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Who Adolescents Trust May Impact Their Health: Findings from Baltimore

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ABSTRACT *This study is one of the first to explore the relevance of trust to the health of adolescents living in a disadvantaged urban setting. The primary objectives were to determine the differences in the sociodemographic characteristics between adolescents who do and do not trust and to examine the associations between trust and health. Data were drawn from the Well-Being of Adolescents in Vulnerable Environments (WAVE) study, which is a cross-sectional global study of adolescents in very low-income urban settings conducted in 2011–2013. This paper focused on 446 adolescents in Baltimore as it was the primary site where trust was explicitly measured. For the main analyses, six health outcomes were examined: (1) self-rated health; (2) violence victimization; (3) binge drinking; (4) marijuana use; (5) post-traumatic stress disorder (PTSD); and (6) condom use at last sex. Independent variables included sociodemographic variables (age, gender, current school enrolment, perceived relative wealth, and family structure) and two dimensions of trust: community trust (trust in individuals/groups within neighborhood) and institutional trust (trust in authorities). The results show that more than half the sample had no trust in police, and a high proportion had no trust in other types of authority. Among girls, those with higher levels of community trust were less likely to be victimized and involved in binge drinking. Meanwhile, girls with higher levels of institutional trust were more likely to use a condom and less likely to have used marijuana. Among boys, those with higher levels of community trust were more likely to use a condom, while those with higher levels of institutional trust were less likely to use marijuana, but more likely binge drink. Overall, this study highlights the importance of trust for adolescent health. Most surprising were the differences in the associations between boys and girls with regard to the type of trust and specific health outcome that was significant.*

KEYWORDS *Urban adolescent health, Institutional and community trust*

INTRODUCTION

On April 25, 2015, Baltimore city made international headlines. In response to the death of Freddie Gray, a young African-American male who died in police custody, the city experienced an eruption of violent clashes and delinquent acts that many had not seen since 1968 when the city exploded in response to the death of Martin Luther King Jr. While pundits pointed to poverty, unemployment, and racism as being the key underlying factors that contributed to the Freddy Gray riots, another

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theme that began to emerge and has gained currency since those events is the lack of trust between residents—especially youth—and law enforcement.

Social scientists have long explored the concept of distrust as it relates to delinquency and violence. For instance, in 1994, Taylor and colleagues found that black adolescents who had greater distrust towards whites were more likely to report a willingness to break the law.[1] Similarly, Anderson, in a now famous book, *Code of the Street*, found that in areas of concentrated poverty pervasive distrust, both towards the law enforcement and other black residents, was associated with individuals settling conflicts themselves through violence and retribution and by doing so gaining respect.[2] Yet, we know little about how it is that some people are able to "trust," while others do not—even within the same neighborhood. Moreover, we do not know if trust only matters in relation to violence and delinquency, or if it also associated with other behaviors, specifically health-related risk behaviors. To date, there has been little research that has explored this relationship especially among adolescents and youth.

Brief Background on Trust

Among adult populations, the relationship between trust and health has begun to receive more attention. Research has generally found that more trusting individuals tend to be healthier. For instance, Kawachi et al. reported that higher levels of trust, measured as one standard deviation above the mean, were associated with a decreased mortality rate of 9 %.[3] Other researchers have found that, after controlling for individual level factors, lower trust was associated with lower self-reported health.[4] Trust is often conceptualized as a driver of social capital, which has been widely shown as a key predictor of health in population studies.[5–7] Recent research, however, has found that trust may actually be conceptually distinct from social capital.[8] Accordingly, trust is argued to exist as part of social relationships, but it is neither a necessary nor sufficient factor for generating social capital.

