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Childhood Victimization, Poly-Victimization, and Adjustment to College in Women

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This study examines the relationships among poly-victimization (i.e., high cumulative levels of victimization), six aggregate categories of childhood victimization (property crime, physical assault, peer and sibling, witnessed and indirect, sexual, child maltreatment), and college adjustment in females. This study first examines the relative contributions of poly-victimization and individual categories of childhood victimization in predicting college adjustment. The study then examines whether poly-victimization contributes any unique variance, beyond that accounted for by the combination of all six aggregate categories. Regression analyses reveal that a) poly-victimization accounts for a significant proportion of variability in scores for college adjustment, beyond that accounted for by any of the six categories of childhood victimization alone, and b) the categories of childhood victimization contribute little to no variability beyond that accounted for by poly-victimization. Furthermore, poly-victimization accounts for a significant proportion of variability in college adjustment, beyond that already accounted for by the simultaneous entry of all six categories as predictor variables. Finally, although victimization does not predict GPA, it predicts other domains of college adjustment. Results suggest that counselors working with college students should a) assess multiple categories of victimization and poly-victimization, and b) evaluate clients' adjustment to college across multiple domains (e.g., academic, social, interpersonal).

Keywords: *college adjustment; adult survivors; long-term effects; adult retrospective reports; child victims; poly-victimization; multiple victimization*

A large literature exists examining the correlates of different categories of childhood victimization on a variety of short- and long-term outcomes. Typically, studies have assessed outcomes associated with a single category of maltreatment, as evidenced by review articles concerning sexual victimization (e.g., Berliner & Elliott, 2002), physical abuse (e.g., Malinosky-Rummell & Hansen, 1993), and witnessing domestic violence (e.g., Kolbo, Blakely, & Engleman, 1996). However, substantial evidence suggests that exposure to multiple categories of victimization is relatively common and that individuals who have been exposed to one category of violence, such as childhood sexual abuse, are likely to also have experienced additional categories of

victimization (e.g., physical, peer, and sibling; e.g., Arata, Langhinrichsen-Rohling, Bowers, & O'Farrill-Swails, 2005; Briere & Runtz, 1988, 1990; Clemmons, DiLillo, Martinez, DeGue, & Jeffcott, 2003; Finkelhor, Ormrod, & Turner, 2007b; Finkelhor, Ormrod, Turner, & Hamby, 2005a; Higgins & McCabe, 1998, 2000a, 2000b, 2001; McGee, Wolfe, & Wilson, 1997; Ney, Fung, & Wickett, 1994).

Unfortunately, the majority of past studies concerning children's exposure to violence have exclusively focused on a single category of victimization in isolation (i.e., sexual abuse) and have not assessed exposure to multiple forms of violence. As outlined by Saunders (2003), this is problematic because

outcomes apparently associated with one type of violence exposure might well be the result of another, perhaps unmeasured, type of violence; the cumulative result of exposure to multiple types of violence; and a complex interaction of violence types and episodes. (p. 362)

Finkelhor et al. (2005a; Finkelhor, Ormrod, & Turner, 2007a) drew similar conclusions and suggested that studies that examine only one category of victimization may overestimate the impact of the single category under investigation and fail to assess interrelationships that exist among them. One obstacle faced in past studies of childhood victimization was that most of the available questionnaires assessed only one category of maltreatment (e.g., physical abuse; Rosenberg & Rossman, 1998). However, the relatively new Juvenile Victimization Questionnaire (JVQ; Hamby, Finkelhor, Ormrod, & Turner, 2004) has the potential to improve our ability to evaluate children's exposure to violence in a comprehensive manner because it assesses multiple categories of childhood maltreatment as well as other forms of juvenile victimization.

In the past decade, there has been an increase in the number of studies that have simultaneously examined exposure to multiple categories of victimization (e.g., Arata et al., 2005; Arata, Langhinrichsen-Rohling, Bowers, & O'Brien, 2007; Clemmons et al., 2003; Finkelhor et al., 2005a; Finkelhor et al., 2007b; Higgins & McCabe, 1998, 2000b, 2001; Lynch & Cicchetti, 1998). These studies vary in the terminology, definitions, and measurement instruments used. Finkelhor et al. (2007b), for example, used the term *poly-victimization* to describe children's cumulative exposure to multiple forms of victimization (i.e., property crime, physical assault, child maltreatment, peer and sibling, sexual, and witnessing or indirect victimization) using the JVQ. Studies by Higgins and McCabe (2000a) have used the term *multi-type maltreatment*, which was defined as "the coexistence of one or more of the following maltreatment types: sexual abuse, physical abuse, psychological maltreatment, neglect, and witnessing family violence" (p. 7) and measured using the Comprehensive Child Maltreatment Scale. Others, such as Turner and Lloyd (1995), have used the term *cumulative adversity* to describe accumulated lifetime trauma experience that is "indexed by a count of lifetime exposure to a wide array of potentially traumatic events" (p. 360) and is measured using a 20-item checklist. Despite differences across such studies, it is noteworthy that the results have consistently suggested that exposure to multiple categories of victimization is common and is more strongly associated with psychological difficulties than is exposure to a single category of maltreatment or to no maltreatment.

