Arch Sex Behav (2014) 43:1431–1441
DOI 10.1007/s10508-013-0256-0

ORIGINAL PAPER

# Impact of Sexual Coercion on Romantic Experiences of Adolescents and Young Adults

**Charlene Collibee · Wyndol Furman**

Received: 14 June 2012 / Revised: 30 March 2013 / Accepted: 6 December 2013 / Published online: 12 February 2014


**Abstract** Little is known about the effect of sexual coercion on romantic relationship quality and dating experiences. The current study aimed to address this dearth in the literature and test the hypothesis that sexual coercion has a negative impact on victims' subsequent romantic experiences. Using a sample of 94 youth (44 males and 50 females), the current study addressed the impact of sexual coercion on romantic relationship quality and dating experiences. Tracking youth for 8.5 years (*M* age at Wave 1 = 15.10 years, *SD* = .49), the current study used piecewise growth curve modeling to account for shifts in the intercept and slope of romantic experiences following sexual coercion. Negative interactions immediately increased following coercion and continued to have an accelerated rate of growth (i.e., a slope change). Jealousy in romantic relationships increased in slope. Serious dating decelerated following the coercive incident. Results were largely consistent across gender and severity of the coercive incident. Contrary to hypotheses, relational support, relationship satisfaction, and casual dating did not significantly change following sexual coercion. Consistent with hypotheses, sexual coercion had a negative impact on romantic experiences. These findings have clinical implications for both prevention and intervention around sexual violence. In addition, the consistency of findings across gender and severity suggests that increased focus should be directed toward both male sexual coercion and less severe sexual coercion.

**Keywords** Sexual coercion · Sexual aggression · Romantic relationships · Dating violence · Sexual victimization

C. Collibee (✉) · W. Furman
Department of Psychology, University of Denver, 2155 S. Race St., Frontier Hall, Room 237, Denver, CO 80209, USA
e-mail: Charlene.Collibee@gmail.com

## Introduction

An important milestone in adolescence is the development of romantic experiences and relationships. Unfortunately, for as many as 30–40 % of males and females, these experiences are marred by peer sexual coercion and victimization (Hickman, Jaycox, & Aronoff, 2004; Young & Furman, 2008). Moderate to severe sexual victimization is related to increases in disordered eating behaviors, reduced self-esteem, heightened risk for internalizing and externalizing symptoms, and suicidality (Ackard & Neumark-Sztainer, 2002; Vezina & Herbert, 2007; Wolfe, Scott, & Crooks, 2005; Young, Furman, & Jones, 2012). Furthermore, sexual victimization contributes to greater risk for subsequent victimization (Young & Furman, 2008). It is, therefore, apparent that for adolescents experiencing sexual coercion, the consequences are both significant and long-lasting.

Less is known about the impact of sexual coercion on relationship functioning. Cross-sectional research has shown that individuals who have been sexually victimized report higher levels of fear and anxiety, lower self-esteem, and poorer social adjustment (Ackard & Neumark-Sztainer, 2002; Katz & Myhr, 2008; Murphy et al., 1988; Offman & Matheson, 2004; Resick, 1993; Wolfe et al., 2005). How these difficulties are associated with romantic experiences is still largely unknown, but the experience of sexual coercion is likely to contribute to greater relationship difficulties given sexual coercion's intimate nature. Sexual coercion in adult samples is also associated with sexual difficulties, such as negative sexual self-perceptions, lower sexual desire, and lower satisfaction; such sexual difficulties may lead to relational difficulties as well (Katz & Myhr, 2008; Muelenhard, Goggins, Jones & Satterfield, 1991; Siegel, Golding, Stein, Burnam & Sorenson, 1990; Struckman-Johnson & Struckman-Johnson, 1991; Wolfe et al., 2005).

Sexual coercion is also linked to greater negativity in coercive relationships. Cross-sectional research has found that individuals

who report sexual coercion also report greater relational conflict, lower relationship satisfaction, and feelings of betrayal within the coercive relationship (Katz & Myhr, 2008). Though the research has limitations, it does suggest that verbal sexual coercion is associated with greater dyadic difficulty. Furthermore, these cross-sectional findings highlight the importance of additional research to differentiate whether negative relationship quality is a risk factor for sexual coercion or a consequence. In addition, the association Katz and Myhr found between negative relationship quality and sexual coercion was within the coercive relationship itself. It is necessary to expand our understanding of this association by also including subsequent relationships to determine if sexual coercion has a broader impact.

Although we have begun to identify the cross-sectional correlates of sexual coercion within relationships, the field has yet to examine victim's subsequent romantic experiences. This limitation seems particularly critical because coercion may affect one's expectations of and behaviors within romantic relationships. A comprehensive understanding of how sexual coercion affects subsequent romantic experiences is essential to provide victims with appropriate support and to develop interventions that target the development of healthy romantic relationships.

The current study addressed the stated limitations in the literature by utilizing a longitudinal design to examine the impact of sexual coercion on romantic experiences. The romantic experiences we examined were negative characteristics of romantic relationships, positive characteristics of romantic relationships, and dating experiences. We approached this issue by examining the immediate and long term changes in relationship and dating experiences following coercion. Specifically, we examined changes in the mean level (intercept) and the rates of growth (slope) of romantic experiences after an incident of sexual coercion. In other words, we assessed the variable's score pre and post sexual coercion (intercept) and the rate of change of that variable before and after coercion (slope). By examining the post mean level, we were able to determine if a certain behavior increased or decreased immediately after sexual coercion. By examining the rate of change, we were able to determine whether or not that behavior then increased or decreased in rate more rapidly compared to before the coercive incident.

In terms of negative characteristics of relationships, we expected that the interpersonal processes that stem from sexual coercion would affect negative interactions and jealousy. Negative interactions encompass conflict, antagonism, and criticism (Furman & Buhrmester, 2009). Given the traumatic experience of sexual coercion, victims may expect to encounter hostility or aggression in their relationships and to have a heightened responsivity to ambiguous or negative partner behavior. Alternatively, victims of sexual coercion may be in romantic relationships with partners who are more prone to conflict. Conflict in a relationship is associated with physical and sexual violence and victims of sexual coercion may develop an expectation of conflict that persists in subsequent romantic experiences (O'Keefe, 1997). Victims of abuse have lower self-esteem and often feel unlovable or unworthy of love; consequently, they may become suspicious of their partners more readily (Aguilar & Nightingale, 1994). This questioning of their partners' love and lack of confidence in their relationships was expected to manifest itself in more jealousy, as well as more negative interactions, in their relationships. In addition, it may be the case that the partner is inciting more conflict that the victim has difficulty navigating due to his/her prior experiences. Therefore, we hypothesized that significant changes in mean level (intercept) and rates of growth (slope) would occur for both negative interactions and jealousy, following sexual coercion. Youth would report an immediate increase in negative interactions and jealousy and these behaviors would increase at a faster rate after coercion than before coercion.

