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Abstract

Intimate partner violence (IPV) is a serious, widespread problem that negatively affects women's lives, including their economic status. The current study explored whether the financial harm associated with IPV begins as early as adolescence. With longitudinal data from a sample of 498 women currently or formerly receiving welfare, we used latent growth curve modeling to examine the relationships between adolescent IPV, educational attainment, and women's earnings. We found that women who had been victimized by a partner during adolescence obtained less education compared with nonvictimized women, with victimization indirectly influencing women's earnings via educational attainment. The findings support the need for intervention strategies aimed at preventing IPV and promoting women's educational and career development over the life course.

Keywords

adolescent IPV, educational attainment, earnings, life course

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Research on the economic effects of intimate partner violence (IPV) has primarily focused on women's experiences in adulthood. Batterers may directly and indirectly interfere with women's education and employment, control their access to money, and deliberately damage their credit (Adams, Sullivan, Bybee, & Greeson, 2008; Littwin, 2012; Riger, Ahrens, & Blickenstaff, 2001). IPV can contribute to job and housing instability for survivors, with potentially harsh consequences for those who have low incomes and are struggling to transition from welfare to work (Adams et al., 2008; Adams, Tolman, Bybee, Sullivan, & Kennedy, 2012). For these women, IPV creates financial problems that exacerbate the conditions of poverty and keep women trapped in abusive relationships (Goodman, Smyth, Borges, & Singer, 2009).

An understanding of development over the life course supports exploring whether IPV has economic consequences that begin much earlier in women's lives with their earliest relationships (Elder, 1998). Most youths begin forming romantic relationships during adolescence (Collins, Welsh, & Furman, 2009), and it is within these initial relationships that partner violence can begin to emerge (Halpern, Oslak, Young, Martin, & Kupper, 2001). Concurrent with forming romantic relationships, adolescence is the period when girls gain educational experience and establish career aspirations that set the stage for economic attainment in adulthood (Furman & Shaffer, 2003). Research has shown that violent victimization during adolescence can diminish young women's educational attainment and future earnings (Macmillan, 2000), and there is evidence that IPV experienced during the transition to adulthood negatively affects young women's future employment (Lindhorst, Oxford, & Gillmore, 2007). The current study builds on prior research by examining how adolescent IPV shapes women's economic trajectories, thereby focusing on the developmental pathway from adolescent IPV to education to earnings in adulthood. In the literature review that follows, we begin by discussing the importance of education for the earnings of women transition from welfare to work, the population of interest in this study. We then review the limited extant research that suggests adolescent IPV may negatively affect women's educational attainment and earnings.

The Importance of Educational Attainment for Women's Earnings

It is widely known that education is a major determinant of employment-based earnings, with those individuals who acquire more years of schooling faring better in the labor market. The 2009 U.S. Census data illustrate how investment in education can pay off for women. When compared with women with less than a high school education, women's earnings increased by 57% with a high school degree, 81% with some college education, 181% with a

college degree, and 318% with an advanced degree. This pattern suggests that the greater the investment a young woman can make in her education, the greater the possible return in earnings.

For women transitioning from welfare to work, education can be a key to no longer relying on public assistance, living above the poverty line, and improving material well-being. Several studies have shown that education level distinguishes current and former welfare recipients. Using national survey data, Loprest and Zedlewski (1999) found that 41% of women currently receiving welfare had less than a high school education compared with 29% of those who no longer received welfare. Among a sample of women relying on welfare to supplement earnings, Cheng (2002) reported that education level was significantly related to ending welfare receipt and living above the poverty level. In a subsequent study, Cheng (2007) found women who had a high school degree or completed some college were significantly more likely to transition from being unemployed and receiving welfare to earning an income above poverty. Zhan and Pandey (2004) conducted a national survey of single mothers and found that compared with women with no high school degree, women who completed high school received significantly less income from welfare; women with a postsecondary education received significantly less income from welfare and earned significantly more income from employment, regardless of race.

Specifically among women no longer receiving assistance, studies show that education can be crucial for earning higher wages and reducing financial strain. Cancian and Meyer (2000) analyzed 5 years of annually collected data from a national representative survey of 984 women between the ages of 24 and 31, who exited the welfare program and found that the women with more than a high school education had higher wages 5 years postwelfare receipt. Furthermore, among those who were not working a year after public assistance ended, increasing education over a 2-year period significantly increased earnings from employment 4 to 5 years post-welfare. Examining the experiences of single Black mothers, Jackson, Brooks-Gunn, Huang, and Glassman (2000) found that higher education increased women's earning and increased earnings meant less financial strain in the form of having money to meet needs and pay bills. Taken together, evidence suggests higher levels of education can translate into increased earnings and self-sufficiency for women transitioning from welfare to work.