Evidence from numerous studies has suggested that prior exposure to a wide array of adverse or traumatic life events is a significant predictor for a variety of adult physical and mental health outcomes (Breslau, Chilcoat, Kessler, & Davis, 1999; Briere, Kaltman, & Green, 2008; Follette, Polusny, Bechtle, & Naugle, 1996; Fox & Gilbert, 1994; Kessler, Davis, & Kendler, 1997; Lloyd & Turner, 2003; Turner & Butler, 2003; Turner, Finkelhor, & Ormrod, 2006; Turner & Lloyd, 1995). This finding is consistent with the early literature concerning behavioral sensitization (Groves & Thompson, 1970) and the subsequent application of this theory to posttraumatic stress disorder (Post, Weiss, & Smith, 1995; Southwick, Yehuda, & Morgan, 1995; Stam, 2007). According to the sensitization model, following a stressful event there is an increase in biochemical, physiological, and behavioral responses to subsequent stressors over time. Thus, an individual with a history of victimization during childhood may be predisposed to react more strongly to subsequent adverse life events, even those of a lower magnitude, than would have been the case if he or she had no prior history of traumatic experiences. Although the exact mechanism through which accumulated lifetime trauma experiences might affect adjustment in adulthood is unclear (e.g., Hatch, 2005), there is increasing evidence that the joint or cumulative effects of multiple traumas or other adverse life events are significantly associated with psychological functioning and adjustment in adulthood.

In a series of studies regarding juvenile victimization, Finkelhor and colleagues (2007a, 2007b; Finkelhor, Ormrod, Turner, & Hamby, 2005b) provided convincing evidence that poly-victimization (high cumulative levels of victimization) significantly contributes to psychological distress in children. In order to examine the impact of various forms of childhood maltreatment on trauma symptoms in children, Finkelhor et al. (2007b) constructed six aggregate categories of childhood victimization (sexual victimization, child maltreatment, property crime, physical assault, peer or sibling victimization, and witnessed or indirect victimization) and entered these into separate multiple regression models predicting trauma symptoms. These analyses examined the extent to which the association between trauma symptoms and a history of each category of victimization was reduced as additional control variables were added in separate steps. The order of entry for these control variables was lifetime adversity and demographics, lifetime victimization, trauma symptoms, and poly-victimization. In separate analyses conducted for each child victimization category, the regression coefficients for four of the six categories (i.e., property crime, physical assault, peer or sibling victimization, and witness or indirect victimization) were significantly reduced when

poly-victimization was added to the model. For children aged 10 to 17, only two categories (i.e., sexual victimization and child maltreatment) remained significant after adding the other variables. However, the size of these significant regression coefficients had been reduced by more than 50%. The authors thus concluded that when poly-victimization was taken into account, "it greatly reduced or eliminated the association between most other individual victimizations and symptomatology scores" (Finkelhor et al., 2007b, p. 149).

Richmond, Elliott, Pierce, Aspelmeier, and Alexander (in press) conducted two studies designed to extend Finkelhor et al.'s studies of childhood victimization in juveniles to a sample of female college students. Using the Adult Retrospective Version of the JVQ, results indicated that a history of multiple victimizations in childhood was common even within nonclinical samples of college students. Also, poly-victimization was significantly associated with psychological distress, which was assessed using the Symptom Checklist-90-R (Derogatis, 1994), the Impact of Altered Self Capacities (Briere, 1998), and the Trauma Symptom Inventory (Briere, 1995). Furthermore, similar to the results of Finkelhor et al. (2007b), the child maltreatment, physical assault, witness or indirect victimization, peer and sibling victimization, property crime, and sexual victimization aggregate categories accounted for little to no variability in measures of psychological distress beyond that accounted for by poly-victimization. Finally, poly-victimization contributed significant unique variance beyond that accounted for by the simultaneous entry of all six categories as predictor variables. Overall, these results led Richmond et al. to conclude that poly-victimization in childhood is associated with increased psychological distress in college women, beyond that accounted for by the six individual categories of childhood victimization separately or in combination.

Although numerous studies have evaluated the impact of different categories of childhood maltreatment in clinical and community samples, many have utilized college samples as well. These studies have typically assessed a wide variety of psychological difficulties and behavioral problems using clinical measures of psychological distress (e.g., Symptom Checklist-90, Beck Depression Inventory, Trauma Symptom Inventory) but have rarely utilized measures specifically designed to assess adjustment to different aspects of college. This is unfortunate given that individuals with a history of childhood maltreatment may adjust to college relatively well in one domain (e.g., academic GPA) but have

difficulty adjusting in other relevant domains (social, interpersonal).

Although many studies have examined the short-term impact of maltreatment on school performance in children, relatively few have examined the relationship between childhood victimization and college functioning. Himelein (1995) reported that sexually abused college women did not significantly differ from nonabused peers in terms of overall GPA, total number of earned credit hours, or likelihood of staying in college. Duncan (2000), on the other hand, reported that students with a history of child abuse were more likely than nonvictims to drop out of college, beginning as early as their first semester, with the largest drop occurring at the end of their freshman year. In addition, students who had a history of childhood sexual abuse and students who had experienced more than one form of abuse were significantly more likely to drop out than were all other students. To our knowledge, no study to date has utilized questionnaires specifically designed to assess adjustment to college among women who report a history of childhood maltreatment. Such studies would provide important information concerning adjustment to college across psychological, social, and interpersonal domains that is not available from studies focusing exclusively on GPA as the traditional measure of college adjustment. Assessment of multiple domains of college functioning may improve professionals' ability to assess and provide interventions with college students seeking treatment for a diverse set of issues related to childhood maltreatment.

