



Cohabitation dissolution and psychological distress among young adults: The role of parenthood and gender

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ABSTRACT

Cohabitation has become a normative experience for American young adults and a common setting for childbearing in recent decades. However, the high dissolution rate of cohabitation exposes young adults to the potential stress of intimate relationship dissolution and single parenthood during early adulthood. Drawing on data from the National Longitudinal Survey of Youth 1997, we apply growth curve models to analyze how cohabitation dissolution associates with trajectories of depressive symptoms and binge drinking behaviors for young adults (aged 17 to 35). We investigate how the presence of children moderates this association for men and women. We find that cohabitation dissolution is associated with increased depressive symptoms for both men and women. However, cohabitation dissolution is only positively associated with binge drinking behaviors for men, and a significant gender difference is observed. The presence of children when cohabitation dissolves strengthens the positive association between cohabitation dissolution and depressive symptoms among women, and this positive moderation fades away as young women age. These findings suggest that gender differences in the association of cohabitation dissolution with psychological distress are contingent on the types of psychological distress under consideration and also reveal that cohabitation dissolution intertwined with non-marital parenthood is harmful to mental health, especially for young women.

1. Introduction

Cohabitation has become a normative context for contemporary young adults' first union experience (Manning et al., 2014). More than half of recent cohorts cohabited as the first union (Copen et al., 2013). However, cohabitation is generally a short-lived experience with a high dissolution rate (Eickmeyer, 2018; Eickmeyer and Manning, 2018). Even though some cohabitations transition into marriage, many cohabitations eventually dissolve (Eickmeyer, 2018), which can be a traumatic experience for young adults. The instability of cohabitation creates a crucial new opportunity to better understand the consequences of potentially traumatic experiences—intimate relationship dissolution—for the psychological distress of young adults. Moreover, as cohabitation becomes a normative experience, non-marital childbearing is at the highest level ever in the U.S. (over 40 % in 2010). Over 58 % of those events

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occur within cohabitation (Curtin, 2014; Finer and Zolna, 2014). Prior studies have found that parenthood is associated with increased psychological distress, especially when parenthood is outside of marriage (Evenson and Simon, 2005; Koropecjy-Cox et al., 2007; McKenzie and Carter, 2013; Simon and Caputo, 2018). In the present study, we integrate research on cohabitation dissolution and non-marital parenthood, and investigate how parenthood interacts with cohabitation dissolution to influence the psychological distress of young adults.

Relationship dissolution and parenthood are gendered experiences (Chodorow, 1999; Gove, 1972; Nomaguchi and Milkie, 2003, Nomaguchi and Milkie, 2020). Theoretically, in a social context with women's roles in relationships potentially different than men's roles, women may endure differential declines in psychological well-being than men after relationship dissolution (Aseltine and Kessler, 1993; Marks and Lambert, 1998; Simon and Marcussen, 1999). Thus, we are likely to observe that increases in psychological distress after cohabitation dissolution differ by gender. As gender equality within and outside the home has been improved in recent decades (Williams, 2003), we are likely to observe no gender difference after cohabitation dissolution. Moreover, parenthood is also a gendered experience because a mother's parental roles and responsibilities are often more demanding and costly (Nomaguchi and Milkie, 2003, Nomaguchi and Milkie, 2020). Therefore, when relationship dissolution accompanies parenthood, we may observe that parenthood moderates the negative consequences of relationship dissolution differently by gender.

Moreover, with high rates of dissolution for contemporary young adults, cohabitation can begin in adolescence and occur repeatedly across young adulthood (Eickmeyer, 2018; Zhang and Ang, 2020). Cohabitation dissolution may have different psychological consequences depending on when it occurs in young adulthood (George, 1993, George, 2013). Similarly, the transition to parenthood may take place during young adulthood and thus may moderate the consequences of cohabitation dissolution contingent on timing. The timing of these events is important because both cohabitation and parenthood may have different meanings for adults at different time points during young adulthood, and adults may accumulate different experiences or resources in response to them. To guide the investigation of these complexities we use a life course framework to examine the time-varying associations between cohabitation dissolution, parenthood, and psychological distress during young adulthood.

In this study, we use nationally representative longitudinal data, the National Longitudinal Survey of Youth 1997 (NLSY97), and growth curve models to explore several related aspects of the associations between cohabitation dissolution, parenthood, and psychological distress within a life course framework. Specifically, we addressed the following research questions. First, is cohabitation dissolution differently associated with distress for men and women? Second, does parenthood strengthen the positive association between cohabitation dissolution and distress? Third, does the moderating effects of parenthood differ by gender? Fourth, how does the link between cohabitation dissolution and its interaction with parenthood vary across young adulthood? Careful empirical examination of these issues greatly advances our understanding of the family life dynamics that shape psychological distress.

2. Background

2.1. Cohabitation dissolution, gender, and distress

Cohabitation dissolution, as a stressful life event, may result in acute and even chronic stress, increasing the risk of adverse emotional, behavioral, and health outcomes (Pearlin, 1989). Recent empirical studies based on panel data document that the dissolution of cohabitation among young adults is associated with increased depressive symptoms and declines in life well-being (Kamp Dush, 2013; Rhoades et al., 2011). However, much is still unknown about the gendered nature of these experiences or their relationship with parenthood.

Relationship dissolution has long been considered a gendered experience. The integration of the social stress model and theories of gendered socialization and social roles provides insights into the gendered consequences of intimate relationship dissolution. The social stress model understands intimate relationship dissolution as a stressful life event, resulting in both acute and chronic stress (Amato, 2010; Aseltine and Kessler, 1993). The subsequent decline in well-being after intimate relationship dissolution results from both the loss of resources associated with relationships (e.g., financial benefits, social support, and health regulation) and the stress induced by this transition (Amato, 2000).

Socialization theories argue that women place more value than men on intimate relationships from childhood to adulthood due to gendered socialization. Intimate relationships are thus more crucial for women's self-identity, self-conception, and mental health (Chodorow, 1999; Simon et al., 1992; Thorne, 1993). Consequently, intimate relationship dissolution may lead to higher levels of imbalance in self-identity and self-conception among women, as compared to men.

Social role theories argue that intimate relationships are more disadvantageous for women's mental health due to the greater demands and lower rewards of women's social roles within relationships (Aneshensel et al., 1981; Gove, 1972; Gove and Tudor, 1973). For instance, women often assume primary responsibility for family care and shoulder more housework than men (Raley et al., 2012; Ruppanner et al., 2019). Women are more likely to drop out of the labor market to meet the demands of family responsibilities than men. Those who remain in the labor market may cut back to part-time employment, take less demanding jobs, choose occupations that are more family-friendly, or pass up promotions, all of which affect their wage trajectories and career development. Women thus are more likely to suffer the loss of financial benefits associated with intimate relationships and to experience financial and childcare burden after relationship dissolution. Consequently, women may endure more declines in psychological well-being than men after relationship dissolution.

Equally important for understanding gender differences in response to stress or trauma is the possibility that men and women may have different types of psychological responses. Using a single measure of mental health may distort the observed gender difference in mental health consequences of an event such as relationship dissolution (Horwitz et al., 1996). The emotional socialization hypothesis

states that women and men may manifest emotion in different ways due to gendered socialization processes (Gordon 1981; Pollak and Thoits, 1989). Women may learn to express distress through internalizing psychological responses (e.g., depression and anxiety), while men may learn to manifest distress through externalizing psychological responses (e.g., antisocial behavior and substance abuse) (Aneshensel et al., 1991; Horwitz et al., 1996). Consistent with the emotional socialization hypothesis, some empirical evidence suggests that gender differences in response to intimate relationship transitions involve distinct expressions of distress (Simon, 2002; Simon and Barrett, 2010). However, it is also possible that gender differences in response to stress and trauma are negligible. A growing number of studies have challenged the emotional socialization hypothesis and suggest that women do not substitute internalizing problems for externalizing problems when encountering stressful life events (e.g., Hill and Needham, 2013). The evidence for gender differences in response to stress is inconsistent within and across empirical studies (Aneshensel, 1992; Slopen et al., 2011). To address the possibility that men and women may have gendered responses to stress, we examine two different measures of expressions of distress in this study, one drawing on internalizing symptoms (e.g., depression) and one on externalizing symptoms (e.g., binge drinking), in order to capture potential variation in the expression of consequences of cohabitation dissolution.

Empirical evidence regarding gendered consequences of intimate relationship dissolution on mental health has been inconsistent. The majority of studies conducted in the 1990s show that divorce is worse for women's mental health than for men's (Aseltine and Kessler, 1993; Lillard and Waite, 1995; Marks and Lambert, 1998; Simon and Marcussen, 1999). However, since the 2000s, accumulating evidence has found few and even no gender differences (Strohschein et al., 2005; Williams, 2003). Scholars explained this new finding in terms of the shifts in women's roles in the direction of gender equality improvement both within and outside the home (Williams, 2003).

Compared to the many empirical studies on marital dissolution, there are few studies on cohabitation dissolution (for examples, see [Kamp Dush, 2013] and [Rhoades et al., 2011]). Even though cohabitation shares many similarities with marriage, it is also different from marriage in some crucial ways, especially in terms of timing, long-term commitment, income pooling, and integration into partners' families (Sassler and Miller, 2017; Smock, 2000; Stanley et al., 2006). For the young cohorts examined in this study, cohabitation is more common and at a higher risk of dissolution and happens much earlier in the life course than marriage (Eickmeyer, 2018; Zhang and Ang, 2020).¹ Compared to marriage, cohabitation often involves lower levels of income pooling and integration into partners' families (Addo, 2017; Eickmeyer et al., 2019; Thornton et al., 2008). These lower levels of economic and social integration may reduce financial and social network dependence on partners, especially for young women. Moreover, young adults who choose to cohabit as their first union tend to be slightly more liberal, less religious, and more supportive of egalitarian gender roles and nontraditional family roles than young adults who choose to marry without prior cohabitation (Clarkberg et al., 1995; Lye and Waldron, 1997; Thornton et al., 1992). Cohabitation dissolution thus probably creates fewer gender differences in the loss of resources and the level of stress, which may lead to small or even no gender differences in the consequences of cohabitation dissolution for psychological distress. However, there are also researchers who discovered that cohabiting women might be more disadvantaged than married women when the union ends because the former lack equivalent legal options to recoup the investment they put into their relationships (Bowman, 2004). Considering the high prevalence of cohabitation and the significant differences between cohabitation and marriage for these young cohorts, it is crucial to examine *whether the increase of distress after cohabitation dissolution differs by gender* (Hypothesis 1).

2.2. Cohabitation dissolution, parenthood, and distress

As cohabitation has become a common experience among young adults, non-marital childbearing has also been rising rapidly. In 2010, the proportion of all births in the U.S. to unmarried women reached its highest level ever—over 40 % (Centers for Disease Control and Prevention, 2014). Non-marital births are increasingly likely to occur within cohabiting unions—rising from 41 % of recent births in 2002 to 58 % in 2006–2010—and over 50 % of them are unintended (Curtin, 2014; Finer and Zolna, 2014).