The Effects of IPV on Education and Earnings

Research suggests education and earnings can be disrupted by events that occur early in life. While no study to date has explicitly tested whether adolescent IPV is detrimental to women's educational attainment and

consequently their earnings in adulthood, several studies provide evidence that suggests this may be the case. Banyard and Cross (2008) reported that increased dating violence victimization in the form of physical or sexual violence was significantly related to lower school attachment, lower average grades, and greater expectations of dropping out of school, among a large sample of students in Grades 7 to 12 from school districts across Wisconsin. Hagan and Foster (2001) analyzed data from a random sample of more than 10,000 students in Grades 7 through 11 from the National Longitudinal Study of Adolescent Health and found that experiencing physical IPV significantly increased the probability of dropping out of school. It should be noted that neither of these two studies controlled for socioeconomic status (SES), a factor related to adolescent IPV and school dropout (Battin-Pearson et al., 2000; Foshee et al., 2009). Lindhorst et al. (2007) recruited an ethnically diverse, mostly low-income sample of 229 unmarried, pregnant, young women and found that adolescent physical IPV significantly decreased the likelihood of working in paid employment 4 and 5 years later.

Other evidence suggesting that IPV may have long-term economic consequences for women can be drawn from research conducted by Macmillan and colleagues on the economic losses associated with various forms of violent victimization during adolescence. More specifically, Macmillan conducted two studies that provide evidence of a direct and indirect relationship among violent victimization during adolescence, educational attainment, and earnings in adulthood. Using data from a national longitudinal survey of a random sample of adolescents, Macmillan (2000) examined how violent victimizations in the form of sexual assault, being attacked with a weapon, and being beaten before the age of 18 affected educational attainment, occupational status, and income in adulthood. He found that after controlling for a range of demographic factors including gender, race, and family SES, being victimized as an adolescent had a significant direct negative impact on earnings in adulthood. Furthermore, when educational and occupational attainment were examined as the mediators of violent victimization and earnings, the direct effect was significantly reduced, thereby suggesting that diminished educational and occupational attainment explained the substantial earning losses that resulted from violent victimization.

The mediating influence of education on the victimization–earnings relationship was substantiated by Macmillan and Hagan (2004) when they found violent victimization operated directly and indirectly through educational attainment to affect employment, hourly wage, and likelihood of receiving public assistance in early adulthood. The authors concluded that violent victimization sets in motion a negative chain of events that result in a compromised economic well-being and called for continued investigation into the

socioeconomic consequences of other forms of violence, particularly those uniquely experienced by women such as IPV.

The Current Study

The current study extends prior research by exploring whether the financial harm associated with IPV begins early in women's adolescence. Young women face a real threat of violence in early romantic relationships, and victimization in adolescence has been linked to diminished educational achievement and earnings in adulthood. We tested the hypothesis that the experience of adolescent IPV has economic costs for women that operate through educational attainment. More specifically, with retrospective, longitudinal data from a sample of adult women currently or formerly receiving welfare, we used latent growth curve (LGC) modeling to examine the effects of IPV victimization during adolescence (defined as experiences with physical violence, threats, and work/school interference) on women's educational attainment, earnings at the start of the study, and earnings growth over a 4-year period in adulthood. We hypothesized that, controlling for age, race, family of origin SES, recent IPV, and other household income, women who experienced adolescent IPV would complete significantly fewer years of education compared with those who had not experienced IPV during adolescence. We also expected that the years of education completed would be inversely related to earnings level and change in earnings over time. Finally, we hypothesized that adolescent IPV survivors would earn significantly less and experience significantly less growth in earnings over time as a consequence of the educational attainment when compared with women who had not experienced IPV during adolescence.

Method

Participants

This study uses data from the Women's Employment Study, a retrospective, longitudinal study of single mothers receiving welfare. The initial sample was drawn from a list of all the single mothers who received cash assistance from Temporary Assistance to Needy Families (TANF) in one urban county in Michigan in February 1997. Stratified random sampling was used to proportionally select cases by zip code, race (non-Hispanic, White, or African American), and age (18-54). The letters of introduction were sent to the 874 women who met the selection criteria. The letters included 800 telephone numbers for the participants to call to schedule an interview. Ultimately, 753

(86% response rate) women agreed to participate in the study and completed the first of the five interviews in the fall of 1997. The next two waves of data collection took place at 1-year intervals with 693 (92% response rate) and 632 (91% response rate) women participating, respectively. The last two interviews took place at approximately 2-year intervals with 577 (91% response rate) and 536 (93% response rate) women participating, respectively. Of the 536 women who completed all the five interviews, 33 who were unemployed due to disability were excluded because of our interest in employment-based earnings as an outcome. In addition, as temporal ordering of IPV and education is critical in this study, the five women who stopped attending school prior to experiencing IPV were excluded. These exclusions resulted in a final sample of 498 women.

