

HETEROGENEITY IN PATTERNS OF ROMANTIC RELATIONSHIP DISSOLUTION
IN YOUNG ADULTHOOD: DEVELOPMENTAL PRECURSORS
AND HEALTH CONSEQUENCES

by

DAYOUNG BAE

(Under the Direction of Kandauda A. S. Wickrama)

ABSTRACT

De-standardized and individualized life pathways of today's young adults indicate that they are more likely to engage in serial romantic relationships. Although studies on romantic relationships are abundant, the cumulative relationship dissolution experiences during young adulthood is not yet completely understood. Using a person-centered approach, the present study investigated 1) heterogeneity in timing, sequence, and frequency of multiple relationship dissolution events (i.e., cohabitation dissolution, divorce, and multiple transitions) during young adulthood, 2) community, family, and psychosocial characteristics that predict different romantic dissolution experiences, 3) influences of romantic dissolution experiences on physical health risk reflected by elevated levels of regulatory biomarkers, and 4) the protective effect of parental support on the association between romantic relationship and health outcomes. Results highlight that early community, family, and psychosocial characteristics of young adults create the variability in romantic relationship dissolution experiences that is related to increased physical health risk through proliferated stressors (i.e., economic distress, decline in social connections) and stress responses (i.e., substance use, feeling of isolation). Parents' emotional and financial

support had buffering effects on the association between various relationship dissolution experiences and health outcomes.

INDEX WORDS: Romantic relationships patterns; young adulthood; early community context; early family relationship; physical health risk; biomarkers; parental support

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DAYOUNG BAE

B.S., Seoul National University, Republic of Korea, 2007

M.A., Seoul National University, Republic of Korea, 2010

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial
Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2016

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by

DAYOUNG BAE

Major Professor:	Kandauda A. S. Wickrama
Committee:	Jay A. Mancini
	Assaf Oshri

Electronic Version Approved:

Suzanne Barbour
Dean of the Graduate School
The University of Georgia
December 2016

DEDICATION

To my beloved family

ACKNOWLEDGEMENTS

I would like to acknowledge those who have contributed to my academic development and the completion of the dissertation. First and above all, I would like to express my sincere appreciation and gratitude to my major advisor, Dr. Kandauda A. S. Wickrama. His unfailing support and guidance have been invaluable. It has been a pleasure and a privilege to work with him, and I consider myself extremely lucky to call him an advisor, advocate, and mentor. I also would like to thank Dr. Jay A. Mancini for his continued encouragement and constructive discussion of my ideas which incited me to widen my research from various perspectives. Further thanks are due to Dr. Assaf Oshri, who provided helpful feedback for developing this dissertation and unwavering support throughout this process.

My sincere thanks also go to my friends and faculty at the University of Georgia. I have been fortunate to study with brilliant professors and students in the Department of Human Development and Family Science. Special thanks are extended to everyone in Korea who believed in me and encouraged me to complete the doctoral program. I am indebted to my dear friends and professors at Seoul National University for their constant encouragement. I am also thankful to my parents and my parents-in-law for the daily love and caring. I would not be where I am today without their unconditional support.

Finally, I owe the deepest debt of gratitude to my dear husband, Junhan, who knows and understands me like no other. Thank you for always being there for me and for making me smile through thick and thin. Your warmth and faith in me keep me going. I am so blessed to share every day with you. I love you.

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CHAPTER 1

INTRODUCTION

BACKGROUND

Young adulthood from the late teens to the twenties is an important stage in the life course because more transitions take place during this period than at any other stage of life (Rindfuss, 1991). Earlier entry into romantic relationships in adolescence, coupled with the present rising age of first marriage, indicates the period that young adults potentially experience with romantic relationship dynamics has lengthened to over a decade (Meier & Allen, 2009). This period has become a period of great variability in intimate relationships, with some individuals making tentative commitments (e.g., cohabitation), and still others making choices with more enduring consequences (e.g., marriage). In addition, as divorce and cohabitation rates increase and as there is little normative pressure to settle down for committed relationships at earlier ages, today's young adults are experiencing frequent turnover in partners and entrance into and out of multiple intimate relationships (Arnett, 2004; Cherlin, 2010; Lichter, Turner, Sassler, 2010). Consideration of the diverse relationship transitions is important because different transitional experiences may have potentially important implications for functioning and quality of life later in adulthood (Macmillan & Eliason, 2003; Wickrama, O'Neal, & Oshri, 2014).

Failure to establish and sustain a committed intimate relationship is thought to have negative implications for well-being across the life span (Amato, 2010; Kiecolt-Glaser &

Newton, 2001). Most studies that investigate romantic relationship dissolution, however, are limited to a single dissolution event such as cohabitation dissolution or divorce, often without consideration of the timing of the event (e.g., Beaujouan, 2012; Wu & Schimmele, 2005). Although these studies offer important insights into the determinants and consequences of the single event, they do not provide an overview of the temporal dynamics of intimate relationships during young adulthood. Moreover, relatively few studies have focused on investigating multiple relationship disruption experiences (Goodnight et al., 2013; Osborne & McLanahan, 2007), which have been considered to exert the most detrimental influences on the adaptation of young adults who experience intimate relationship dissolution (Amato, 2010). Therefore, little is known about the cumulative history of dissolution experiences in close relationships spanning a longer period, although prior relationship dissolution experience is predictive of later relationship stability (Lichter et al., 2010). Taken together, the present set of studies will investigate heterogeneity in relationship dissolution patterns among young adults, with three distinctive yet potentially interdependent relationship dissolution markers (i.e., cohabitation dissolution, divorce, and multiple transitions) to provide important insights about young adults' diverse romantic relationship experiences and their implications for health outcomes.

SIGNIFICANCE AND OVERVIEW OF STUDIES

Figure 1 depicts the overall theoretical model. The model shows that early structural adversity (i.e., community and family adversity) influences young adults' relationship dissolution patterns through psychosocial characteristics during adolescence. The relationship dissolution patterns, in turn, have impact on their cardiovascular and metabolic (CM) disorders through the stress pathways of economic and social resources and psychobehavioral stress

responses, such as psychological distress and substance use. To investigate these associations, two studies are proposed that use a structural equation modeling (SEM) framework, analyzing data from a longitudinal sample of target adolescents participating in the nationally representative National Longitudinal Study of Adolescent to Adult Health [Add Health]) over a period of 13 years.

Study 1: Community, family, and individual precursors of romantic relationship patterns in young adulthood

Given the importance of investigating relationship dissolution patterns of young adults, Study 1 will draw on the synthesis of the *life course perspective* (Elder, 1998) and the *development of early adult romantic relationship model* (DEARR model; Bryant & Conger, 2002), which proposes that relationship-inhibiting and promoting experiences during earlier years (e.g., community disadvantage, involved parenting) affect quality and stability of early adult romantic relationships through individual attributes of young adults. First of all, to investigate the occurrence and timing of multiple relationship dissolution events and identify heterogeneity of relationship dissolution trajectories during young adulthood, Study 1 adopted the advanced statistical approach called the Discrete-Time Multiple Event Process Survival Mixture (MEPSUM) model. Using three indicators of romantic relationship dissolution, divorce, cohabitation dissolution, and multiple relationship transitions between the two dissolution events, the MEPSUM model allows for the detection of various patterns of relationship dissolution experiences among young adults, providing a succinct summary of individual differences in patterns of event occurrence over time.

Then, the study will explore the direct and indirect pathways to heterogeneous relationship dissolution patterns from early life contexts. More specifically, this study will focus

on mediating mechanisms of youth's psychosocial characteristics linking early community and family environments to relationship dissolution experiences in young adulthood. Given the crucial role romantic relationships play in both short- and long-term adjustment, including emotional and physical health (Amato, 2000, 2010), researchers have begun to focus on the roots of these relationships hypothesizing that the capacity for establishing stable intimate relationships evolves from earlier experiences that accumulate across childhood and adolescence (Collins, Hennighausen, Schmit, & Sroufe, 1997). For instance, early community and family adversities may put adolescents at risk for relationship dissolution experiences during young adulthood by hindering the development of personal and social resources (Wickrama, Bryant, & Wickrama, 2010). Particularly, past studies suggest that certain psychosocial characteristics, such as disrupted transitions, decline in social support, lack of future orientation, and high levels of depressive symptoms, place youth at a distinct disadvantage in acquiring the human and social capital necessary for adaptive romantic relationship functioning (Olderbak & Figueredo, 2009). On the other hand, social resources embedded in family relationships, such as nurturant-involved parenting, is known to predict warm, supportive behaviors to romantic partners and greater romantic relationship competence in later years (Conger et al., 2000) as youth can view the intimate relationships as rewarding and fulfilling (Rauer et al., 2013). That is, early parent-child relationship quality can be internalized as relationship schemas that influence romantic relationship success in young adulthood and beyond. However, less is known about how both risky and protective early environments are linked to the cumulative history of romantic experiences in young adulthood through multiple psychosocial characteristics during adolescence. Therefore, the purpose of the Study 1 is to understand how early structural adversity and parent-child relationship influence the heterogeneous cumulative history of

relationship dissolution experiences of young adults via their psychosocial characteristics during adolescence.

Study 2: Stress processes linking romantic relationship dissolution to physical health risk – A protective role of parental support

Drawing on the *stress process model* (Pearlin, Schieman, Fazio, & Meersman, 2005), Study 2 will investigate stress mediational pathways that link different relationship dissolution experiences to CM disease risk. Further, this study will focus on parental support as a stress-buffering social resource for young adults that may be protective against the development of CM disease risk.

Previous studies have clearly shown that romantic relationship dissolution is an important life disruption that is thought to have negative consequences in physical health outcomes including higher risk of physical and mental illness and overall mortality (Braver, Shapiro, & Goodman, 2006; Lorenz, Wickrama, Conger & Elder, 2006; Umberson, Crosnoe, & Reczek, 2010). However, past research has often looked at physical health using self-assessed health measure (Umberson et al., 2010), which may be subject to self-reporting bias. Instead, objective measures of physical health, such as clinically measured biomarkers may provide more convincing evidence of the association between intimate relationship and physical health. In addition, although relationship dissolution itself is the stressor that has long-term health consequences, it can be only one component of a cluster of stressors that are entwined each other (Pearlin, Schieman, Fazio, & Meersman, 2005). For instance, romantic dissolution can lead to increased economic hardships (Avellar & Smock, 2005), decline in social participation (Kalmijn & van Groenou, 2005), health risk behaviors including substance use (Galea, Nandi, & Vlahov, 2004), and psychological challenges including a feeling of loneliness (de Jong Gierveld, Tilburg,

& Dykstra, 2006). These constellations of stressors can create a chronic stressful context which may increase young adults' CM disease risk, through "wear and tear" on the body's physiological systems (McEwen, 2000).