The present study examines the unique and combined effects of childhood victimization and poly-victimization on women's adjustment to college. The conceptualization and measurement of poly-victimization for the present study was modeled after the theoretical and empirical work by Finkelhor and colleagues (e.g., Finkelhor et al., 2007b). Two separate sets of analyses were conducted. First, a series of hierarchical multiple regression analyses focused on the relative contributions of measures of poly-victimization and six individual categories of victimization to models predicting adjustment to college. This first set of analyses was conducted for two reasons. First, examination of the unique effects for the six individual categories of victimization in the present study facilitates comparison with the multitude of past studies that have focused exclusively on a single category of victimization in isolation rather than on multiple categories simultaneously. Second, these analyses facilitate comparison with studies by Finkelhor et al. (2007b) and Richmond et al. (in press) that have

conceptualized and measured childhood victimization and poly-victimization in the same manner. Based on these studies, we hypothesized that (a) individual categories of victimization would account for little to no variability in college adjustment after the variability accounted for by poly-victimization was controlled and (b) poly-victimization would make a significant unique contribution to regression models predicting college adjustment after the effects of individual categories of victimization were controlled.

A second set of analyses was then conducted to examine whether poly-victimization represents more than the combined effects of individual types of victimization. In other words, it examines whether poly-victimization is a unique predictor of adjustment beyond the combined effects of the individual categories of victimization. In this second set of analyses predicting college adjustment, we (a) tested the significance of the combined effects of all six individual categories of victimization, (b) examined the unique contributions of each of the six categories of victimization when all six were used simultaneously in a multiple regression equation, and (c) tested the unique contribution of poly-victimization when it was entered as a seventh predictor, in combination with the six individual categories of victimization.

Method

Participants

A total of 329 traditional college-aged female undergraduates aged 18 to 24 years were recruited from introductory and upper-level psychology courses at a midsized university in the southeastern United States during the 2006-2007 academic year. Given the relatively small number of males enrolled in these classes, only female students were included in this study. To achieve a more homogenous sample, data from 8 participants were excluded from analyses because they either had extensive missing or incomplete data or they did not meet the age requirements. In the final sample of 321 women, participants ranged in age from 18 to 24 years ($M = 19$, $SD = 1.32$). The majority were Caucasian (85.0%), followed by African American (5.0%), Hispanic, Latino, or Chicano (2.5%), Asian or Pacific Islander (1.9%), American Indian (0.9%), and Other (4.7%). Almost half (49.2%) of the participants were 1st-year students, 19.9% were 2nd-year students, 16.5% were 3rd-year students, 13.1% were 4th-year students, and 0.9% were 5th-year students or higher, and one had missing data.

Materials

The demographic questionnaire included background questions about age, year in school, high school GPA, current GPA, ethnic background, relationship status, and level of education completed by the participant's mother and father.

The JVQ—Adult Retrospective Version is a self-report measure that assesses 34 types of childhood victimization using behaviorally specific questions (Hamby et al., 2004). For example, a question regarding sexual victimization reads as follows, "When you were a child, did a grown-up you know touch your private parts when you didn't want it or make you touch their private parts? Or did a grown-up you know force you to have sex?" It is noteworthy that the frequency and severity of the different types of victimization assessed vary widely. For example, questions assessing whether participants had anyone break or ruin any of their things on purpose or had someone hurt their feelings by saying or writing something sexual about them or their body at some point during childhood might reflect relatively frequent yet potentially less severe incidents. On the other hand, the JVQ also assesses a variety of relatively infrequent yet high severity events, such as attempted kidnapping and witnessed murder. For the Adult Retrospective Version, participants report the number of times they experienced each of the 34 different types of victimization from the time they were born until 17 years of age on a 6-point scale (*no times, 1 time, 2 times, 3 times, 4 times, or 5 or more times*).

Two types of measures were constructed from the responses to this questionnaire, one to assess the unique effects of individual types of victimization and one to assess poly-victimization. To assess the unique effects, we utilized the approach adopted by Finkelhor et al. (2007b) to construct six aggregate categories of childhood victimization (i.e., property crime, physical assault, child maltreatment, peer and sibling victimization, sexual victimization, and witness or indirect victimization). Each aggregate category represents a set of conceptually similar victimization experiences, although they range in type and severity. For example, as seen in Table 1, the sexual assault aggregate includes a variety of experiences, including assault by known and unknown adults, assault by peers, rape, flashing, and sexual harassment. To facilitate comparison with past studies that have used the JVQ to assess poly-victimization in children (e.g., Finkelhor et al., 2007b) and in adults (Richmond et al., in press), scoring was dichotomized into 1 (yes, the participant answered *1 time* or higher to at least one question contained in the aggregate) or 0 (the participant

Table 1
Frequency Table for the 34 Types of Childhood Victimization on the Juvenile Victimization Questionnaire

Victimization Type	<i>n</i>	%
34 types of childhood victimization experiences (endorsed at least one type)	314	97.8
Property crime aggregate (endorsed at least one type)	255	79.4
Robbery	138	43.0
Theft (steal something from you)	197	61.4
Vandalism (break or ruin something of yours)	188	58.6
Physical assault aggregate (endorsed at least one type)	258	80.4
Assault with a weapon	73	22.7
Assault without a weapon	149	46.4
Attempted assault	69	21.5
Kidnap, attempted or completed	18	5.6
Bias attack	14	4.4
Physical abuse (not spanking)	66	20.6
Assault by group or gang of peers	9	2.8
Peer or sibling assault	229	71.3
Genital assault	24	7.5
Dating violence	50	15.6
Child maltreatment aggregate (endorsed at least one type)	132	41.1
Physical abuse (not spanking)	66	20.6
Psychological or emotional abuse	100	31.2
Neglect	21	6.5
Custodial interference or family abduction	35	10.9
Peer and sibling victimization aggregate (endorsed at least one type)	282	87.9
Assault by group or gang of peers	9	2.8
Peer or sibling assault	229	71.3
Genital assault	24	7.5
Bullying	182	56.7
Teasing, emotional bullying	170	53.0
Dating violence	50	15.6
Witnessing and indirect victimization aggregate (endorsed at least one type)	235	73.2
Witness domestic violence	67	20.9
Witness physical abuse	48	15.0
Witness assault with a weapon	88	27.4
Witness assault without a weapon	157	48.9
Household theft	101	31.5
Someone close murdered	54	16.8
Witness murder	5	1.6
Exposure to shooting, bombs, riots	38	11.8
Exposure to war	2	0.6
Sexual victimization aggregate (endorsed at least one type)	183	57.0
Sexual assault, known adult	25	7.8
Sexual assault, unknown adult	8	2.5
Sexual assault, with peer	77	24.0
Rape, attempted or completed	83	25.9
Flashing or sexual exposure	106	33.0
Sexual harassment	88	27.4

