

# The Long-Term Health Consequences of Relationship Violence in Adulthood: An Examination of Low-Income Women From Boston, Chicago, and San Antonio

Terrence D. Hill, PhD, Ryan D. Schroeder, PhD, Christopher Bradley, PhD, Lauren M. Kaplan, MA, and Ronald J. Angel, PhD

Over the past 2 decades, numerous studies have examined the long-term health consequences of relationship violence during childhood. This body of research suggests that physical and sexual abuse in early life can be devastating to health in adulthood, contributing to poor mental<sup>1–6</sup> and physical health<sup>3–5,7</sup> and to higher rates of substance abuse.<sup>5,6,8,9</sup> These patterns are remarkably consistent across studies and notably persistent through the life course. In a recent study of more than 21 000 older adults, Draper et al.<sup>3</sup> reported that physical and sexual abuse before 15 years of age is associated with poor mental and physical health well into late life.

Although previous research has made significant contributions to our understanding of the lasting effects of abuse in early life, few studies have considered the long-term health consequences of relationship violence in adulthood. Our review of the literature revealed 5 longitudinal studies of relationship violence and health in adulthood. Not surprisingly, research suggests that women who experience relationship violence in adulthood are vulnerable to poor health trajectories, including increases in depressive symptoms,<sup>10–12</sup> functional impairment,<sup>10,12</sup> and alcohol consumption.<sup>13,14</sup>

Relationship violence is an important issue in all segments of society; however, studies consistently show that women of low socioeconomic status exhibit higher rates of intimate partner victimization than do their more affluent counterparts.<sup>15–17</sup> For example, Tolman and Raphael<sup>17</sup> reported that between 34% and 65% of women receiving welfare report having experienced some form of relationship violence in their lifetime, and between 8% and 33% experience some form of relationship violence each year, levels that surpass those for women overall.<sup>18</sup> Research also shows that residence in disadvantaged

**Objectives.** We examined the long-term health consequences of relationship violence in adulthood.

**Methods.** Using data from the Welfare, Children, and Families project (1999 and 2001), a probability sample of 2402 low-income women with children living in disadvantaged neighborhoods in Boston, Massachusetts; Chicago, Illinois; and San Antonio, Texas, we predicted changes in the frequency of intoxication, psychological distress, and self-rated health over 2 years with baseline measures of relationship violence and a host of relevant background variables.

**Results.** Our analyses showed that psychological aggression predicted increases in psychological distress, whereas minor physical assault and sexual coercion predicted increases in the frequency of intoxication. There was no evidence to suggest that relationship violence in adulthood predicted changes in self-rated health.

**Conclusions.** Experiences with relationship violence beyond the formative and developmental years of childhood and adolescence can have far-reaching effects on the health status of disadvantaged urban women. (*Am J Public Health.* 2009; 99:1645–1650. doi:10.2105/AJPH.2008.151498)

neighborhoods<sup>19,20</sup> and the presence of children in the household<sup>21,22</sup> may elevate the odds of relationship violence. Given their high violence-risk profile, attention must be directed to the patterns and health consequences of intimate partner victimization in the lives of disadvantaged urban women with children.<sup>23–25</sup>

Building on previous research, we used data collected from a large probability sample of low-income women with children living in low-income neighborhoods in Boston, Massachusetts, Chicago, Illinois, and San Antonio, Texas, to predict changes in the frequency of intoxication, psychological distress, and self-rated health over 2 years with measures of relationship violence in early life and adulthood and a host of relevant background variables. In accordance with previous research, we expected that intimate partner victimization in adulthood would predict increases in psychological distress and the frequency of intoxication and decreases in self-rated health over the study period.