In terms of positive characteristics of relationships, we expected that the interpersonal processes that stem from sexual coercion would affect support and relationship satisfaction. Because victims of sexual coercion have had their trust violated, they would be less likely to make themselves emotionally vulnerable and seek emotional support. By not making themselves emotionally vulnerable, they protect themselves from further betrayal, but they also reduce the level of support in their relationship. Relationship satisfaction is linked to a number of the relationship quality outcomes discussed, such as support, communication, intimacy, and conflict (Levesque, 1993). Therefore, satisfaction was expected to decrease following coercion as negative interactions increase and support decreases. We therefore anticipated a significant change in mean level (intercept) and rate of change (slope) in positive relationship characteristics after sexual coercion. Specifically, coerced youth would exhibit an immediate decrease in relationship satisfaction and support and that decrease would become compounded causing a decrease in satisfaction and support at an accelerated rate.

Finally, we addressed the affect sexual coercion has on casual and serious dating experiences (Furman, Ho, & Sadberry, 2007; Furman & Winkles, 2010). Casual dating refers to having a large number of relationships and having ones that break up easily (Furman et al., 2007; Furman & Winkles, 2010). It can be assessed by examining the number of relationships and whether such relationships are on-and-off (Furman et al., 2007; Furman & Winkles, 2010). Previous findings from the same longitudinal dataset as the current study showed that after an individual has been sexually coerced s/he is likely to have more casual sex partners (Young et al., 2012).[1] It would, therefore, seem likely that victims of sexual coercion engage in more casual dating. Given a propensity for depression and low self-esteem, victims of sexual coercion may also have negative expectations for relationships which thereby result in shorter relationships and a lack of commitment (Ackard & Neumark-Sztainer, 2002; Katz &

[1] The present study examined conceptually different variables and included an additional wave of data.

Myhr, 2008; Wolfe et al., 2005). Consequently, it was hypothesized that, following sexual coercion, there would be a significant change in both the mean level (intercept) and the rate of growth (slope) for casual dating. Serious dating refers to dating that encompasses intimacy and support and is long in duration (Furman et al., 2007; Furman & Winkles, 2010). Because it was anticipated that victims of sexual coercion would have less support in their relationships, it was expected that their dating experiences would be less serious subsequent to coercion relative to prior coercion. Therefore, it was hypothesized that both the mean level (intercept) and the rate of growth (slope) of serious dating would have significant changes, with adolescents engaging in less serious dating immediately following sexual coercion and displaying a decelerated rate subsequent to coercion.

In sum, we hypothesized the following: Hypothesis 1 predicted that negative interactions and jealousy would show a significant mean level and rate of growth increase relative to prior to coercion. Hypothesis 2 predicted that support and relationship satisfaction would show a significant mean level and rate of change decrease relative to prior coercion. Hypothesis 3 predicting that casual dating would demonstrate a positive rate of change and mean level change and serious dating would have a negative mean level change and a decelerated slope change.

## Method

### Participants

The participants were part of a longitudinal study investigating the role of relationships with parents, peers, and romantic partners on psychosocial adjustment. A total of 200 10th grade high school students (100 males, 100 females; *M* age = 15.10 years, *SD* = .49) were recruited from a diverse range of neighborhoods and schools in Denver. We distributed brochures and sent letters to families residing in diverse neighborhoods relatively near the university to reduce transportation issues. Schools and zip codes where brochures were sent were selected to yield the desired representative ethnic distribution. We were unable to determine the ascertainment rate because we used brochures and because letters were sent to many families who did not have a 10th grader. To insure maximal response, however, we offered to pay families $25 to hear a description of the project in their home. Of the families that heard the description, 85.5 % expressed interest and carried through with the Wave 1 assessment.

We selected families to describe the project to such that the sample would be representative of the ethnic distribution of the United States; thus, the sample consisted of 11.5 % African Americans, 12.5 % Hispanics, 1.5 % Native Americans, 1 % Asian American, 4 % biracial, and 69.5 % White, non-Hispanics.

At Wave 1, 85 % of the participants had begun dating and 75.5 % had a romantic relationship at least one month in duration. Ninety-four percent reported that they were heterosexual/straight. The remaining 6 % at Wave 1 said they were bisexual, gay, lesbian, or questioning their sexual orientation; this proportion increased gradually across the waves to 10.7 % by Wave 7. We retained everyone in the sample to be inclusive. Participants in this sample were of average intelligence (WISC-III Vocabulary standard score $M = 9.80$, SD = 2.44) and closely approximated national norms on a series of measures of psychosocial adjustment and substance use (see Furman, Low, & Ho, 2009). Approximately 55 % of participants' mothers reported that they had a college degree, as would be expected from an ethnically representative sample from this particular metropolitan area.

Data were drawn from the first seven waves of the project. Only those participants who reported experiencing sexual coercion were included in the present study ($N = 94$, 44 males and 50 females). Participants who reported experiencing sexual coercion did not significantly differ from those who did not report any sexual coercion in terms of socioeconomic status or ethnicity. Participants who reported sexual coercion during earlier waves (Waves 1–3) of the project were more likely to have reported a romantic partner; however, in later waves (Waves 4–7), this association was not found.

Of the 94 participants who reported sexual coercion, 32 participants reported more than one incident of coercion and, in those cases, the most severe instance was used, following Koss and Gidycz's (1985) scale. The most severe instance was used because it was believed to be the most impactful on subsequent romantic experiences. Analyses were also conducted around the first incident, rather than the most severe, and the pattern of results were very similar (all supplemental analyses available from the corresponding author). The timing of the most severe or only instance of coercion was as follows: prior to the 10th grade, $N = 36$; within the previous 12 months of Wave 1, $N = 5$; between Waves 1 and 2, $N = 16$; between Waves 2 and 3, $N = 6$; between Waves 3 and 4, $N = 11$; between Waves 4 and 5, $N = 5$; between Waves 5 and 6, $N = 5$; between Waves 6 and 7, $N = 10$. Analyses were also conducted with those for whom sexual coercion occurred prior to the 10th grade removed ($N = 36$), and the pattern of results were very similar (all supplemental analyses available from the corresponding author).