Note: *N* = 321.

answered no to all questions contained in the aggregate). This approach classifies participants based on the occurrence of *any* victimization experience within a given aggregate category rather than on the number of instances or severity of the experiences within a given aggregate category. Although this may mask some of the variability,

it does not presuppose that experiencing a given type of victimization several times will necessarily be associated with more psychological distress than will a single incident. Instead, the present study examined a different question and assessed the extent to which experiencing a given type of victimization, regardless of the number of

times it occurred, is associated with psychological distress in adulthood. This approach is relevant to clinical settings where clients may report considerable psychological distress following exposure to even a single traumatic event.

As indicated above, the conceptualization and measurement of poly-victimization in the present study was modeled after the work of Finkelhor and colleagues (e.g., Finkelhor et al., 2007b). To facilitate comparison of results from the present study with those of past studies that also have used the JVQ to assess poly-victimization (e.g., Finkelhor et al., 2007b; Richmond et al., in press), we constructed a continuous measure of poly-victimization by summing the total number of the 34 different types of childhood victimization experiences that each participant reported on the JVQ, regardless of the category to which each belonged. The benefits of continuous measures of victimization have been reported elsewhere (e.g., McGee et al., 1997).

Finkelhor, Hamby, Ormrod, and Turner (2005) assessed construct validity by obtaining correlations between the child version of the JVQ and the Trauma Symptom Checklist for Children. Significant correlations were observed between each aggregate category and the trauma symptoms. Internal consistency for the aggregate categories, as measured by Cronbach's alpha, ranged from moderate to weak, although the researchers suggested that one would not expect particularly high alphas given that the items measure actual life events rather than a psychological construct that reflects a unitary dimension. The internal reliability data for the present study using the adult retrospective version of the JVQ were somewhat higher (range = .62 for peer or sibling abuse to .75 for property crime) than those reported by Finkelhor et al. for the child version of the JVQ, although this most likely occurred because ours is a study of prevalence prior to age 17 rather than past-year incidence.

The College Adjustment Scale (CAS; Anton & Reed, 1991) is a 108-item self-report questionnaire designed to provide professionals working with college students with a rapid method to screen for academic and career choice difficulties as well as for general psychological distress, relationship conflict, and low self-esteem. Using a 4-point scale, participants rate each question according to how accurately it describes them. The CAS contains nine subscales (Anxiety, Depression, Suicidal Ideation, Substance Abuse, Self-esteem Problems, Interpersonal Problems, Family Problems, Academic Problems, and Career Problems), with higher scores reflecting greater adjustment difficulties. According to Anton and Reed (1991), results from five studies provided evidence for

the convergent and discriminant validity of the CAS. In addition, internal consistency reliability coefficients for the nine subscales ranged from .80 to .92, with an average reliability coefficient of .86. These coefficients are consistent with those found in the present study (range = .85 to .93).

The Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1999) is a 67-item self-report measure designed to assess student adjustment to college. The four principal subscales provide information regarding Academic Adjustment, Social Adjustment, Personal-Emotional Adjustment, and Institutional Attachment/Goal Commitment in the college setting.

Participants indicate how accurately each item applies to them in the past few days on a 9-point scale that ranges from *applies very closely to me* to *doesn't apply to me at all*. Higher scores indicate better adjustment to college. Considerable evidence supports the validity of the SACQ (Baker & Siryk, 1999). In the present study, the reliability alpha coefficient for the full scale was .95, and those for the four subscales ranged from .85 to .89. These are consistent with those reported by Baker and Siryk (1999).

Procedure

This study was approved by the university's Institutional Review Board for the Protection of Human Subjects. Participants were provided with a written explanation of their role in the study and provided with an opportunity to ask questions. Informed consent was then obtained. As part of a larger study that included measures of physical health, psychological distress, and attachment styles, participants completed the demographic questionnaire, the JVQ, the CAS, and the SACQ.

Results

Descriptive Analyses for Entire Sample

As seen in Table 1 and as previously reported by Richmond et al. (in press), approximately 98% of participants endorsed at least 1 of the 34 questions regarding individual types of childhood victimization on the JVQ. The mean number of victimizations experienced by the women in our sample was 8.7 (ranging from 0 to 26). When the 34 types of victimization were collapsed into the six aggregate categories, participants' responses indicated that many had experienced at least one type of peer or sibling abuse (87.9%), physical assault (80.4%), property crime (79.4%), witnessed or indirect victimization (73.2%), sexual victimization (57.0%), and/or childhood

Table 2
Hierarchical Regression Analyses Examining the Relative Contributions of the Child Maltreatment Aggregate and Poly-Victimization in Predicting College Adjustment and GPA