Procedure and Measures

A group of specially trained interviewers from the Institute for Social Research at the University of Michigan administered face-to-face standardized interviews using a highly structured paper-and-pencil survey instrument. The interviews took place in the women's homes, and they received US\$20 as a compensation for their time. The interview lasted approximately 1 hour on average and assessed a range of economic, health, and life event domains. Procedures included attention to ensuring privacy during the interviews to maximize safety and promote candid responses. The following measures from the interview were used in this study.

Annual earnings from employment. At each interview, women were asked to report how much money they earned in total from all the jobs, before taxes and other deductions were taken out, in the calendar year prior to the interview. This produced earnings data for calendar years 1996, 1997, 1998, 2000, and 2002. There was considerable missing data on this variable in 1996, and there was also a change in the way that earnings were measured after the 1997 data collection. As it is preferable for longitudinal models to have the dependent variable measured in a consistent manner, we restricted our analysis to the women's earnings in 1998 (Time 1 [T1]), 2000 (Time 2 [T2]), and 2002 (Time 3 [T3]).

Educational attainment. Educational attainment was captured with a continuous variable indicating the highest number of years of education completed, ranging on a scale from 0 to 16, as of fall 1997, the data collection point most closely preceding the period for which earnings were captured.

Adolescent IPV. To assess adolescent IPV, respondents were first asked to recall their experiences with lifetime IPV using a modified version of the Conflict Tactics Scale (Straus, 1979). The modified instrument included 21 yes/no items capturing the women's experiences of physical violence, threats, and work/school interference. For example, respondents were asked whether a romantic partner had ever "pushed, grabbed, or shoved you"; "hit you with his fist"; "threatened to harm, or harmed, your family or friends"; "forced you into any sexual activity against your will"; and "harassed you at work, training, or school or interfered with your attempts to go to work, training, or school." If a woman had ever experienced a lifetime IPV, that is, if she responded "yes" to one or more of the 21 questions, she was then asked to reflect back on how old she was when any of those things first happened in a relationship. Adolescent IPV was defined here as having experienced any of these forms of IPV at or below the age of 17, and was captured with a binary variable with 0 = "no adolescent IPV" and 1 = "yes adolescent IPV."

Control variables. Five variables known to affect the variables of interest were included in the analyses: (a) the participant's age at T1 (continuous), (b) a dichotomous race variable indicating whether the participant is an African American (0 = "not African American" and 1 = "African American"), (c) a dichotomous variable indicating whether the participant's parents received welfare while she was growing up—this variable was a proxy measure for the SES of one's family during childhood, (d) a continuous variable capturing the amount of income brought into the household by other adults in 1998 (T1), and (e) a dichotomous variable indicating whether the participant had experienced any IPV in the past 12 months at T1 (0 = "no" and 1 = "yes").

Analytic Strategy

Missing data were minimal and handled in two ways. First, expectation maximization (EM) methods were used to estimate the missing values so that bootstrapped estimates could be obtained. Second, the final model was tested using full information maximum likelihood (FIML) estimation. The FIML procedure was appropriate because it produces accurate coefficient estimates and model fit indices with up to 25% missing data (Enders & Bandalos, 2001). The estimates produced with imputed data and with missing data analyzed by FIML were compared and there were no noticeable differences. Coefficients reported in the results section are based on the analyses of the EM data.

Our hypothesized model was tested with LGC modeling, a subset of structural equation modeling used to assess the trajectory of a variable over time

(Bollen & Curran, 2006; McArdle, 2009). In a LGC model, the analyst specifies two latent factors: a “level,” representing the intercept of the variable at the baseline time point (typically set to be T1), and a “slope,” representing the within-person change of the variable over time (Bollen & Curran, 2006). These latent factors are inferred from repeated measures of the variable of interest over time. In LGC, each case has its own unique latent level and slope. In this study, we were interested in *averages across women* in their Time 1 annual earnings and their average within individual change over the course of the study (mean of level and slope), as well *differences between women* in their Time 1 annual earnings and their individual change in earnings over time (variance of level and slope; see Nurius & Macy, 2008). This also allows the analyst to predict the variance between individuals in their levels and slopes, which in this study allowed the prediction of the women’s T1 annual earnings and growth in earnings over the course of the study.