Moderating role of parental support

Moreover, previous research has found that health impacts of stressors can be weakened or buffered by individuals' personal and social assets, including parents' emotional and financial supports, which can provide available resources to young adults when needed encouraging them to actively attempts at problem-solving (Thoits, 2010). Parental behavior in early life is an important context that regulates stress-sensitive systems (Loman & Gunner, 2010). According to previous research, lack or loss of parental nurturance is among the most potent stressors in early in life, which was conceptualized as hidden regulators embedded in parent-offspring relationships (Hofer, 1994). However, little research has considered stress pathways stemming from relationship dissolution to CM disease risk and potential protective effects of parental support on the pathways. Thus, the purpose of Study 2 is first to investigate how relationship dissolution patterns influence declines in social and economic resources, substance use behaviors, and feeling of isolation, which in turn, may have an impact on CM disease risk in young adulthood. Then, the study further aims to examine how parental support can moderate the impact of stressful relationship dissolution experiences on the development of CM disease risk.

CHAPTER 2

STUDY 1: COMMUNITY, FAMILY, AND INDIVIDUAL PRECURSORS OF ROMANTIC RELATIONSHIP DISSOLUTION PATTERNS IN YOUNG ADULthood: A DISCRETE-TIME EVENT HISTORY MIXTURE MODEL

INTRODUCTION

As recent cohorts enter into romantic relationships at earlier ages and delay marriage, the period that young adults experience formation and dissolution of romantic relationships has lengthened to over a decade (Johnson & Dye, 2005; Meier & Allen, 2009). Coupled with this trend, cohabitation and nonmarital childbearing have become increasingly common in the United States (Kennedy & Bumpass, 2008; Manning, 2013). Without strict social and age norms regarding family formation through marriage and childbearing, today's young adults are in constant movement of stepping on and off the *carousel of intimate relationships* (Cherlin, 2009). These sociodemographic shifts indicate that young adults show greater variability in romantic relationship experiences, with some individuals making rather tentative commitments (e.g., cohabitation) while others make more enduring choices (e.g., marriage). More importantly, more young adults experience multiple transitions in dating and co-living relationships (i.e., a series of cohabitations dissolutions and/or divorces, Amato, 2010).

According to Erikson's theory of psychosocial development (1959), young adulthood is characterized by a period that occurs a crisis of achieving intimacy. Establishing and maintaining intimacy in a romantic relationship through effective problem-solving skills is considered to be

one of the critical developmental tasks during the early adult years (Arnett, 2004; Conger, Cui, Bryant, & Elder, 2000; Neemann, Hubbard, & Masten, 1995); establishing a stable and healthy intimate relationship can promote personal well-being and a sense of safety, while failure to sustain such committed relationships can lead to a feeling of loneliness, social isolation, and thought to have psychological and physical distress (Amato, 2010; Kiecolt-Glaser & Newton, 2001). Due to the recognized importance of close relationships, previous studies extensively examined the developmental precursors of romantic relationship experiences in young adulthood (Conger et al., 2000; Rauer et al., 2013).

Although studies on romantic relationships are abundant, cumulative relationship dissolution experiences during young adulthood are not yet completely understood. De-standardized and individualized life pathways of today's young adults (Fussell & Furstenberg, 2005) indicate that they are more likely to engage in a variety of serial romantic relationships (Lichter, Turner, Sassler, 2010). However, most previous studies on relationship dissolution have focused on a single outcome, either cohabitation dissolution or divorce (Beaujouan, 2012; Wu & Schimmele, 2005), considering them as competing events. While previous research provides important insights into a single dissolution experience at a particular point of time, they overlook the advent of patterns of serial and multiple relationship dissolution events that young people likely experience (Cohen & Manning, 2010). Therefore, very little is known about cumulative dissolution experiences in close relationships spanning a longer period of time. Accordingly, a person-centered, holistic view of the trajectories of romantic relationship dissolution is warranted to examine different patterns of the sequence and timing of various dissolution events (e.g., cohabitation, divorce, and multiple transitions) and the temporal dynamics of intimate relationships during young adulthood.

Previous studies have documented that earlier life experiences that accumulate across childhood and adolescence persist into young adulthood influencing romantic relationship functioning (Collins, Hennighausen, Schmit, & Sroufe, 1997). For example, contextual risk factors such as early community and family adversities can put adolescents at risk for relationship dissolution experiences during the transition to adulthood by hindering the development of personal and social resources (Wickrama, Bryant, & Wickrama, 2010). Past studies suggest that youth exposed to high-stress community and/or family environments (e.g., community disorganization, weak ties to schools and teachers, high family poverty) are more likely to experience psychosocial problems, such as disrupted transitions to adulthood (e.g., truncated education, early entry into full-time work) (Wickrama, O'Neal, & Oshri, 2014), decline in social support (Lin, Thompson, & Kaslow, 2009), lack of future orientation (Wickrama, O'Neal, & Lee, 2016), and increased depressive symptoms (Eamon, 2002). These psychosocial vulnerabilities place youth at a distinct disadvantage in acquiring the human and social capital necessary for adaptive romantic relationship functioning (Olderbak & Figueredo, 2009). Also, frequent relationship conflicts and hostile interactions observed in adverse community and family may have direct influences on youth's romantic relationship experiences as they bring the modeled and learned hostile interaction styles into their romantic relationships (Bryant & Wickrama, 2005).

The life course developmental perspective argues that early risk factors can initiate a succession of negative events that have persistent long-term influences on developmental outcomes over the life course (Elder, 1998; Elder & Giele, 2009). This long-term association may operate through path-dependent mechanisms involving young adults' psychosocial processes during adolescence (O'Rand & Hamil-Luker, 2005; Willson, Shuey, & Elder, 2007).

These linking processes are further elaborated by micro-level theories and models. For example, the development of early adult romantic relationship model (DEARR model), which proposes that relationship-inhibiting and promoting experiences during earlier years (e.g., low family socioeconomic status, involved parenting) affect quality and stability of early adult romantic relationships through socioeconomic and individual attributes of young adults (Bryant & Conger, 2002).

Given the greater variability in young adults' romantic relationship experiences, additional research needs to investigate the complexity of romantic experiences drawing on a person-centered approach. Integrating the tenants of DEARR model within the life course perspectives, the present study attempts to extend past research by (1) investigating heterogeneity in romantic experiences of young adults, (2) identify distal predictors of community and family contexts associated with these different experiences, and (3) identify mediating processes that link early life contexts and later romantic relationship experiences of young adults.

LITERATURE REVIEW

Heterogeneity of Romantic Relationship in Young Adulthood

Compared to earlier generations, one of the most noticeable societal changes that characterize recent cohorts can be delayed marriage and childbearing. For instance, the median ages for marriage in the United States in the 1950s were 20.3 years for women and 22.8 years for men, and they are now 27.1 years for women and 29.2 years for men (U. S. Census Bureau, 2015). The average age of first-time mothers increased by 4.9 years, from 21.4 years in 1970 to 26.3 years in 2014 (Mathews & Hamilton, 2016). Coupled with these demographic shifts, almost

half of recent adolescents report romantic involvement by the age of 15 (Carver, Joyner, & Udry, 2003; Meier & Allen, 2009). This indicates that adolescents have more than ten years in which they may be involved in romantic relationships before marriage (Meier & Allen, 2009).

Arnett's emerging adulthood theory attributes these societal changes to the pursuit of higher education and high-paying jobs among emerging adults (the period from ages 18 to 25) reflecting their selectiveness in their choices, self-focused, self-entitled, and restless traits (Arnett, 2000; Reifman, 2011). While romantic relationships during adolescence are often short-term, transient, and recreational, intimate relationships among emerging adults are more committed, serious, and long-term (Arnett, 2000; Seiffge-Krenke, 2003). However, as the emerging adulthood is characterized by identity exploration and self-focused period, it is expected that young people are involved in romantic relationships in multiple sequences in pursuit of long-lasting romantic relationships (Meier & Allen, 2009). Moreover, as divorce and cohabitation rates increased and as there is little normative pressure to settle down for committed relationships at earlier ages, frequent turnover in partners and entrance into multiple unions have become widespread (Arnett, 2004; Cherlin, 2010).

As romantic partners of young adults serve as the primary source of social and emotional support (Seiffge-Krenke, 2003), failure to establish such intimate relationships has negative implications for emotional and physical health, and for behavioral adjustment (Kiecolt-Glaser, 2001). Acknowledging the developmental importance of romantic relationship experiences, most prior studies often focus on one key relationship dissolution experience (i.e., either cohabitation dissolution or divorce), particularly on the timing of relationship dissolution (Gottman & Levenson, 2000; Kamp Dush, 2011). For instance, Kamp Dush (2011) investigated a timing of cohabitation dissolution after a non-marital birth distinguishing different types of cohabitation

dissolution, such as dissolution with a continued romantic relationship or without. Other studies (Sandberg-Thoma & Kamp Dush, 2014; Wu & Pollard, 2000; Wu & Schimmele, 2005) on cohabitation dissolution examined whether and when cohabiting unions end either through legal marriage or cohabitation dissolution. Similar findings can be found in studies on divorce. Gottman and Levenson (2000) investigated predictors related to the timing of divorce, differentiating early divorcing and later divorcing couples. Although these studies offer important insights into the determinants and timing of certain relationship dissolution events, they do not provide an overview of the sequence and timing of various events or the temporal dynamics of intimate relationships during young adulthood.

Recently, however, theoretical approaches to assessing relationship dissolution have incorporated the life course perspectives suggesting that individuals' relationship dissolution events are interdependent and linked across the age span (Sassler, 2010). For instance, Lichter and Qian (2008) argued that experiences of relationship breakups could make it easier to terminate the next relationship, including marital relationships. From a developmental perspective, Karney and Bradbury (1995) also suggested that some risk factors for marital problems and divorce could be identified in premarital relationships. Those findings demonstrate that prior relationship dissolution experience can be predictive of later relationship stability. The central goal of the present study is thus to identify various/heterogeneous patterns in romantic dissolution experiences of young adults considering the occurrence, timing, and sequence of three relationship dissolution events; cohabitation dissolution, divorce, and multiple transitions (defined in this study as experiencing more than two cohabitation dissolution and/or divorce).

*Cumulative Structural Adversity, Family Social Resources, and Romantic Relationship
Dissolution in Young Adulthood*

Most research on antecedents of romantic relationship quality and competence of young adults has focused primarily on contemporaneous contextual and relational factors that are associated with relationship success. For instance, financial stress (Poortman, 2005) and having a cynical view on the romantic relationship (Kogan et al., 2013) during young adulthood have been associated with decreased relationship quality. However, as suggested by a large body of research in ecological perspective and life course perspective (Bronfenbrenner, 1977; Elder 1986; Shanahan, 2000), early social contexts surrounding individuals, including both community and family environments, have enduring effects on later romantic relationship experiences (Wickrama & O'Neal, 2015).

Past study has suggested that young adults' romantic relationships can be directly influenced by structural constraints embedded in community environments through several mechanisms (Cunradi, Caetano, Clark, & Schafer, 2000; Edwards, Mattingly, Dixon, & Banyard, 2014). For example, community-level poverty and broader measures of community disadvantage (e.g., proportion of single-parent families, proportion of adults employed in service occupations) may cause community stress (Ross & Mirowsky, 2001; Wickrama et al., 2010), which in turn, may facilitate the development of negative emotions in romantic interactions. Disadvantaged community may also erode community norms that prevent hostile and violent romantic interactions causing failure in stable, long-term, and satisfying close relationships (Mancini & Bowen, 2013; Wilson, 2012).