Criterion Variable	Start Model: Child Maltreatment		Add: Poly-Victimization		Total Variance ^a
	R^2	R^2 Change	Start Model: Poly-Victimization	Add: Child Maltreatment	
College Adjustment Scale (CAS) subscales					
Academic Problems	.05**	.07**	.12**	.00	.12**
Anxiety	.08**	.09**	.17**	.00	.17**
Interpersonal Problems	.08**	.15**	.23**	.00	.23**
Depression	.07**	.09**	.16**	.00	.16**
Career Problems	.01	.03**	.04**	.00	.04**
Suicidal Ideation	.03**	.05**	.08**	.00	.08**
Substance Abuse	.02**	.09**	.10**	.00	.11**
Self-esteem Problems	.05**	.07**	.12**	.00	.18**
Family Problems	.17**	.11**	.26**	.02**	.25**
Mean of CAS subscales	.06	.08	.14	.00	.14
Student Adaptation to College Questionnaire (SACQ) subscales					
Full scale	.06**	.07**	.13**	.00	.13**
Academic Adjustment	.03**	.06**	.09**	.00	.09**
Social Adjustment	.03**	.02**	.05**	.00	.05**
Personal-Emotional Adjustment	.09**	.07**	.15**	.00	.16**
Institutional Attachment	.03**	.03**	.05**	.00	.06**
Mean of SACQ subscales	.05	.05	.09	.00	.10
High school GPA	.00	.01	.00	.01	.01
Current GPA	.00	.00	.00	.00	.01

a. The proportions of variability accounted for in Steps 1 and 2 of each set of hierarchical regression analyses should sum to the value reported in the total variance column. Minor differences from this expected pattern in the table are because of the rounding of values to two decimal places.

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

maltreatment (41.1%). Because two or more of the 34 individual types of victimization on the JVQ experienced by a single participant could come from the same aggregate category (e.g., they experienced two types of sexual assault), we also examined the percentage of participants who experienced victimization from one or more of the six aggregate categories. Almost half (49.2%) of the women in our sample reported having experienced abuse in five or six categories. Specifically, 24.6% reported victimization in all six aggregate categories, 24.6% in five, 21.8% in four, 14.0% in three, 6.9% in two, and 5.3% reported victimization in only one category.

Hierarchical Regression Analyses Using Poly-Victimization and Individual Categories of Childhood Victimization as Predictors of College Adjustment

Data analysis and organization of Table 2. Hierarchical regression analyses were conducted to examine the relative contributions of (a) poly-victimization and (b) each

of the six aggregate categories of childhood victimization in predicting college adjustment. These multiple regression analyses were conducted in two parts. In Part 1, we examined whether the continuous measure of poly-victimization would significantly contribute to a multiple regression model predicting college adjustment after the individual childhood victimization category had already been entered separately as a predictor in the first block of the analysis. In Part 2, we separately examined whether each category of childhood victimization significantly contributed to a multiple regression model predicting college adjustment when poly-victimization had already been entered as a predictor in the first block of the analysis. No problems with multicollinearity were detected for any multiple regression analysis. Given space limitations and the fact that the pattern of results across the six JVQ categories were quite similar to each other as well as to those reported in a previous study (Richmond et al., in press), only the results for the child maltreatment category are presented here. Readers may contact the corresponding author for tables for the other five categories of victimization.

Unique contribution of poly-victimization in predicting college adjustment. Part 1 of the hierarchical regression analyses revealed that, when entered into the multiple regression model first, the percentages of variability accounted for by each of the six categories of victimization were significant for the vast majority of CAS and SACQ college adjustment subscales. Overall, the percentage of variability accounted for across the six categories ranged from 0% to 9%, with only one exception (17% for the child maltreatment category predicting the CAS Family Problems subscale; see Column 1 of Table 2). As predicted, when poly-victimization was added into the regression model second, it accounted for a significant proportion of variability beyond that accounted for by any of the six aggregate categories for virtually all CAS and SACQ subscales (see Column 2 of Table 2). The proportion of variability accounted for by poly-victimization ranged from a low of 2% to a high of 22%, with the highest percentage occurring when predicting the CAS Family Problems subscale with the peer or sibling aggregate).

Unique contributions of six individual childhood victimization categories in predicting college adjustment. Part 2 of the regression analyses revealed that when poly-victimization was entered in the regression model by itself, it accounted for a significant percentage of variability for all CAS and SACQ subscales (ranging from a low of 4% when predicting the CAS Career Problems subscale to a high of 26% when predicting the CAS Family Problems subscale; see Column 3 of Table 2). In addition, as predicted, the pattern of results revealed that the six categories of childhood victimization contributed little to no variability beyond that accounted for by poly-victimization for the vast majority of CAS and SACQ subscales (ranging from 0% to 2%; see Column 4 of Table 2).

Total variance in college adjustment accounted for by poly-victimization and six categories of childhood victimization. The total variance accounted for by the combination of poly-victimization and each individual category of childhood victimization (see Column 5 of Table 2) was significant across all measures of college adjustment (ranging from a low of 4% to a high of 28%). In addition, it is noteworthy that larger proportions of variability in scores were consistently accounted for when predicting two of the CAS subscales (Interpersonal Problems 23% to 24%; Family Problems 26% to 28%) across the six categories. Conversely, lower proportions of variability were consistently accounted for in the CAS Career Problems subscale (4% to 5%) and the SACQ

Social Adjustment (5% to 6%) and Institutional Attachment scales (5% to 6%) across the six categories.