All analyses were conducted in AMOS version 19.0 (Arbuckle, 2010). Bias-corrected confidence interval bootstrapping was used for two reasons: (a) to address potential bias in the estimation of standard errors and statistical significance due to the nonnormal distribution of the earnings variables and (b) to allow the estimation of standard errors and significance testing of indirect effects. Model fit was assessed by the chi-square test of misfit and the comparative fit index (CFI) and root mean square error of approximation (RMSEA) fit indices (see recommendations in Hu & Bentler, 1999). Bollen–Stine bootstrapping was used to obtain an appropriate significance testing for the chi-square test of misfit due to nonnormal distribution within the data (Bollen & Stine, 1992).

Results

Descriptive Results

The majority of women in the study were African American (56%), almost half of the sample had received welfare during childhood (46%), 16% had experienced IPV prior to the age of 18, and 25% reported at T1 that they had experienced IPV in the past 12 months. Thirty-four percent of women who had experienced IPV during adolescence also reported IPV at T1, while 23% of women who had not experienced adolescent IPV reported IPV at T1. At T1, the women’s ages ranged from 20 to 56 years ($M = 31.92$, $SD = 7.37$), 55% were single, 27% were married, and 18% were divorced or widowed.

Women reported having completed 6 to 16 years of formal education, averaging 12 years ($M = 11.97$, $SD = 1.70$). Seventy percent of women were gainfully employed at T1, 67% were working for pay at T2, and 67% had a

paid employment at T3. Women's annual earnings were low at all time points, but increased over the course of the study. On average, women earned US\$6,754 at T1 ($SD = US\$6,277$; min = US\$0; max = US\$35,000), US\$9,931 at T2 ($SD = US\$8,469$; min = US\$0; max = US\$50,000), and US\$10,758 at T3 ($SD = US\$10,652$; min = US\$0; max = US\$80,000). Most women's annual earnings stayed the same or increased during the study—72% stayed the same or increased from T1 to T2 and 59% stayed the same or increased from T2 to T3. Income brought into the household by another adult at T1 averaged US\$6,936 ($SD = US\$9,616$; min = US\$0; max = US\$75,000). Bivariate correlations among the variables of interest are presented in Table 1. Correlations suggest that the planned model is reasonable.

Change Over Time in Women's Annual Earnings

Prior to assessing predictive relationships between adolescent IPV, educational attainment, and annual earnings, it was necessary to identify the best way to capture the trajectory of earnings over the course of the study (i.e., the shape of the latent slope). Initially, a null model was tested that assumed that the earnings did not change over the course of the study. This model exhibited poor fit, $\chi^2 = 326.54(6)$, $p < .01$, CFI = .24, RMSEA = .33, and was rejected. The next model, a linear model, captured change by assuming constant growth over the course of the study (meaning that the amount of change in the women's earnings from T1 to T2 and T2 to T3 was functionally equivalent). The fit of the linear change model was better than the null (no-change) model, $\chi^2 = 27.58(3)$, $p < .01$, CFI = .94, RMSEA = .13. However, an examination of the individuals' raw data suggested that the change in the earnings was not equivalent from T1 to T2 and T2 to T3; therefore, a latent basis model was constructed (McArdle, 2009; Ram & Grimm, 2007). A latent basis model allows the amount of change to vary across time intervals (meaning change in earnings from T1 to T2 is not assumed to be equal to change from T2 to T3). In a latent basis model, the analysis uses the data to estimate the proportion of total change that occurred over the course of the entire study, which had already occurred by a certain time point (such as proportion of total change accounted for by T1 to T2; Ram & Grimm, 2007). The latent basis model exhibited better fit, $\chi^2 = 18.42(2)$, $p < .01$, CFI = .96, RMSEA = .13, and a chi-square difference test revealed that it was a statistically significant improvement over the linear model, $\chi^2 = 9.16(2)$, $p < .05$. Therefore, this model was used to capture the change in the women's earnings over the 4-year period of the study in subsequent analyses.

Results indicated that on average, women earned US\$6,913 per year at T1 (the mean of the level) and, on average, their annual earnings increased

Table 1. Correlations Among Variables of Interest.