Although the longitudinal association between community-level risk factors and later romantic relationships has been less well studied, early life experiences in disadvantaged community context can be pivotal in determining later intimate relationship experiences via modeling process (Bandura, 1977). That is, youth exposed to disordered and disadvantaged

community environments may be hard to find positive role models for romantic interactions. Exposure to frequent relationship conflicts, violence between intimate partners, and high percentages of separated, or divorced parents observed in a disadvantaged community may enable youth to bring the modeled and learned hostile interaction styles and behaviors in later romantic interactions (Bryant & Wickrama, 2005).

Within the family domain, previous research has recognized that lack of structural resources in the family of origin (e.g., economic hardship, parental education, and family structure) can be a crucial ground for young adults' capacity in establishing and maintaining romantic relationships. For instance, youth exposed to economic hardship in the family of origin may believe that the economic returns to marriage are minimal and economically secure marriage is out of reach for them (Amato & Kane, 2011). This belief may discourage them to invest their resources into committed relationships, which in turn, may contribute to increased conflict and instability of intimate relationships. In addition, youth may experience high levels of stress due to various difficulties caused by socioeconomic hardship in the family of origin. Previous studies demonstrated that distressed youth with low psychological well-being tend to leave their families early in the life course and show somewhat unconditional intimate relationship characteristics, such as cohabit and marry at early ages or have nonmarital births (Amato et al., 2008). Early marriage or cohabitation and nonmarital births are well-known risk factors of relationship stability (Härkönen & Dronkers, 2006). Other studies have shown that young adults from high-resource families tend to delay marriage longer than do those from low-resource families to complete college and begin their careers (Amato et al., 2008; Bryant & Conger, 2002). Due to higher income and educational attainment, they are less likely to experience stresses caused by economic hardship, which can be a risk of intimate relationship

conflict and distress (Conger et al., 1990).

Structural adversities in community and family, however, are often closely related because many families at risk of socioeconomic hardships tend to reside in a disadvantaged community with low social capital. This indicates that many low-income children are exposed to constellations of risk factors rather than isolated instances of adverse circumstances (Evans, Li, & Whipple, 2013). Accordingly, investigating environmental risk factors of a single domain (either community or family) may underestimate the potential negative impacts of risky environments to interfere with various developmental outcomes (Rutter, 1981). In the present study, therefore, a composite index of multiple risk factors in community and family contexts will be constructed to understand the comprehensive potential impacts of early adversity on relationship dissolution experiences (Evans & Kim, 2010).

In addition to structural constraints of community and family of origin, the parent-child relationship is known to predict the development of romantic relationships in young adulthood. According to attachment theory (Bowlby, 1980), early parent-child relationship quality and attachment styles influence later romantic relationship attachment styles through beliefs and expectations about closeness and intimacy (Furman, Simon, Shaffer, & Bouchee, 2002). Insecure attachment in infancy, in particular, leads to more conflict, poor emotional recovery from negative interactions, and less commitment in romantic relationships in adulthood (Simpson, Collins, & Salvatore, 2011). On the other hand, warm and proactive parenting and positive parent-child interactions have been linked to warm, supportive behaviors to romantic partners and greater romantic relationship competence (Conger et al., 2000) as youth can view the intimate relationships as rewarding and fulfilling (Rauer et al., 2013). This suggests that experiences in one's early years with family relationships will be internalized as relationship

schemas or internal working models (Dinero, Conger, Shaver, Widaman, & Larsen-Rife, 2008) that carry forward to influence romantic relationship success in young adulthood and beyond. As to consider both positive and negative aspects of early developmental contexts of youth, the present study considered positive parenting styles during adolescence together with structural community/family adversity as predictors that initiate the course of romantic relationship development in young adulthood.

Psychosocial Factors Linking Early Social Contexts to Romantic Relationship Experiences in Young Adulthood

Early family and community contexts can also impact romantic relationships in later years through various psychosocial characteristics of young adults. Drawing on social disorganization theory (Shaw & McKay, 1942), previous empirical research has documented that community disadvantage is associated with off-time transitional events during adolescence that deviate from the normative anticipated timing, such as dropping out of school, birth of a child at an early age, and leaving home early (Wickrama et al., 2014). Several studies also found that increased community disorder and community-level poverty are positively associated with dating conflict and intimate partner victimization among adolescents and young adults (Copp, Kuhl, Giordano, Longmore, & Manning, 2015; Capaldi, Knoble, Shortt, & Kim, 2012; Rothman, Johnson, & Young, 2011). This is most likely due to the community's inability to exert formal and informal social control and increased stress among couples living in a disorganized community (Edwards et al., 2014). Moreover, previous research has also shown that the perceived harmful, uncontrollable, and threatening environment of a disadvantaged community can foster a sense of loss of control and decreased future orientation (Sieger et al., 2004), which can then discourage commitment and foster distrust in close relationships (Burton & Tucker,

2009; Simons, Simons, Lei, & Landor, 2012). Lastly, early socioeconomic adversity of both community and family has been linked to increased depressive symptoms during adolescence and young adulthood (Wickrama, Kwon, Oshri, & Lee, 2014; Stirling, Toumbourou, & Rowland, 2015).

The development of early adult romantic relationships model (DEARR model) explains the linking mechanisms stemming from early family environment and influencing probability of success in young adult romantic relationships via various interpersonal skills or competencies (Bryant & Conger, 2002; Conger et al., 2000). According to the DEARR model, interactional contexts of the family of origin provide either relationship-promoting or relationship-inhibiting experiences for youth. For instance, hostile interactions among family members and harsh parenting are risk factors that inhibit the development of an understanding in close relationships. Youth exposed to hostile and unsupportive family interactions are less likely to have positive beliefs about the trustworthiness and dependability of romantic partners. Such a lack of positive cognition of close relationships may lead to the development of hostile and coercive interaction style with romantic partners. Youth from adverse family environments are also more likely to feel worthlessness and have a pessimistic outlook on the future (Madigan, Atkinson, Laurin, & Benoit, 2013), and they are more likely to experience negative emotions (e.g., irritability and depressed mood), which in turn may carry forward to influence the development of early adult romantic relationships (Bryant & Conger, 2002). On the other hand, warm and supportive interactions among family members and nurturant parenting behaviors promote the capacity for intimacy via the development of effective social problem-solving skills and positive cognitions of close relationships.

The DEARR model also argues that youth from economically disadvantaged family tend to experience less successful transitions to early adulthood, such as dropping out of school or full-time employment during teenage years (Elder, George, & Shanahan, 1996) because their parents are unable to provide enough resources. Other previous studies also have been shown that structural constraints in community (e.g., poor housing, physical hazards, and crime) along with structural adversity in family can cause heightened stress among youth and may make them to view their future as unstable, unpredictable, and hopeless, which may contribute to the erosion youth's future orientation and development of depressed mood (Donnellan, Conger, McAdams, & Neppl, 2009; Neblett & Cortina, 2006).

Overarching Theoretical Framework – The Life Course Perspective

One of the principles of the life course perspective is the importance of *historical time and place* in shaping individual's lives (Elder, 1998). Dramatic demographic and societal changes over the past century in the United States, such as delay in marriage and childbearing, an elongated period of emerging adulthood, and early involvement in romantic relationships, have changed the social contexts that recent cohorts of young adults experience romantic relationships. Unlike earlier generations, young adults are likely to experience more frequent relationship transitions and have more short-term relationships (Cherlin, 2010).

In addition, the *linked life events* principle refers to the interdependency of individual's life events. That is, the occurrence and timing of transition events, including relationship dissolution events, are interdependent and linked across the age span (Sassler, 2010). For instance, cohabitation dissolution could make it easier to terminate the next romantic relationship, including marital relationships (Lichter & Qian, 2008). The interdependent

occurrence and order of these events construct sequences of life events, which give structure to one's life-course (Wickrama, Conger, Lorenz, & Jung, 2008).

Many previous studies of the life course perspective have shown the existence of considerable heterogeneity in the timing and sequence of transition events (Schoen, Landale, & Daniels, 2007). The divergent pathways are due to the influence of both structural context and individual capacity to adapt and modify the given context (Elder, 1998). Despite the potential existence of heterogeneity in romantic relationship dissolution patterns of young adults, however, few studies have investigated various relationship dissolution events together across the transition to adulthood period and how early adversity/resource and youth's adaptation to the contexts together shape developmental pathways of romantic relationships throughout adolescence and young adulthood.

CURRENT STUDY

Examining the diverse and heterogeneous romantic relationship dissolution patterns in young adults today is a pertinent topic for family and demographic research. Also, investigating developmental linking pathways stemming from community and family contexts broadens our understanding of how early life experiences shape close relationship dynamics over the life course through various psychosocial processes during adolescence. The present study suggested three hypotheses as below, and each hypothesis is depicted in Figure 2.

Hypothesis 1. Heterogeneity of romantic relationship dissolution patterns in young adulthood (at age 18-30 years) exists.

Hypothesis 2. Early cumulative structural adversity in community and family environments (i.e., community adversity, low parental education, economic hardship of

family of origin, low parental marital stability) and positive interactions within the family (i.e., nurturant-involved parenting) influence heterogeneity of romantic relationship dissolution patterns.

Hypothesis 3. Early life contexts influence heterogeneity of romantic relationship dissolution through youth's psychosocial characteristics (i.e., disrupted transitions to adulthood, conflict in dating relationships, future orientation, and depressive symptoms).

METHODS

Sample and Data

Data for this study came from a nationally representative sample of adolescents participating in the National Longitudinal Study of Adolescent to Adult Health (Add Health). In 1995, baseline (Wave 1) data were derived from a complex stratified cluster-sampling of middle and high school students, yielding 20,745 respondents ($M_{\text{age}} = 15.5$ years; range = 12 - 20 years at baseline) from 134 middle and high schools. To ensure diversity, the sample was stratified by region (South, West, Midwest, and Northeast), urbanicity, school type (public vs. private), racial composition, and size. Wave 1 data from youth were collected in schools, while parent data were collected from in-home interviewer-administered questionnaires. The second, third, and fourth waves of data were collected in-home in 1996, 2001, and 2008 ($N_2 = 14,738$, $M_{\text{age}} = 16.18$; $N_3 = 15,100$, $M_{\text{age}} = 21.18$; $N_4 = 15,701$, $M_{\text{age}} = 29.13$). The present study used interview data from parents in Wave 1 and from adolescents who participated in Waves 1, 2, 3, and 4. The purpose of the present study is to investigate dissolution experiences in co-living relationships, and therefore, young adults who had not formed co-living relationships were excluded from the study sample. Consequently, the final study sample included 9,275 respondents. Attrition analysis

showed that respondents excluded from the current analyses due to missing data with those retained in the analyses did not identify significant differences with regard to the key variables (cumulative adversity, nurturant-involved parenting, future orientation) and basic demographics (age, gender) except the sample respondents experienced slightly fewer disrupted transitions (.55 and .67, respectively). The sample respondents were less likely to be Black (22% and 27%, respectively), more likely to be White (53% and 44%, respectively), and more likely to be female (54% and 44%, respectively) than the Wave 1 sample respondents. The present study used Wave 4 sample weights in the analyses.