### Procedure

Participants completed interviews, observational protocols, and self-report questionnaire data about themselves and their close relationships (for details, see Furman, Stephenson, & Rhoades, 2013). Questionnaires were sent to the participants in advance with instructions to complete them at their convenience; the full package took 1–1.5 h to complete. Questionnaires about sexual experience and substance use were completed in a private room in the laboratory using computer assisted self-interviewing techniques to encourage participants to respond honestly (Turner, Ku, & Rogers, 1998).

The data for the current analyses were the first seven waves, which were collected from November 2000 to October 2010 when the participants were in the Grade 10 to 5.5 years post high school. To retain the sample, we tried to contact participants every 4–5 months. Participants were compensated for completing different parts of the studies. Payments for questionnaires ranged from $20 to $50, depending on the wave. Payments for questionnaires from mothers ranged from $20 to $25 whereas payments for friends ranged from $25 to $50. Attrition over the seven waves of data collection was low. All 200 adolescents participated in the first two waves of data collection, 199 in the third, 194 in the fourth, 185 in the fifth, 180 in the sixth, and 178 in the seventh.

The study was approved by the university's Institutional Review Board. The confidentiality of participants' data was protected by a Certificate of Confidentiality issued by the U.S. Department of Health and Human Services.

## Measures

### *Sexual Coercion*

The Sexual Experiences Survey (SES) (Koss & Gidycz, 1985) was administered at each wave of data collection. Based upon Koss and Gidycz's definition, sexual coercion was considered to be any behavior involving verbal coercion, use of drugs or alcohol, or the threat or use of physical force to obtain an unwanted sexual contact with any part of the body. The SES consists of eight questions about the frequency of experiencing various types of unwanted sexual activity over the past year (or since the last wave of data collection). For example, one item asks, "Have you had sexual intercourse when you didn't want to because a person threatened or used some degree of physical force (twisting your arm, holding you down, etc.) to make you?" The items on the SES were used to create a dichotomous variable indicating whether or not coercion occurred at each wave. The questions were asked specifically in regard to experiences with peers; participants were instructed not to include sexual abuse from family members, relatives, or other adults in authority.

### *Romantic Support and Negative Interactions*

Participants completed the short version of the Network of Relationships Inventory: Behavioral Systems Version (NRI) to assess their perceptions of their most important romantic relationship in the last year (Furman & Buhrmester, 2009). The NRI included five items regarding social support and six items regarding negative interactions. Participants rated how much the characteristic occurred using a 5 point scale (1 = little or none to 5 = the most). Romantic support and negative interaction scores were derived by averaging the relevant items (*M* alphas = .89 and .92, respectively).

### *Relationship Satisfaction*

Relationship satisfaction was assessed through an adapted version of the Quality of Marriage Inventory (QMI) (Norton, 1983), a 6-item self-report measure that assesses an individual's global perception of his or her relationship quality (Baxter & Bullis, 1986). An example of a question is "My relationship with my boy/girlfriend makes me happy" which the participant then responded to on a 7-point Likert scale (1 = strongly disagree/not at all true to 7 = strongly agree/very true; *M* alpha = .97).

### *Jealousy*

Jealousy was measured using Pfeiffer and Wong's (1989) Multidimensional Jealousy Scale (MJS). Participants were asked to complete 24 questions assessing cognitive, emotional, and behavioral jealousy. Participants were asked to rate their responses on a 5-point Likert scale (1 = never to 5 = all the time). An example of an item is: "I question my romantic partner about his or her telephone calls" (*M* alpha = .91).

### *Dating Experience*

The Romantic Interview (Furman, 2001) and Dating History Questionnaire (DHQ) (Furman & Wehner, 1992) were used to assess adolescents' serious and casual dating using Furman and Winkles' (2010) procedure. In the beginning of their interview about their romantic relationships, participants answered questions about each romantic relationship that occurred in the last 12 months and that had lasted for at least one month. Specifically, they were asked when it occurred, how long it lasted, whether it was on and off, and whether they were in love. On the DHQ, participants rated on a 5-point Likert scale whether they typically casually date or have long relationships (1 = always casually date to 5 = almost always long relationships). The Serious Dating factor consisted of the average of the standardized scores for length of relationship, proportion of times in love, and the DHQ question about having long vs. casual relationships. The Casual Dating factor consisted of the average of standardized scores for the number of relationships and the proportion of on and off relationships (see Furman & Winkles, 2010). The two factors were minimally correlated ($r = .16$, $p < .05$), suggesting they are relatively independent dimensions of dating experience.

## Analytic Strategy

To examine how sexual coercion influences subsequent romantic experiences, we used piecewise growth curve models, a special case of growth curve modeling (see Duncan, Duncan, Strycker, Li, & Alpert, 1999; Li, Duncan, Duncan, & Hops, 2001). Piecewise models examine the intercept and slope of a variable's trajectory before and after a significant event, such as sexual coercion. The use of piecewise growth curve models was particularly

important for this study because relationship and dating experiences change as youth move into young adulthood. Piecewise growth curve models account for individuals' own developmental trajectories and assess whether the trajectory changes following an event. Therefore, significant changes in the slope or intercept of relationship characteristics are unlikely to be the product of normative development but rather reflect deviations from an individual's own expected trajectory.

To create the piecewise growth curve models, participants' data were centered on the wave at which they reported their most severe experience of sexual coercion. In other words, if a participant reported the most severe instance of coercion at Wave 4, s/he would have three pre-coercion data points (one data point for each of Waves 1–3) and four post-coercion data points (one data point for each of Waves 4–7). By aligning the data around the coercive event, it was possible to determine the pre and post coercion trajectories despite participants' experiencing the coercion during different waves.

A model-fitting approach was taken to evaluate the piecewise growth models. This approach began by specifying a linear growth curve that served as a baseline comparison model (No-Change model). In effect, the baseline (No-Change) model hypothesizes that the trajectory of the variable did not change in slope or intercept after an individual experienced sexual coercion. In this model, the slope for a particular variable *after* the initial incident of sexual coercion was constrained to be equal to the slope before that incident occurred. Further, the post coercion slope was specified to be continuous with the pre-coercion trajectory, meaning that it begins at the level where the pre-coercion trajectory ends. These constraints make this piecewise model functionally equivalent to a traditional, linear growth curve model.

This linear baseline model provided an initial estimate of model fit. In the next step, three alternative piecewise models were each compared to the baseline model and assessed for statistically significant improvement in model fit. Each of these alternative models is nested in the baseline model, allowing for a direct comparison of model fit by calculating the change in $\chi^2$ value (Kline, 2005). If adolescents experience a change in the trajectory of a romantic experience after experiencing sexual coercion, then a piecewise model that allows for this change will provide a better fit to the data than the No-Change baseline model, as reflected by a significantly lower $\chi^2$ value. If the change in $\chi^2$ is not significant, then the simpler, more parsimonious No-Change (baseline) model is retained.