Prior research repeatedly shows that parenthood is associated with increased distress. Studies have found that parents report higher levels of distress than their childless counterparts (e.g., Evenson and Simon, 2005; Koropecjy-Cox et al., 2007; McKenzie and Carter, 2013; Simon and Caputo, 2018). Scholars speculate that this is because the emotional rewards derived from parenthood are overshadowed by the rising emotional, social, and economic burdens associated with parenthood (Umberson and Gove, 1989). Parenthood within cohabiting relationships is associated with more distress than within marriage (Evenson and Simon, 2005; Nomaguchi and Milkie, 2003). This may be because parents in cohabiting relationships may lack sufficient financial, social, or emotional support relative to their married counterparts (Ishizuka, 2018; Sassler and Miller, 2017). During in-depth interviews, cohabitators reported that financial readiness and marriage are ideal prerequisites for parenthood within cohabiting unions (Sassler and Miller, 2017). However, many cohabitators had children without these two prerequisites satisfied (Sassler and Cunningham, 2008; Sassler and Miller, 2017).

Unfortunately, the overlap of parenthood with cohabitation dissolution may make the situation even worse. Research shows that transitions into and out of relationships are associated with increased parenting stress (Beck et al., 2010; Cooper et al., 2009). Studies also demonstrate that single parenthood is related to a higher level of depression than parenthood in unions (Evenson and Simon, 2005; Meier et al., 2016; Nomaguchi and Milkie, 2003). In this vein, *we hypothesize that parenthood will strengthen the positive association between cohabitation dissolution and distress* (Hypothesis 2).

Parenthood is also a gendered experience. Parental roles of mothers are more demanding and costly than those of fathers because mothers are often primary caretakers in childrearing and are more likely to reduce participation in or withdraw from the labor market to meet childcare needs (Aneshensel et al., 1981; Raley et al., 2012). Moreover, the salience of parental roles is thought to be stronger for women than men; women thus are more sensitive to both parenting strains and parenting rewards (Mulford and Salisbury, 1964). Though many studies have documented gender differences in the consequences of single parenthood for mental health outcomes (e.g.,

Evenson and Simon, 2005; Keizer et al., 2010; McKenzie and Carter, 2013), few studies have explicitly examined gender differences in the moderating effects of the presence of children on relationship dissolution. One empirical study suggests that for women without young children, marital dissolution has fewer negative consequences for psychological well-being, as compared to women with young children (Williams and Dunne-Bryant, 2006). However, they did not find a similar moderating effect among men. But the findings of this study are limited to the context of marital relationships. As cohabitation and marriage experiences diverge in the U.S. (McLanahan, 2004; McLanahan and Jacobsen, 2015; Raley and Kuo, 2016), young adults who choose marriage and have children within marriage are quite different from those who choose long-term or serial cohabitations and have children within cohabitation, in terms of socioeconomic status, race-ethnicity, and attitudes toward cohabitation, marriage, and family (Clarkberg et al., 1995; Lye and Waldron, 1997; Thornton et al., 1992). Those who choose to become parents within cohabitation are on average in more disadvantaged and precarious socioeconomic circumstances than those who choose to become parents within marriage (McLanahan, 2004). Therefore, it is necessary to explicitly examine *whether the moderating effects of parenthood on the link between cohabitation dissolution and mental distress are stronger for women than for men* (Hypothesis 3).

2.3. The time-varying association of cohabitation dissolution and parenthood with distress

To understand the influences of cohabitation dissolution on mental health outcomes and its overlap with parenthood experiences, we need to consider the timing of those important life events from a life course perspective, considering how they evolve over the course of young adulthood (Elder et al., 2003; George, 2013). Cohabitation dissolution and its interaction with parenthood may affect individuals differently depending on *when* they occur in young adulthood (George, 1993) because their antecedents, consequences, and behavioral patterns vary according to their timing (Elder et al., 2003).

According to the life course perspective, multiple factors influence how the timing (age) of life events impacts individuals, including the developmental process of growing older and the varying social roles individual occupy at different ages. An increase in age can reflect a rising level of psychological maturity and pragmatic life expertise. Adults in midlife might be more psychologically resilient than younger adults and thus better equipped to navigate life transitions. Compared with younger adults, middle-aged adults might have more coping experiences and strategies to rely on in the face of cohabitation dissolution, which can help buffer its negative impact. *Therefore, the increased distress associated with cohabitation dissolution may decrease with age* (Hypothesis 4a).

However, age can also locate people within different social expectations. Young adults in their late teens and early 20s often cohabit for economic reasons or convenience (Raley et al., 2007). In contrast, individuals in their mid to late 20s or early 30s may cohabit as a trial for marriage or as an alternative to marriage (Guzzo, 2014). The dissolution of cohabitation in the early 20s is closer to a romantic relationship breakup, while the dissolution of cohabitation in the late 20s or early 30s may indicate a failure of transition from cohabitation into marriage. Compared with adults in their early 20s, adults in their late 20s or early 30s may have a mental health disadvantage in the face of cohabitation dissolution because their cohabiting relationships share more dimensions of integration. They are more likely to be socially and economically interdependent (Manning and Smock, 2002; Sassler and Miller, 2017; Smock et al., 2005); consequently, cohabitation dissolution engenders more loss of economic resources and social networks. *Thus, as a competing hypothesis for Hypothesis 4a, the increased distress associated with cohabitation dissolution may increase with age* (Hypothesis 4b).

Additionally, compared to middle-aged adults, younger adults are less likely to be financially and psychologically prepared for a cohabitation dissolution with the presence of children. This may be because an early transition into parenthood is associated with truncated educational and work opportunities (Hofferth et al., 2001), and young adults may lack coping strategies and experiences that equip them to handle the demanding roles of a parent. *Thus, the positive moderating effects of parenthood on the increased distress associated with cohabitation dissolution may decrease over the life course* (Hypothesis 5).

3. Data and methods

3.1. Data

We conducted analyses using the National Longitudinal Survey of Youth 1997 (NLSY97), a nationally representative, longitudinal dataset initiated in 1997 and collected on an annual (biennial after 2011) basis. The respondents were born between 1980 and 1984, and they were 30–36 at the time of the 2015–2016 interview. In round one, 8984 individuals were initially interviewed, and nearly 80 % (7103) of the round-one respondents were interviewed in the 2015–2016 interview. The NLSY97 gathered detailed monthly cohabitation and marital history information between 1994 and 2016. Measures of depressive symptoms were collected in 2000, 2002, 2004, 2006, 2008, 2010, and 2015. Information on the quantity and frequency of alcohol consumption (in the past 30 days prior to the interview) was collected annually between 1997 and 2015. Because depressive symptoms and binge drinking indicators were collected in different waves, this study utilized seven waves of data between 2000 and 2015 ($N = 8729$, person-years = 51173) to construct an analytic sample for depressive symptoms and fourteen waves of data between 1999 and 2015 ($N = 8449$, person-years = 84563) to construct an analytic sample for binge drinking behaviors.

3.2. Analytic sample

Next, we explain the criteria for constructing our final analytic samples. First, only those who experienced cohabitation are exposed to the risk of cohabitation dissolution; thus, we restricted our respondents to those who had at least one cohabitation experience. We removed the person-years prior to the first cohabitation. If respondents had no cohabitation experiences at all, none of their person-

years were included. This step dropped 3464 persons (person-years = 26759) and 3333 persons (person-years = 44429) from the analytic samples of depressive symptoms and binge drinking behaviors, respectively. Second, because our study only compares person-years in cohabitation dissolution with person-years in cohabitation, we further excluded person-years after the first marriage. This step removed 652 persons (person-years = 9282) and 427 persons (person-years = 15710) from the analytic samples of depressive symptoms and binge drinking behaviors, respectively. Third, we excluded respondents who were mixed race due to a small number of cases. This step removed 47 persons (person-years = 143) and 47 persons (person-years = 247) from the analytic samples of depressive symptoms and binge drinking behaviors, respectively. Fourth, we removed observations with any missing values across all variables (less than 14 % of respondents). The final sample for depressive symptoms is 4082 (person-years = 12151), and for binge drinking behaviors it is 4009 (person-years = 19715).

3.3. Measures

Depressive Symptoms. The NLSY97 used a five-item short version of the Mental Health Inventory (MHI-5) (Veit and Ware, 1983) to measure depressive symptoms. Respondents reported the frequency in the past month of feeling nervous, calm and peaceful, downhearted and blue, happy, or so down in dumps that nothing could cheer them up. Respondents reported their feelings based on a four-point scale: all of the time, most of the time, some of the time, and none of the time. We combined information from these five items and calculated the MHI-5 score according to the guidance of the Multiple Sclerosis Quality of Life Inventory Manual (National Multiple Sclerosis Society 1997, p. 29). We weighed the five items separately by their frequencies, summed them into a composite index, and transformed it into an index ranging between 0 and 100, with higher scores indicating more depressive symptoms. The Cronbach's alpha is over 0.98 for each wave, and the mean across seven waves is 0.99.

Binge Drinking. We used an indicator of binge drinking to measure alcohol use. The definition of binge drinking is the consumption of five or more drinks on one occasion (Wechsler and Austin, 1998; Wechsler and Nelson, 2001). Binge drinking is detrimental to health, generally results in acute impairment, and is responsible for a significant amount of alcohol-related death (Chikritzhs et al., 2001). The NLSY97 collected a measure of binge drinking, which consisted of a question about the number of days in the past month that respondents had five or more drinks per day. The indicator ranges between 0 and 30.²

Cohabitation Dissolution. One significant feature of the NLSY97 is that it collected detailed histories of cohabitation and marriage from respondents. We summarized a yearly cohabitation history (1997–2015) based on monthly cohabitation status collected from 1994 to 2016 (268 months) and its corresponding monthly partner ID. By aggregating monthly information into yearly information, we matched the unit of analysis for the measure of cohabitation dissolution to that for psychological distress (gathered annually). The measure we created to track cohabitation dissolution between 1997 and 2015 captures the status of respondents experiencing the dissolution of cohabitation (i.e., years after the exit of a cohabiting relationship and before the entry into a new relationship). The cohabitation dissolution indicator is a time-varying variable that tracks all the dissolutions of cohabitation before marriage from 1997 to 2015.

Moreover, as young adult cohabiting relationships become normative and volatile, serial cohabitations have become more common, and more young adults have experienced multiple cohabitation dissolutions during young adulthood (Cohen and Manning, 2010; Lichter et al., 2010). Higher-order cohabitation dissolutions are more likely to happen later than lower-order cohabitation dissolutions. Because this positive correlation between timing and order may confound how the effects of cohabitation dissolution vary with age, we need to control for the order of cohabitation dissolution. Thus, we created a time-varying variable that distinguishes the person-years in cohabitation from the person-years in cohabitation dissolution, as well as the order of cohabitation dissolution (cohabitation, first cohabitation dissolution, second-order or higher cohabitation dissolution).