In the social science literature, three primary dimensions of trust have been described—generalized, particularized, and strategic. Generalized trust has been defined as the ability to believe that another's word can be relied on as true, whether it is an individual or an institution.[9] There are numerous factors which have found to be related to generalized trust including age, race, marital status, and educational attainment.[10–12] For instance, researchers have found that there is both an age and race gradient for trust, which suggests that this disparity is fundamentally the consequence of neighborhood disorder.[12,13] This perspective was supported by the work of Ross and colleagues who showed that both physical and social disruption was associated with increased community level distrust.[14] When distrust increases, a neighborhood's sense of collective efficacy diminishes.[15] Collective efficacy, which can only develop when people have enough trust in each other, erodes in concentrated poverty.[16]

Another depiction of trust is what researchers refer to as *particularized trust*, which is one's willingness to trust others, and is a function of how much the other is like you. Uslaner (2002) argues that race is the most powerful determinant of particularized trust.[12] The third conceptualization of trust is *strategic trust*, which refers to an individual's expectations that people will act in accordance with their interests in specific situations. Researchers who have examined this type of trust explain that if individuals have only a transient awareness or knowledge of one another, there is limited ability to form trusting relationships. [17 (p0.3)] Suttles's classic 1968 study of two very low-income communities highlights this type of trust where one community, comprised of Italian immigrants, had an "intricate communication

network" and thus a high level of trust in each other while their black equally poor community was highly fluid with the real or perceived expectation that residents lacked permanence and thus had no trust to establish community efficacy.[18]

Objectives

Given the combination of the events in Baltimore in the spring and summer of 2015 and the fact that we had collected data from adolescents residing in very low-income parts of cities around the world, we decided to undertake analyses to explore issues of trust and its health consequences. We use the data from the Well-Being of Adolescents in Vulnerable Environments (WAVE) study, which is a five-city study of young people in very low-income settings around the world. For this paper, we concentrate on adolescents living in Baltimore as it was the primary site in the study where trust was explicitly measured (i.e., institutions and individuals with whom adolescents meet with on a daily basis). Specifically, the main objectives of the present analyses are the following: (a) to determine the differences in the sociodemographic characteristics between adolescents who do and do not trust and (b) to examine the associations between trust and six health outcomes: (1) self-rated health; (2) violence victimization; (3) binge drinking; (4) marijuana use; (5) post-traumatic stress disorder (PTSD); and (6) condom use at last sex. The findings from this study may shed more light not only on the Baltimore City Uprising—as it is locally referenced—but also in our general understanding about some of the contextual factors that are important to the health of adolescents.

METHODS

Data

The WAVE study used respondent-driven sampling (RDS) to conduct a cross-sectional survey of 15 to 19 year olds in five economically disadvantaged urban sites. The data presented here are from Baltimore only and were collected between March and June 2013. Inclusion criteria were youth aged 15–19 living or spending a majority of their time in the five zip codes that comprise Historic East Baltimore (a geography that accounts for about 20 % of the Baltimore city population). All eligible participants completed a survey programed using ACASI software.[19] The Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB) approved all study protocols.

Measures

Sociodemographic Variables. These measures included age, gender, current school enrolment, perceived relative wealth (categorized as: same as, better off than or worse off than others), and family structure (two parents, other).

Institutional and Community Trust. Both *Institutional Trust* (alpha = 0.87) and *Community Trust* (alpha = 0.80) were drawn from an adapted ten-item scale that indicated the level of trust in varying types of institutions and people.[20] Each response item ranged from "not trust at all" (0) to "a lot of trust (4). Factor analysis of the scale revealed two factors and one item as an outlier, "trust in strangers," which was dropped from the scales. *Institutional Trust* is a four-item scale (range 0–12), which combined trust in government, public authorities, courts, and police; *Community Trust* is a five-item scale (range 0–15) which included trust in churches,

the educational system, and one's own family, friends, and neighbors. Both scales were dichotomized into high and low trust using the median value as the cut point. Table 1 includes the individual trust items, their distributions, and the median values of each scale. Notably, more than half (55 %) of study participants have no trust in the police, 45 % report no trust in public authorities, and 43 % have no trust in the courts. Adolescents have the most trust in their families (86 %), but more than two out of five (42 %) have no trust in their own neighbors.