Measures

Romantic relationship dissolution patterns. To identify romantic relationship dissolution patterns, three relationship dissolution variables were examined: cohabitation dissolution, divorce, and multiple transitions (i.e., experiencing two or more cohabitation dissolution and/or divorces). At Wave 4 (2008), young adults were asked their history of all romantic and sexual relationships since 1995. For each relationship, respondents were asked to report when the relationship started and ended. For each age from 18 to 30, a binary variable was created for each relationship status indicating whether the individual experienced the relationship dissolution for the first time at that age (coded 1) or had not experienced the dissolution by that age (coded 0). For cohabitation dissolution and divorce, month and year information of each relationship dissolution experience was used. For multiple transitions, month and year information of the start of third co-living relationship (either cohabitation or marriage) that respondents formed with a different partner from the first two co-living relationships was used to reflect multiple transitions in cohabitation dissolution and divorce that respondents experienced. For instance, if a respondent experienced cohabitation dissolution at age 23 and then married with a different

partner at age 24 and maintained that relationship, the case was not recorded as experiencing multiple transitions because the total number of relationship transitions was counted as 2. However, if the same respondents' marriage was dissolved again at age 25 and he/she got married to a different partner at age 27, the respondent was coded as having multiple relationship transitions at age 27 (i.e., categorized as experiencing transitions in co-living relationship more than two times). To account for the fact that a relatively small percentage of individuals experienced one of the relationship dissolution status before age 18, the relationship status variable at age 18 represented whether individuals experienced the relationship dissolution for the first time by the age 18 or younger.

Cumulative structural adversity. In accordance with the multiple risk exposure notion (Evans & Kim, 2010), an additive index for cumulative socioeconomic adversity was created by summing dichotomous indicators capturing multiple dimensions of adversity. These indicators included high community adversity, low parental education, high family economic hardship, and low parental marital stability. Except for marital stability (already a dichotomous measure), dichotomous indicators were created by mean splitting the following measures.

1) *Community adversity.* Community adversity was assessed by summing four indicators corresponding to census tract information from the 1990 U.S. Census. The indicators included (1) the proportion of families living in poverty, (2) the proportion of single-parent families, (3) the proportion of adults employed in service occupations, and (4) the proportion of unemployed men (Sucoff & Upchurch, 1998).

2) *Parental education.* The responding parent reported both parents' highest level of education obtained at W1 (1995). Responses ranged from: 1 = never went to school to 10 = professional training beyond four-year college or university degree. Mothers' and fathers'

educational levels were summed to create an index of parental education. For single-headed families ($n = 79$) with no available data from fathers, maternal education served as the indicator of parental education.

3) *Economic hardship*. Five dichotomous items (0 = *no*, 1 = *yes*) assessed whether any member of the household received the following social service benefits in the past month: social security, supplemental security income, aid to families with dependent children, food stamps, or housing subsidies at W1 (1995). Responses to these five items were summed to create an index of economic hardship with a range of 0-5.

4) *Parents' marital stability*. A binary variable was used to differentiate parents who had been consistently married to their spouse (or in a marriage-like relationship) for at least 15 years (1) from other parents (0). Fifteen years was selected as the cut-off because the average age of respondents at Wave 1 was 15 years. Thus, for most respondents this variable represents their parents' continuous marriage for the duration of the child's life.

Nurturant-involved parenting. Nurturant/involved parenting was assessed by adolescents' report on the quality of mothers' and father's parenting. Adolescents were asked to indicate whether (1) most of the time, mom/dad were warm and loving toward him/her; (2) mom/dad encouraged him/her to be independent; (3) when he/she did something wrong, mom/dad helped him/her understand why it was wrong; (4) he/she was satisfied with the way mom/dad communicated with each other; (5) overall, he/she was satisfied with his/her relationship with mom/dad. Scale responses ranged from 1 = *strongly disagree* to 5 = *strongly agree*. The ratings for all the indicators were summed to create a score for involved parenting, and for single-parent families, the score was doubled. High scores indicated more involved parenting. Indices for father and mother had internal consistencies of .85 and .90, respectively.

Disrupted transitions to adulthood. Using retrospective data at Wave 3 (2001), disrupted transitions to adulthood were indexed by six indicators consistent with previous studies (Wickrama et al., 2014): high school dropout, early leaving home, early full-time employment, early marriage/cohabitation, teenage pregnancy, and early sexual activities. *High school dropout* was assessed by the highest level of education young adults completed at Wave 3. Respondents were coded as 0 (higher than high school diploma or GED) and 1 (lower than high school diploma or GED). *Early leaving home* was assessed with the retrospective reports on the year of moving and residential status (e.g., living in a separate house, apartment, trailer home, or group quarters). Respondents were coded as 1 if they left home before age 18. Full-time college/university students were not categorized as early leavers. Respondents were categorized as *early full-time employment* if they worked full-time during the high school attending years. Marriage or cohabitation during adolescent years, and female becoming pregnant or male fathering during the teenage years were classified as *early marriage/cohabitation* and *teenage pregnancy*, respectively. Lastly, the onset of sexual intercourse before age 16 was categorized as *early sexual activities*. The average age of first sexual intercourse in the United States was used as the cutoff for early sexual activities (Centers for Disease Control and Prevention, 2010). Scores of six indicators were summed to indicate the extent of disrupted transition, yielding an index that ranged from 0 to 6.

Conflict in dating relationships. Adolescents' conflict in dating relationships was measured using five dichotomous items (0 = *no*, 1 = *yes*) from a short-form of the Conflict Tactics Scale (Straus, Gelles, & Seimet, 1980). Adolescents were asked if their partner had ever done any of the following: "call you names, insult you, or treat you disrespectfully in front of others," "swear at you," "threaten you with violence," "push or shove you," and "throw

something at you.” Responses to these five items were summed to create an index of economic hardship with a range of 0-5.

Future orientation. Future orientations was measured by four items capturing different domains (Chen & Vazsonyi, 2011). At Wave 2 (1996), participants rated their agreement to two items. “You live your life without much thought of the future” was measured on a 5-point scale ranging from 1 = strongly agree to 5 = strongly disagree. “You felt hopeful about the future” was measured on a 4-point scale ranging from 0 = never or rarely to 3 = most or all of the time. In addition, participants indicate their chances of living to age 35 and their chances of graduating from college on a 5-point scale from “almost no chance/low” to “almost certain/high.” A sum score was computed using standardized scores for each of the four items. Internal reliability for this measure was .65.

Depressive symptoms. Depressive symptoms were measured at Wave 2 (1996) using nine items from the Center for Epidemiological Studies of Depression Scale (CES-D; Radloff, 1977). The scale captures feeling of distress (e.g., felt depressed and sad) in the past week. Scale responses ranged from 0 = *never or rarely* to 3 = *most of the time or all of the time*. Positive affect items were reverse coded before summing all items. This resulted in an index of depressive symptoms ranging from 0 to 27. The scale had adequate internal reliability ($\alpha = .80$).

Covariates. Covariates that have been found to be associated with young adults’ romantic relationships, including respondents’ race/ethnicity, gender, and age were controlled.

(1) *Race/ethnicity.* At Wave 1, adolescents reported their race/ethnicity. Dichotomous variables were then created to assess Black, Hispanic, Asian, Native American, multi-race/ethnicity (adolescents selected more than one racial/ethnic group), and White racial/ethnic statuses. The dichotomous variables for each of the minority statuses were included as

independent variables resulting in regression coefficients that can be interpreted with reference to Whites.

(2) *Sex*. Sex was coded as male (0) or female (1).

(3) *Age*. A continuous measure of respondents' age at Wave 1 (1995) was used.

Multivariate discrete-time event history mixture model

The main purpose of the present study is to investigate the occurrence and timing of multiple relationship dissolution events during the transition to adulthood period. The main advantage of the Discrete-Time Multiple Event Process Survival Mixture (MEPSUM) model is that it integrates multivariate, discrete-time survival modeling, and latent class analysis.

While most of the young people are involved in intimate romantic relationships, there are individuals who do not experience the dissolution of co-living relationships within the time frame of the present study (from age 18 to age 30). For those individuals, it is unknown when they will experience relationship dissolution, or whether they will even experience the dissolution event at all (i.e., right-censored data; Dean, Bauer, & Shanahan, 2014). Using traditional linear and logistic regression analyses may lead to biases in parameter estimations due to failure in taking into account censored respondents. Survival analysis has advantages in dealing with the censored data (Lee & Wang, 2003).

Unlike continuous survival analysis that assumes we can measure precise records of event occurrence, discrete survival analysis or event history analysis assumes that events can occur at discrete points at time with finite time-intervals. This is particularly true for Add Health study, which measures romantic relationship history based on a year, not on an exact date. Add Health is organized by wave of assessments. Therefore, data were restructured for the present study to provide age-based relationship dissolution experiences for discrete-time event history

analysis (Richmond-Rakerd, Fleming, & Slutske, 2016).

Event-history analysis uses the hazard probability (h) to estimate the conditional probability that the event occurs (event time = T) at discrete time point j :

$$h_j = P(T = j \mid T \geq j) = P(T = j \mid T > j-1) = \frac{P(T=j)}{P(T>j-1)} \quad (1)$$

As the above equation suggests, the hazard probability tells us the risk of event occurrence for each time period among individuals eligible to experience (i.e., who previously does not experience the event). It takes into account censored individuals as it is conditional probability computed only using individuals eligible to experience the event, and can be computed for every time period when event occurrence is recorded (Dean et al., 2014).

Other two useful function in survival analysis is the survival function and cumulative distribution function. The survival function (S) presents the probability that an individual survives longer than j , that is, the proportion of individuals who do not experience the event by a given time j :

$$S_j = P(T > j) \quad (2)$$

Cumulative distribution function (D) indicates the probability that an individual has experienced the event by time j :

$$D_j = P(T \leq j) = 1 - S_j \quad (3)$$

With aforementioned three survival functions (h , S , and D), traditional univariate survival analysis allows researchers to investigate if and when a single non-repeatable event occurs including individuals with censored event times.

The first advanced characteristic of the MEPSUM model, compared to the univariate survival model, is that it enables the examination of “multiple” non-repeatable events simultaneously over time. A recent work of Dean and his colleagues (2014) suggested that the

single-event discrete-time event history model can be extended to a multiple-event discrete-time event history model. Traditionally, risks of experiencing cohabitation dissolution and divorce have been treated as mutually exclusive events and handled with competing risk models (Ventura et al., 2000). However, in the present study, the relationship dissolution events include multiple transition experiences, which can occur at the same time point when cohabitation dissolution or divorce happens. For instance, if an individual experienced the first divorce after several cohabitation dissolutions, and transitioned into a new co-living relationship with a new partner in the same year that he/she had a divorce, then the multiple transitions in romantic relationship occurred in the same year (discrete-time point) when divorce occurred. Since these relationship dissolution events are not mutually exclusive and do not necessarily occur in a sequential order (Dean et al., 2014), the MEPSUM model is appropriate to take into account the interdependence of the events.