Hierarchical Regression Analyses Using Poly-Victimization and Individual Categories of Childhood Victimization as Predictors of High School GPA and Current GPA

Using the same hierarchical regression procedures employed above, analyses examining the ability of aggregate categories of childhood victimization and poly-victimization to predict self-reported high school GPA and current GPA were conducted in two parts. In Part 1 of the analyses, an aggregate category of victimization was entered first, followed in a second step by poly-victimization. In Part 2, poly-victimization was entered first, followed by an aggregate category of victimization in the second step. As seen in Table 2, none of the regression models accounted for significant proportions of variability in scores for either high school GPA or current GPA.

Hierarchical Regression Analyses Predicting College Adjustment From Poly-Victimization and the Combined Effects of All Six Aggregate Categories

The vast majority of participants experienced multiple categories of victimization. Thus, to assess (a) the significance of the combined effects of all six aggregate categories of victimization in predicting college adjustment and (b) the unique contribution for each of these predictors, a separate set of regression analyses was conducted in which all six childhood victimization aggregate categories were entered simultaneously as the first block of predictors. The second step examined whether poly-victimization accounted for any unique variance in college adjustment beyond that accounted for by the initial block of six predictors. A summary of results is provided in Table 3 for the CAS and in Table 4 for the SACQ. Regression models using all six categories of victimization combined as predictors accounted for significant proportions of variability in all CAS and SACQ subscales. As seen in Step 1, the proportions of variability accounted for ranged from .04 to .22 ($M = .13$) for CAS subscales and from .05 to .14 ($M = .09$) for SACQ subscales. Squared semipartial correlations used to identify the unique contribution for each of the six individual predictor variables indicated that child maltreatment was significant for seven CAS subscales and three SACQ subscales. Sexual victimization made a significant unique contribution to regression models predicting five CAS

Table 3
Hierarchical Regression Analyses Examining the Unique Contribution of Poly-Victimization
in Predicting College Adjustment Scale (CAS) Subscales After Simultaneously Entering All Six
Aggregate Categories of Victimization as Predictor Variables

CAS Subscale	R^2 for 6 Aggregates Combined	Significant Squared Semipartial Correlation for 6 Aggregates Combined	Unique Predictor	
Step 1				
Academic Problems	.10**	.02*	Childmaltx	
Anxiety	.17**	.04**	Childmaltx	
		.02*	Peer-Sibling	
		.01*	Sexual-Vict	
Interpersonal Problems	.20**	.03**	Sexual-Vict	
		.02**	Childmaltx	
		.02*	Peer-Sibling	
Depression	.14**	.03**	Childmaltx	
		.01*	Sexual-Vict	
Career Problems	.04*	.02*	Prop-Crime	
Suicidal Ideation	.06**	.02*	Childmaltx	
Substance Abuse	.10**	.03**	Sexual-Vict	
		.02*	Witness	
Self-esteem Problems	.13**	.03*	Peer-Sibling	
		.02*	Childmaltx	
		.02*	Sexual-Vict	
Family Problems	.22**	.11**	Childmaltx	
Mean for CAS subscales	.13			
CAS Subscale	R^2 Change With Poly-Vict Added in Block 2	R^2 for 6 Aggregates Plus Poly-Vict	Significant Squared Semipartial Correlation for 6 Aggregates Plus Poly-Vict	Unique Predictor
Step 2				
Academic Problems	.03**	.13**	.03**	Poly-Vict
Anxiety	.03**	.19**	.03**	Poly-Vict
			.01*	Peer-Sibling
Interpersonal Problems	.04**	.24**	.04**	Poly-Vict
Depression	.03**	.17**	.03**	Poly-Vict
Career Problems	.01	.05*	None	None
Suicidal Ideation	.03**	.09**	.03**	Poly-Vict
Substance Abuse	.03**	.12**	.03**	Poly-Vict
Self-esteem Problems	.01*	.14**	.01*	Peer-Sibling
			.01*	Poly-Vict
Family Problems	.06**	.28**	.06**	Poly-Vict
			.02**	Childmaltx
Mean for CAS subscales	.03	.16		

Note: Childmaltx = child maltreatment; Peer-Sibling = peer or sibling victimization; Sexual-Vict = sexual victimization; Prop-Crime = property crime; Witness = witnessed or indirect victimization; Poly-Vict = poly-victimization.

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

subscales, and peer or sibling victimization made a significant unique contribution to three CAS subscales.

In Step 2, poly-victimization was added as a seventh predictor to each regression model. These results are presented in the bottom half of Tables 3 and 4 for the CAS and SACQ, respectively. As seen in Column 1, R^2 change values indicated that poly-victimization accounted for a significant proportion of variability beyond that previously accounted for by the combined six categories

for eight of nine CAS subscales and for four of five SACQ subscales. These unique contributions for poly-victimization ranged from .01 to .06 for the CAS subscales and from .01 to .03 for the SACQ subscales. Examination of the R^2 values in Column 2 reveals that when poly-victimization was included as a predictor with all six aggregate categories, the total proportion of variability accounted for ranged from .05 to .28 for CAS subscales and from .06 to .16 for SACQ subscales. These

Table 4
Hierarchical Regression Analyses Examining the Unique Contribution of Poly-Victimization in Predicting Student Adaptation to College Questionnaire (SACQ) Subscales After Simultaneously Entering All Six Aggregate Categories of Victimization as Predictor Variables