	1	2	3	4	5	6	7	8	9	10
1. Adolescent IPV	1									
2. T1 IPV (past 12 months)	.090*	1								
3. Educational Attainment	-.146**	-.039	1							
4. Earnings T1	-.061	-.108*	.236**	1						
5. Earnings T2	-.063	-.031	.252**	.484**	1					
6. Earnings T3	-.095*	-.041	.269**	.402**	.660**	1				
7. Race	-.046	.020	.068	-.017	-.042	-.033	1			
8. Childhood SES	.133**	.084	-.231**	-.096*	-.143**	0.124**	.185**	1		
9. Age	-.220**	-.101*	.071	.009	-.014	-.013	-.047	-.240**	1	
10. Other household income	-.024	-.028	.027	-.124**	-.059	-.037	-.227**	-.071	-.004	1

Note. Adolescent IPV and T1 IPV in past 12 months coded 0 = "no" and 1 = "yes," Race coded 1 = "African American" and 0 = "White," and Childhood SES coded 0 = "no" and 1 = "yes." IPV = intimate partner violence; T1 = Time 1; T2 = Time 2; T3 = Time 3; SES = socioeconomic status.

* $p < .05$. ** $p < .01$.

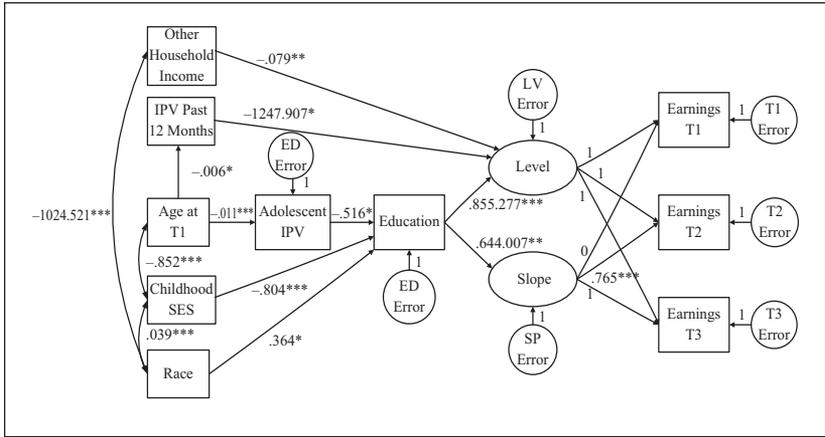


Figure 1. Latent basis model.

Note. IPV = intimate partner violence; T1 = Time 1; T2 = Time 2; T3 = Time 3; SES = socioeconomic status.

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

US\$4,115 from T1 to T3 (mean of slope). Over the course of the study, 62.9% of the growth in the women’s earnings occurred from T1 to T2 (meaning 37.1% occurred from T2 to T3). Results also indicated that the women varied in their annual earnings at T1 (*SD* of level = US\$3,823) and varied in the extent to which they earned from T1 to T3 (*SD* of slope = US\$6,509). Subsequent models examined the role that adolescent IPV and educational attainment played in explaining the variation in the initial annual earnings (level) and the change in the earnings over time (slope).

Prediction of Women’s T1 Annual Earnings and Growth in Earnings Over Time

First, a baseline path model that included all relationships of interest, as well as all possible paths between the control variables and the variables of interest was tested, $\chi^2 = 23.64(12)$, $p < .05$. Then, the error variances of the earnings variables at T1, T2, and T3 were allowed to vary, which resulted in a significant improvement in model fit based on the chi-square difference test, $\chi^2 = 535(10)$, $p = .87$. Next, nonsignificant paths were sequentially trimmed from the model to obtain the most parsimonious model. Model trimming resulted neither in changes in substantive findings nor in the significant introduction of model misfit compared with the baseline model, $\chi^2 = 26.11(21)$, $p = .20$. The results of the final trimmed model are presented in Figure 1. The

final model exhibited excellent fit, $\chi^2 = 31.46(31)$, $p = .44$, CFI = .999, RMSEA = .005. All results are reported after accounting for the influence of other modeled relationships.

In the final model, several relationships between the control variables and the variables of interest remained. Age predicted the women's IPV victimization, such that older women were less likely to report an IPV in the past 12 months as well as less likely to report a history of IPV during adolescence ($b = -0.01$, $p < .05$; $b = -0.01$, $p < .05$, respectively). Race and SES were predictive of educational attainment, such that women who received welfare during childhood completed fewer years of formal education ($b = -0.80$, $p < .05$), while African American women completed more years of education ($b = 0.36$, $p < .05$). IPV in the past 12 months and household income were predictive of women's earnings. Women who experienced IPV in the past 12 months had significantly lower earnings ($b = 1,247.91$, $p < .05$). Women also earned less when the other household income was higher ($b = -0.08$, $p < .05$).