Parenthood. The NLSY97 gathered yearly information on ID, birth date, death date, and residence of biological or adopted children from 1994 to 2015. We created a time-varying measure—the presence of children of respondents—to capture the parenthood status of respondents. This time-varying measure is a categorical variable with two categories: having children versus having no children. The former includes two scenarios: having children residing in the household or having children residing in the other biological parent's household. We excluded scenarios where all of the respondents' children were deceased, adopted out, or in foster care because the loss of children may increase psychological distress through a different mechanism than parenthood related stress. We also examined an alternative coding schema: children residing in the household versus children not residing in the household. The results are robust to different coding methods. Additionally, because the children of these young cohorts were relatively young (the mean age of the youngest child is approximately 4.5 with a standard deviation of 3.3), we did not further stratify this time-varying measure by the age of the children.

Duration of Cohabitation. We constructed a time-varying measure of cohabitation duration based on monthly cohabitation status between 1997 and 2015. This indicator started from the month when respondents initiated their cohabitation, accumulated by month, achieved the maximum value at the end of one particular cohabitation experience, and remained constant till respondents initiated another cohabitation experience with another person or entered into marriage. If respondents initiated another cohabitation, the indicator started from zero and repeated the process described above again. Then we aggregated the monthly information to yearly information and created a time-varying measure of cohabitation duration (transformed in years) between 1997 and 2015.

Covariates. All analyses controlled for demographic covariates: a time-varying measure for age (in years) and a categorical measure for race/ethnicity (Black [reference], Hispanic, and Non-Hispanic White). In order to control for socioeconomic status, we included time-varying measures for the highest education degree, employment status, and individual annual income. The highest education degree is a categorical measure (none, GED, high school diploma [reference], and some college and above). The employment status of respondents was “the number of weeks respondents worked any civilian jobs in the past calendar year,” with one or

more weeks coded as employed (unemployed is the reference group). Individual annual income was a summed measure from a variety of sources, including wages and salaries, and income from farms and businesses. We imputed the top 2 percent of incomes from a Pareto distribution for the individual annual income because the top 2 percent of incomes were truncated in the NLSY97 surveys (see [Bloome et al., 2018](#) for more details). We transformed income into constant dollars in 2016 for comparability across survey years. Then we log-transformed individual annual income to adjust for the skewed distribution. We controlled for baseline depressive symptoms (in 2000) and binge drinking behaviors (in 1997) in our analyses because they may be associated with the growth rate of the age trajectories of psychological distress ([Headey, 2006](#)). Additionally, we also controlled for subsequent marriage outcomes for the respondents because it may confound the link between cohabitation dissolution and psychological distress.

3.4. Analytic strategy

Growth curve models ([Fitzmaurice et al., 2012](#)), a form of generalized mixed models, are appropriate for studying between-person differences in within-person changes ([Curran et al., 2010](#)). This analytical strategy allows us to utilize unbalanced data, where each respondent may contribute to one or more observation waves. We nested person-year observations (level-1) within individual subjects (level-2). Age was used as the “growth” variable, indicating changes over young adulthood (age 17 to 35), and was centered at age 17, which is the starting age of our analytical sample. As previous studies have reported a nonlinear relationship between psychological distress and age ([Bell, 2014](#); [Mirowsky and Ross, 1992](#)), we included a squared term for age (i.e., the slope for the age variable) in all models.

The basic models are as follows:

Level-1 Model:

$$y_{it} = \beta_{0i} + \beta_{1i}(Age_{it} - 17) + \beta_{2i}(Age_{it} - 17)^2 + \sum_{q=1}^{q=k} \beta_{3q}TVC_{qit} + e_{it} \quad (1)$$

Level-2 Model:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}Dissolution_{it} + \sum_{b=3}^{b=k} \gamma_{0b}TIC_i + u_{0i} \quad (2)$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}Dissolution_{it} + \sum_{b=3}^{b=k} \gamma_{1b}TIC_i + u_{1i} \quad (3)$$

The level-1 model characterizes within-individual changes over age. The outcome variable y_{it} for person i at age t is modeled as a function of the linear and quadratic terms of age. The coefficients β_{0i} , β_{1i} , and β_{2i} represent the intercept, the linear growth rate, and the quadratic growth rate with age, respectively. The level-2 model captures the heterogeneity in growth rate across individuals and examines how cohabitation dissolution shapes individual psychological distress trajectories. The coefficients β_{0i} and β_{1i} are further modeled as functions of individual attributes, with their coefficients denoted as γ .

We adjusted the psychological distress trajectories by controlling for time-varying covariates (TVC) in the level-1 model and time-invariant covariates (TIC) in the level-2 model in both the intercept (β_{0i}) and the slope (β_{1i}). The baseline depressive symptoms and binge drinking behaviors were controlled in the slope because they may influence the growth rate of psychological distress.³ The effects of the time-varying covariates normally bypass the growth predictors and directly influence the repeated outcomes modeled in the level-1 model ([McCoach, 2010](#)). The random within-person error term e_{it} is assumed to be normally distributed and the individual residual random errors u_{0i} and u_{1i} have a multivariate normal distribution.

$$(u_0, u_1)^T = N(\boldsymbol{\mu}, \boldsymbol{\Sigma})$$

$$\boldsymbol{\mu} = (\mu_0, \mu_1), \boldsymbol{\Sigma} = \begin{bmatrix} u_0^2 & \rho u_0 u_1 \\ \rho u_0 u_1 & u_1^2 \end{bmatrix}$$

We first analyzed the association between cohabitation dissolution and psychological distress for men and women separately, controlling for covariates. We then examined gender differences in the association between cohabitation dissolution and psychological distress in a total sample of men and women (*for Hypothesis 1*). Based on basic models, we updated the models as follows. In the second level, both the intercept and slope are modeled as a function of cohabitation dissolution, gender, and an interaction between cohabitation dissolution and gender.

$$\beta_{0i} = \gamma_{00} + \gamma_{01}Dissolution_{it} + \gamma_{02}Gender_i + \gamma_{03}Dissolution_{it} * Gender_i + \sum_{b=4}^{b=k} \gamma_{0b}TIC_i + u_{0i} \quad (4)$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}Dissolution_{it} + \gamma_{12}Gender_i + \gamma_{13}Dissolution_{it} * Gender_i + \sum_{b=4}^{b=k} \gamma_{1b}TIC_i + u_{1i} \quad (5)$$

We then investigated the moderating effects of parenthood on cohabitation dissolution among men and women, controlling for covariates (*for Hypothesis 2*). In the second level, both the intercept and slope are modeled as a function of cohabitation dissolution, parenthood, and an interaction between cohabitation dissolution and parenthood. The updated models are as follows.

$$\beta_{0i} = \gamma_{00} + \gamma_{01}Dissolution_{it} + \gamma_{02}Parenthood_{it} + \gamma_{03}Dissolution_{it} * Parenthood_{it} + \sum_{b=4}^{b=k} \gamma_{0b}TIC_i + u_{0i} \quad (6)$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}Dissolution_{it} + \gamma_{12}Parenthood_{it} + \gamma_{13}Dissolution_{it} * Parenthood_{it} + \sum_{b=4}^{b=k} \gamma_{1b}TIC_i + u_{1i} \quad (7)$$

We then examined gender differences in parenthood's moderating effects on the association between cohabitation dissolution and psychological distress in a total sample of men and women (*for Hypothesis 3*). In the second level, both the intercept and slope are modeled as a function of cohabitation dissolution, gender, parenthood, and interactions between the three measures. The updated models are as follows.

$$\begin{aligned} \beta_{1i} = & \gamma_{10} + \gamma_{11}Dissolution_{it} + \gamma_{12}Parenthood_{it} + \gamma_{13}Gender_i \\ & + \gamma_{14}Dissolution_{it} * Parenthood_{it} + \gamma_{15}Dissolution_{it} * Gender_i \\ & + \gamma_{16}Parenthood_{it} * Gender_i + \gamma_{17}Parenthood_{it} * Dissolution_{it} * Gender_i \\ & + \sum_{b=8}^{b=k} \gamma_{1b}TIC_i + u_{i1} \end{aligned} \quad (8)$$

Table 1

Descriptive statistics for analytic samples of depressive symptoms and binge drinking behaviors based on person-year longitudinal data (from ages 17 to 35), standard errors are in parentheses.^a

	Depressive symptoms			Binge drinking behaviors		
	Men	Women	Difference	Men	Women	Difference
	Mean	Mean		Mean	Mean	
MHI-5 scores	29.29(0.24)	34.49 (0.23)	p < 0.001			
Baseline MHI-5 scores	30.06 (0.25)	36.41 (0.23)				
Binge drinking behaviors				3.50 (0.06)	1.79 (0.04)	p < 0.001
Baseline binge drinking behaviors				1.82 (0.04)	1.05 (0.03)	
Cohabitation dissolution ^b						
Cohabitation	0.50	0.49	p < 0.001	0.50	0.49	p < 0.001
First cohabitation dissolution	0.35	0.32		0.35	0.31	
Second-order or higher cohabitation dissolution	0.15	0.19		0.15	0.20	
Having a child ^c	0.29	0.36	p < 0.001	0.27	0.32	p < 0.001
Duration of cohabitation	2.01 (0.03)	2.16 (0.03)	p < 0.001	2.07 (0.02)	2.13 (0.02)	p < 0.001
Age	24.90 (0.06)	24.19 (0.06)	p < 0.001	25.23 (0.05)	24.35 (0.05)	p < 0.001
Race/Ethnicity						
Black	0.19	0.19	N.S.	0.15	0.14	N.S.
Hispanic	0.14	0.13		0.14	0.12	
Non-Hispanic White	0.67	0.68		0.72	0.75	
Highest education degree						
None	0.23	0.22	p < 0.001	0.21	0.21	p < 0.001
GED	0.14	0.08		0.14	0.07	
High school diploma	0.50	0.52		0.50	0.52	
Some college and above	0.13	0.17		0.16	0.20	
Employed	89.72	88.33	p < 0.05	0.91	0.89	p < 0.001
Annual individual income (logged)	6.78 (0.07)	5.82 (0.06)	p < 0.001	7.22 (0.05)	6.25 (0.05)	p < 0.001
Ever married ^d	36.37	42.39	p < 0.001	37.58	43.33	p < 0.001
N	2009	2073		1959	2050	
Person Years	5672	6479		9087	10,628	

Notes:

1 For dichotomous and continuous variables, Wald tests were used to ascertain the p-value of the difference. For categorical variables, Chi-squared tests were used.

2 * p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests).

^a The results are based on person-year longitudinal data (from ages 17 to 35), weighted by NLSY97 baseline weights.

^b By age 35, approximately 57 % of men and 62 % of women ever had at least one cohabitation dissolution experiences for both samples.

^c By age 35, 38 % of men and 45 % of women ever had children for depressive symptom sample, and 36 % of men and 40 % of women ever had children for binge drinking behavior sample.

^d By age 35, 46 % of men and 52 % of women ever married for depressive symptom sample, and 49 % of men and 56 % of women ever married for binge drinking behavior sample.

Table 2

Conditional growth curve model estimates of cohabitation dissolution on depressive symptoms, standard errors are in parentheses.