The second model—the Slope-Only model—hypothesized that a change in slope occurs after experiencing coercion. This is accomplished by allowing the slope after coercion to be different from the slope before coercion; however, the Slope-Only model does not include a change in intercept after coercion occurs. Thus, the post-coercion trajectory is continuous with the pre-coercion trajectory.

In contrast, the third model—the Intercept-Only model—hypothesized that a change in intercept but not slope occurs after experiencing coercion. For example, adolescents may exhibit a higher level of a variable after coercion (higher intercept), but the rate of change in this variable (slope) remains the same as before coercion. If either the Slope-Only model or the Intercept-Only model provides a significant improvement in $\chi^2$ relative to the baseline model, then that Change model is preferred to the baseline model.

Finally, the Dual-Change model hypothesizes that a change in intercept as well as a change in slope occurs after experiencing coercion. For example, participants exhibit higher levels of a variable after sexual coercion and the directionality of the slope changes after coercion. If either the Slope-Only model or the Intercept-Only model provides a significant improvement in fit over the baseline model, and the Dual-Change model also provides a significant improvement, then these models are compared. If there is a significant improvement in $\chi^2$, the Dual-Change model is preferred; otherwise, the simpler, more parsimonious Slope-Only or Intercept-Only model is preferred. If the Slope-Only model, the Intercept-Only model, and Dual Change model all provide significant improvements in fit over the baseline model, the Dual-Change model is preferred. Each of the outcome variables for negative interactions, jealousy, support, relationship satisfaction, casual dating, and serious dating were modeled separately in this way. Each of the four models was applied to each of the outcome variables, and improvements in model fit provided a test of each hypothesis.

## Results

Prior to beginning analyses, the variables in the dataset were examined to insure that they had acceptable levels of skew and kurtosis (Behrens, 1997). No violations of normality were noted. Outliers were identified ($M = 2\,\%$) and corrected by adjusting scores to fall 1.5 times the interquartile range below the 25th percentile or above the 75th percentile. The skew and kurtosis of all resulting distributions were acceptable. Then, multiple imputation procedures, including relevant auxiliary variables, were used to estimate missing data (Schafer & Graham, 2002). Ten multiple imputation datasets were generated using the software package NORM (Schafer, 1999). All subsequent analyses were conducted and results averaged across datasets using Mplus V.4.0 software (Muthén & Muthén, 2006).

### Negative Relationship Characteristics

A summary of the model-fitting comparisons for each relationship quality and dating experience outcome is shown in Table 1. Both negative interactions and jealousy showed significant changes following the incident of sexual coercion. For negative interactions, the Dual-Change model provided a significantly improved fit over the No-Change model, $\Delta\chi^2$ $(9, N = 94) =$

**Table 1** Model-fit statistics and comparison of piecewise models

| Romantic experience | No-Change ($df = 16$) | Slope-Change ($df = 12$) | Intercept-Change ($df = 11$) | Dual-Change ($df = 7$) |
|---|---|---|---|---|
| Negative interactions | | | | |
| $\chi^2$ | 25.80 | 16.65 | 14.85 | 7.26* |
| CFI | .55 | .81 | .70 | .94 |
| RMSEA | .08 | .05 | .06 | .03 |
| Jealousy | | | | |
| $\chi^2$ | 26.88 | 14.18* | 18.20 | 5.29* |
| CFI | .48 | .85 | .64 | .98 |
| RMSEA | .09 | .05 | .08 | .02 |
| Support | | | | |
| $\chi^2$ | 23.99 | 18.49 | 16.77 | 11.70 |
| CFI | .78 | .80 | .83 | .86 |
| RMSEA | .07 | .07 | .07 | .08 |
| Relationship satisfaction | | | | |
| $\chi^2$ | 20.94 | 16.50 | 18.20 | 12.91 |
| CFI | .52 | .60 | .38 | .51 |
| RMSEA | .05 | .06 | .08 | .08 |
| Casual dating | | | | |
| $\chi^2$ | 18.5 | 12.68 | 15.13 | 8.45 |
| CFI | .94 | .97 | .92 | .97 |
| RMSEA | .03 | .03 | .05 | .04 |
| Serious dating | | | | |
| $\chi^2$ | 24.53 | 10.79** | 19.32 | 6.45* |
| CFI | .93 | .99 | .93 | .99 |
| RMSEA | .07 | .02 | .08 | .02 |

Significant difference in model fit compared to the No-Change (baseline) model are indicated as follows: * $p < .05$; ** $p < .01$

18.54, $p = .03$; as such, the Dual-Change model was determined to be the best fitting model to the data. Prior to coercion, negative interactions appeared to be decreasing over time. However, following coercion, negative interactions immediately increased (i.e., a change in intercept) and continued to increase over time (i.e., a change in slope). This finding supports our hypothesis that the negative interactions would show changes in both the intercept and slope following coercion (Fig. 1).

For jealousy, a significant improvement of fit over the No-Change (baseline) model occurred for both the Slope-Only model, $\Delta\chi^2$ (4, $N = 94$) = 12.70, $p = .01$, and Dual-Change model, $\Delta\chi^2$ (9, $N = 94$) = 21.59, $p = .01$. The Dual-Change model did not provide a significant improvement in fit over the more parsimonious Slope-Only model, $\Delta\chi^2$ (5, $N = 94$) = 8.89, $p = .11$. In effect, youth exhibited an accelerated rate of change of jealousy following sexual coercion, but the immediate level of jealousy did not shift. Therefore, our hypothesis was only partially supported, as changes in slope but not intercept were found following coercion (Fig. 2).