## METHODS

The data for this investigation came from the Welfare, Children, and Families (WCF) project,<sup>26</sup> a household-based, stratified, random sample of 2402 low-income women living in low-income neighborhoods in Boston, Chicago, and San Antonio. The data were collected in 1999 with a follow-up in 2001. The baseline response rate was 75%, and 89% of the original sample was interviewed again. Census blocks (or neighborhoods) in which at least 20% of the residents were below the federal poverty line according to the 1990 census were sampled first. Within these neighborhoods, households under 200% of the poverty line were sampled, and households below 100% of the poverty line were oversampled. Because one of the goals of the WCF project was to assess the impact of welfare policy and work on children, households were screened for the presence of children. Households with at least 1 infant or child (aged 0–4 years) or young adolescent (aged 10–14 years) were sampled. The children's caregivers, all of

whom were women, were interviewed face-to-face.

## Measures

The first outcome under study was frequency of intoxication. This outcome was intended to measure the most fundamentally problematic aspect of alcohol consumption, that is, getting drunk. Respondents were asked, "In the past 12 months, how often have you gotten drunk?" Response categories for this item were coded as (0) never, (1) once or twice, or (2) several times or often. This measure of intoxication has shown construct validity in previous research. Using the 1985 National Survey on Drug Abuse, Robbins<sup>27</sup> used a similar measure of intoxication and found strong positive associations with psychological distress and social and behavioral problems.

The second outcome under study was psychological distress. This outcome was measured with the Brief Symptom Inventory (BSI-18),<sup>28</sup> which contains subscales for depression, anxiety, and somatization. Psychological distress was measured as the mean response to 18 items. For example, respondents were asked to indicate how much in the past 7 days they were distressed or bothered by "feeling no interest in things," "feeling tense or keyed up," and experiencing "nausea or upset stomach." Response categories for all psychological distress items were coded as (1) not at all, (2) a little bit, (3) moderately, (4) quite a bit, or (5) extremely.

The final outcome under study was self-rated health. This outcome is widely used to measure general physical health status. Respondents were asked, "In general how is your health?" Response categories were coded as (1) poor, (2) fair, (3) good, (4) very good, or (5) excellent. Self-rated health is strongly correlated with more objective measures of physical health, including physician diagnoses, various measures of morbidity, and all-cause mortality.<sup>29</sup>

Measures of relationship violence in adulthood were drawn from the Revised Conflict Tactics Scales (CTS2).<sup>30</sup> The CTS2 has established reliability and validity.<sup>30,31</sup> Drawing on the work of Straus et al.,<sup>30</sup> we assessed 4 major types of relationship violence, including psychological aggression, minor physical assault, severe physical assault, and sexual coercion. Psychological aggression captured nonphysical or verbal acts of violence. Respondents were asked to indicate how often in the past 12 months a romantic

partner had threatened to (1) hit them, (2) use a weapon on them, and (3) hurt their child or take [him/her] away. Minor physical assault assessed nonsevere or "common couple" acts of physical violence. Respondents were asked to indicate how often in the past 12 months a romantic partner had (1) thrown something at them and (2) pushed, grabbed, or shoved them. Severe physical assault measured some of the more brutal and vicious acts of physical violence. Respondents were asked to indicate how often in the past 12 months a romantic partner had (1) slapped, kicked, bit, or punched them, (2) beaten, and (3) choked or burned them. Finally, sexual coercion was intended to capture forced sexual acts of violence. Respondents were asked to indicate how often in the past 12 months a romantic partner had forced them into any sexual activity against their will. Because of limited incidence rates, measures of adult violence were coded into dummy variables. Respondents were given a value of (1) if they reported a particular act of violence in the past 12 months and (0) if they did not. For example, the dummy variable for psychological aggression was coded (1) for one or more acts of psychological aggression in the past year and (0) for no acts of psychological aggression in the past year.

Relationship violence during childhood and adolescence was measured with 2 items. These items captured physical assault and sexual coercion before age 18. Respondents were asked to indicate whether they were ever hit, beaten up, burned, or assaulted with a weapon or whether their life had been threatened by an adult in their family or household before the age of 18 years. Respondents were also asked to indicate whether anyone—a stranger, friend, acquaintance, date, or relative—had ever tried or succeeded in doing something sexual to them or made them do something sexual against their wishes. Once again, because of limited incidence rates, these measures were coded into dummy variables. For each of the 2 measures, respondents were given a value of (1) if they reported being victims of physical assault or sexual coercion before the age of 18 years, respectively, and (0) if they did not.