Fixed Effects	Men		Women		Total	
	Model1		Model2		Model3	
	Intercept	Slope	Intercept	Slope	Intercept	Slope
Main Predictors						
Cohabitation dissolution (Cohabitation = ref.)						
First dissolution	3.14** (3.12)	−0.12 (0.13)	1.36 (0.92)	0.00 (0.12)	3.08** (1.02)	−0.10 (0.13)
Second-order or higher dissolution	4.68** (1.53)	−0.18 (0.17)	6.74*** (1.24)	−0.38* (0.15)	4.93*** (1.51)	−0.20 (0.17)
Cohabitation dissolution*Women (Cohabitation*Women = ref.)						
First dissolution*Women					−1.67 (1.36)	0.08 (0.17)
Second-order or higher dissolution*Women					1.70 (1.93)	−0.17 (0.22)
Time-constant Covariates						
Women					5.60*** (0.93)	−0.26* (0.12)
Race/ethnicity (Non-Black/Non-Hispanic = ref.)						
Black	1.29 (1.24)	−0.21 (0.15)	0.19 (1.19)	−0.21 (0.14)	0.59 (0.86)	−0.19 (0.10)
Hispanic	−0.56 (1.37)	−0.03 (0.16)	1.73 (1.25)	−0.35* (0.16)	0.76 (0.92)	−0.21 (0.11)
Ever married	1.34 (1.14)	−0.27 (0.15)	−0.78 (1.06)	−0.05 (0.14)	0.19 (0.78)	−0.15 (0.10)
Baseline depressive symptoms	//	0.03*** (0.00)	//	0.03*** (0.00)	//	0.03*** (0.00)
Time-varying Covariates						
Age	−0.42 (0.25)		−1.23*** (0.24)		−0.73*** (0.18)	
Age ²	−0.03* (0.01)		0.07 (0.01)		−0.01 (0.01)	
Having a child	1.35* (0.58)		0.40 (0.54)		0.79* (0.40)	
Duration of cohabitation	−0.48*** (0.14)		−0.08 (0.12)		−0.25** (0.09)	
Highest education degree (High school diploma = ref.)						
None	1.42* (0.66)		1.98** (0.65)		1.78*** (0.46)	
GED	−1.33 (0.80)		0.98 (0.89)		−0.26 (0.59)	
Some college and above	−0.66 (0.85)		0.17 (0.71)		−0.16 (0.55)	
Employed	−1.69* (0.67)		−2.36*** (0.61)		−2.12*** (0.45)	
Individual annual income (logged)	−0.01 (0.05)		0.02 (0.05)		0.01 (0.03)	
Intercept	28.67*** (1.45)		36.66*** (1.35)		30.00*** (1.12)	
Random Effects						
<i>Individual level</i>						
Var (Constant)	11.39*** (0.65)		12.13*** (0.54)		12.76*** (0.11)	
Var (Age)	1.20*** (0.09)		1.27*** (0.08)		1.25*** (0.06)	
Var (Constant, Age)	−0.70*** (0.04)		−0.72*** (0.03)		−0.71*** (0.02)	
<i>Person-year level</i>						
Var (Residuals)	12.82*** (0.17)		12.70*** (0.15)		12.76*** (0.11)	
N	2009		2073		4082	
Person Years	5672		6479		12,151	
Log Likelihood	−23,473.03		−26,788.70		−50,273.51	

Notes: *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests).

Table 3

Conditional growth curve model estimates of cohabitation dissolution on binge drinking behaviors, standard errors are in parentheses.

Fixed Effects	Men		Women		Total	
	Model1		Model2		Model3	
	Intercept	Slope	Intercept	Slope	Intercept	Slope
Main Predictors						
Cohabitation dissolution (Cohabitation = ref.)						
First dissolution	−0.09 (0.25)	0.00 (0.03)	0.02 (0.14)	0.02 (0.02)	−0.13 (0.21)	0.01 (0.02)
Second-order or higher dissolution	0.81* (0.38)	−0.01 (0.04)	0.12 (0.19)	0.02 (0.02)	0.96** (0.31)	−0.02 (0.03)
Cohabitation dissolution*Women (Cohabitation*Women = ref.)						
First dissolution*Women					0.11 (0.27)	0.02 (0.03)
Second-order or higher dissolution*Women					−1.01* (0.39)	0.06 (0.04)
Time-constant Covariates						
Women					−1.50*** (0.19)	−0.01 (0.02)
Race/ethnicity (Non-Black/Non-Hispanic = ref.)						
Black	−2.00*** (0.35)	0.08* (0.03)	−1.74*** (0.22)	0.11*** (0.02)	−1.95*** (0.20)	0.11*** (0.02)
Hispanic	−0.50 (0.35)	−0.02 (0.04)	−0.74*** (0.21)	0.04 (0.02)	−0.64*** (0.19)	0.01 (0.02)
Ever married	−0.51 (0.30)	0.06 (0.03)	−0.55** (0.18)	0.05** (0.02)	−0.53*** (0.16)	0.05** (0.02)
Baseline drinking behaviors	//	0.01*** (0.00)	//	0.01* (0.00)	//	0.01*** (0.00)
Time-varying Covariates						
Age	0.36*** (0.06)			0.11** (0.04)		0.21*** (0.04)
Age ²	−0.03*** (0.00)			−0.01*** (0.00)		−0.02*** (0.00)
Having a child	−0.10 (0.16)			−0.69*** (0.10)		−0.44*** (0.09)
Duration of cohabitation	−0.09 (0.04)			−0.01 (0.02)		−0.05* (0.02)
Highest education degree (High school diploma = ref.)						
None	−0.06 (0.20)			−0.07 (0.12)		−0.05 (0.11)
GED	−0.13 (0.23)			0.27 (0.16)		0.05 (0.14)
Some college and above	−0.69 (0.22)			−0.31** (0.11)		−0.44*** (0.12)
Employed	0.07 (0.19)			0.10 (0.11)		0.08 (0.10)
Individual annual income (logged)	0.02 (0.01)			−0.01 (0.10)		0.01 (0.01)
Intercept	2.85*** (0.37)			2.12*** (0.22)		3.35*** (0.24)
Random Effects						
<i>Individual level</i>						
Var (Constant)	3.08*** (0.16)		2.16*** (0.08)		2.58*** (0.09)	
Var (Age)	0.16*** (0.03)		0.12*** (0.01)		0.14*** (0.01)	
Var (Constant, Age)	−0.41*** (0.10)		−0.72*** (0.04)		−0.46*** (0.05)	
<i>Person-year level</i>						
Var (Residuals)	4.25*** (0.04)		2.81*** (0.02)		3.55*** (0.02)	
N	1959		2050		4009	
Person Years	9087		10,628		19,715	
Log Likelihood	−27,087.62		−27,104.66		−55,119.40	

Notes: *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests).

$$\begin{aligned}
\beta_{1i} = & \gamma_{10} + \gamma_{11}Dissolution_{it} + \gamma_{12}Parenthood_{it} + \gamma_{13}Gender_i \\
& + \gamma_{14}Dissolution_{it} * Parenthood_{it} + \gamma_{15}Dissolution_{it} * Gender_i \\
& + \gamma_{16}Parenthood_{it} * Gender_i + \gamma_{17}Parenthood_{it} * Dissolution_{it} * Gender_i \\
& + \sum_{b=8}^{b=k} \gamma_{1b}TIC_i + u_{1i}
\end{aligned} \tag{9}$$

To test *Hypothesis 4a* and *4b*, we can draw on results from the basic models (see Equations (1)–(3)). To test *Hypothesis 5*, we can draw on results from the same models used to test *Hypothesis 2* (see Equations (6) and (7)). We will return to explicitly discuss the details in the result section.

4. Results

4.1. Descriptive results

Table 1 presents weighted descriptive statistics for men and women at the level of person-years for samples of depressive symptoms and binge drinking behaviors. The mean of MHI-5 scores is 29.29 for men and 34.49 for women, with women having a significantly higher level than men. The mean of bring drinking behaviors is 3.50 days for men and 1.79 days for women, with men having a significantly higher level than women. By age 35, approximately 57 % of men and 62 % of women ever had at least one cohabitation dissolution experience. For both samples, among our observed person-years, approximately half of the person-years are lived in the status of post-cohabitation dissolution, with women having a higher percentage of person-years in higher-order dissolutions than men. For both samples, the mean of cohabitation duration is around two years, with women having a slightly longer duration than men. By age 35, 38 % of men and 45 % of women ever had children in the depressive symptom sample, and 36 % of men and 40 % of women ever had children in the binge drinking behavior sample. The gender distribution is quite even in the two analytic samples, and the mean age is around 25 years old for both men and women. For the two samples, Non-Hispanic Whites account for around 67 %–73 % of the respondents, and Blacks account for 15 %–19 %. High school degree accounts for the highest percentage of person-years, followed by No degree and Some college and above, with women having significantly higher educational attainment than men. Men were also more likely to be employed and had a higher level of annual income than women did for both samples. Additionally, by age 35, approximately 46 % of men and 52 % of women had ever married in the depressive symptom sample, and 49 % of men and 56 % of women had ever married in the binge drinking behavior sample.

4.2. Dissolution of cohabitation, gender, and age trajectories of psychological distress

Table 2 demonstrates that the dissolution of cohabitation is associated with increased depressive symptoms, and repeated cohabitation dissolutions are associated with even more distress. For men, first cohabitation dissolution increases MHI-5 scores by 3.14 units ($p < 0.01$), and the dissolution of the second (or higher-order) cohabitation raises MHI-5 scores by 4.68 units ($p < 0.01$). However, these associations are not time-varying across the life course for men because the coefficients for their slopes are not significant. For women, results in Model 2 indicate that the first cohabitation dissolution is positively associated with distress ($b = 1.36$; albeit not significant) and the second-order (or higher) cohabitation dissolution increases distress by 6.74 units ($p < 0.001$). The results of Model 2 provide some evidence for *Hypothesis 4a* that the increase in distress associated with cohabitation dissolution decreases over the life course. The negative slope for the second (or higher-order) cohabitation dissolutions indicates that the association between cohabitation dissolution and depression weakens by 0.38 units (two-tailed test: $p < 0.05$; one-tailed test: $p < 0.01$), with a year increase in age.

To examine whether these findings are different between men and women, we included the interaction between cohabitation dissolution and gender in both the intercept and the slope of the growth curve model based on the total sample of men and women (Model 3). The interaction results indicate no significant gender differences in the positive association between cohabitation dissolution and depressive symptoms. *Hypothesis 1* that the increase in distress after cohabitation dissolution differs by gender is thus not supported for the outcome of depressive symptoms.

Table 3 shows that first cohabitation dissolution is not significantly associated with increased binge drinking behaviors. However, repeated cohabitation dissolutions are associated with a significant increase in binge drinking behaviors, but only among men. For men, the dissolution of the first cohabitation is negatively associated with binge drinking behaviors (albeit not significant), while the dissolution of the second (or higher-order) cohabitation is associated with a significantly higher level of binge drinking behaviors (0.81 days; $p < 0.05$). For women, results in Model 2 imply that neither the first cohabitation dissolution nor the second-order (or higher) cohabitation dissolution significantly increases binge drinking behaviors (see coefficients in the *Slope* columns). The results for binge drinking behaviors should be cautiously interpreted. Young men often have a higher risk of binge drinking behaviors than young women (Grucza et al., 2009) because drinking is a common social practice, especially among young men. Thus, the increased binge drinking behaviors after cohabitation dissolution can also be interpreted as a strategy for coping with a traumatic event (rather than a negative mental health outcome). Additionally, these associations are not time-varying across the life course for either men or women, indicating that *Hypothesis 4a* and *4b* are not supported for the outcome of binge drinking behaviors.