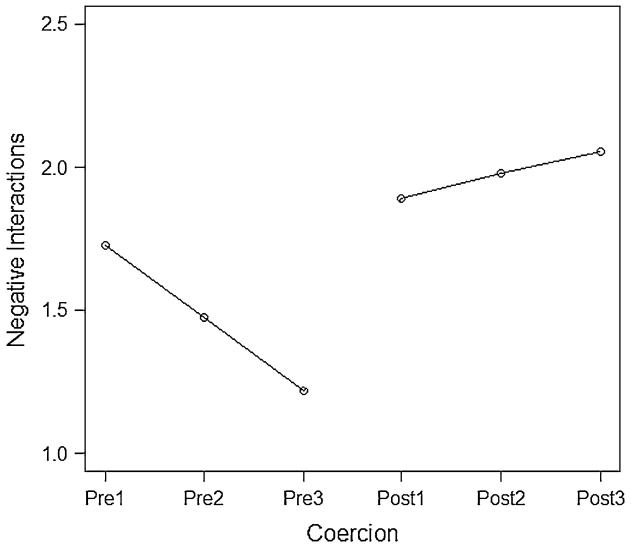


**Fig. 1** Precoercion and postcoercion trajectories of negative interactions

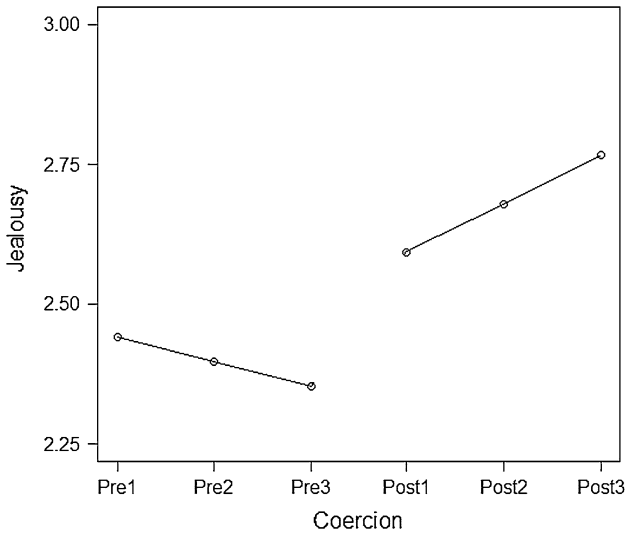


**Fig. 2** Precoercion and postcoercion trajectories of jealousy

## Positive Relationship Characteristics

Positive relationship characteristics did not significantly change following the most severe incident of sexual coercion. For both support and satisfaction, the No-Change (baseline) Model provided a good fit to the data (see Table 1) and no other models significantly improved fit for these variables.

## Dating Experiences

For casual dating, the No-Change (baseline) Model provided a good fit to the data, and no other models significantly improved model fit (see Table 1). However, for serious dating, a significant

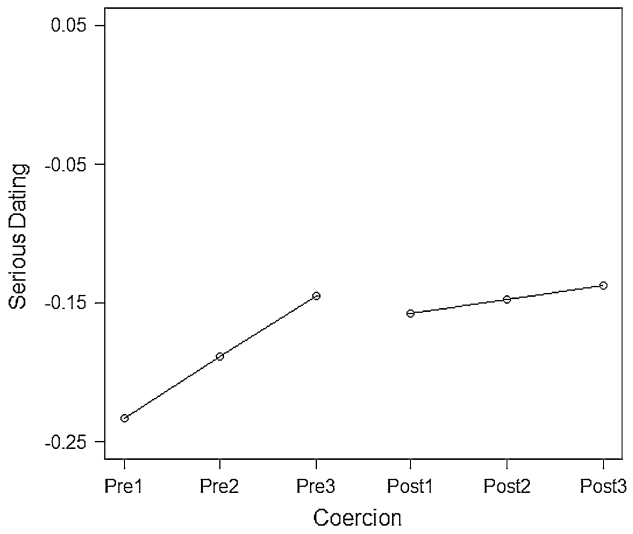


**Fig. 3** Precoercion and postcoercion trajectories of serious dating

improvement of fit over the No-Change (baseline) model occurred for both the Slope-Only model, $\Delta\chi^2$ $(4, N = 94) = 12.70, p = .01$, and the Dual-Change model, $\Delta\chi^2$ $(4, N = 94) = 21.60, p = .01$. A comparison of the fit of the Slope-Only model and the Dual-Change model demonstrated that the Dual-Change model did not provide a significant improvement in fit over the more parsimonious Slope-Only model, $\Delta\chi^2$ $(5, N = 94) = 8.90, p = .11$. Therefore, we concluded that youth exhibited less increase in serious dating following sexual coercion, but the immediate level of serious dating remained the same (Fig. 3).

## Gender Analyses

To determine if the trajectories for the outcome variables differed by gender, a series of secondary analyses were conducted. Multigroup analyses tested a Dual-Change model in which the slopes and intercepts were constrained to be the same across gender and a Dual-Change model in which they were free to vary by gender. The Dual-Change model was used because it had the best fit statistics across outcomes and allowed for all possible differences between the different groups. Results indicated that, for all relationship characteristics except jealousy, the unconstrained model was not significantly better than the constrained model. For jealousy, the unconstrained model was a significantly better fit than the constrained model, $\Delta\chi^2$ $(6, N = 94) = 17.40, p = .04$.

To understand the different jealousy trajectories for male and female participants, the piecewise models were run on each gender separately. For males, the pattern of results mimicked those of the overall jealousy findings. Both the Slope-Only model and the Dual-Change model provided significant improvements over the No-Change (baseline) model, $\Delta\chi^2$ $(4, N = 44) = 15.62$, $p < .01$; $\Delta\chi^2$ $(9, N = 44) = 24.81$, $p < .01$, respectively. When these two models were compared, the Dual-Change model did not significantly improve the fit over the more parsimonious Slope-Only Change model, $\Delta\chi^2$ $(5, N = 44) = 9.19, p = .10$. Therefore, for males, jealousy did not significantly change in intercept after coercion, but did significantly change in slope. For females, only the Dual-Change model provided an improvement over the No-Change (baseline) model, $\Delta\chi^2$ $(9, N = 50) = 25.09, p = .003$. Therefore, for females, jealousy significantly changed in both intercept and slope following coercion such that jealousy increased immediately and continued to increase over time.

## Severity Analyses

To determine if the trajectories for the outcome variables differed by the severity of the sexual coercion, a dichotomous version of severity was constructed (Koss & Gidycz, 1985). Individuals who experienced sexual-play pressure and sexual-intercourse pressure were placed in a low severity group ($N = 54$; 30 males and 24 females). Individuals who experienced sex-play force, attempted sexual intercourse via force, attempted sexual intercourse under the influence of alcohol, sexual intercourse under the influence of alcohol, sexual-acts force, and sexual-intercourse force were placed in a high severity group ($N = 40$; 14 males and 26 females). Multi-group analyses tested the Dual-Change model in which the slopes and intercepts were constrained to be the same across severity and a Dual-Change model in which they were free to vary by severity. Aside from the negative interactions outcome, the unconstrained models were not significantly better than the corresponding constrained models. For negative interactions, the unconstrained model was a significantly better fit than the constrained model, $\Delta\chi^2$ $(6, N = 94) = 17.36, p < .01$.