In accordance with previous research on relationship violence and mental health among low-income women,<sup>23,25</sup> our multivariate analyses included controls for numerous background factors, including age (in years), race/ethnicity

(non-Hispanic White, Mexican, and other Hispanic compared with Black), education (in years), employment status (1=worked for pay in past week), current welfare status (1=currently receiving welfare), financial hardship (13-item index assessing the inability to provide for food, clothing, housing, and other essential material needs), marital status (1=married and living with spouse), cohabiting status (1=cohabiting, not married), and number of children (1–6 or more). Because city of residence was correlated with several of these measures (e.g., race and employment status), subsequent analyses also controlled for city (Boston and San Antonio compared with Chicago).

## Statistical Procedures

In our multivariate analysis, we modeled changes in health indicators over 2 years (1999 and 2001). In lieu of standard lagged endogenous dependent variable models, we used change score models to assess 2-year health trajectories. A recent comparison of 2-wave panel designs concluded that change score models are generally preferable to lagged endogenous dependent variable models.<sup>32</sup> We first computed change scores by subtracting baseline health scores from follow-up health scores. Change scores are continuous variables that range from some negative number to some positive number. Negative numbers indicate a decrease in a given health indicator (e.g., fewer symptoms of psychological distress in 2001 than in 1999). Positive numbers suggest an increase in a given health indicator (e.g., greater frequency of intoxication in 2001 than in 1999). Many respondents exhibited a change score of zero, which indicated no change across waves (e.g., same self-rated health score in 1999 and in 2001). Because change scores are continuous variables, we used ordinary least squares regression to model changes in the frequency of intoxication, psychological distress, and self-rated health with predictor variables measured at baseline. We presented both unstandardized and standardized ordinary least squares coefficients for corresponding independent variables. In this case, unstandardized coefficients were estimated to describe the difference in the expected change in health status for every 1-unit change in an independent variable. We used SPSS version 16 (SPSS Inc, Chicago, IL) for all analyses.

## RESULTS

Descriptive statistics for selected background factors at baseline are provided in Table 1. Most respondents lived in Boston (38%), followed by Chicago and San Antonio (31% each). The sample included Blacks (43%), Mexicans (24%), other Hispanics (24%), and non-Hispanic Whites (9%). The average respondent was 33 years of age, with approximately 10 years of formal education. Less than half of the respondents were employed or currently receiving welfare benefits. Few respondents were cohabiting or married and living with a spouse. The average respondent was responsible for nearly 3 children and exhibited a low level of financial hardship.

Descriptive statistics for all violence measures at baseline are provided in Table 2. Before we consider the results of the present study, it is important to note that approximately 22% of all women report physical assault by an intimate partner in their lifetime, and roughly 1.3% of all women are physically assaulted by an intimate partner each year.<sup>18</sup> The results from Table 2 indicate that most respondents reported no relationship violence in their lifetime. Although reports of physical assault (20%)

and sexual coercion (24%) before the age of 18 years were similar to national lifetime prevalence rates, 12-month incidence rates for psychological aggression (18%), minor physical assault (22%), severe physical assault (12%), and sexual coercion (7%) were noticeably higher than expectations derived from national estimates.

Also provided in Table 2 are descriptive statistics for selected health indicators, including baseline and follow-up measurements and change score specifications. Average health scores were generally consistent across waves. The average respondent exhibited low levels of intoxication and psychological distress. Respondents also tended to report “good” health. With respect to the change scores, we observed an average decline in frequency of intoxication, psychological distress, and self-rated health. These patterns suggest that although risky drinking practices and mental health improved between waves, self-rated health deteriorated.