The interaction results in Model 3 indicate significant gender differences in the positive association between the second (or higher-order) cohabitation dissolution and binge drinking behaviors. If respondents are women, the positive association between higher-order

cohabitation dissolution and binge drinking behaviors is reduced by 1.01 days (two-tailed test: $p < 0.05$; one-tailed test: $p < 0.01$). Unlike for the outcome of depressive symptoms, we find evidence of gender differences in responses to cohabitation dissolution for the outcome of binge drinking behaviors. Thus, *Hypothesis 1* that the increase in distress after cohabitation dissolution differs by gender is supported by evidence for the outcome of binge drinking behaviors.

To facilitate the interpretation of the results, in Fig. 1, we display the trajectories of predicted MHI-5 scores and binge drinking behaviors by orders of cohabitation dissolutions across the life course. Across the life course, women have a higher level of depressive symptoms than men, while men have a higher level of binge drinking behaviors than women. For depressive symptoms, men and women who are in the second-order or higher cohabitation dissolutions have the highest level of depressive symptoms, followed by those who are in the first cohabitation dissolutions, and then by those who were in cohabitation. Moreover, the differences between the three trajectories are significantly converging as women age, which indicate that the association between cohabitation dissolution and depressive symptoms is stronger earlier in the life course than later in the life course among women. For binge drinking behaviors, men who are in the second-order or higher cohabitation dissolution phases have the highest level of binge drinking behaviors, followed by those who are in the first cohabitation dissolution phase or still cohabitating. Women who are in cohabitation dissolution phase have a higher level of binge drinking behaviors than those who are cohabitating, though this difference is not significant.

We want to highlight several interesting findings related to the covariates. Baseline depressive symptoms and binge drinking behaviors are significantly positively related to the slope of distress trajectories ($b = 0.03, p < 0.001$). Among these cohabiting young adults, having a child is significantly associated with an increase in depressive symptoms for men ($b = 1.35, p < 0.05$) and significantly associated with a decrease in binge drinking behaviors for women ($b = -0.69, p < 0.001$).⁴ The duration of cohabitation is significantly negatively associated with depressive symptoms and binge drinking behaviors, which indicates that longer cohabitations are associated with better mental health than shorter cohabitations.⁵ In addition, men and women who did not graduate from high school have a significantly higher level of depressive symptoms than their counterparts who did; men with a college degree have a significantly lower level of binge drinking behaviors than their counterparts with only a high school degree. Because less educated young adults are more likely to transition into cohabitation earlier in young adulthood and are at a higher risk of cohabitation dissolution than their more highly-educated counterparts (Lichter and Qian, 2008; Sassler et al., 2018), we examined the interactions between education and cohabitation dissolution. Yet, we do not identify significant moderating effects of education in this study (see Table S3, S4, and S5 in the Appendix).

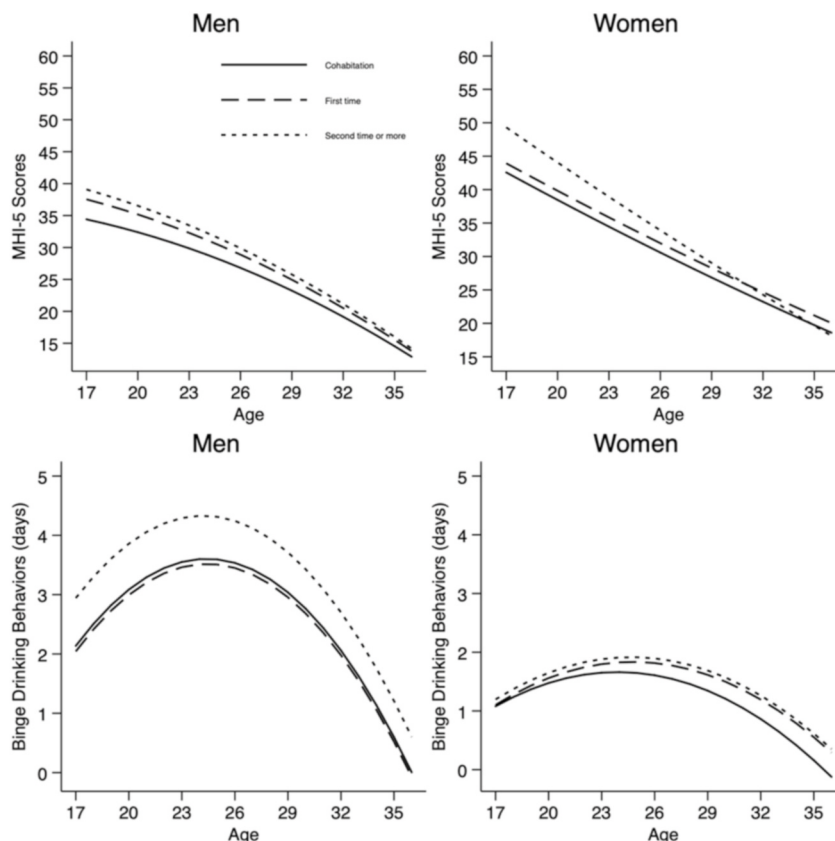


Fig. 1. Growth curves for depressive symptoms and binge drinking behaviors at different orders of cohabitation dissolution.

4.3. Cohabitation dissolution, parenthood, and age trajectories of psychological distress

Table 4 presents how parenthood moderates the link between cohabitation dissolution and depressive symptoms. For men, having a child within cohabitation is significantly associated with increased depressive symptoms ($b = 4.93, p < 0.01$), but we do not observe a significant moderating effect of children's presence on cohabitation dissolution. In comparison, there is no increase in depressive symptoms when women have a child within cohabitation, but having a child will increase depressive symptoms when this cohabitation dissolves. The results for Model 2 show that compared to those who do not have children, the presence of children strengthens the positive association between cohabitation dissolution and distress by 3.60 units (two-tailed test: $p < 0.05$; one-tailed test: $p < 0.01$). Moreover, this positive moderating effect significantly attenuates by 0.45 units (two-tailed test: $p < 0.05$; one-tailed test: $p < 0.01$) with each year increase of age. Therefore, *Hypothesis 2* and *Hypothesis 5* are supported for the outcome of depressive symptoms among women.

We tested gender differences in the moderating effects of the presence of children on the positive association between cohabitation dissolution and depressive symptoms. The interaction result indicates that the main effects of the presence of children on distress significantly differ by gender; however, there are no significant gender differences in the moderation of the presence of children on the link between cohabitation dissolution and depressive symptoms. Thus, *Hypothesis 3* is not supported for the outcome of depressive symptoms.

For binge drinking behaviors, we do not observe a significant moderating effect of parenthood on the relationship between cohabitation dissolution and binge drinking behaviors for men or women. We include the results in the appendix (see Table S1). As we noted before, binge drinking is a common social practice, especially among young men. Moreover, prior studies indicate a significant reduction of binge drinking behaviors among young adults after transitions into parenthood (Leonard and Eiden, 2007). The negative association between parenthood and binge drinking behaviors may, to some extent, explain why we have not observed a significant

Table 4

Conditional growth curve model estimates of moderating effects of parenthood on cohabitation dissolution (depressive symptoms), standard errors are in parentheses.

Fixed Effects	Men		Women		Total	
	Model 1		Model 2		Model3	
	Intercept	Slope	Intercept	Slope	Intercept	Slope
Main Predictors						
Cohabitation dissolution (No = ref.)						
Yes	3.44** (1.09)	−0.15 (0.14)	1.45 (1.02)	0.12 (0.14)	3.32** (1.09)	−0.13 (0.14)
Having a child	4.93** (1.65)	−0.49** (0.19)	−1.52 (1.41)	0.24 (0.18)	4.80** (1.60)	−0.49** (0.18)
Cohabitation dissolution*Having a child	0.03 (2.13)	0.05 (0.24)	3.60* (1.74)	−0.45* (0.21)	0.14 (2.14)	0.05 (0.24)
Cohabitation dissolution*Women					−1.68 (1.47)	0.22 (0.20)
Having a child*Women					−6.14** (2.04)	0.71** (0.24)
Cohabitation dissolution*Having a child*Women					3.25 (2.75)	−0.48 (0.32)
Covariates						
Yes	Yes	Yes	Yes	Yes	Yes	Yes
Random Effects						
<i>Individual level</i>						
Var(Constant)	11.29*** (0.65)		12.31*** (0.53)		11.93*** (0.41)	
Var(Age)	1.18*** (0.09)		1.27*** (0.08)		1.24*** (0.06)	
Var(Constant, Age)	−0.69*** (0.04)		−0.72*** (0.03)		−0.71*** (0.02)	
<i>Person-year level</i>						
Var(Residuals)	12.82*** (0.17)		12.70*** (0.15)		12.75*** (0.11)	
N	2009		2073		4082	
Person Years	5672		6479		12,151	
Log Likelihood	−23,468.87		−26,798.27		−50,277.68	

Notes:

1 For an easier interpretation, we combined first cohabitation dissolution and second order (or higher) cohabitation dissolution into one category.

2 Results in this table are adjusted by covariates— duration of cohabitation, age, age squared, gender, race/ethnicity, highest education degree, employment, individual annual income (logged), ever married, and baseline depressive symptoms.

3 The reference group of cohabitation dissolution refers to person-years in cohabitation.

4 * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (two-tailed tests).

moderating effect of parenthood. Thus, we do not find evidence to support *Hypothesis 2*, *Hypothesis 3*, and *Hypothesis 5* for the outcome of binge drinking behaviors.

5. Discussion

The high prevalence of cohabitation as a first union, the short-lived nature of those relationships, and the rising prevalence of childbearing within those relationships have a strong potential to contribute to the psychological distress of contemporary young adults. Using panel data collected over 16 years, this study addresses the potential negative consequences of cohabitation dissolution and its overlap with parenthood on psychological distress among contemporary young men and women from a life course perspective. A key strength of this analysis is the use of a longitudinal design with consistent measurements of depressive symptoms and binge drinking behaviors across young adulthood, enabling the estimation of psychological distress trajectories over 16 years. Growth curve models were utilized to model these trajectories and test the study hypotheses.

Building upon prior research, this study sheds light on cohabitation dissolution and reveals that cohabitation dissolution is associated with increased depressive symptoms for both men and women and increased binge drinking behaviors for men. Moreover, this study also reveals that higher-order cohabitation dissolution is more detrimental to mental health than the first cohabitation dissolution, especially for depressive symptoms among women and binge drinking behaviors among men. This finding implies that the cumulative consequences of multiple cohabitation dissolutions are more harmful to psychological distress than a single dissolution.

This study obtains novel evidence regarding gender differences in the consequences of cohabitation dissolution for psychological distress. We find that cohabitation dissolution is associated with increased depressive symptoms for both men and women, but no significant gender difference has been observed. Yet, cohabitation dissolution (second-order or higher) is associated with a significant increase in binge drinking behaviors for men, but not for women; significant gender difference has been found. We reveal that women exhibit similar increases in depressive symptoms but fewer increases in binge drinking behaviors after cohabitation dissolution, as compared to men. *Hypothesis 1* is thus partially supported regarding the outcome of binge drinking behaviors.