Health is a single-item self-report measure of general health with five response options; however, for analytic purposes, the measure was dichotomized as 0 for fair, poor, or good and 1 for excellent or very good. *Community victimization* is a binary measure constructed from a scale of five items about experiences of personal victimization ranging from being pushed, shoved, or verbally threatened to being threatened or physically assaulted with a weapon. The scale ranges from 0 to 10; higher values indicate that the respondent had been victimized more times and/or in different ways in their neighborhood in the previous 12 months. The cut-off point for this scale was set at 1 so that the categorization is *never* versus ever experiencing one or more of these events. *Condom use at last sexual intercourse* is a dichotomous measure asked only of those who reported having had sexual intercourse in the last 12 months (68 % of respondents). The *Post-Traumatic Stress Disorder* measure consists of 17 items about how experiences in the past affect one's coping today; scoring is based on the PTSD Civilian's Checklist, with a higher the score indicating the more stress the respondent reported in the previous 30 days.[21] There is no set cut-off point for the scale, but in order to dichotomize the measure and align with the expected prevalence of PTSD in Baltimore, we established a cut point of 36. *Binge Drinking* (consuming five or more drinks in a 2-h period) and *Marijuana Use* are both dichotomous measures of this activity in the past 30 days.

Analysis

We first examined the bivariate associations between trust and demographic characteristics using logistic regression. Specifically, we analyzed the data using gender stratified logistic regression models with each health measure as the dependent variable and all the covariates: age, school enrolment, perceived relative

TABLE 1 Trust summary statistics Baltimore sample, 2013 WAVE study ($n = 446$)

	Mean	% with no trust
Government	0.86	41.5
Public authorities	0.79	44.9
Courts	0.81	43.0
Churches	1.81	21.3
Educational system	1.5	20.7
Police	0.77	55.1
Own family	2.07	14.0
Neighbors	0.98	41.5
Friends	1.63	18.2
Strangers	0.32	80.3
	Alpha	Median
Institutional trust	0.87	3
Community trust	0.8	9

wealth, and parent(s) responsible for raising the respondent. Findings from these models are summarized in Tables 3 and 4. Stata 13.1 was employed using complex design procedures to accommodate for the non-independence of observations, i.e., the potential for inter-cluster correlation within recruitment chains. Weights were generated via the RDSII estimator to accommodate for the non-independence of observations and the sampling strategy and were used in all of the analyses presented in Tables 2, 3, and 4.[22]

RESULTS

A General Picture of Adolescent Health in Baltimore

More than two thirds of both boys and girls perceived that they have very good or excellent health (66.9 % of girls and 72.7 % of boys). However, victimization was a common experience: 30 % of girls and 26 % of boys report having been victimized by violence, and nearly 40 % of girls (39.8 %) and 27 % of boys had symptoms of PTSD. More than a third of both girls and boys currently use marijuana (35 % among girls and 39 % among boys), while approximately 13 % of girls and boys had recently engaged in binge drinking. Finally, nearly half of girls and 61 % of boys who reported having had sexual intercourse in the past 12 months used a condom at last sex (see Table 2 for further details).

Characteristics of Adolescents Who Trust and Distrust

We conducted bivariate analyses between our two trust scales (institutional trust and community trust) and the sociodemographic variables. Overall, while boys had similar associations between the two trust measures, among girls, the associations differed by type of trust. For instance, girls who had higher levels of *institutional*

TABLE 2 Prevalence of health outcomes in weighted Baltimore sample ($n = 446$)