Moreover, the MEPSUM model allows identifying “*heterogeneity*” in multiple events patterns by incorporating latent classes. That is, it identifies latent classes of individuals with similar hazard for multiple events over time. This characteristic is particularly pertinent to the purpose of the present study; unlike traditional survival analysis that assumes all individuals have the same hazard probability, the MEPSUM model allows detecting various patterns of relationship dissolution experiences among young adults. Therefore, it provides a succinct summary of individual differences in patterns of event occurrence over time (Dean et al., 2014).

Analyses procedure

Analyses were conducted in Mplus version 7.0 (Muthén & Muthén, 1998-2012). Multivariate discrete-time event history analysis was conducted using three relationship dissolution events, cohabitation dissolution, divorce, and multiple transitions. The analyses

results provide the sample-estimated hazard probability. The other two survival probabilities, survival and cumulative distribution probabilities, were calculated using equations 2 and 3.

The optimal number of classes were determined based on a combination of Log-Likelihood values (LL), Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), entropy, and Lo-Mendell-Rubin Likelihood Ratio Test (LMR-LRT) (Jung & Wickrama, 2008). The highest LL, smallest AIC and BIC, entropy greater than .70, and significant *p*-value in LMR-LRT are preferred. Also, size and interpretability of classes were considered (Bauer & Curran, 2003).

Once identifying heterogeneous patterns in relationship dissolution experiences, the hypothesized longitudinal models were tested using path analysis in a structural equation modeling framework. The TYPE = COMPLEX command was used to account for potential bias in standard errors and chi-square computations, due to the nested structure of the Add Health school-based design. Full Information Maximum Likelihood (FIML) procedures (Enders & Bandalos, 2001) were used to account for missing data.

RESULTS

Determination of the Class Solution

Table 1 presents model fit indices information used for determining the optimal number of classes. Increases in -2LL, decreases in AIC and BIC values were observed as the number of classes increased from one to four with the exception of the BIC, which increased slightly in the five-class solution relative to the four-class solution. In addition, although with good entropy and significant LMR-LRT values, the five-class solution included a class that represented only 3% of the sample. Additional analysis with six-class solution did not provide model fit information due

to non-convergence. Therefore, a four-class was determined as the best solution to describe the underlying heterogeneity in cohabitation dissolution, divorce, and multiple transition experiences in this sample.

Hazard and Cumulative Probabilities in Latent Classes

Next, the hazard ($\hat{h}$) and cumulative distribution ($\hat{D}$) probabilities for each class were examined. The results are shown in Figure 3. The hazard function represents the probability of experiencing a particular relationship dissolution event at a certain age. The cumulative distribution functions display the cumulative probability of relationship dissolution experience by a given age. The age that cumulative distribution probability of each relationship dissolution event reaches .05 (i.e., median cumulative distribution age) is presented in Table 2.

The first class in the 4-class solution ($n = 575$, 6.2%) was characterized by high early risk of experiencing cohabitation dissolution and multiple transitions. Risk continuously increased from age 18 to age 22 for cohabitation dissolution ($\hat{h}_{18} = .27$, $\hat{h}_{22} = .51$). The median age of cumulative distribution probability ($\hat{D}_{19} = .50$) for cohabitation dissolution was 19 (see Table 2), which indicates that 50% of young adults belonging to this class experienced cohabitation dissolution by age 19. At age 23, 95% of young adults in this class experienced cohabitation dissolution ($\hat{D}_{23} = .95$). The risk of multiple transitions began lower than the risk of cohabitation dissolution but caught up by age 23, at which time the risk of multiple transitions continuously increased while the risk of cohabitation dissolution sharply decreased. The median age of cumulative distribution probability for multiple transitions was 22, and at age 25, more than 95% of young adults experienced multiple transitions ($\hat{D}_{25} = .96$). The risk of divorce in this class was consistently low throughout all of the time periods. At age 30, the cumulative probability of divorce was .23, compared to .95 for cohabitation dissolution and 1.00 for multiple transitions.

Because this class was characterized by an early risk of cohabitation dissolution and multiple transitions (i.e., the median age of cumulative probability is age 19 and 22, relatively), it is labeled as the “*early multiple relationship dissolutions*” class.

The second class ($n = 657$, 7.1%) was characterized by a relatively low risk of relationship dissolution through the early twenties that increased during the mid- and late-twenties. The risk of cohabitation dissolution remained below .10 by age 23, and peak risk came at age 27 ($\hat{h}_{27} = .25$). The median age of cumulative probability for cohabitation dissolution was 26. The risk of divorce also remained relatively low through the ages 18 to 30, and by age 30, 67% of young adults in this group had experienced divorce ($\hat{D}_{30} = .67$). The risk of multiple transitions remained very low until age 23 ($\hat{h}_{23} = .02$) then increased sharply from age 24 to age 30 ($\hat{h}_{23} = .07$, $\hat{h}_{30} = 1.00$). The median age for multiple transitions was 27. Due to the late increases in risk of relationship dissolution and the relatively high cumulative probability of all three relationship dissolution events, this class is labeled as the “*late multiple relationship dissolutions*” class.

The third class ($n = 2,345$, 25.3%) was characterized by continuous increases in the risk of cohabitation dissolution and consistently low risk of divorce and multiple transitions. The risk of cohabitation dissolution increased rapidly from age 23 to age 27 ($\hat{h}_{23} = .29$, $\hat{h}_{27} = 1.00$), indicating that the remained young adults who had not experienced cohabitation dissolution by age 26 all experienced the dissolution at age 27. Cumulative probability reached 1.00 at age 28, which means that all young adults experienced cohabitation dissolution by age 28. The risk of divorce remained very low with the cumulative probability of .007 at age 30. This means that less than 1% of young adults in this group experienced divorce by age 30. The peak risk of multiple transitions came at age 28 ($\hat{h}_{28} = .06$) with the cumulative probability of .23 at age 30.

Because this class was characterized by a high risk of cohabitation dissolution and a relatively low risk of divorce and multiple transitions, it is labeled as the “*cohabitation dissolution only*” class.

The hazard and cumulative distribution probabilities in the fourth class ($n = 5,698$, 61.4%) differed a great deal from those in the previous three classes. Risk of all three relationship dissolution events remained started very low and did not increase. Peak estimated risks for cohabitation dissolution, divorce, and multiple transitions were .023, .020, and .002, respectively. None of the relationship dissolution event had median age that half of young adults in this group experienced relationship dissolution. Due to the very low cumulative probabilities of all three relationship dissolution events, cohabitation dissolution ($\hat{D}_{30} = .12$), divorce ($\hat{D}_{30} = .15$), and multiple transitions ($\hat{D}_{30} = .05$) in this group, it is labeled as the “*stable relationships*” class.

Relationship Dissolution and Demographic Characteristics of the Four Latent Classes

Table 3 presents the prevalence of relationship dissolution experiences and demographic characteristics among each latent class. Young adults in the “*early multiple relationship dissolutions*,” “*late multiple relationship dissolutions*,” and “*cohabitation dissolution only*” groups were more likely to experience all types of relationship dissolution events than young adults in the “*stable relationships*” group except divorce. For divorce, young adults in the “*cohabitation dissolution only*” group showed the lowest prevalence (0.7%). With regard to gender, females showed a higher prevalence in the “*early multiple relationship dissolutions*” group. Household income and educational attainment were highest in the “*stable relationships*” group (higher than “completed vocational/technical training after high school” and lower than “some college”), while the “*early multiple relationship dissolutions*” group showed the lowest

household income and educational attainment (higher than “some vocational/technical training after high school” and lower than “completed vocational/technical training after high school”). Regarding race/ethnicity, White showed the highest prevalence in the “*early multiple relationship dissolutions*” group, while Black showed the highest prevalence in the “*cohabitation dissolution only*” group. For Hispanic and Asian, the highest prevalence was observed in the “*stable relationships*” group.

Descriptive Statistics among Study Variables

Table 4 shows the bivariate associations of relationship dissolution patterns with the early life contexts factors and psychosocial characteristics during adolescence. Levels of early structural adversity, nurturant-involved parenting, and psychosocial characteristics differed significantly across the relationship dissolution patterns. The highest levels of early adversity, disrupted transitions, conflict in romantic relationships, and depressive symptoms were reported for the “*early multiple relationship dissolutions*” group. The “*late multiple relationship dissolutions*” group reported lower levels of early structural adversity, depressive symptoms, and higher levels of nurturant-involved parenting than the “*early multiple relationship dissolutions*” group, but they showed more disrupted transitions and lower levels of future orientation than the “*cohabitation dissolution only*” and “*stable relationships*” groups.

The means, standard deviations, and zero-order correlations among the study variables (predictors) are presented in Table 5. As expected, all study variables were correlated in the expected direction. For instance, early structural adversity was positively associated with disrupted transitions, conflict in dating relationships, and depressive symptoms while it was negatively associated future orientation. Most of the correlations across all predictors were small

and acceptable (highest correlation between disrupted transitions and future orientation = $-.27, p < .001$), thus, potential multicollinearity among study variables was ruled out.

Pathways Linking Early Life Contexts to Young Adults' Relationship Dissolution Experiences

Figure 4 presents the results of the linking pathways between early life contexts and young adults' relationship dissolution experiences through various psychosocial characteristics during adolescence. The parameters predicting young adults' relationship dissolution patterns are expressed as odds ratios and associations among early life contexts (i.e., early structural adversity, nurturant-involved parenting, and psychosocial characteristics in adolescence) are expressed as standardized betas.

As hypothesized, early structural adversity was associated with negative social and economic outcomes during adolescence. More specifically, adolescents who experienced higher levels of early structural adversity reported more disrupted transitions ($\beta = .26, p < .001$) and conflict in dating relationships ($\beta = .04, p < .05$). In addition, early adversity was associated with decreases in psychological resources, such as low future orientation ($\beta = -.23, p < .001$) and high depressive symptoms ($\beta = .12, p < .001$). Nurturant-involved parenting, however, was associated with positive psychosocial outcomes in adolescence; it predicted less conflict in dating relationships ($\beta = -.04, p < .05$), higher future orientation ($\beta = .13, p < .001$), and decreased depressive symptoms ($\beta = -.18, p < .001$).

Psychosocial characteristics in adolescence, in turn, were significantly associated with relationship dissolution patterns in young adulthood. Disrupted transitions to adulthood significantly increased the odds of being included in all three types of relationship dissolution classes, the “*early multiple relationship dissolutions*” ($OR = 1.49, p < .001$), “*late multiple relationship dissolutions*” ($OR = 1.41, p < .001$), and “*cohabitation dissolution only*” ($OR =$

1.20, $p < .001$), compared to the “*stable relationships*” group. This result indicates that experiencing precocious and disrupted transitional events during adolescence is a strong risk factor that may have negative impacts on romantic relationship stability in young adulthood. Experiencing conflict in dating relationships during adolescence increased the odds of being in the “*early multiple relationship dissolutions*” (OR = 1.37, $p < .01$) and “*late multiple relationship dissolutions*” (OR = 1.37, $p < .01$) groups. Adolescents’ future orientation and depressive symptoms were only associated with the “*early multiple relationship dissolutions*” group; higher future orientation decreased the odds of being in the “*early multiple relationship dissolutions*” group (OR = .93, $p < .05$) while depressive symptoms increased the odds (OR = 1.05, $p < .05$).