These findings suggest that gender differences in the consequences of cohabitation dissolution for psychological distress may be contingent upon the types of psychological distress under consideration. Both men and women may respond to cohabitation dissolution through internalizing symptoms, but men are also likely to respond to cohabitation dissolution through externalizing symptoms. Therefore, men and women may not express distress only through a certain type of symptoms pertinent to their gender. Associating gender with a dichotomous division of symptoms (i.e., externalizing symptoms versus internalizing symptoms) may be too simplistic to accurately represent gender differences in responses to the dissolution of intimate relationships.

This study also reveals that the presence of children strengthens the positive association between cohabitation dissolution and depressive symptoms for women. In comparison, the presence of children within cohabitation has no significant moderating effects on the positive association between cohabitation dissolution and depressive symptoms for men. However, we do not find evidence for significant gender differences in these moderating effects for depressive symptoms. Moreover, we find no significant moderating effects of parenthood on the link between cohabitation dissolution and binge drinking behaviors for either men or women. We find evidence to support the hypothesis that parenthood will strengthen the positive association between cohabitation dissolution and distress (*Hypothesis 2*) for the outcome of depressive symptoms among women; but we find no evidence to support the hypothesis that there would be gendered moderating effects of parenthood (*Hypothesis 3*).

Gender differences in the moderating effects of parenthood on cohabitation dissolution may be due to gendered parenthood experiences for men and women. Within intensive intimate relationships, women often put more time and efforts into unpaid housework, daily childcare, and even cognitive labor (e.g., the anticipation and monitoring work) than men do (Daming, 2019; Ruppner et al., 2019; Sassler and Miller, 2017). Compared to men, women are also more likely to reduce participation in or withdraw from the labor market to meet childcare demands, and those who remain in the labor market may face competing work and family responsibilities (Craig, 2006; Raley et al., 2012; Stone, 2007). Consequently, women are more likely to suffer from financial or childcare strains after cohabitation dissolution. That may explain why parenthood adds more depressive symptoms when cohabitation dissolves for women but not for men. Additionally, because women are less likely to respond to cohabitation dissolution through binge drinking behaviors, we do not observe similar moderating effects of parenthood for the outcome of binge drinking behaviors.

Moreover, this study finds some evidence that the association between cohabitation dissolution and depressive symptoms is heterogeneous over young adulthood. As young women age, they become more psychologically resilient when faced with higher-order cohabitation dissolutions, which partially supports *Hypothesis 4a*. Compared with younger adults, middle-aged adults may have developed better coping strategies for cohabitation dissolution, reducing the potential negative influences. We also find that the moderating effects of parenthood on cohabitation dissolution lessen over the course of young adulthood for the outcome of depressive symptoms among women (*Hypothesis 5*). Younger adults may lack sufficient financial and psychological preparation in the face of a cohabitation dissolution with the presence of children because early parenthood may indicate truncated educational and working opportunities (Hofferth et al., 2001).

Our findings should be interpreted in light of several limitations. First, the latest wave of the NLSY97 for psychological distress was collected in 2015, so the majority of the 1980–1984 cohorts have not finished their marital and cohabitation experiences. Therefore, we cannot compare the influences of the cohabitation dissolution over a more extended age range. Using the later waves of the NLSY97, future scholars will have the means to track the trajectories of mental health across more of the life course. A second limitation is that our study focuses on only one direction of the potentially bidirectional association between mental health and cohabitation experiences. Prior research demonstrates that people might be selected into or out of cohabitation based on their mental health (e.g., Duncan et al., 2006). Our approach includes baseline psychological distress in modeling the slope of psychological distress

trajectories, which to some extent controls for the non-time varying unobserved heterogeneity. Nevertheless, given the association that we document here, models of how mental health predicts subsequent cohabitation dissolution remain an important priority for future research, though this is beyond the scope of the current study. Third, though we have detailed the differences between cohabitation and marriage that may lead to different consequences of the dissolution of these two forms of intimate, co-residential relationship, our contribution is this new focus on the dissolution of cohabitation. However, as a supplementary analysis, we have added an examination of the negative consequences of marital dissolution on depressive symptoms and binge drinking behaviors among those who had ever married, using the same data source for comparability (see [Table S2](#)).⁶ Fourth, the NLSY97 did not collect information about relationship quality and marriage plans within cohabitation; we thus cannot distinguish outcomes for cohabiting relationships varying in quality. A prior study examining the effects of dissolution of nonmarital romantic relationships on mental health found that having had plans for marriage is associated with more significant reductions in life satisfaction, and higher relationship quality is related to smaller declines in life satisfaction following a dissolution ([Rhoades et al., 2011](#)). Investigation of moderation of marital plans and relationship quality should be a high priority for future studies. Fifth, this study does not distinguish non-heterosexual cohabitation from heterosexual cohabitation. There is a growing number of studies suggesting that the link between marriage and psychological distress operates differently for heterosexual and non-heterosexual couples ([Garcia and Umberson, 2019](#)) because same-sex couples adhere less strongly to gendered cultural scripts and are more egalitarian than different-sex couples ([Reczek and Umberson, 2016](#); [Thomeer et al., 2020](#)). However, among those in their first cohabitation in the NLSY97 cohorts, only 2.58 % were in non-heterosexual relationships. The small sample size may not be sufficient for statistical analyses. To examine how gender shapes the impact of parenthood and cohabitation dissolution on mental health, future studies need to consider the heterogeneity of sexuality if data is available and feasible.

Despite these limitations, this study provides new insights into the complex associations between family dynamics and psychological distress. Contemporary young adults are living in a social setting where marriage has been delayed and cohabitation has taken the place of marriage as the most common context for the first union during young adulthood ([Manning et al., 2014](#); [Smock and Schwartz, 2020](#)). Moreover, childbearing has gradually been separated from marriage. Parenthood has its own meanings and purpose for individual lives, independent of marriage ([Edin and Kefalas, 2005](#); [Edin and Nelson, 2013](#)). These changes have provided new opportunities for us to better understand how family dynamics shape the psychological distress of contemporary young adults and whether men and women respond differently. Overall, the findings in this study make important contributions to understanding of cohabitating relationships, parenthood, and distress from a life course perspective. Results reported here also motivate future work in this area to focus on several understudied research topics: (1) consequences of serial cohabitation and its influence on mental health inequality, (2) heterogeneous effects of different types of parenthood on mental health and its contribution to gender differences in mental health, (3) the influences of complex intertwinement between cohabitation and parenthood (e.g., multiple partner fertility) on mental health.

Notes

1. We separated cohabitation dissolution from marital dissolution for the studied young adults for two reasons directly related to the NLSY97 birth cohorts. First, cohabitation and cohabitation dissolution are much more common and occur much earlier than marriage and marital dissolution in the NLSY97 cohorts ($N = 8876$). Only approximately 15 % ($n = 1301$) of young adults transitioned directly into the first marriage without any cohabitation experiences, and among them 25 % had ever divorced ($n = 330$). Young adults who choose to cohabit as the first union tend to be slightly more liberal, less religious, and more supportive of egalitarian gender roles and nontraditional family roles than young adults who choose to marry directly ([Clarkberg et al., 1995](#); [Lye and Waldron, 1997](#); [Thornton et al., 1992](#)). Those who married directly thus are a more selective group of young adults than those who did not. Conflating marital dissolution of this selective group of young adults with cohabitation dissolution of the others may have the potential to overestimate the negative consequence of relationship dissolution and its potential gender differences. Second, there are young adults who cohabited first and then transitioned into marriage (36 %; $n = 3151$), and among them 25 % had ever divorced ($n = 779$). These young adults had their marriage/marital dissolution after cohabitation/cohabitation dissolution. Combining marital dissolution of these young adults with cohabitation dissolution has the potential to conflate relationship dissolutions that occurred at different time points. Because these types of people are included in our analytic samples, we included an indicator for marriage in our models.
2. Given that the distribution of the binge drinking indicator is often zero-inflated and over-dispersed, we also ran zero-inflated negative binomial models with random effects for binge drinking behaviors as a robustness check. Results are consistent with the current findings (available upon request).
3. We did not include baseline psychological distress in the intercept model at the second level because it is already approximately reflected by the intercept of psychological distress at age 17.
4. Among the limited number of studies on cohabitators, [Woo and Raley, 2005](#) found that having a child is associated with remarkable declines in social integration and self-esteem for both women and men and increases in depression for women. [Woo and Raley, 2005](#) used the National Survey of Families and Households (1992–1994) and focused on a much older cohort than early millennials and the types of mental distress under consideration differ from this current study. These differences may be factors in the slightly incongruent results from the current study.
5. We also examined the interaction between cohabitation duration and cohabitation dissolution and did not find any significant interaction effects.

6. We have examined the consequences of marital dissolution for psychological distress (see Table S2), though we did not include the results in the main text. Marital dissolution increased the level of depressive symptoms twice as much as cohabitation dissolution did (see Table S2). However, we did not observe significant gender differences in the consequences of marital dissolution for either depressive symptoms or binge drinking behaviors.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssresearch.2021.102626>.