SACQ Subscale	R^2 for 6 Aggregate Combined	Significant Squared Semipartial Correlation for 6 Aggregate Combined	Unique Predictor	
Step 1				
Full scale	.12**	.03**	Childmaltx	
Academic Adjustment	.08**	.02*	Childmaltx	
Social Adjustment	.05**	None	None	
Personal-Emotional Adjustment	.14**	.04**	Childmaltx	
Institutional Attachment	.06**	None	None	
Mean for SACQ subscales	.09			
CAS Subscale	R^2 Change With Poly-Vict Added in Block 2	R^2 for 6 Aggregates Plus Poly-Vict	Significant Squared Semipartial Correlation for 6 Aggregates Plus Poly-Vict	Unique Predictor
Step 2				
Full scale	.03**	.14**	.03**	Poly-Vict
Academic Adjustment	.03**	.11**	.03**	Poly-Vict
Social Adjustment	.01	.06**	None	None
Personal-Emotional Adjustment	.03**	.16**	.03**	Poly-Vict
Institutional Attachment	.01*	.07**	.01*	Poly-Vict
Mean for SACQ subscales	.02	.11		

Note: Childmaltx = child maltreatment; Poly-Vict = poly-victimization.
 * $p < .05$. ** $p < .01$.

predictor variables accounted for significant proportions of variability for all CAS and SACQ subscales.

Finally, squared semipartial correlations were used to identify the unique contribution to the regression models for each of the six individual predictor variables and for poly-victimization. Results indicated that poly-victimization was the only predictor variable making a significant unique contribution for five of nine CAS subscales and for four of the five SACQ subscales (see Column 4). Both poly-victimization and the peer or sibling aggregate made significant unique contributions for an additional two CAS subscales and poly-victimization and child maltreatment made significant unique contributions for one additional CAS subscale. Unique contributions for poly-victimization ranged from .01 to .06 for the CAS subscales and from .01 to .03 for the SACQ subscales (see Column 3).

Hierarchical Regression Analyses Predicting High School and Current GPA From Poly-Victimization and the Combined Effects of All Six Aggregate Categories

When all six aggregate categories were entered simultaneously, neither the regression equation predicting

high school GPA nor current GPA accounted for a significant amount of variability. The same results were found when poly-victimization was added in a second step as a seventh predictor.

Discussion

Women in the present study reported high rates of childhood victimization, with approximately 98% reporting exposure to at least one category of victimization (property crime, physical assault, peer or sibling abuse, child maltreatment, witness or indirect victimization, sexual victimization) assessed using the JVQ. Also, the results are consistent with the growing body of literature (e.g., Arata et al., 2005; Briere & Runtz, 1988; Finkelhor et al., 2005a; Higgins & McCabe, 1998, 2000b, 2001; Ney et al., 1994; Richmond et al., in press) that suggests that individuals who have experienced one category of childhood victimization are likely to have experienced other categories as well. Although these high rates of victimization are in part because of the fact that our measure of victimization assesses relatively common, low severity types of victimization, in addition to relatively uncommon,

high severity types of victimization, these results nonetheless demonstrate that our female sample of college students experienced a broad range of adverse life events during childhood.

Results from the first set of regression analyses, which focused on the relative contributions of poly-victimization and each of the six individual categories of childhood victimization, revealed that poly-victimization was a better predictor of several college adjustment domains than were any of the individual categories in isolation. In most cases, although each individual category of victimization accounted for a significant proportion of the variability in measures of college adjustment when examined in isolation, the effect sizes tended to be relatively small (average percentage of variability accounted for by categories of childhood maltreatment ranged from 2% to 6%). On the other hand, the effect sizes for poly-victimization alone tended to be moderate to large, accounting for an average of 14% of the variability in CAS subscales (ranging from 4% to 26%) and for an average of 9% of variability on SACQ subscales (ranging from 5% to 15%). In addition, in most cases, the categories of victimization accounted for little to no variability beyond that already accounted for by poly-victimization. This pattern of results was similar to that reported in Richmond et al.'s study (in press) of poly-victimization and psychological distress in college women. Overall, the results of the current study suggest that although categories of childhood victimization are associated with a variety of college adjustment difficulties, exposure to high cumulative levels of victimization may be a particularly strong risk factor for experiencing difficulties in college. This finding is consistent with past studies that have suggested that exposure to multiple types of victimization is at least as important as exposure to any individual category of victimization for a variety of outcome measures (e.g., Arata et al., 2005; Arata et al., 2007; Finkelhor et al., 2007a, 2007b; Higgins & McCabe, 1998, 2000b, 2001).

The second set of multiple regression analyses focused on both poly-victimization and all six childhood victimization categories considered in combination. When the six categories were entered simultaneously in the first step of the equation without poly-victimization, the resulting regression models accounted for 4% to 22% of the variability across all measures of college adjustment. In these analyses, the child maltreatment category accounted for significant unique variance in the largest number of college adjustment measures, followed by sexual victimization and peer or sibling victimization, although the percentage of variability accounted for tended to be quite small for all three of these categories

(typically ranging from 1% to 4%). However, when all six categories of victimization and poly-victimization were considered simultaneously in Step 2, poly-victimization contributed uniquely to the amount of variance accounted for, beyond that accounted for by the combination of the six categories, and in many cases eliminated the previous associations. This finding is consistent with those of the study by Richmond et al. (in press) as well as with those of numerous other studies (e.g., Breslau et al., 1999; Follette et al., 1996; Kessler et al., 1997; Lloyd & Turner, 2003; Turner & Butler, 2003; Turner et al., 2006; Turner & Lloyd, 1995) that have examined the cumulative impact of childhood adversity on adult mental health. In general, results of these studies suggest that exposure to childhood trauma and a wide range of other stressful nonvictimization events is significantly associated with psychological distress among adults, although a variety of factors may mediate the relationships between these variables (e.g., low self-esteem, early onset of a psychological disorder, chronic stress, recent life events).