Testing Indirect Effects

The indirect effects from early life contexts to young adults’ romantic relationship stability was tested using Sobel’s test (1982). Results indicated that the effects of early structural adversity was indirectly associated with the “*early multiple relationship dissolutions*” through disrupted transitions (Sobel = 3.83, $p < .001$), conflict in dating relationships (Sobel = 2.07, $p < .05$), future orientation (Sobel = 2.49, $p < .05$), and depressive symptoms (Sobel = 2.27, $p < .05$). The indirect effects of early structural adversity on the “*late multiple relationship dissolutions*” and “*cohabitation dissolution only*” groups via disrupted transitions were significant (Sobel = 3.89, $p < .001$; Sobel = 3.16, $p < .001$, respectively). The effects of nurturant-involved parenting on the “*early multiple relationship dissolutions*” was significantly mediate by conflict in dating relationships (Sobel = -2.33, $p < .05$), adolescents’ future orientation (Sobel = -2.37, $p < .05$) and depressive symptoms (Sobel = -2.40, $p < .05$).

Early life contexts were also directly associated with relationship stability outcomes in young adulthood. Structural adversity directly increased the odds of being in the “*early multiple*

relationship dissolutions” group. Nurturant-involved parenting, on the other hand, directly decreased the odds of being in the “*early multiple relationship dissolutions*” and “*cohabitation dissolution only*” groups in young adulthood. The direct and significant associations between early life contexts and later romantic relationship experiences suggests the existence of other potential mediating mechanisms.

DISCUSSION

Due to the dramatic changes in the frequency, timing, and sequencing of intimate partnerships over the last few decades in the United States, frequent turnover in partners and transition into and out of multiple unions have become widespread among young adults (Arnett, 2004; Cherlin, 2010). Also, little normative pressure to settle down for marriage at earlier ages, coupled with self-focused and self-entitled traits of today’s young adults (Arnett, 2004; Cherlin, 2010), indicates the existence of potential heterogeneity in romantic relationship dissolution experiences. Most prior studies, however, have often focused on one relationship dissolution experience, either divorce or cohabitation dissolution at a certain point in time, lacking information on the cumulative and heterogeneous intimate relationship dissolution experiences for the period of transition to adulthood (Beaujouan, 2012; Kamp Dush, 2011; Wu & Schimmele, 2005). Given timing, sequence, and frequency of relationship dissolution experiences (i.e., cohabitation dissolution, divorce, and multiple transitions), the current study used a nationally representative sample of adolescents to investigate the heterogeneity of relationship dissolution patterns among young adults.

Heterogeneity in Romantic Relationship Dissolution Experiences

Findings of the present study clearly illustrate the variability in young adults' romantic relationship dissolution by identifying four unique relationship dissolution patterns. Among the four patterns, the "*stable relationships*" pattern was identified as the most common relationship dissolution experience pattern in this sample (n = 5,698, 61.4%). This group is characterized by low risks of cohabitation or marital dissolution throughout young adulthood. Then, the "*cohabitation dissolution only*" pattern, which had the highest risk of cohabitation dissolution during mid-twenties and very low risk of divorce throughout young adulthood, was identified as the second largest group (n = 2,345, 25.3%). For this group, the cumulative prevalence of divorce and multiple transitions at age 30 was relatively low. The third largest group was the "*late multiple relationship dissolutions*" pattern, which was consist of individuals whose multiple transitions risk sharply increased during the late twenties (n = 657, n = 7.1%). Their cohabitation and marital dissolution risks consistently increased during the twenties and was the highest at age 27. At age 30, all young adults in this group experienced multiple transitions. Then, individuals whose multiple transitions and cohabitation dissolution risks were high during the early twenties were the smallest class, "*early multiple relationship dissolutions*" (n = 575, 6.2%). By age 24, almost all individuals in this group experienced at least one cohabitation dissolution and multiple transitions, and by age 30, over 20% of individuals in this group experienced divorce in intimate co-living relationships.

The most prevalent romantic relationship dissolution profile in this sample was the "*stable relationships*." The pursuit of higher educational attainment and job status among today's young adults (Arnett, 2004) may delay them to be involved in committed relationships during the twenties, such as cohabitation and marriage. As Cherlin (2009) asserted, committed relationships today often represents the last step into adulthood not the first. Therefore, the low risks of

cohabitation dissolution and divorce throughout young adulthood may simply reflect the fact that young adults in this group involved in committed relationships at rather older ages. This assumption is consistent with the findings that this group showed the highest educational attainment and household income levels. However, the cumulative prevalence of experiencing relationship dissolution slightly increased in the late twenties: at age 30, approximately 13% of young adults in this group experienced cohabitation dissolution while 15% of them experienced divorce. Longitudinal follow up on the “*stable relationships*” pattern, therefore, may shed light on whether the stability in committed relationships can be maintained in later years in later years.

Another important finding is that all young adults in the “*early multiple relationship dissolutions*” and “*late multiple relationship dissolutions*” groups experienced multiple disruptions in cohabitation and divorce by age 30, which consists over 13% of the entire sample of the study. Especially, all young adults in the “*early multiple relationship dissolutions*” group experienced multiple transitions at relatively earlier age, when they reached age 25. Considering the tendency that a single relationship dissolution event can create possibilities for a series of future relationship instability (Amato, 2010), young adults who experienced multiple transitions are more likely to experience a chain of relationship instabilities with their future partners. The phenomenon of multiple partnerships is becoming more prevalent in the United States (Cherlin, 2008) and is an important research topic in family studies and family policy due to its potential effects on the well-being of young adults and other household members including their children. Turnover in romantic relationships can be traumatic (Simpson, 1987), and previous studies have consistently shown that multiple partnerships and number of changes in family living arrangements are positively associated with children’s psychological and behavioral problems (Amato, 2003; Cavanagh, 2008), relationship instability in adulthood (Wolfinger, 2000), young

adults' psychological and physical health problems (Barrett, 2000), and economic difficulties (Amato, 2010).

Early Life Contexts and Romantic Relationship Dissolution in Young Adulthood

The life course perspective emphasized the importance of timing and sequencing of transitions, at the same time, their precursors and long-term consequences (Elder, 1998). Using an early structural adversity index and a nurturant-involved parenting measure, the current study examined how early family and community socioeconomic contexts and parent-child relationships influence romantic relationship dissolution experiences during the transition to adulthood period. The results showed that early structural adversity was directly associated with the “*early multiple relationship dissolutions*” group, suggesting that higher levels of structural adversities during adolescence may result in an increased risk of experiencing relationship instability in earlier ages. In addition, nurturant-involved parenting was directly associated with decreased likelihood of being included in the “*early multiple relationship dissolutions*” group, indicating that as youth experienced higher levels of positive parenting during adolescence, they were less likely to experience multiple relationship transitions in early adulthood. These findings are consistent with an *escape from stress perspective*, which posits that increased levels of stress caused by various difficulties in the family of origin may motivate adolescence to leave their families of origin and establish their own families relatively early in the life course (Amato & Kane, 2011). For instance, it is likely that when youth face various adverse environments in family (e.g., economic problems, conflict with parents, lack of parental warmth) and community (e.g., hostile interactions and crime), they see cohabitation and marriage as opportunities to escape from their unhappy family environments hoping to establish intimacy and supportive relationships with their partners (Amato & Kane, 2011). However, forming a co-living union in

early age is a known risk factor for relationship instability (Lichter et al., 2010), which is likely to be linked to a chain of relationship dissolution experiences. Nurturant-involved parenting was also directly associated with the “*cohabitation dissolution only*” group, indicating that positive and involved parenting behaviors lowered the likelihood of young adults experience cohabitation dissolution. Although young adults in this group mostly experienced only cohabitation dissolution, they experienced this dissolution at early ages: by age 22, almost 50% of young adults in this group experienced cohabitation dissolution. This direct association, therefore, can also be explained by an *escape from stress perspective*, showing nurturant and involved parenting may lower the risk of young adults experiencing relationship dissolution during relatively early adulthood.

Psychosocial Mediating Pathways Linking Early Life Contexts to Romantic Relationship Dissolution in Young Adulthood

The results of the current study also elucidate psychosocial processes in that early structural and relationship life contexts were linked to young adults’ intimate relationship experiences. To be more specific, early structural life disadvantages predisposed adolescents to subsequent negative life experiences in transitional events to adulthood and the quality of romantic partners. Disrupted transitions to adulthood indicate off-time events that deviate from the anticipated timing for adult roles, such as dropping out of school or full-time employment during teenage years (Elder et al., 1996). Structural constraints and resource limitations embedded in the early community and family environments may not provide enough resource allowing adolescents to pursue normative educational and career pathways. Therefore, their transitional experiences to adulthood are more rushed than adolescents from affluent environments.

Results also suggest that early structural adversity hinders the development of other social and personal resources. Specifically, exposure to increased levels of early structural adversity was associated with increased conflict with dating partners, having low future orientation, and increased levels of depressive symptoms. Exposure to hostile and unsupportive interactions in a disadvantaged community and family may foster adolescents to have a negative and cynical view on close relationships, which can lead to the development of coercive interactions with their partners (Simons et al., 2012). Distressed youth from adverse environments may also view their future as hopeless and unpredictable, which is reflected by low future orientation and high depressive symptoms in the present study.

On the other hand, as hypothesized, nurturant-involved parenting was associated with positive psychosocial outcomes in adolescence, including lower levels of conflict with dating partners, increased future orientation, and decreased depressive symptoms. Nurturant-involved parenting indicates positive parental involvement in adolescents' development and the quality of parent-adolescent relationships. As suggested by attachment theory, the interactions between young adults and their partners can be reflected by their own experiences in earlier interactions with their parents (Conger et al., 2000). These findings indicate that supportive interactions in the family of origin can promote effective social skills and psychological /cognitive resources. However, nurturant-involved parenting was not associated with disrupted transitions, possibly indicating that successful transitions to adulthood are more strongly influenced by socioeconomic resources than relational resources in the family of origin. This is likely due to the economic resources required when pursuing higher education and career paths.

In turn, these psychosocial characteristics were significantly associated with romantic relationships outcomes in young adulthood suggesting an existence of mediating pathways

linking early life contexts to later romantic relationships. Disrupted transitions to adulthood, in particular, was associated with all three relationship dissolution pattern. For most individuals, these disrupted transitions represent chronically stressful life situations that place excessive demands on individuals who are not prepared for the responsibilities of adult roles. Emotional, social, and financial problems stemming from these early transitions may further impel youth into more stressful life experience in young adulthood, including interpersonal losses and violence (Appleyard, Egeland, van Dulmen, & Sroufe, 2005). Distressed young adults are more likely to be rejecting of intimate relationships (Wong, 2006; Wickrama & O'Neal, 2005), and low income and financial strains have consistently predicted low relationship quality. In addition, economic hardship is closely related with residence in disadvantaged neighborhoods, which negatively affects relationship satisfaction and stability (Cutrona et al., 2003).