Relationships among the variables of interest supported all of our hypotheses. Adolescent IPV was negatively related to educational attainment. On average, women who were victimized during adolescence obtained 0.5 fewer years of education ($b = -0.52$, $p < .05$). Educational attainment was significantly positively related to annual earnings and growth in earnings over time: one additional year of education was associated with an additional US\$855 in earnings at T1 ($b = 855.28$, $p < .01$) and a US\$664 greater increase in earnings over the course of the study ($b = 664.01$, $p < .01$). Results also revealed a significant indirect effect between adolescent IPV and women's earnings and women's growth in earnings over the 4-year study via educational attainment. Specifically, through the influence of education, experiencing adolescent IPV was related to a US\$343 reduction in women's T1 annual earnings ($b = -342.81$, $p < .01$) and US\$442 less growth in earnings over the course of the study ($b = -441.56$, $p < .01$) after controlling for the other variables in the model.

Discussion

The central aim of this study was to examine the extent to which adolescent IPV shapes women's economic trajectories. Our findings extend prior research on the negative educational consequences of violence exposure during adolescence by demonstrating that adolescent IPV significantly diminishes women's educational attainment. Our results also confirm a well-established association between women's educational attainment and

SES, such that the higher levels of educational attainment predicted significantly higher earnings at T1 and growth in earnings over time. The greatest contribution of this study is the demonstration that the educational deficit resulting from adolescent IPV has negative implications for women's earnings into adulthood. More specifically, as hypothesized, after controlling for several variables, including childhood SES and adult IPV, adolescent IPV survivors earned significantly less and experienced significantly less growth in earnings over time as a consequence of lower educational attainment when compared with demographically similar women who had not experienced IPV during adolescence.

These findings have implications on two fronts. First, this study supports the need for IPV prevention and intervention programs to safeguard girls' education against harms caused by an abusive dating partner. Such efforts would be aided by further research explicating the process by which adolescent IPV affects women's educational attainment. Prior research suggests several areas for exploration. A young woman's educational performance may be directly hindered by her partner's actions, such as destroying books or homework or causing injuries that prevent her from going to school (Raphael, 2005). Educational goals and career aspirations could be stifled by a controlling or discouraging partner (Collin-Vézina, Hébert, Manseau, Blais, & Fernet, 2006). The physical and psychological toll exacted on victims could impede academic achievement (Glass et al., 2003). Girls with an abusive boyfriend may not have control over their own reproduction and become pregnant (Miller et al., 2010), a result that could intensify violent and controlling behavior damaging to educational outcomes (Harrykissoon, Rickert, & Wiemann, 2002). Studies of key mediating factors such as these would contribute to our understanding of the nature of adolescent IPV and suggest points of intervention that could be leveraged to mitigate the harmful effects of IPV on young women's educational attainment.

Second, our finding that adolescent IPV produces educational deficits that have economic consequences for women into adulthood reinforces the need for intervention strategies to support IPV survivors' education and career development throughout the life course. Resources and supportive programs, such as grants for tuition, child care, and transportation costs, would be instrumental in helping the adolescent IPV survivors return to school and further their education. For adolescent IPV survivors receiving welfare assistance, policies that encourages educational activities as a path toward gainful employment is paramount for economic advancement (Bok, 2004). Violence against women service organizations' programming should include evidence-based, trauma-informed career counseling services (see Chronister &

McWhirter, 2006, for an example program) to help survivors identify educational, financial, and career goals and opportunities. In addition, organizations that serve IPV survivors could partner with local educational institutions to offer women with victimization histories comprehensive advocacy services to help remove barriers to achieving their educational goals. By targeting educational advancement in these ways, women who had their financial future altered by adolescent IPV could be set on a course toward improved economic well-being.

The study findings need to be considered in the context of three central limitations. First, the measure of adolescent IPV was based on adult women's retrospective recall of IPV that occurred during adolescence, which for some of the women was decades earlier. Despite the possibly lengthy time lag between the event and the interview, the significance of the experience and distinctive developmental period concerned inspires confidence in the accuracy of the data. Second, while several significant control variables, such as childhood SES, were included, our model did not account for the other covariates of adolescent IPV that could have an effect on educational attainment. For example, exposure to family or community violence and a variety of risk-taking behaviors could co-occur with adolescent IPV and partially account for the effect on educational attainment (Hamburg, Millstein, Mortimer, Nightingale, & Petersen, 1993; Kennedy & Bennett, 2006). Future research should include such measures to further disentangle the unique effect of adolescent IPV on educational attainment. Third, as this study involved a sample of low-income women, about half of whom grew up in families who also received welfare assistance, the findings are not widely generalizable. A more economically diverse sample would permit an examination of the experiences of women with more varied economic trajectories, thereby resulting in a fuller understanding of the extent to which women's financial health over the life course is impacted by victimization in adolescence.