To understand the different negative interactions trajectories for high and low severity, the piecewise models were run on each group separately. For low severity, the pattern of results mimicked those of the overall negative interaction findings. Only the Dual-Change model provided an improvement over the No-Change (baseline) model, $\Delta\chi^2$ $(9, N = 54) = 17.09, p = .04$. Therefore, for low severity, negative interactions significantly increased in both intercept and slope following coercion. For high severity, the Slope-Change model $\Delta\chi^2$ $(4, N = 40) = 14.89$, $p < .01$, the Intercept-Change model, $\Delta\chi^2$ $(5, N = 40) = 18.19$, $p < .01$, and the Dual-Change model $\Delta\chi^2$ $(9, N = 40) = 36.19$, $p < .001$, provided improvements over the No-Change (baseline) model. Therefore, for high severity, negative interactions significantly increased in intercept and the slope changed directionality and began to increase following coercion. Thus, for both high and low severity, the pattern of results was the same, such that the Dual-Change model was the best fitting model for negative interactions. Examination of the slopes indicates that the post coercion slope was steeper for high severity ($\beta = .22$) than that for the low severity group ($\beta = .15$). Therefore, though the pattern remained the same, the high severity group showed more

significant change following coercion as compared to the low severity group.

## Discussion

The consequences of peer sexual coercion on adjustment and future risk have gained significant attention in the field (Ackard & Neumark-Sztainer, 2002; Wolfe et al., 2005). Because sexual coercion contributes to increased risk and problems in adjustment (Young et al., 2012), it was expected that it would also contribute to negative romantic experiences. To understand the changes that occur in romantic experiences following sexual coercion, the current study examined the impact of coercion on subsequent relationship qualities and dating experiences.

As hypothesized, significant changes occurred in negative relationship characteristics following sexual coercion. The youth reported increased negative interactions in the relationship after coercion and these negative interactions continued to increase whereas before the adolescent was reporting a reduction of negative interactions with age. Increased negative interactions were consistent with the idea that victims may have a heightened responsivity to ambiguous or negative partner behavior. It follows that victims would be more likely to attribute partner behavior to negative intentions, thereby inciting more negative interactions. The increased rate of negative interactions suggests that this may be self-perpetuating, such that the more negative interactions that occur in the relationship, the more the partner expects negative interactions. As the victim's expectations of negative interactions continue to be validated, s/he may become hypervigilant to ambiguous stimuli and respond in kind. Alternatively, individuals who have been coerced may be more likely to choose or remain in lower quality relationships. In other words, it may not be the case that participants were misattributing ambiguous stimuli as negative; rather, it may be that their partners were inciting increased negative interactions. Therefore, victims of coercion might not be directly contributing to the increases in negative interactions; instead, their selections of partners prone to conflict may account for the changes.

As expected, jealousy increased following sexual coercion. As was the case with negative interactions, the slope changed direction following coercion. Prior to the incidence of coercion, jealousy was decreasing with age, but after sexual coercion it began to increase. A change in the direction of the slope was consistent with the hypothesis that victims of sexual coercion report increases in jealousy following sexual coercion. Because victims of sexual coercion report lower self-esteem and self-worth, they may be unable to recognize the attributes that make them attractive to their partner (Aguilar & Nightingale, 1994). Losing confidence in themselves and the relationship may contribute to the increased rate of jealousy following the incident of coercion. Furthermore, increases in jealousy often result in a negative response from a partner (Sheets, Fredendall, & Claypool, 1997), which in turn may increase the individual's jealousy, thereby creating a cycle of increasing jealousy. Moreover, though we examined negative interactions and jealousy separately, it is likely that they are interrelated. Jealousy may lead to negative interactions and vice versa; thus, increases in one of these characteristics likely contribute to increases in the other.

Contrary to our expectations, neither support nor relationship satisfaction changed following sexual coercion. The lack of change in relationship satisfaction following sexual coercion is of particular interest, given that both jealousy and negative interactions increased. One potential explanation for this finding is that the expectations for the subsequent relationship experiences were lower, so individuals were more easily satisfied in the relationship. Furthermore, in adolescence, relationship satisfaction was more strongly linked to positive features than negative ones (Levesque, 1993). Therefore, despite the increases in negative interactions and jealousy, the lack of change in positive characteristics (i.e., support) may help account for the lack of change in relationship satisfaction.

One explanation for the lack of change in support following coercion is that sexual coercion does not affect the positive relationship characteristics, only negative relationship characteristics. One risk factor for sexual coercion is an insecure relational representation, which is linked to lower levels of support (Alexander, 1993; Flanagan & Furman, 2000; Stovall-McClough & Cloitre, 2006). Furthermore, though relational insecurity is a risk factor for sexual coercion, sexual coercion does not shift victims' relational insecurity trajectories (Young et al., 2012). Therefore, this null finding is nonetheless informative, as it may be the case that low support is a risk factor for coercion but not a consequence.

The current study not only examined the quality of the relationships of victims, but also the nature of their dating behavior. Contrary to our hypotheses, casual dating did not change following sexual coercion. Notably, however, serious dating increased at a significantly slower rate than previously. Having fewer serious dating experiences than would be expected may be an appropriate immediate reaction to a coercive event, as it may allow an individual to cope with the negative experience. It is notable, however, that the slope decelerated as opposed to a temporary immediate decrease. Therefore, it does not appear to be a temporary decrease in serious dating to facilitate coping; rather, it is a long term change in how one is approaching dating. This reduction in serious dating may be related to a lower quality of relationship experiences (i.e., increases in negative interactions and jealousy), such that after the coercive event victims may be less likely to see the merits of a serious committed relationship. Notably, within the same dataset, victims of sexual coercion showed increases in sexual frequency and number of sexual partners, suggesting that although they may be having less serious dating, participants were engaging in more casual sex, which is predictive of greater risk for revictimization (Young et al., 2012).

The current study addressed potential gender differences in the effects of sexual coercion on romantic experiences. Notably, there were no significant gender differences in the percentages of

males and females reporting some form of sexual coercion. One reason we may be finding higher rates of male sexual coercion is because the present study spanned 8.5 years, longer than most studies. We also used a broad definition of sexual coercion. In addition to the similar percentages of coercion over the entire study, the changes following coercion did not vary by gender except for jealousy, indicating that the effects of sexual coercion is similar for both males and females. Furthermore, even when gender differences did emerge in jealousy, both genders still saw a significant increase in jealousy following coercion. Such a pattern of findings is particularly notable, suggesting both males and female's subsequent romantic experiences were negatively impacted by sexual coercion. It is understandable why the literature and interventions have focused on female victims, but this finding suggests male victims are similarly impacted but may be missed. Moreover, the strikingly high prevalence of lifetime sexual violence among men, 26.2 %, makes it clear that male victims warrant increased focus in both research and services (Centers for Disease Control and Prevention, 2010).