Conflict in dating relationships was associated with the “*early multiple relationship dissolutions*” and “*late multiple relationship dissolutions*” patterns. Previous studies have suggested that adolescent dating quality is a predictor of relationship process in young adult romantic relationships (Furman & Whener, 1994; Madsen & Collins, 2011). Conflict in dating relationships and hostile interactions with partners during adolescence may lead to an acquisition of cynical relationship scheme and negative beliefs about the dependability of romantic partners, which is likely to contribute to conflict and instability of romantic relationships in young adulthood. Interestingly, the “*cohabitation dissolution only*” group was not associated with conflict in dating experiences. This result may suggest that instability of romantic relationship during young adulthood is better reflected by “multiple transitions” rather than a single dissolution event.

Future orientation and depressive symptoms were only associated with the “*early multiple relationship dissolutions*” pattern. Among the three relationship dissolution patterns, although with of the lowest prevalence, the “*early multiple relationship dissolutions*” group seems the most risky pattern of dissolution because all young adults in this group experienced multiple relationship transitions during particularly early ages. Indeed, erosion of all psychosocial resources was associated with this pattern. Evidence suggests that future orientation is an important psychological resource that can influence transitional events by developing the expectation of positive future selves and motivating current behaviors (Clinkinbeard, 2014; Greene & DeBacker, 2004). Therefore, young adults with low levels of future orientation may not investigate time and resources for long-term stable relationships because they do not anticipate positive future consequences of romantic relationships. Their tendency to prefer the “here and now,” instead, may contribute to their having short-term relationships and multiple romantic partners throughout their lifetime. Also, several studies found that depressive symptoms predict early marriage, not on-time or late marriage (Forthofer, Kessler, Story, & Gotlib, 1996), which usually has benefits over early marriage such as financial security. Depressive symptoms have also been associated with low relationship quality and relationship dissolution, including divorce (Butterworth & Rodgers, 2008; Kessler, 2012).

Strengths and Limitations

Several issues potentially limit the scope and the generalizability of the results. First, enhanced measures would increase the confidence that can be placed in these findings. Most measures used in the present study rely on self-report data (e.g., self-reported depressive symptoms and family income). Therefore, concerns regarding potential self-report biases would be alleviated by using more objective measures in future research (e.g., clinical measures of

depression and tax return statements). Second, community resources were not included in the present study as early contextual factors due to a lack of information. However, previous studies have provided strong evidence for the connection between community adversity and relationship outcomes, and the present study is in line with them. Finally, previous research suggests direct and interactive genetic influences on young adults' romantic relationship experiences (Wickrama & O'Neal, 2015). Therefore, additional research involving interactions between genotypes and environment is needed to further investigate potential amplifications by genetic polymorphisms on developmental pathways leading to romantic relationship dissolution experiences.

Despite these limitations, the present study contributes to the extant literature in several ways. First, using a prospective, longitudinal data, the present study investigated long-term cumulative experiences in romantic relationship dissolution across young adulthood, when the pursuit of intimacy and close relationship is the critical developmental task. Using an advanced person-centered approach called discrete-time event history mixture model, the present study was able to identify heterogeneous relationship dissolution patterns by characterizing individuals according to the timing and sequence of multiple dissolution events. The present study also investigated a rich array of developmental precursors that spanned multiple contexts, including structural and relationship resources in community and family and youth's psychosocial characteristics.

CHAPTER 3

STUDY 2: STRESS PROCESSES LINKING ROMANTIC RELATIONSHIP DISSOLUTION TO PHYSICAL HEALTH RISK: A PROTECTIVE ROLE OF PARENTAL SUPPORT

INTRODUCTION

Although young adulthood is considered a period of good health, an increasing number of studies have shown a significant proportion of young adults experience physical and mental health problems (Park, Scott, Adams, Brindis, & Irwin, 2014). This may be partly attributed to the influence of important life transition experiences such as the negotiation of romantic relationships, including formation and dissolution of cohabitation and marriage (Harris, Lee, & DeLeone, 2010; Shanahan, 2000). Transitions into and out of co-living relationships and following transitions in living arrangements might have a particularly salient effect on health outcomes of young adults because most of them are new to such intense transitional experiences.

Research has clearly shown that there are psychological and physiological benefits to intimate relationships (Kamp Dush & Amato, 2005; Kiecolt-Glaser & Newton, 2001). High-quality relationships, particularly, confer benefits such as social support, companionship, love, and sexual involvement that promote health (Laumann, Gagnon, Michael, & Michaels, 1994; Waite & Gallagher, 2000). Conversely, romantic relationship dissolution, especially union dissolution (i.e., the end of a marriage or a cohabiting relationship through divorce or separation) is an important life disruptions that is thought to have negative consequences in emotional and physical health outcomes including higher risk of physical and mental illness and overall

mortality (Braver, Shapiro, & Goodman, 2006; Lorenz, Wickrama, Conger & Elder, 2006; Umberson, Crosnoe, & Reczek, 2010).

Most previous studies that investigate the association between romantic relationship dissolution and health, however, see only the segment of relationship dissolution experience, such as cohabitation dissolution or divorce at certain point of time (Beaujouan, 2012; Kamp Dush, 2014; Wu & Schimmele, 2005). In those cases, the relationship dissolution is merely an episodic event of continuing relationship experiences (Pearlin, 1989). This only allows us to see health impacts of a single disrupted life event, but not of its history. Therefore, additive and cumulative experiences in relationship dissolution throughout young adulthood and their health consequences are rarely addressed.

In addition, past research has often looked at health using self-assessed health measures (Umberson et al., 2010), which are some of the most frequently used indicators of general health in the social sciences. Existing studies of union dissolution and self-assessed health show that people who experience divorce or cohabitation dissolution report worse health statuses than people in stable unions (Hughes & Waite, 2009; Liu & Umberson, 2008). Although self-assessed health captures some aspects of physical health, the use of objective measures of physical health outcomes, such as biomarkers, can provide more convincing evidence of the association between relationship dissolution and physical health. Therefore, the association between additive and cumulative relationship dissolution experiences and physical health risk (i.e., elevated levels of regulatory biomarkers) has remained an open question.

In addition, although relationship dissolution experience is the stressor that may have long-term impacts on health, it should be noted that it can be only one component of a cluster of stressors that are entwined each other (Pearlin, Schieman, Fazio, & Meersman, 2005). That is,

health can be influenced by the initial stressor (i.e., relationship dissolution) but also by other attendant stressors that stem from the initial stressor. For instance, marital and non-marital union dissolutions can lead to, on average, increased poverty risks or threats to financial circumstances (Avellar & Smock, 2005; Braver et al., 2006; Dewilde, 2002; Vandecasteele, 2010) and decline in social participation (Kalmijn & van Groenou, 2005). These proliferated stressors, in turn, are known to cause stress responses including increased feeling of loneliness, higher levels of depression, decreased self-efficacy (Peters & Liefbroer, 1997; Simon & Marcussen, 1999), and increased heavy substance use (Galea, Nandi, & Vlahov, 2004). Repeated exposures to stressors may increase young adults' cardiovascular and metabolic (CM) disorders, through "wear and tear" on the body's physiological systems (McEwen, 2000). CM disease risk, including the likelihood of developing diabetes, heart disease, or stroke, increases significantly from adolescence to young adulthood and is considered to be a major risk factor for early mortality (Saydah, Bullard, Imperatore, Geiss, & Gregg, 2013).

The association between relationship dissolution experiences and later health risk via stressful experiences in multiple life domains (e.g., economic stress, strained social relationships) is consistent with the *stress process model* (Pearlin, Aneshensel, & LeBlanc, 1997). The *stress proliferation hypothesis* of the stress process model posits the expansion or emergence of stressors beyond the situation to which they were initially restricted. This stress pathway is also consistent with *divorce-stress-adjustment perspective* (Amato, 2000), which asserts that marital dissolution typically sets into motion numerous events that people experience as stressful. These stressors, in turn, increase the risk of negative psychological, behavioral, and health outcomes for young adults. Previous research has consistently found that not only marital dissolution, but also cohabitation dissolution and multiple disruptions in romantic relationships are related to stressful

life experiences (e.g., economic stress; Avellar & Smock, 2005) and have detrimental influences on health outcomes (Kamp Dush, 2013; Schmeer, 2011). Based on these findings, the *divorce-stress-adjustment perspective* can be applied to the broader context of various co-living romantic relationship dissolution experiences.

The stress process model supported by empirical findings from relationship research also suggest that health impacts of stressors can be weakened or buffered by individuals' personal and social assets; the buffering hypotheses (Hetherington, 2003; Taylor & Stanton, 2007). One of the most efficacious stress-buffer factors is social support from parents, which can provide available resources to young adults when needed encouraging them to actively attempts at problem-solving (Thoits, 2010). Indeed, perceived emotional and financial support from parents has been shown to diminish psychological distress and physiological arousal caused by stressors (Johnson, 2013; Uchino, 2004). Prior relationship research also has documented that parenting support serve as a protective factor that buffers divorced individuals from problematic consequences including depression, anxiety, physical health problems, and coercive parenting behaviors (DeGarmo, Patras, & Eap, 2008; Krumrei, Coit, Martin, Fogo, & Mahoney, 2007). As today's young adults pursue higher education and take longer to establish economic independence, their dependence upon parents has been elongated as well (Johnson, 2013; Swartz, Kim, Uno, Mortimer, & O'Brien, 2011). Therefore, emotional and financial parental support may be particularly important resources for young adults that can bolster their adjustment and health following stressful relationship dissolution events.

Since most relationship research have been focused on the association between the impacts of a single relationship dissolution event on self-reported health, it has not been investigated yet how cumulative history of relationship dissolution experiences and physical

health risk are related. Moreover, less is known about stress-buffering roles of parental support on stress proliferation and stress-response processes stemming from relationship dissolution experiences. Based on the stress process model and the *divorce-stress-adjustment perspective*, the present study attempts to fill in the gap in the literature by investigating (1) the strength and direction of the association between heterogeneous cumulative relationship dissolution experiences and physical health risk, (2) the mediating role of proliferated stress pathways (i.e., economic stress, decline in social connections) that link relationship dissolution experiences and physiological health risk, (3) the mediating role of psychological and behavioral stress-response pathways (i.e., feeling of isolation, substance use) that link relationship dissolution experiences, proliferated stressors, and physical health risk, and (4) the protective effect of parental support on these stress process pathways.

LITERATURE REVIEW

Relationship Dissolution and Physical Health Risk

The stress model emphasizes the detrimental effects of union dissolution on health (Lillard & Waite, 1995; Williams & Umberson, 2004). In contrast with the resource model that emphasizes potential protective benefits of stable intimate relationships, the stress model focuses on that dissolution of intimate relationships can impose profound impacts on a variety of negative physical health outcomes. (Hughes & Waite, 2009; Lorenz et al., 2006; Waite, Luo, & Lewin, 2009; Williams & Umberson, 2004).