References

- Addo, Fenaba R., 2017. Financial integration and relationship transitions of young adult cohabiters. *J. Fam. Econ. Issues* 38 (1), 84–99. <https://doi.org/10.1007/s10834-016-9490-7>.
- Amato, 2000. The consequences of divorce for adults and children. *J. Marriage Fam.* 62 (4), 1269–1287. <https://doi.org/10.1111/j.1741-3737.2000.01269.x>.
- Amato, Paul R., 2010. Research on divorce: continuing trends and new developments. *J. Marriage Fam.* 72 (3), 650–666. <https://doi.org/10.1111/j.1741-3737.2010.00723.x>.
- Aneshensel, Carol S., 1992. Social stress: theory and research. *Annu. Rev. Sociol.* 18 (1), 15–38. <https://doi.org/10.1146/annurev.so.18.080192.000311>.
- Aneshensel, Carol S., Frerichs, Ralph R., Clark, Virginia A., 1981. Family roles and sex differences in depression. *J. Health Soc. Behav.* 22 (4), 379–393. <https://www.jstor.org/stable/2136679>.
- Aneshensel, Carol S., Rutter, Carolyn M., Lachenbruch, Peter A., 1991. Social structure, stress, and mental health: competing conceptual and analytic models. *Am. Socio. Rev.* 56 (2), 166–178. <https://www.jstor.org/stable/2095777>.
- Aseltine, Robert H., Kessler, Ronald C., 1993. Marital disruption and depression in a community sample. *J. Health Soc. Behav.* 34 (3), 237–251. <https://www.jstor.org/stable/2137205>.
- Beck, Audrey N., Cooper, Carey E., McLanahan, Sara, Brooks-Gunn, Jeanne, 2010. Partnership transitions and maternal parenting. *J. Marriage Fam.* 72 (2), 219–233. <https://doi.org/10.1111/j.1741-3737.2010.00695.x>.
- Bell, Andrew, 2014. Life-Course and cohort trajectories of mental health in the UK, 1991–2008—a Multilevel age-period-cohort analysis. *Soc. Sci. Med.* 120, 21–30. <https://doi.org/10.1016/j.socscimed.2014.09.008>.
- Bloome, Deirdre, Dyer, Shauna, Zhou, Xiang, 2018. Educational inequality, educational expansion, and intergenerational income persistence in the United States. *Am. Socio. Rev.* 83 (6), 1215–1253. <https://doi.org/10.1177/0003122418809374>.
- Bowman, Cynthia G., 2004. Legal treatment of cohabitation in the United States. *Law Pol.* 26 (1), 119–151. <https://doi.org/10.1111/j.0265-8240.2004.00165.x>.
- Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/data/databriefs/db162_table.pdf.
- Chikritzhs, Tanya N., Jonas, H.A., Stockwell, Tim R., Heale, Penny F., Dietze, Paul M., 2001. Mortality and life-years lost due to alcohol: a comparison of acute and chronic causes. *Med. J. Aust.* 174 (6), 281–284. <https://doi.org/10.1371/journal.pone.0051923>.
- Chodorow, Nancy J., 1999. *The Reproduction of Mothering: Psychoanalysis and the Sociology of Gender*. University of California Press, Berkeley, California.
- Clarkberg, Marin, Stolzenberg, Ross M., Waite, Linda J., 1995. Attitudes, values, and entrance into cohabitational versus marital unions. *Soc. Forces* 74 (2), 609–632. <https://heinonline.org/HOL/P?h=hein.journals/josf74&i=625>.
- Cohen, Jessica, Manning, Wendy, 2010. The relationship context of premarital serial cohabitation. *Soc. Sci. Res.* 39 (5), 766–776. <https://doi.org/10.1016/j.ssresearch.2010.04.011>.
- Cooper, Carey E., McLanahan, Sara S., Meadows, Sarah O., Brooks-Gunn, Jeanne, 2009. Family structure transitions and maternal parenting stress. *J. Marriage Fam.* 71 (3), 558–574. <https://doi.org/10.1017/S0033291707001493>.
- Copen, Casey E., Daniels, Kimberly, Mosher, William D., 2013. First Premarital Cohabitation in the United States: 2006–2010 National Survey of Family Growth, 64. National Center for Health Statistics, Hyattsville, MD. <https://www.cdc.gov/nchs/data/nhsr/nhsr064.pdf>.
- Craig, Lyn, 2006. Does father care mean fathers share?: a comparison of how mothers and fathers in intact families spend time with children. *Gend. Soc.* 20 (2), 259–281. <https://doi.org/10.1177/0891243205285212>.
- Curran, Patrick J., Obeidat, Khawla, Losardo, Diane, 2010. Twelve frequently asked questions about growth curve modeling. *J. Cognit. Dev.* 11 (2), 121–136. <https://doi.org/10.1080/15248371003699969>.
- Curtin, Sally C., 2014. Recent Declines in Nonmarital Childbearing in the United States. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. <https://www.cdc.gov/nchs/data/databriefs/db162.pdf>.
- Daminger, Allison, 2019. The cognitive dimension of household labor. *Am. Socio. Rev.* 84 (4), 609–633. <https://doi.org/10.1177/0003122419859007>.
- Duncan, Greg J., Wilkerson, Bessie, England, Paula, 2006. Cleaning up their act: the effects of marriage and cohabitation on licit and illicit drug use. *Demography* 43 (4), 691–710. <https://doi.org/10.1353/dem.2006.0032>.
- Edin, Kathryn, Kefalas, Maria, 2005. *Promises I Can Keep Why Poor Women Put Motherhood before Marriage*. University of California Press, Berkeley, California.
- Edin, Kathryn, Nelson, Timothy, 2013. *Doing the Best I Can Fatherhood in the Inner City*. University of California Press, Berkeley, California.
- Eickmeyer, Kasey J., 2018. Cohort trends in union dissolution during young adulthood: cohort trends in union dissolution. *J. Marriage Fam.* 81 (3), 760–770. <https://doi.org/10.1111/jomf.12552>.
- Eickmeyer, Kasey J., Manning, Wendy D., 2018. Serial cohabitation in young adulthood: baby boomers to millennials: serial cohabitation in young adulthood. *J. Marriage Fam.* 80 (4), 826–840. <https://doi.org/10.1111/jomf.12495>.
- Eickmeyer, Kasey J., Manning, Wendy D., Brown, Susan L., 2019. What's mine is ours? Income pooling in American families. *J. Marriage Fam.* 81 (4), 968–978. <https://doi.org/10.1111/jomf.12565>.
- Elder, Glen H., Johnson, Monica K., Crosnoe, Robert, 2003. The emergence and development of life course theory. Mortimer, J.T., Shanahan, M.J. (Eds.), In: *Handbook of the Life Course*. Kluwer Academic/Plenum Publishers, New York, pp. 3–19.
- Evenson, Ranae J., Simon, Robin W., 2005. Clarifying the relationship between parenthood and depression. *J. Health Soc. Behav.* 46 (4), 341–358. <https://doi.org/10.1177/002214650504600403>.
- Finer, Lawrence B., Zolna, Mia R., 2014. Shifts in intended and unintended pregnancies in the United States, 2001–2008. *Am. J. Publ. Health* 104 (S1), S43–S48. <https://doi.org/10.2105/AJPH.2013.301416>.
- Fitzmaurice, Garrett M., Laird, Nan M., Ware, James H., 2012. *Applied Longitudinal Analysis*. Wiley, Hoboken, New Jersey.
- Garcia, Michael A., Umberson, Debra, 2019. Marital strain and psychological distress in same-sex and different-sex couples. *J. Marriage Fam.* 81 (5), 1253–1268. <https://doi.org/10.1111/jomf.12582>.
- George, Linda K., 1993. Sociological perspectives on life transitions. *Annu. Rev. Sociol.* 19 (1), 353–373. <https://doi.org.proxy.lib.umich.edu/10.1146/annurev.so.19.080193.002033>.
- George, Linda, 2013. Life-course perspectives on mental health. Aneshensel, C.S., Phelan, J.C., Bierman, A. (Eds.), In: *Handbook of the Sociology of Mental Health*. Springer, Dordrecht, Netherlands, pp. 585–602.
- Gove, Walter R., 1972. The relationship between sex roles, marital status, and mental illness. *Soc. Forces* 51 (1), 34–44. <https://www.jstor.org/stable/2576129>.