In addition, several noteworthy patterns of results emerged in the present study. First, although poly-victimization was significantly predictive of all measures of college adjustment, it was particularly predictive of interpersonal and family problems commonly experienced by college students (i.e., it accounted for 17% and 19% of the variability, respectively). This pattern is consistent with past research that has suggested that individuals who have experienced significant trauma are more likely to have grown up in dysfunctional families (Higgins & McCabe, 2001; Higgins, McCabe, & Ricciardelli, 2003) and often experience a wide variety of interpersonal and relationship difficulties (e.g., Berliner & Elliott, 2002). Second, given that poly-victimization accounted for such a large proportion of variability for the CAS measure of Interpersonal Problems, it was surprising that it accounted for such a small proportion of variability for the Social Adjustment Scale of the SACQ (3%). However, examination of the individual items on these two subscales reveals that, although similar sounding in name, they appear to be assessing different constructs. The CAS measure of Interpersonal Problems appears to assess trait-like personality characteristics regarding typical interpersonal interactions with other people in general (e.g., "A lot of people irritate me"; "I seem to disagree with others more than I agree with them"), whereas the Social Adjustment scale of the SACQ appears to assess more state-like social interactions and adaptation in their current college environment (e.g., "I am very involved with social activities in college"; "I am getting along very well with my roommate at college").

Thus, the results suggest that although a history of poly-victimization is highly associated with numerous long-term interpersonal difficulties, it is not strongly predictive of students' satisfaction with, and perception of, their social adjustment to the current college environment. Furthermore, poly-victimization is not predictive of students' (a) attachment to the university, (b) anxiety, or (c) difficulty setting career goals.

Finally, none of the regression equations that included aggregate categories of victimization and/or poly-victimization as predictors accounted for significant amounts of variability in scores for either high school GPA or current GPA. This finding is consistent with Himelein's (1995) study that found that college women with a history of CSA did not differ significantly from nonabused peers in terms of GPA. Unfortunately, because (a) almost half of the participants in the current study were in their first semester and had not yet earned a college GPA and (b) no objective measure of their GPA was obtained at the end of the semester, it was not possible to assess whether those with a victimization history ultimately earned lower GPAs at the end of the semester than did those without a victimization history. It also was not possible to determine whether those with victimization histories would ultimately be more likely to drop out of college, as was found for the students in the study by Duncan (2000).

Implications for Practice and Research

Results from the current study suggest that many young adult college women have experienced a considerable amount of childhood victimization across a broad range of categories. This finding has numerous implications for professionals who work with college females. First, it suggests that individuals who work at university counseling centers or mental health facilities should have broad training regarding all the major categories of childhood victimization because college-age females who seek treatment for one category of victimization might have experienced additional forms as well. Second, it emphasizes the importance for both clinicians and researchers to utilize an assessment instrument such as the JVQ that thoroughly assesses multiple categories of victimization, as well as poly-victimization, because the total number of lifetime victimizations that clients have experienced is highly associated with college adjustment. Professionals need to be aware that exposure to high cumulative levels of victimization in childhood might be associated with adjustment difficulties in adulthood, even if some of those experiences are relatively common and perceived as lower severity events. Finally,

counselors who work with college students should evaluate their clients' adjustment to college across a variety of domains because students who appear to be adjusting well in one domain (e.g., GPA as the traditional measure of academic success) might be experiencing difficulty in other domains (e.g., social, interpersonal).

Limitations of the Present Study

The present study has several limitations. First, given that the majority of participants in our sample were Caucasian female college students between the ages of 18 and 24, the generalizability to other populations is limited (e.g., males, non-Caucasians, older students). Given that many participants were in their first semester of college and thus in the early stages of adjusting to college, it is possible that a different pattern of results would have emerged if our sample had primarily included upper-level students in their junior or senior year or older, nontraditional students. Furthermore, it is possible that many of the most severely affected women in the general population might have been unable to enter college. A second limitation of the present study is that it relied on retrospective self-report data and thus is subject to all of the potential limitations and biases associated with such data. For example, our results reflect participants' perceptions of their psychological distress, academic adjustment, and GPA rather than potentially more objective measures of these variables. It is possible, for example, that participants either over- or underreported their victimization experiences. Similarly, participants may have under- or overreported their GPA as well as various aspects of their adjustment to college. A third limitation of the present study is that cause and effect conclusions cannot be drawn from a correlational design. It is possible that other factors not assessed in the present study might have influenced student's adjustment to college. It is not clear, for example, how our findings might have differed if the focus of the study were limited to only recent or high severity stressors. Finally, the large number of tests conducted raises the possibility of an inflated familywise risk for Type I error. As a result, the focus of our interpretation and discussion of the results has emphasized the overall pattern of findings, across combinations of predictor and criterion variables, rather than specific individual effects.

Future Research

Future studies assessing childhood maltreatment, poly-victimization, and adjustment to college are needed

to replicate these findings and extend them to a more diverse sample of participants. A longitudinal study, such as that conducted by Duncan (2000), would be particularly useful for examining the types of social and interpersonal adjustment difficulties that individuals with a history of childhood maltreatment and poly-victimization experience at different points in their academic career. Ideally, objective measures of academic performance and GPA should be gathered as well. Additional research also is needed to further explore how to best define and measure exposure to multiple categories of victimization (e.g., advantages and disadvantages of classifying participants based on the occurrence of "any" victimization within a given category versus counting multiple instances of the same event or weighting events by their severity). Finally, given that a variety of other factors might have influenced our results (i.e., race, socioeconomic status, negative family characteristics, other nonvictimization adverse life experiences, recent stressors), future studies that control for these variables are needed.

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