The results of our multivariate change analysis are shown in Table 3. The first column of Table 3 shows that only minor physical assault and sexual coercion were associated with the change in frequency of intoxication. As expected, experiences with minor physical

assault and sexual coercion in the past year predicted increases in the frequency of intoxication from baseline to follow-up, net of controls for baseline frequency of intoxication (outcome pretest), violence before the age of 18 years, and all background factors. Interestingly, the intoxication trajectories of respondents who reported abuse before the age of 18 years were similar to those respondents who reported no experiences with relationship violence in early life. A comparison of standardized parameter estimates also suggested that minor physical assault in the past year was among the strongest predictors of the change in frequency of intoxication. For example, the standardized parameter estimate for minor physical assault ( $B=0.10$ ) was larger in magnitude than those for age ( $B=0.08$ ) and race/ethnicity ( $B=0.05-0.07$ ).

The second column of Table 3 shows the multivariate results for psychological distress. These results indicated that only psychological aggression was associated with a change in psychological distress between waves. As one would expect, experiences with psychological aggression in the past year were associated with an increase in psychological distress from baseline to follow-up, net of controls. The results also indicate that individuals who experienced physical assault and sexual coercion before the age of 18 years were vulnerable to increases in psychological distress over the study period, even with controls for baseline psychological distress, more recent experiences with relationship violence, and a host of background factors. An examination of standardized parameter estimates suggested that psychological aggression in the past year was among the strongest predictors of the change in psychological distress. For example, the standardized parameter estimate for psychological aggression ( $B=0.08$ ) was equal to or larger in magnitude than those for physical assault before the age of 18 years ( $B=0.06$ ), sexual coercion before the age of 18 years ( $B=0.08$ ), and employment ( $B=0.05$ ).

The third column of Table 3 shows the multivariate results for self-rated health. Surprisingly, these results suggested that the self-rated health trajectories of respondents who reported intimate partner victimization in the past year were similar to those of respondents

**TABLE 1—Sample Baseline Descriptive Statistics (n=2088): Welfare, Children, and Families Project; Chicago, IL, Boston, MA, San Antonio, TX; 1999**

	Mean (SD) or %	Range	Reliability <sup>a</sup>
Age, y	33.27 (9.77)	19-74	...
Non-Hispanic White	9	...	...
Black	43	...	...
Mexican	24	...	...
Other Hispanic	24	...	...
Education, y	10.51 (2.35)	0-14	...
Employed	41	...	...
Receiving welfare	37	...	...
Financial hardship	0.01 (0.58)	-1 to 3	0.83
Cohabiting, not married	6	...	...
Married, spouse in house	14	...	...
Married, no spouse in house	12	...	...
Single	68	...	...
No. of children	2.61 (1.34)	1-6	...
Living in Boston	38	...	...
Living in Chicago	31	...	...
Living in San Antonio	31	...	...

<sup>a</sup>Estimated by Cronbach  $\alpha$ .

**TABLE 2—Sample Descriptive Statistics (n=2088) for Relationship Violence in 1999 and Health Indicators in 1999 and 2001: Welfare, Children, and Families Project; Chicago, IL, Boston, MA, San Antonio, TX**

	% or Mean (SD)	Range	Reliability <sup>a</sup>
<b>Relationship violence</b>			
Psychological aggression, past y	18	...	...
Minor physical assault, past y	22	...	...
Severe physical assault, past y	12	...	...
Sexual coercion, past y	7	...	...
Physical assault before age 18 y	20	...	...
Sexual coercion before age 18 y	24	...	...
<b>Health indicators</b>			
Frequency of intoxication <sup>b</sup>			
1999	0.37 (0.60)	0-2	...
2001	0.35 (0.61)	0-2	...
Frequency change <sup>c</sup>	-0.02 (0.61)	-2 to 2	...
Psychological distress <sup>d</sup>			
1999	1.44 (0.54)	1-5	0.92
2001	1.42 (0.54)	1-5	0.93
Distress change <sup>c</sup>	-0.01 (0.48)	-3 to 3	...
Self-rated health, <sup>e</sup>			
1999	3.22 (1.17)	1-5	...
2001	3.20 (1.13)	1-5	...
Health change <sup>c</sup>	-0.02 (1.18)	-4 to 4	...

