 Shanghai

YRBSS Data from Shanghai

- 2002 - found that 15.2% of students had tried cigarette smoking (22.6% males, 8.0% females) within Shanghai
- 2002 - found 45.7% of adolescents tried alcohol in Shanghai
- In this study, a very low proportion of students reported that they had tried marijuana (1.7%)

Why Friend Support Not Significant?

- Little variety in both sample populations
 - More than $\frac{1}{2}$ sample felt strongly connected to 1 friend
- Most people have at least 1 trusted friend
 - Not asking about overall friendship groups