We also examined how severity of sexual coercion affected the trajectories of romantic experiences. Only negative interactions had a pattern of change that varied by severity. In this case, the overall finding was the same. Negative interactions increased both immediately and long-term following coercion. The difference was in the degree of impact the coercion had. In other words, the patterns for both high and low severity were similar, but the impact of high severity sexual coercion was greater than for low severity. Therefore, the overall patterns suggest that for both high severity and low severity victims, the effect on romantic experiences was similar. Such a finding is particularly important because victims of less severe incidents of coercion have fewer individual negative outcomes than victims of more severe incidents; therefore, they may be less likely to seek support or assistance (Gidycz & Koss, 1989). The current findings suggest that our participants were, nonetheless, at high risk of having their subsequent romantic experiences negatively affected by the coercive event. Given that individuals experiencing low severity coercion may be less likely to seek assistance, this finding has important clinical implications for intervention programs. Greater awareness of the negative impact of low severity coercion is needed. In addition, appropriate programs targeting prevention and interventions around incidences of low severity coercion should be further developed.

## Limitations and Future Directions

The current study contributes to the literature by examining changes in romantic experiences that are associated with sexual victimization. Studies of within-person variation are key to many psychological theories, as social scientists are often interested in understanding changes or differences within a person rather than differences between people per se (Curran & Bauer, 2011). Indeed, the use of within-person techniques, such as piecewise growth curve analyses, is less prone to spurious associations that may occur with between-person comparisons. At the same time, the data were non-experimental and causal inferences cannot be drawn. Experiencing peer-initiated sexual coercion may not cause the changes in the developmental trajectories that were observed in this study. However, it is important to note that these shifts did not occur at the same age for all participants. Instead, the sexual coercion occurred at different waves across individuals and the changes in romantic experiences were centered upon this event. It is not likely that individuals would exhibit relatively simultaneous changes without some precipitating common factor, such as sexual coercion.

Although the sample closely matched national norms on IQ and multiple measures of adjustment (see Furman et al., 2009), we were unable to determine the ascertainment rate and participants may have differed on other variables. An additional limitation is that the small sample size did not allow us to divide the sample into any more than two groups and even these analyses were limited in power. Subsequent, larger scale studies should examine more complex configurations, such as whether the effect of severity may vary within gender. Similarly, 34 % of the victims reported being coerced at more than one time. In these instances, we selected the more serious instance of coercion and it is possible that the current findings would not apply to all forms of coercion, although the current study did not find substantial differences as a function of severity. Relatedly, it is possible that revictimization may be associated with greater changes than an initial episode of victimization, a question that would require a larger sample.

The current study also contributed to the literature by examining how sexual coercion was associated with changes in different facets of romantic experience. Future research is needed to better understand the processes underlying these links between sexual coercion and changes in relationship quality and dating experiences. For example, we have speculated that certain cognitions, such as a heightened responsivity to ambiguous or negative partner behavior, may underlie the observed changes, but these cognitions were not measured. Finally, potential moderators of the link between coercion and romantic experiences should be explored; for example, it is possible some appraisals made by victims may make them more vulnerable to subsequent romantic difficulties than others (DePrince, Chu, & Pineda, 2011).

Despite these limitations, the current study has made a number of important contributions. The current study was the first to longitudinally assess the relationship between sexual coercion and romantic experiences. By starting in adolescence and moving into young adulthood, we captured a time of high risk for adolescents as well as a critical period for the development of romantic experiences. The study was further strengthened by the statistical method, which allowed us to pinpoint the incident of coercion and track the impact on trajectories, providing a robust argument for the affect sexual coercion may have on relationship quality and dating experiences. Overall, the study contributes to our understanding of the impact of sexual

coercion and offers insight into areas of difficulty for victims that may have been previously overlooked.

**Acknowledgments** Preparation of this article was supported by Grant 050106 from the National Institute of Mental Health (W. Furman, P.I.) and Grant 049080 from the National Institute of Child Health and Human Development (W. Furman, P.I.). Appreciation is expressed to the Project Star staff for their assistance in collecting the data and to the Project Star participants and their partners, friends, and families.

## References

Ackard, D. M., & Neumark-Sztainer, D. (2002). Date violence and date rape among adolescents: Associations with disordered eating behaviors and psychological health. *Child Abuse and Neglect, 26*, 455–473. doi:10.1016/j.bbr.2011.03.031.

Aguilar, R. J., & Nightingale, N. N. (1994). The impact of specific battering experiences on the self-esteem of abused women. *Journal of Family Violence, 9*, 35–45. doi:10.1007/BF01531967.

Alexander, P. C. (1993). The differential effects of abuse characteristics and attachment in the prediction of long-term effects of sexual abuse. *Journal of Interpersonal Violence, 8*, 346–362. doi:10.1177/088626093008003004.

Baxter, L., & Bullis, C. (1986). Turning points in developing romantic relationships. *Human Communication Research, 12*, 469–493. doi:10.1111/j.1468-2958.1986.tb00088.x.

Behrens, J. T. (1997). Principles and procedures of exploratory data analysis. *Psychological Methods, 2*, 131–160.

Centers for Disease Control and Prevention. (2010). *Sexual violence.* Retrieved from http://www.cdc.gov/nutrition/. Accessed Oct 2011.

Curran, P. J., & Bauer, D. J. (2011). The disaggregation of within-person and between-person effects in longitudinal models of change. *Annual Review of Psychology, 62*, 583–619.

DePrince, A. P., Chu, A. T., & Pineda, A. S. (2011). Links between specific post-trauma appraisals and three forms of trauma-related distress. *Psychological Trauma: Theory, Research, Practice, and Policy, 3*, 430–441.

Duncan, T. E., Duncan, S. C., Strycker, L. A., Li, F., & Alpert, A. (1999). *An introduction to latent variable growth curve modeling*. Mahwah, NJ: Lawrence Erlbaum Associates.

Flanagan, A. S., & Furman, W. (2000). Sexual victimization and perceptions of close relationships in adolescence. *Child Maltreatment, 5*, 350–359. doi:10.1177/1077559500005004006.

Furman, W. (2001). Working models of friendships. *Journal of Social and Personal Relationships, 18*, 583–602. doi:10.1177/0265407501185002.

Furman, W., & Buhrmester, D. (2009). The Network of Relationships Inventory: Behavioral Systems version. *International Journal of Behavioral Development, 33*, 470–478. doi:10.1177/0165025409342634.