<sup>a</sup>Estimated by Cronbach  $\alpha$ .

<sup>b</sup>Coded as: 0=never, 1=once or twice, or 2=several times or often.

<sup>c</sup>2001 minus 1999 data.

<sup>d</sup>Coded as: 1=not at all, 2=a little bit, 3=moderately, 4=quite a bit, or 5=extremely.

<sup>e</sup>Coded as: 1=poor, 2=fair, 3=good, 4=very good, or 5=excellent.

who reported no recent experiences with relationship violence. The results also show that individuals who experienced sexual coercion (not physical assault) before the age of 18 years were vulnerable to declines in self-rated health over the study period.

Although we were not primarily interested in the effects of background factors, we would like to briefly acknowledge several significant patterns. Our data showed favorable intoxication trajectories for older respondents and for Mexicans and other Hispanics (compared with Blacks). We also observed that the frequency of intoxication increased from baseline to follow-up for non-Hispanic Whites compared with Blacks. With respect to psychological distress, we found favorable mental health trajectories for respondents who were employed at baseline. Finally, our results indicated poorer self-rated health trajectories for respondents who were older, receiving

welfare, and experiencing greater financial hardship at baseline.

## DISCUSSION

Although numerous studies have examined the enduring health consequences of child abuse, few studies have documented the long-term effects of relationship violence in adulthood. We used data collected from a large probability sample of low-income urban women with children to predict changes in the frequency of intoxication, psychological distress, and self-rated health over 2 years with baseline measures of relationship violence and a host of relevant background characteristics.

Our results showed that minor physical assault and sexual coercion in the past year predicted increases in the frequency of intoxication over 2 years. Surprisingly, psychological aggression and severe physical assault in the

past year were not significant predictors. In a recent cross-sectional analysis of WCF data, Hill et al.<sup>33</sup> found that minor and severe physical assault in the past year are associated with greater frequency of intoxication. Our results for minor physical assault corroborate these findings. Because sexual coercion in the past year failed to predict the frequency of intoxication in the cross-sectional study, the results of the present investigation suggest that the effects of sexual coercion in adulthood are more long-term. By the same rationale, it appears that the effects of severe physical assault are more immediate. Nevertheless, our results are generally inconsistent with other longitudinal studies of severe physical assault.<sup>13,14</sup> Although Zlotnick et al.<sup>12</sup> failed to observe any long-term effect of physical violence, their mixture of minor and severe physical assault obscures the bearing of these results. To the best of our knowledge, we are among the first to consider the long-term effects of psychological aggression in the past year. Because physical assault and sexual coercion before the age of 18 years failed to predict changes in the frequency of intoxication, our results emphasize the unique impact of relationship violence in adulthood.

We also found that psychological aggression predicted increases in psychological distress. Although this pattern is generally consistent with prior longitudinal research,<sup>11</sup> our results for minor and severe physical assault are inconsistent with other longitudinal studies.<sup>10,12</sup> In a recent cross-sectional analysis of the WCF data, Hill et al. showed that psychological aggression, minor physical assault, and sexual coercion in the past year are associated with higher levels of psychological distress.<sup>23</sup> The results of the present study highlight the consistent impact of psychological aggression and underscore the more immediate effects of minor physical assault and sexual coercion. Our results also suggest that psychological forms of relationship violence may be more detrimental to the mental health of women than physical forms of violence. This interpretation is generally supported by qualitative evidence. In one memorable interview excerpt, a woman expressed the following:

I started to go a little crazy. I just couldn't think of everything. All the time he was around I felt like I walking on a tightrope. Just one little slip and I knew I might get it. When he did hit me, I was relieved. At least I didn't have to be so tense anymore.<sup>34(p131)</sup>



**TABLE 3—Parameter Estimates for Changes in Frequency of Intoxication, Psychological Distress, and Self-Rated Health: Welfare, Children, and Families Project; Chicago, IL, Boston, MA, San Antonio, TX; 1999 and 2001**