Limitations notwithstanding, these findings add significantly to the literature by demonstrating that the experiences of dating violence during the formative years have detrimental effects on educational attainment and ultimately lead to diminished earnings in adulthood. This study is an important step in advancing our understanding of IPV's influence on women's economic development and well-being across the life course.

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References

- Adams, A. E., Sullivan, C. M., Bybee, D., & Greeson, M. R. (2008). Development of the scale of economic abuse. *Violence Against Women, 14*(5), 563-588.
- Adams, A. E., Tolman, R. M., Bybee, D., Sullivan, C., & Kennedy, A. C. (2012). The impact of intimate partner violence on low-income women's economic well-being: The mediating role of job stability. *Violence Against Women, 18*(12), 1345-1367.
- Arbuckle, J. L. (2010). AMOS (Version 19.0). Chicago, IL: IBM SPSS.
- Banyard, V. L., & Cross, C. (2008). Consequences of teen dating violence: Understanding intervening variables in ecological context. *Violence Against Women, 14*, 998-1013.
- Battin-Pearson, S., Newcomb, M. D., Abbott, R. D., Hill, K. G., Catalano, R. F., & Hawkins, J. D. (2000). Predictors of early high school dropout: A test of five theories. *Journal of Educational Psychology, 92*, 568-582.
- Bok, M. (2004). Education and training for low-income women: An elusive goal. *Affilia, 19*, 39-52.
- Bollen, K. A., & Curran, P. J. (2006). Unconditional latent curve model. In K. A. Bollen & P. J. Curran (Eds.), *Latent curve models: A structural equation perspective* (pp. 16-57). Hoboken, NJ: John Wiley.
- Bollen, K. A., & Stine, R. A. (1992). Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods Research, 21*, 205-229.
- Cancian, M., & Meyer, D. R. (2000). Work after welfare: Women's work effort, occupation, and economic well-being. *Social Work Research, 24*, 69-86.
- Cheng, T. (2002). Welfare recipients: How do they become independent? *Social Work Research, 26*, 159-170.
- Cheng, T. (2007). How is welfare-to-work shaped by contingencies of economy, welfare policy and human capital? *International Journal of Social Welfare, 16*, 212-219.
- Chronister, K. M., & Mcwhirter, E. H. (2006). An experimental examination of two career interventions for battered women. *Journal of Counseling Psychology, 53*, 151-164.
- Collins, W. A., Welsh, D. P., & Furman, W. (2009). Adolescent romantic relationships. *Annual Review of Psychology, 60*, 631-652.
- Collin-Vézina, D., Hébert, M., Manseau, H., Blais, M., & Fernet, M. (2006). Self-concept and dating violence in 220 adolescent girls in the child protective system. *Child & Youth Care Forum, 35*, 319-326.