	Girls	Boys
Condom use at last sex		
Yes	49.9 %	60.7 %
No	50.1 %	39.3 %
PTSD		
Yes	39.8 %	26.6 %
No	60.2 %	73.4 %
Self-rated health		
Fair or poor, do not know, refused	33.1 %	27.3 %
Good, very good, or excellent	66.9 %	72.7 %
Victimization		
Yes	30.2 %	25.6 %
No	69.8 %	74.4 %
Binge drinking		
Yes	13.2 %	13.6 %
No	86.8 %	86.4 %
Marijuana last month		
Yes	34.7 %	39.4 %
No	65.3 %	60.6 %

TABLE 3 Bivariate associations between trust and sociodemographic characterisitcs ($n = 446$)

	1	2	3	4
	Girls		Boys	
Variables	Odds ratio institutional	Odds ratio community	Odds ratio institutional	Odds ratio community
	Trust unadjusted	Trust unadjusted	Trust unadjusted	Trust unadjusted
Age (ref: ages 15 and 16)	0.95	0.95	0.42***	0.49**
	(0.70–1.30)	(0.74–1.23)	(0.31–0.58)	(0.31–0.78)
Raised (ref: other)	1.49*	0.87	6.97***	3.18***
	(1.06–2.09)	(0.61–1.24)	(3.84–12.64)	(2.20–4.58)
In school (ref: no)	1.11	0.37***	0.50*	0.24**
	(0.63–1.94)	(0.26–0.53)	(0.30–0.81)	(0.11–0.50)
Relative SES (ref: better off)	2.05	0.77	1.18	0.89
	(0.93–4.53)	(0.23–2.55)	(0.58–2.39)	(0.50–1.57)

95 % CI in parentheses
***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

TABLE 4 Separate logistic regressions between community and institutional trust and six health outcomes, by gender Baltimore sample, 2013 WAVE study

	1	2	3	4	5	6
	Condom last sex	PTSD	Self-rated health	Victimization last year	Marijuana last month	Alcohol–binge
Variables	aOR	aOR	aOR	aOR	aOR	aOR
Girls						
Community trust (ref: no trust)	1.60	1.43	1.60	0.29**	0.54	0.13***
	(0.90–2.82)	(0.86–2.38)	(0.72–3.57)	(0.14–0.58)	(0.28–1.03)	(0.08–0.22)
Institutional trust	2.95**	1.10	1.36	0.65	0.53**	0.81
(ref: no trust)	(1.83–4.77)	(0.74–1.63)	(0.57–3.28)	(0.34–1.22)	(0.37–0.75)	(0.39–1.67)
Observations	360	436	446	446	445	446
Boys						
Community trust	2.51***	0.92	1.07	1.12	0.65	1.47
(ref: no trust)	(1.80–3.48)	(0.73–1.16)	(0.74–1.54)	(0.47–2.68)	(0.40–1.07)	(0.44–4.90)
Institutional trust	0.97	1.06	0.80	1.30	0.44**	2.32*
(ref: no trust)	(0.46–2.05)	(0.36–3.10)	(0.38–1.66)	(0.80–2.11)	(0.26–0.76)	(1.08–4.98)
Observations	366	428	446	440	442	446

95 % CI in parentheses

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

trust were significantly more likely to be raised by two parents ($p < 0.05$). On the other hand, girls with higher levels of *community trust* were less likely to be out of school ($p < 0.001$). Among boys, those with higher levels of both institutional trust and community trust were more likely to be younger ($p < 0.01$), be out of school ($p < 0.001$), and *less* likely to be raised by two biological parents ($p < 0.05$).

The Relationship between Trust and Health

Table 4 displays the results of the multivariate analyses on the associations between institutional trust and community trust with six different health outcomes among male and female adolescents. Among girls, those with higher levels of community trust were less likely to have been victimized in the last year ($p < 0.01$) or to have engaged in binge drinking ($p < 0.001$). Meanwhile, girls with higher levels of institutional trust were nearly three times more likely to use a condom at last sex ($p < 0.01$), but less likely to have used marijuana in the last month ($p < 0.01$). Among boys, community trust was only associated with condom use at last sex, as boys with more community trust were more than twice as likely to have used a condom at last sex ($p < 0.001$). Meanwhile, boys with institutional trust were less likely to have used marijuana in the last month ($p < 0.01$), but more than twice as likely to engage in binge drinking ($p < 0.05$).