	Change in Frequency of Intoxication <sup>a</sup>		Change in Psychological Distress <sup>a</sup>		Change in Self-Rated Health <sup>a</sup>	
	b (SE)	B	b (SE)	B	b (SE)	B
<b>Relationship violence</b>						
Psychological aggression, past y	-0.06 (0.04)	-0.03	0.10 (0.03)	0.08**	0.16 (0.08)	0.05
Minor physical assault, past y	0.14 (0.04)	0.10***	0.01 (0.03)	0.01	-0.13 (0.07)	-0.04
Severe physical assault, past y	-0.04 (0.05)	-0.02	-0.06 (0.04)	-0.04	0.02 (0.09)	0.01
Sexual coercion, past y	0.14 (0.06)	0.05*	-0.08 (0.05)	-0.04	-0.10 (0.11)	-0.02
Physical assault before age 18 y	0.04 (0.03)	0.03	0.07 (0.03)	0.06*	-0.07 (0.06)	-0.02
Sexual coercion before age 18 y	-0.01 (0.03)	-0.01	0.08 (0.03)	0.08**	-0.20 (0.06)	-0.07**
Outcome pretest	-0.55 (0.02)	-0.54***	-0.41 (0.02)	-0.45***	-0.59 (0.02)	-0.59***
<b>Background Factors</b>						
Age	-0.01 (0.00)	-0.08***	0.00 (0.00)	0.01	-0.01 (0.00)	-0.13***
Non-Hispanic White	0.13 (0.04)	0.06**	0.07 (0.04)	0.04	-0.04 (0.08)	-0.01
Mexican	-0.10 (0.03)	-0.07**	0.01 (0.03)	0.01	0.10 (0.06)	0.04
Other Hispanic	-0.07 (0.03)	-0.05*	0.03 (0.03)	0.03	-0.03 (0.06)	-0.01
Education	0.00 (0.01)	0.00	0.00 (0.00)	0.01	0.00 (0.01)	0.01
Employed	0.02 (0.03)	0.02	-0.05 (0.02)	-0.05*	0.06 (0.05)	0.02
Receiving welfare	-0.03 (0.03)	-0.02	0.03 (0.02)	0.03	-0.12 (0.05)	-0.05*
Financial hardship	0.00 (0.02)	0.00	0.00 (0.02)	0.00	-0.13 (0.04)	-0.07**
Cohabiting, not married	-0.09 (0.05)	-0.04	0.02 (0.04)	0.01	-0.11 (0.09)	-0.02
Married, spouse in house	-0.05 (0.03)	-0.03	-0.05 (0.03)	-0.04	0.02 (0.06)	0.01
No. of children	0.02 (0.01)	0.04	0.01 (0.01)	0.02	0.00 (0.02)	0.00
Living in Boston	-0.02 (0.03)	-0.01	0.01 (0.03)	0.01	0.16 (0.06)	0.07*
Living in San Antonio	0.05 (0.03)	0.03	0.02 (0.03)	0.02	0.01 (0.06)	0.00
<b>Model statistics</b>						
Model F	36.33***		21.74***		45.25***	
R-squared	0.27		0.19		0.32	

Note: Shown are unstandardized ordinary least squares parameter estimates (b) and standardized estimates (B). The sample size was n=1954.

<sup>a</sup>2001 minus 1999 data.

\*P<.05, \*\*P<.01, \*\*\*P<.001.

To the best of our knowledge, we are among the first to consider the long-term mental health consequences of severe physical assault and sexual coercion in adulthood. In contrast with our results for the frequency of intoxication, we observed that individuals who experienced physical assault and sexual coercion before the age of 18 years were vulnerable to increases in psychological distress over the study period. Taken together, these results speak to the unique mental health effects of abuse in early life as compared with relationship violence in adulthood.