- Elder, G. H. (1998). The life course as developmental theory. *Child Development, 69*, 1-12.
- Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling, 8*, 430-457.
- Foshee, V. A., Benefield, T., Suchindran, C., Ennett, S. T., Bauman, K. E., Karriker-Jaffe, K. J., & Mathias, J. (2009). The development of four types of adolescent dating abuse and selected demographic correlates. *Journal of Research on Adolescence, 19*, 380-400.
- Furman, W., & Shaffer, L. (2003). The role of romantic relationships in adolescent development. In P. Florsheim (Ed.), *Adolescent romantic relations and sexual behavior: Theory, research, and practical implications* (pp. 3-22). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Glass, N., Fredland, N., Campbell, J., Yonas, M., Sharps, P., & Kub, J. (2003). Adolescent dating violence: Prevalence, risk factors, health outcomes, and implications for clinical practice. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 32*, 227-238.
- Goodman, L. A., Smyth, K. F., Borges, A. M., & Singer, R. (2009). When crises collide: How intimate partner violence and poverty intersect to shape women's mental health and coping? *Trauma, Violence, & Abuse, 10*, 306-329.
- Hagan, J., & Foster, H. (2001). Youth violence and the end of adolescence. *American Sociological Review, 66*, 874-899.
- Halpern, C. T., Oslak, S. G., Young, M. L., Martin, S. L., & Kupper, L. L. (2001). Partner violence among adolescents in opposite-sex romantic relationships: Findings from the National Longitudinal Study of Adolescent Health. *American Journal of Public Health, 91*, 1679-1685.
- Hamburg, D. A., Millstein, S. G., Mortimer, A. M., Nightingale, E. O., & Petersen, A. C. (1993). Adolescent health promotion in the 21st century: Current frontiers and future directions. In S. G. Millstein, A. C. Petersen, & E. O. Nightingale (Eds.), *Promoting the health of adolescents: New directions for the 21st century* (pp. 375-388). New York, NY: Oxford University Press.
- Harrykisson, S. D., Rickert, V. I., & Wiemann, C. M. (2002). Prevalence and patterns of intimate partner violence among adolescent mothers during the postpartum period. *Archives of Pediatrics & Adolescent Medicine, 156*, 325-330.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.
- Jackson, A. P., Brooks-Gunn, J., Huang, C., & Glassman, M. (2000). Single mothers in low wage jobs: Financial strain, parenting, and preschoolers' outcomes. *Child Development, 71*, 1409-1423.
- Kennedy, A. C., & Bennett, L. (2006). Urban adolescent mothers exposed to community, family, and partner violence. *Journal of Interpersonal Violence, 21*, 750-773.
- Lindhorst, T., Oxford, M., & Gillmore, M. (2007). Longitudinal effects of domestic violence on employment and welfare outcomes. *Journal of Interpersonal Violence, 22*, 812-828.

- Littwin, A. (2012). Coerced debt: The role of consumer credit in domestic violence. *California Law Review*, *100*(4), 951-1026.
- Loprest, P. J., & Zedlewski, S. R. (1999). *Current and former welfare recipients: How do they differ?* Washington, DC: Urban Institute Report.
- Macmillan, R. (2000). Adolescent victimization and income deficits in adulthood: Rethinking the costs of criminal violence from a life course perspective. *Criminology*, *38*, 553-588.
- Macmillan, R., & Hagan, J. (2004). Violence in the transition to adulthood: Adolescent victimization, education, and socioeconomic attainment in later life. *Journal of Research on Adolescence*, *14*, 127-158.
- McArdle, J. J. (2009). Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology*, *60*, 577-605.
- Miller, E., Decker, M. R., McCauley, H. L., Tancredi, D. J., Levenson, R. R., Waldman, J., & Silverman, J. G. (2010). Pregnancy coercion, intimate partner violence and unintended pregnancy. *Contraception*, *81*, 316-322.
- Nurius, P. S., & Macy, R. J. (2008). Heterogeneity among violence-exposed women: Applying person-oriented research methods. *Journal of Interpersonal Violence*, *23*, 389-415.
- Ram, N., & Grimm, K. J. (2007). Using simple and complex growth models to articulate developmental change: Matching method to theory. *International Journal of Behavioral Development*, *31*, 303-316.
- Raphael, J. (2005). Teens having babies: The unexplored role of domestic violence. *Prevention Researcher*, *12*, 15-17.
- Riger, S., Ahrens, C., & Blickenstaff, A. (2001). Measuring interference with employment and education reported by women with abusive partners: Preliminary data. *Violence and Victims*, *15*, 161-172.
- Straus, M. A. (1979). Measuring intrafamily conflict and aggression: The Conflict Tactics Scale (CTS). *Journal of Marriage and Family*, *41*, 75-88.
- Tjaden, P., & Thoennes, N. (2000). *Extent, nature, and consequences of intimate partner violence: Findings from the National Violence Against Women Survey*. Washington, DC: U.S. National Institute of Justice.
- Zhan, M., & Pandey, S. (2004). Economic well-being of single mothers: Work first or postsecondary education. *Journal of Sociology & Social Welfare*, *31*, 87-112.

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Angie C. Kennedy, PhD, is an associate professor of social work at Michigan State University. Her current research focuses on examining the patterns of co-occurring and cumulative violence exposure among adolescent women.

Richard M. Tolman, PhD, is a professor at the University of Michigan, School of Social Work. His work focuses on the effectiveness of interventions designed to change violent and abusive behavior, and the impact of violence on the physical, psychological, and economic well-being of victims. His current projects include research on the prevention of abuse during pregnancy and involvement of men and boys as allies to end men's violence against women. He is currently the codirector of the Global Research Program on Mobilizing Men for Violence Prevention, a collaborative project between the University of Michigan and the University of Minnesota.