DISCUSSION

This paper aims to determine the differences in the sociodemographic characteristics between adolescents who trust and those who do not and to examine the associations between trust and health. Results related to the first aim showed that boys with both institutional and community trust were more likely to be younger and out of school, as well as live in non-two-parent households. Among girls, however, the associations with sociodemographic characteristics differed by type of trust. Girls with institutional trust were more likely to live in two-parent households and those with community trust were less likely to be in school. In general, adolescents have more trust in the community than they do with the public authorities (institutional trust). The fact that more than half (55 %) had no trust in police speaks volumes to this overwhelming sense of distrust in authority. Those that did show trust in such authorities are more likely to be in stable households, such as what was found for the girls, or be in schools, as was found among the boys. While it is not clear why girls with more community trust are less likely to be in school, this finding may simply be reflecting those who have graduated and thus "aged" out of school.

For the second aim, a more complex relationship was observed between trust and health, as we observed variations in the relationship not only by gender, but also by the type of trust measure and particular health outcome. The only health outcome that held a consistent type of relationship to health between boys and girls was marijuana use, which was found negatively related to institutional trust and is supportive of the notion that those who trust in the law are more likely to abide by it.

The relationship between condom use and trust was more nuanced. While condom use at last sex was positively associated to trust among both boys and girls, among girls, the association was with institutional trust, whereas for boys, it was with community trust. Indeed, with regard to condom use, there is a wealth of literature regarding "trust" and use—but this research is nearly all related to trust in the sexual partner. Our findings suggest that the concept of trust may need to go beyond partner relationship. Similarly, while binge drinking was negatively associated with community trust for girls, it was positively associated with

institutional trust for boys. Among girls, this association is in the expected direction; however, for boys, it is a bit puzzling why institutional trust would have a positive association with binge drinking. It may be that boys with institutional trust are endorsing more masculine behaviors commonly associated with members of authority (i.e., police officers being more male). Previous research, for example, has shown that alcohol use is often viewed as a symbol of masculinity in the USA,[23] and so boys who trust in authority may be identifying more with male authoritative role models, and therefore engage in behaviors that endorse their masculinity.[24]

For victimization, not surprisingly, we observed a negative association between victimization and trust, but this was observed only among girls and in relation to only community trust. This supports previous research among adults conducted in Columbia, which also found a negative association between interpersonal trust and victimization.[25]

The study has a number of important limitations. First, while respondent-driven sampling was a specific technique that was used to recruit adolescents from diverse social backgrounds, the sample is not a representative of the general adolescent population of Baltimore. Rather, the recruitment strategy was to sample from among youth residing is one of the lowest income sections of the city. Additionally, given that this is a cross-sectional study, it is not possible to determine causal pathways. Finally, while our trust measures tap into the three main constructs of trust that have been used among other populations (generalized, particular, and strategic), more research is needed to validate these measures among other adolescent populations.

CONCLUSIONS

Despite these limitations, this study highlights the relevance of trust to adolescent health especially for young people who live in distressed communities. While we were primarily interested in examining the health of adolescents who have trust—to turn it back to the events that took place in Baltimore city in April of 2015—the findings of this study also suggest that trust may, in fact, be an important contributor to the violence and delinquent behaviors that were observed among adolescents during the "uprising." Given that more than half of the sample had no trust in police, and a high proportion had no trust in other types of authority, addressing this issue may be especially important as Baltimore and other cities try to find solutions for curbing youth violence. The study also showed the importance of examining trust and health by gender, as being male or female made a large difference in both the direction of the association and the type of trust that was significant to health. Indeed, more research is needed to further disentangle these relationships.

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COMPLIANCE WITH ETHICAL STANDARDS

The Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB) approved all study protocols.

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