Our analysis of the change in self-rated health revealed no significant patterns for

violence in adulthood. Because we were unable to find any longitudinal studies of overall self-rated health, it is unclear how our results (or lack thereof) compare with other examinations. If self-rated health actually measures physical health, one might expect the adverse effects of relationship violence in adulthood to surface over an extended period of time. The traumatic effects of severe physical assault on self-rated health can be instantaneous; however, the effects of psychological aggression and minor physical assault, for example, would conceivably take much longer, presumably through mechanisms like psychological distress, chronic stress, and risky health behaviors. Our result

showing that individuals who experienced sexual coercion (not physical assault) before the age of 18 years were vulnerable to declines in self-rated health over the study period is generally consistent with this idea.

The present study makes several advances over previous research on relationship violence and health. Because our analysis included measures of physical assault and sexual coercion before the age of 18 years and past-year assessments of psychological aggression, minor physical assault, severe physical assault, and sexual coercion, it is one of the more comprehensive studies of relationship violence and health on record. Because we used a prospective design and controlled for baseline health status, we are confident about the causal order of our associations.

Our study also had several limitations. Because the data were restricted to Boston, Chicago, and San Antonio, it is unclear whether our results are generalizable beyond these cities. Data limitations also prevented us from considering the effects of important aspects of intimate terrorism, including dominance, control, and isolation. The measure of intoxication used in this study is a valid assessment of risky drinking practices, but it was based on a single item, which reduces reliability. Self-rated health is also difficult to interpret because it captures so much beyond physical health, including perceptions of body mass, health behaviors, and mental health. It would be informative to compare the results for self-rated health with patterns for specific health conditions, such as high blood pressure, heart disease, and a range of sexually transmitted diseases. We also suspect that the especially modest incidence rates for severe physical assault and sexual coercion in the past year may have limited our ability to detect statistically significant differences. Finally, the current study was limited by the self-report nature of the data. Specifically, we acknowledge the potential for bias resulting from social desirability. To protect individual values, self-concepts, and identities, it is possible that some individuals might falsely respond to questions by underestimating experiences with relationship violence and ill health. Because we were unable to control for social desirability in our models, our results may have exaggerated or even misrepresented the strength of the

association between relationship violence and health status.

Our results show that experiences with relationship violence beyond the formative and developmental years of childhood and adolescence have far-reaching effects on the drinking behaviors and mental health of women. Our analysis also indicates that relationship violence in adulthood is among the strongest predictors of these outcomes. On the basis of these results, we recommend that future research continue to examine the enduring health consequences of relationship violence among low-income urban women. Indeed, much remains to be investigated. How far-reaching are the consequences of relationship violence in adulthood? If relationship violence in adulthood is associated with poor health trajectories, why is it? Future research must consider the mechanisms through which relationship violence in adulthood might lead to changes in health status. If we are going to develop effective strategies for recognizing and treating women who have experienced relationship violence, we need to know as much as possible about how these experiences undermine health. ■

### About the Authors

Terrence D. Hill and Lauren M. Kaplan are with the Department of Sociology, University of Miami, Coral Gables, FL. Ryan D. Schroeder is with the Department of Sociology, University of Louisville, KY. Christopher Bradley is with the Department of Sociology, Indiana University-Purdue University, Fort Wayne, IN. Ronald J. Angel is with the Department of Sociology, University of Texas, Austin.

Correspondence should be sent to Terrence D. Hill, Department of Sociology, University of Miami, P.O. Box 248162, Coral Gables, FL 33124 (e-mail: tdh@miami.edu). Reprints can be ordered at <http://www.ajph.org> by clicking the "Reprints/Eprints" link.

This article was accepted December 8, 2009.

**Note.** The authors are solely responsible for any errors of fact and interpretation.

### Contributors

T.D. Hill designed the study and contributed to the writing and analysis. R.D. Schroeder contributed to background research, writing, and analytic strategy. C. Bradley and L.M. Kaplan contributed to background research and writing. R.J. Angel contributed to study design and data collection.

### Acknowledgments

We thank the *Journal of Marriage and Family* for valuable comments on a previous draft of the article.

### Human Participant Protection

This study was based on publicly available data and was exempt from full review by the Human Subjects Research Office at the University of Miami.

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