- Gove, Walter R., Tudor, Jeannette F., 1973. Adult sex roles and mental illness. *Am. J. Sociol.* 78 (4), 812–835. <https://doi.org/10.1086/225404>.
- Gruza, Richard A., Norberg, Karen E., Bierut, Laura J., 2009. Binge drinking among youths and young adults in the United States: 1979–2006. *J. Am. Acad. Child Adolesc. Psychiatry* 48 (7), 692–702. <https://doi.org/10.1097/CHI.0b013e3181a2b32f>.
- Guzzo, Karen B., 2014. Trends in cohabitation outcomes: compositional changes and engagement among never-married young adults: trends in cohabitation outcomes. *J. Marriage Fam.* 76 (4), 826–842. <https://doi.org/10.1111/10.1111/jomf.12123>.
- Headey, Bruce, 2006. Subjective well-being: revisions to dynamic equilibrium theory using national panel data and panel regression methods. *Soc. Indic. Res.* 79 (3), 369–403. <https://doi.org/10.1007/s11205-005-5381-2>.
- Hill, Terrence D., Needham, Belinda L., 2013. Rethinking gender and mental health: a critical analysis of three propositions. *Soc. Sci. Med.* 92, 83–91. <https://doi.org/10.1016/j.socscimed.2013.05.025>.
- Hofferth, Sandra L., Reid, Lori, Mott, Frank L., 2001. The effects of early childbearing on schooling over time. *Fam. Plann. Perspect.* 33 (6), 259–267. <https://doi.org/10.2307/3030193>.
- Horwitz, Allan V., White, Helene R., Howell-White, Sandra, 1996. The use of multiple outcomes in stress research: a case study of gender differences in responses to marital dissolution. *J. Health Soc. Behav.* 37 (3), 278–291. <https://www.jstor.org/stable/2137297>.
- Ishizuka, Patrick, 2018. The economic foundations of cohabiting couples' union transitions. *Demography* 55 (2), 535–557. <https://doi.org/10.1007/s13524-018-0651-1>.
- Kamp Dush, Claire M., 2013. Marital and cohabitation dissolution and parental depressive symptoms in fragile families. *J. Marriage Fam.* 75 (1), 91–109. <https://doi.org/10.1111/j.1741-3737.2012.01020.x>.
- Keizer, Renske, Dykstra, Pearl A., Poortman, Anne-Rigt, 2010. The transition to parenthood and well-being: the impact of partner status and work hour transitions. *J. Fam. Psychol.* 24 (4), 429–438. <https://doi.org/10.1111/10.1037/a0020414>.
- Koropecjy-Cox, Tanya, Pienta, Amy Mehraban, Brown, Tyson H., 2007. Women of the 1950s and the 'normative' life course: the implications of childlessness, fertility timing, and marital status for psychological well-being in late midlife. *Int. J. Aging Hum. Dev.* 64 (4), 299–330. <https://doi.org/10.2190/8PTL-P745-58U1-3330>.
- Leonard, Kenneth E., Eiden, Rina D., 2007. Marital and family processes in the context of alcohol use and alcohol disorders. *Annu. Rev. Clin. Psychol.* 3 (1), 285–310. <https://doi.org/10.1146/annurev.clinpsy.3.022806.091424>.
- Lichter, Daniel T., Qian, Zhenchao, 2008. Serial cohabitation and the marital life course. *J. Marriage Fam.* 70 (4), 861–878. <https://doi.org/10.1111/j.1741-3737.2008.00532.x>.
- Lichter, Daniel T., Turner, Richard N., Sassler, Sharon, 2010. National estimates of the rise in serial cohabitation. *Soc. Sci. Res.* 39 (5), 754–765. <https://doi.org/10.1016/j.sresresearch.2009.11.002>.
- Lillard, Lee A., Waite, Linda J., 1995. Til death do us part: marital disruption and mortality. *Am. J. Sociol.* 100 (5), 1131–1156. <https://doi.org/10.1086/230634>.
- Manning, Wendy D., Brown, Susan L., Payne, Krista K., 2014. Two decades of stability and change in age at first union formation. *J. Marriage Fam.* 76 (2), 247–260. <https://doi.org/10.1111/jomf.12090>.
- Lye, Diane N., Waldron, Ingrid, 1997. Attitudes toward cohabitation, family, and gender roles: relationships to values and political ideology. *Socio. Perspect.* 40 (2), 199–225. <https://doi.org/10.2307/1389522>.
- Manning, Wendy D., Smock, Pamela J., 2002. First comes cohabitation and then comes marriage? A research note. *J. Fam. Issues* 23 (8), 1065–1087. <https://doi.org/10.1177/019251302237303>.
- Marks, Nadine F., Lambert, James David, 1998. Marital status continuity and change among young and midlife adults: longitudinal effects on psychological well-being. *J. Fam. Issues* 19 (6), 652–686. <https://doi.org/10.1177/019251398019006001>.
- McCoach, D. Betsy, 2010. Using time-varying covariates in multilevel growth models. *Front. Psychol.* 1 (17), 1–12. <https://doi.org/10.3389/fpsyg.2010.00017>.
- Mckenzie, Sarah K., Carter, Kristie, 2013. Does transition into parenthood lead to changes in mental health? Findings from three waves of a population based panel study. *J. Epidemiol. Community Health* 67 (4), 339–345. <https://doi.org/10.1136/jech-2012-201765>.
- McLanahan, Sara, 2004. Diverging destinies: how children are faring under the second demographic transition. *Demography* 41 (4), 607–627. <https://doi.org/10.1353/dem.2004.0033>.
- McLanahan, Sara, Jacobsen, Wade, 2015. Diverging destinies revisited. In: Amato, P.R., Booth, A., McHale, S.M., Van Hook, J. (Eds.), *Families in an Era of Increasing Inequality: Diverging Destinies*, National Symposium on Family Issues. Springer International Publishing, Cham, pp. 3–23.
- Meier, Ann, Kelly, Musick, Flood, Sarah, Dunifon, Rachel, 2016. Mothering experiences: how single parenthood and employment structure the emotional valence of parenting. *Demography* 53 (3), 649–674. <https://doi.org/10.1007/s13524-016-0474-x>.
- Mirowsky, John, Ross, Catherine E., 1992. Age and depression. *J. Health Soc. Behav.* 33 (3), 187–205. <https://www.jstor.org/stable/2137349>.
- Mulford, Harold A., Salisbury, Winfield W., 1964. Self-conceptions in a general population. *Socio. Q.* 5 (1), 35–46. <https://doi.org/10.1111/j.1533-8525.1964.tb02254.x>.
- Nomaguchi, Kei M., Milkie, Melissa A., 2003. Costs and rewards of children: the effects of becoming a parent on adults' lives. *J. Marriage Fam.* 65 (2), 356–374. <https://doi.org/10.1111/j.1741-3737.2003.00356.x>.
- Nomaguchi, Kei, Milkie, Melissa A., 2020. Parenthood and well-being: a decade in review. *J. Marriage Fam.* 82 (1), 198–223. <https://doi.org/10.1111/jomf.12646>.
- Pearlin, Leonard I., 1989. The sociological study of stress. *J. Health Soc. Behav.* 30 (3), 241–256. <https://doi.org/10.2307/2136956>.
- Raley, Sara, Bianchi, Suzanne M., Wang, Wendy, 2012. When do fathers care? Mothers' economic contribution and fathers' involvement in child care. *Am. J. Sociol.* 117 (5), 1422–1459. <https://doi.org/10.1086/663354>.
- Pollak, Lauren H., Thoits, Peggy A., 1989. Processes in emotional socialization. *Soc. Psychol. Q.* 52 (1), 22–34. <https://www.jstor.org/stable/2786901>.
- Raley, R. Kelly, Crissey, Sarah, Muller, Chandra, 2007. Of sex and romance: late adolescent relationships and young adult union formation. *J. Marriage Fam.* 69 (5), 1210–1226. <https://doi.org/10.1111/j.1741-3737.2007.00442.x>.
- Raley, R. Kelly, Kuo, Janet Chen-Lan, 2016. Diverging patterns of union transition among cohabitators by race-ethnicity and education: trends and marital intentions 53 (4), 921–935. <https://doi.org/10.31235/osf.io/6t3gp>.
- Reczek, Corinne, Umberson, Debra, 2016. Greedy spouse, needy parent: the marital dynamics of gay, lesbian, and heterosexual intergenerational caregivers: greedy spouse, needy parent. *J. Marriage Fam.* 78 (4), 957–974. <https://doi.org/10.1111/jomf.12607>.
- Rhoades, Galena K., Kamp Dush, Claire M., Atkins, David C., Stanley, Scott M., Markman, Howard J., 2011. Breaking up is hard to do: the impact of unmarried relationship dissolution on mental health and life satisfaction. *J. Fam. Psychol.* 25 (3), 366. <https://doi.org/10.1037/a0023627>.
- Ruppanner, Leah, Perales, Francisco, Baxter, Janeen, 2019. Harried and unhealthy? Parenthood, time pressure, and mental health: parenthood, time pressure, and mental health. *J. Marriage Fam.* 81 (2), 308–326. <https://doi.org/10.1111/jomf.12531>.
- Sassler, Sharon, Cunningham, Anna, 2008. How cohabitators view childbearing. *Socio. Perspect.* 51 (1), 3–28. <https://doi.org/10.1525/sop.2008.51.1.3>.
- Sassler, Sharon, Michelmoro, Katherine, Qian, Zhenchao, 2018. Transitions from sexual relationships into cohabitation and beyond. *Demography* 55 (2), 511–534. <https://doi.org/10.1007/s13524-018-0649-8>.
- Sassler, Sharon, Miller, Amanda J., 2017. *Cohabitation Nation: Gender, Class, and the Remaking of Relationships*. University of California Press, Oakland, California.
- Simon, Robin W., 2002. Revisiting the relationships among gender, marital status, and mental health. *Am. J. Sociol.* 107 (4), 1065–1096. <https://doi.org/10.1086/339225>.
- Simon, Robin W., Barrett, Anne E., 2010. Nonmarital romantic relationships and mental health in early adulthood: does the association differ for women and men? *J. Health Soc. Behav.* 51 (2), 168–182. <https://doi.org/10.1177/0022146510372343>.
- Simon, Robin W., Caputo, Jennifer, 2018. The costs and benefits of parenthood for mental and physical health in the United States: the importance of parenting stage. *Soc. Ment. Health* 9 (3), 293–315. <https://doi.org/10.1177/2156869318786760>.
- Simon, Robin W., Eder, Donna, Evans, Cathy, 1992. The development of feeling norms underlying romantic love among adolescent females. *Soc. Psychol. Q.* 55 (1), 29–46. <https://doi.org/10.2307/2786684>.

- Simon, Robin W., Marcussen, Kristen, 1999. Marital transitions, marital beliefs, and mental health. *J. Health Soc. Behav.* 40 (2), 111–125. <https://doi.org/10.2307/2676367>.
- Slopen, Natalie, Williams, David R., Fitzmaurice, Garrett M., Gilman, Stephen E., 2011. Sex, stressful life events, and adult onset depression and alcohol dependence: are men and women equally vulnerable? *Soc. Sci. Med.* 73 (4), 615–622. <https://doi.org/10.1016/j.socscimed.2011.06.022>.
- Smock, Pamela J., 2000. Cohabitation in the United States: an appraisal of research themes, findings, and implications. *Annu. Rev. Sociol.* 26 (1), 1–20. <https://www.jstor.org/stable/223434>.
- Smock, Pamela J., Manning, Wendy D., Porter, Meredith, 2005. ‘Everything’s there except money’: how money shapes decisions to marry among cohabitators. *J. Marriage Fam.* 67 (3), 680–696. <https://doi.org/10.1111/j.1741-3737.2005.00162.x>.
- Smock, Pamela J., Schwartz, Christine R., 2020. The demography of families: a review of patterns and change. *J. Marriage Fam.* 82 (1), 9–34. <https://doi.org/10.1111/jomf.12612>.
- Stanley, Scott M., Rhoades, Galena Kline, Markman, Howard J., 2006. Sliding versus deciding: inertia and the premarital cohabitation effect. *Fam. Relat.* 55 (4), 499–509. <https://doi.org/10.1017/CBO9780511761935.013>.
- Stone, Pamela, 2007. *Opting Out? Why Women Really Quit Careers and Head Home*. University of California Press, Berkeley, California.
- The Consortium of Multiple Sclerosis Centers Health Services Research Subcommittee, 1997. “Multiple Sclerosis Quality of Life Inventory: A User’s Manual.” National Multiple Sclerosis Society. <https://www.nationalmssociety.org/NationalMSSociety/media/MSNationalFiles/Brochures/MSQLI-A-User-s-Manual.pdf>.
- Strohschein, Lisa, McDonough, Peggy, Monette, Georges, Shao, Qing, 2005. Marital transitions and mental health: are there gender differences in the short-term effects of marital status change? *Soc. Sci. Med.* 61 (11), 2293–2303. <https://doi.org/10.1111/j.1741-3737.2005.00217.x>.
- Thomeer, Mieke B., Umberson, Debra, Reczek, Corinne, 2020. The gender-as-relational approach for theorizing about romantic relationships of sexual and gender minority mid- to later-life adults. *J. Fam. Theor. Rev.* 12 (2), 220–237. <https://doi.org/10.1111/jftr.12368>.
- Thorne, Barrie, 1993. *Gender Play: Girls and Boys in School*. Rutgers University Press, New Brunswick, New Jersey.
- Thornton, Arland, Axinn, William G., Hill, Daniel H., 1992. Reciprocal effects of religiosity, cohabitation, and marriage. *Am. J. Sociol.* 98 (3), 628–651. <http://www.jstor.org/stable/2781460>.
- Thornton, Arland, Axinn, William G., Xie, Yu, 2008. *Marriage and Cohabitation*. University of Chicago Press, Chicago.
- Umberson, Debra, Gove, Walter R., 1989. Parenthood and psychological well-being. *J. Fam. Issues* 10 (4), 440–462. <https://doi.org/10.1177/019251389010004002>.
- Veit, Clairice T., Ware, John E., 1983. The structure of psychological distress and well-being in general populations. *J. Consult. Clin. Psychol.* 51 (5), 730–742. <https://doi.org/10.1037/0022-006X.51.5.730>.
- Wechsler, Henry, Austin, Bryn S., 1998. Binge drinking: the five/four measure. *J. Stud. Alcohol* 59 (1), 122–124. <https://doi.org/10.15288/jsa.1998.59.122>.
- Wechsler, Henry, Nelson, Toben F., 2001. Binge drinking and the American college students: what’s five drinks? *Psychol. Addict. Behav.* 15 (4), 287. <https://doi.org/10.1037/0893-164X.15.4.287>.
- Williams, Kristi, 2003. Has the future of marriage arrived? A contemporary examination of gender, marriage, and psychological well-being. *J. Health Soc. Behav.* 44 (4), 470–487. <https://doi.org/10.2307/1519794>.
- Williams, Kristi, Dunne-Bryant, Alexandra, 2006. Divorce and adult psychological well-being: clarifying the role of gender and child age. *J. Marriage Fam.* 68 (5), 1178–1196. <https://doi.org/10.1111/j.1741-3737.2006.00322.x>.
- Woo, Hyeyoung, Raley, Kelly R., 2005. A small extension to ‘costs and rewards of children: the effects of becoming a parent on adults’ lives. *J. Marriage Fam.* 67 (1), 216–221. <https://doi.org/10.1111/j.0022-2445.2005.00016.x>.
- Zhang, Yang, Ang, Shannon, 2020. Trajectories of union transition in emerging adulthood: socioeconomic status and race/ethnicity differences in the national longitudinal survey of Youth 1997 cohort. *J. Marriage Fam.* 82 (2), 713–732. <https://doi.org/10.1111/jomf.12662>.