Furman, W., Ho, M. J., & Sadberry, S. (2007). The rocky road of adolescent romantic experience: Dating and adjustment. In R. Engels, M. Kerr, & H. Stattin (Eds.), *Friends, lovers and groups: Key relationships in adolescence* (pp. 61–80). West Sussex: Wiley.

Furman, W., Low, S., & Ho, M. J. (2009). Romantic experience and psychosocial adjustment in middle adolescence. *Journal of Clinical Child and Adolescent Psychology, 38*, 75–90.

Furman, W., Stephenson, J. C., & Rhoades, G. K. (2013). Positive interactions and avoidant and anxious representations in relationships with parents, friends, and romantic partners. *Journal of Research on Adolescence*. doi:10.1111/jora.12052.

Furman, W., & Wehner, E. A. (1992). *Dating History Questionnaire*. Unpublished measure, University of Denver, Denver, CO.

Furman, W., & Winkles, J. K. (2010). Predicting romantic involvement, relationship cognitions, and relationship qualities from physical appearance, perceived norms, and relational styles regarding friends and parents. *Journal of Adolescence, 33*, 827–836. doi:10.1016/j.bbr.2011.03.031.

Gidycz, C. A., & Koss, M. P. (1989). The impact of adolescent sexual victimization: Standardized measures of anxiety, depression, and behavioral deviancy. *Violence and Victims, 4*, 139–149.

Hickman, L. J., Jaycox, L. H., & Aronoff, J. (2004). Dating violence among adolescents: Prevalence, gender distribution, and program effectiveness. *Trauma, Violence, & Abuse, 5*, 123–142. doi:10.1177/1524838003262332.

Katz, J., & Myhr, L. (2008). Perceived conflict patterns and relationship quality associated with verbal coercion by male dating partners. *Journal of Interpersonal Violence, 23*, 798–814. doi:10.1177/0886260507313949.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: Guilford Press.

Koss, M. P., & Gidycz, C. A. (1985). Sexual Experiences Survey: Reliability and validity. *Journal of Consulting and Clinical Psychology, 53*, 422–423.

Levesque, R. J. R. (1993). The romantic experience of adolescents in satisfying love relationships. *Journal of Youth and Adolescence, 22*, 219–251. doi:10.1007/BF01537790.

Li, F., Duncan, T. E., Duncan, S. C., & Hops, H. (2001). Piecewise growth mixture modeling of adolescent alcohol use data. *Structural Equation Modeling, 8*, 175–204. doi:10.1207/S15328007SEM0802_2.

Muelenhard, C. L., Goggins, M. F., Jones, J. M., & Satterfield, A. T. (1991). Sexual violence and coercion in close relationships. In K. McKinney & S. Sprecher (Eds.), *Sexuality in close relationships* (pp. 155–175). Hillsdale, NJ: Erlbaum.

Murphy, S. M., Amich-McMullan, A. E., Kilpatrick, D. G., Haskett, M. E., Veronen, L. J., Best, C. L., et al. (1988). Rape victim's self-esteem: A longitudinal analysis. *Journal of Interpersonal Violence, 3*, 255–370. doi:10.1177/088626088003004001.

Muthén, L. K., & Muthén, B. O. (2006). *Mplus user's guide* (4th ed.). Los Angeles, CA: Authors.

Norton, R. (1983). Measuring marital quality: A critical look at the dependent variable. *Journal of Marriage and the Family, 45*, 141–151.

O'Keefe, M. (1997). Predictors of dating violence among high school students. *Journal of Interpersonal Violence, 12*, 546–568. doi:10.1177/088626097012004005.

Offman, A., & Matheson, K. (2004). The sexual self-perceptions of young women experiencing abuse in dating relationships. *Sex Role, 52*, 551–559. doi:10.1007/s11199-004-5465-5.

Pfeiffer, S. M., & Wong, P. T. P. (1989). Multidimensional jealousy. *Journal of Social and Personal Relationships, 6*, 181–196. doi:10.1177/026540758900600203.

Resick, P. A. (1993). The psychological impact of rape. *Journal of Interpersonal Violence, 8*, 223–255. doi:10.1177/088626093008002005.

Schafer, J. L. (1999). *NORM: Multiple imputation of incomplete multivariate data under a normal model* (Version 2) [Computer software]. Retrieved from www.stat.psu.edu/~jls/misoftwa.html. Accessed Mar 2011.

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7*, 147–177. doi:10.1037//1082-989X.7.2.147.

Sheets, V. L., Fredendall, L. L., & Claypool, H. M. (1997). Jealousy evocation, partner reassurance, and relationship stability: An exploration of the potential benefits of jealousy. *Evolution and Human Behavior, 18*, 387–402. doi:10.1016/j.bbr.2011.03.031.

Siegel, J. M., Golding, J. M., Stein, J. A., Burnam, M. A., & Sorenson, S. B. (1990). Reactions to sexual assault: A community study. *Journal of Interpersonal Violence, 5*, 229–246. doi:10.1177/088626090005002007.

Stovall-McClough, K. C., & Cloitre, M. (2006). Unresolved attachment, PTSD, and dissociation in women with childhood abuse histories. *Journal of Consulting and Clinical Psychology, 74*, 219–228.

Struckman-Johnson, D., & Struckman-Johnson, C. (1991). Man and women's acceptance of coercive sexual strategies varied by initiator

gender and couple intimacy. *Sex Roles, 25*, 661–676. doi:10.1007/BF00289570.

Turner, C. F., Ku, L., & Rogers, S. M. (1998). Adolescent sexual behavior, drug use, and violence: Increased reporting with computer survey technology. *Science, 280*, 867–873.

Vezina, J., & Herbert, M. (2007). Risk factors for victimization in romantic relationships of young women. *Trauma, Violence, & Abuse, 8*, 33–66. doi:10.1177/1524838006297029.

Wolfe, D. A., Scott, K. L., & Crooks, C. V. (2005). Abuse and violence in adolescent girls dating relationships. In D. J. Bell, S. L. Foster, & E. J. Mash (Eds.), *Handbook of behavioral and emotional problems in girls* (pp. 381–414). New York: Kluwer/Plenum Publishers.

Young, B. J., & Furman, W. (2008). Interpersonal factors in the risk for sexual victimization and its recurrence during adolescence. *Journal of Youth and Adolescence, 37*, 297–309. doi:10.1007/s10964-007-9240-0.

Young, B. J., Furman, W., & Jones, M. C. (2012). Changes in adolescents' risk factors following peer sexual coercion: Evidence for a feedback loop. *Development and Psychopathology, 24*, 559–571.