Most studies that investigate the association between relationship dissolution and physical health, however, have often looked at self-assessed health as health outcomes. Existing studies on union dissolution and self-assessed health have consistently shown that people who

experience divorce or cohabitation dissolution report worse health statuses than people in stable unions (Liu & Umberson, 2008; Hughes & Waite, 2009). Although self-assessed health clearly captures some aspects of physical health, the use of more objective measures of physical health outcome, such as biomarkers, can benefit this line of study.

On the other hand, several studies that investigate the links between relationship distress, rather than dissolution, and health outcomes, suggest that relationship conflict is associated with health-related physiological processes (Beach & Whisman, 2012; Kiecolt-Glaser & Newton, 2001; Loving & Slatcher, 2013). The most compelling recent evidence that romantic relationship affects physical health comes from studies documenting associations between intimate relationship distress and cardiovascular functioning, immunological downregulation, and proinflammatory response (Beach & Whisman, 2012; Kiecolt-Glaser et al., 2005). Previous studies found that negative marital interactions can be associated with metabolic function and cardiovascular reactivity. For instance, Newton and Sanford (2003) found that high levels of negative interactions were associated with increased blood pressure. Another study conducted by Smith and colleagues (2009) also suggested that compared to problem-solving tasks, marital conflict tasks in the laboratory was associated with increases in blood pressure, hypertension, and cardiac sympathetic activation. In addition, studies that investigate the links between stressful relationship conflict and immune/endocrine function found that hostility and anger displayed during marital interactions was associated with immune dysregulation as indicated by declines in natural killer (NK) cell lysis and elevations in cortisol (Barnett, Steptoe, & Gareis, 2005; Kiecolt-Glaser et al., 2005).

These empirical findings suggest the potential close associations between intimate relationship processes and several disease states, including heart disease and diabetes (Beach &

& Whisman, 2012). Moreover, previous studies mostly focus on the impacts of divorce or cohabitation dissolution on physical health, ignoring the potential diverse union dissolution experiences of young adults. Therefore, based on the stress model and previous empirical findings in relationship conflict research, the present study attempts to investigate the association between union dissolution experiences and physical health risk reflected by physiological dysregulation in CM systems by using a composite index of nine regulatory biomarkers as a measure of allostatic load (McEwen, 2000).

Economic Stress and Decline in Social Connections as Mediating Pathways

Although relationship dissolution experience is an important stressor that may have long-term health consequences, it is unlikely that this experience influence health solely and apart from other strains that young adults might also experience. Previous research has documented that in addition to the direct impact of relationship dissolution on young adults' health, relationship dissolution is linked to later health through its association with stressful life experiences creating a stress pathway. This is in line with the stress proliferation hypothesis, which posits that initial stressor proliferate over the life course, leading to additional stressors and health consequences (Pearlin, 1989; Pearlin et al., 2005).

More specifically, intimate relationship dissolution, especially the dissolution of co-living relationships, is often associated with shrinking economic resources and expansion of financial problems (Simon & Marcussen, 1999). It is likely that expenses increases due to the two independent households to maintain instead of one after the dissolution (Sayer, 2006). Indeed, Sobolewski and Amato (2005) suggested that marital dissolution is linked to a nearly 40% decline in household income over the five years following the divorce. Also, Sorensen (1992) argued that income should increase by 31% for individuals to maintain the same standard of

living after marital dissolution. Another study conducted by McLanahan and Sandefur (1994) suggested that marital dissolution is likely to increase the likelihood that children will grow up in poverty. Not only household income, but also wealth has shown to be decreased after marital dissolution up to 80% (Wilmoth & Koso, 2002). In addition, Avellar and Smock (2005) found that the dissolution of a cohabiting union is associated with substantial decreases in economic well-being, increasing the likelihood of being in poverty especially for women.

Relationship dissolution, particularly divorce, has also been linked to social isolation as a result of attenuated network attachments (Pearlin & Johnson, 1977; Wrzus, Hänel, Wagner, & Neyer, 2013). The decline in social participation and integration can occur due to the loss of common friends and in-laws (Terhell, van Groenou, & Van Tilburg, 2004) or due to the risk of losing activities that partners used to engage in together while being married (Morgan, Carder, & Neal, 1997). For instance, Terhell and colleagues (2004) found that most divorced individuals experienced a reduction in their social networks after the divorce, and for half of them, these losses were not fully recovered in later years after divorce. In addition, divorced young adults are also likely to face difficulties in reverting to a new lifestyle, causing them time constraints for participating in social activities as they may have before the divorce (Kalmijn & van Groenou, 2005). Therefore, it is expected that young adults who transition into and out of co-living relationships frequently are likely to lose some part of their social activities and participation, which can play a role of proliferated stressor that causes negative psychological and behavioral adaptation (Amato, 2000).

Each of these proliferated stressors may, in turn, disrupt the body's physiological processes as the body attempts to maintain "stability through change" (McEwen, 1998). Repeated stressful experiences may result in physiological changes that lead to long-term

cumulative physiological dysregulation (i.e., allostatic load) in multiple stress-response systems, including the sympathetic nervous system, the hypothalamic-pituitary-adrenocortical (HPA) axis, and immune functioning (Geronimus, Hicken, Keene, & Bound, 2006). Under stressful circumstances, stress-response systems are under high allostatic load and attempt to adapt environments by altering resting state set points to higher levels. This enables individuals to be more reactive and less reflective emotional responses to environmental stimulation (Blair, Raver, Granger, Mills-Koonce, & Hibel, 2011). This alteration in stress-response systems may provide short-term benefits to physical functioning in unsupportive circumstances, yet, when allostatic systems are not completely deactivated, the body experiences overexposure to stress hormones which may deteriorate health. Over time, repeated activations and dysregulations in these systems can increase long-term CM disease risk of young adults as reflected by numerous biomarkers including blood pressure, pulse rate, blood glucose, and lipid levels (Hertzman & Power, 2005). Consistent with these findings, the present study hypothesized that romantic relationship dissolution would proliferate into young adults' economic stress and decline in social connections, which in turn, would influence CM disease risk through the chronic activation of the body's stress-response systems.

Psychological and Behaviors Stress-Responses and Physical Health

The dissolving of romantic relationships is a well-known risk factor of emotional well-being (Amato, 2000; Simon & Barrett, 2010). For instance, previous studies have shown that both divorce and cohabitation dissolution are associated with an increase in psychological distress (Johnson & Wu, 2002; Lorenz et al., 2006; Tavares & Aassve, 2013). Compared with individuals who remain romantically involved, those who experience a breakup report greater sadness and stress (Sbarra & Emery, 2005), anxiety, frustration, aggression (Field et al., 2009;

Fisher, Brown, Aron, Strong, & Mashek, 2010), and are at increased risk of the onset of a major depressive disorder (Monroe, Rohde, Seeley, & Lewinsohn, 1999). Depressive illness is associated with hyperactivity in amygdala and elevated HPA activity, which in turn, increased risk of cardiovascular disease (McEwen, 2003).

Among various psychological stress-response, feeling of isolation and perceived social acceptance are closely connected to relationship dissolution experiences. Loneliness is a feeling of social isolation that accompanies perceived deficiencies in the quality of one's social relationships (Peplau & Perlman, 1982). Previous studies have documented that breaking up with a partner is shown to evoke emotional loneliness, feeling of emptiness, and forlornness while positive marital relationships are protective against loneliness (de Jong Gierveld, Tilburg, & Dykstra, 2006). Other studies found that structural factors, such income level, are also associated with loneliness because the lack of economic resources indicates less opportunity to participate in social activities that contribute to build social contacts and engagement (Hawkely et al., 2008). Low socioeconomic status has been linked to smaller and less diverse social networks (Antonucci, Ajrouch, & Janevic, 1999; Hawkely et al., 2008) and increased feeling of loneliness (Savikko, Routasalo, Tilvis, Strandberg, & Pitkälä, 2005). Feeling of isolation, in turn, is a key variable predicting various health outcomes, such as depression, headaches, and sleep disturbances (Cacioppo et al., 2002). Furthermore, loneliness and social isolation predict various physical health outcomes, including elevated blood pressure (Hawkley, Masi, Berry, & Cacioppo, 2006), onset of coronary artery disease, and multiple risk factors for cardiovascular disease (Cacioppo & Cacioppo, 2014; Caspi, Harrington, Moffitt, Milne, & Poulton, 2006).

Romantic dissolution in adolescence and young adulthood is also associated with substance use problems, including binge drinking, marijuana use, and cigarette smoking (Low et

al., 2012; Sampson & Laub, 1993). Previous research has shown that positive marital relationships are associated with significant reductions in health risk behaviors through increased strength of social bonds and direct social control by romantic partners (Laub & Sampson, 2009; Sampson, Laub, & Wimer, 2006). To the extent that romantic relationships in late adolescence and emerging adulthood operate similarly to marital relationships, the weakened social bonds and loss of direct social control under romantic dissolution would increase the likelihood that young adults engage in substance use.

Moreover, young adults' economic status is also known to be associated with substance use. National Survey on Drug Use and Health (2014) has shown that persons reporting lower income describe a higher prevalence of cigarette and illicit substance use. Other previous studies suggest that lack of financial resources due to low income and educational attainment are risk factors of cannabis use (von Sydow, Lieb, Pfister, Höfler, & Wittchen, 2002), being smokers (Barbeau, Krieger, & Soobader, 2004), a greater likelihood of alcohol dependence or abuse (Thundal, Granbom, & Allebeck, 1999). Heavy cigarette smoking, marijuana use, and alcohol consumption, in turn, substantially increase the risk of cardiovascular disease (Doan, Dich, & Evans, 2014; Erhardt, 2009; Frishman, Del Vecchio, Sanal, & Ismail, 2002; Rehm et al., 2006). Consistent with previous findings, the current study anticipates mediating roles of loneliness (i.e., perceived social acceptance) and substance use that link 1) relationship dissolution and physical health, and 2) economic stress, declined social connections, and physical health outcome.

Protective Role of Parental Support in Romantic Relationship Dissolution During Young Adulthood

Young adults' coping resources can buffer or weaken the health consequences of romantic relationship dissolution and mediating factors (i.e., economic stress, decline in social connections, feeling of isolation, and substance use). In particular, parental support can play an important role as a stress-buffer considering the structural and cultural changes that define today's young adults. Young people today tend to spend more time in pursuing higher education, career, establishing economic independence, and long-term committed relationships as they navigate numerous choices available to them (Arnett, 2004; Fitzpatrick & Turner, 2007). During this elongated transition to adulthood period, parents are often providing support for their children's self-sufficiency, skills, and experience needed to succeed in adult roles (Aquilino, 2005; Swartz et al., 2011). Financial and emotional assistance from parents may enable young adults to recover sooner from negative consequences of the dissolution of dating and co-living relationships. For instance, young adults' living standards after relationship dissolution can be improved through parental financial investments towards home buying and their psychological distress can be relieved with parents' emotional understanding and support (Semyonov & Lewin-Epstein, 2001; Pearlin, Menaghan, Lieberman, & Mullan, 1981; Uchino, 2004). As today's young adults rather make tentative commitments in romantic relationships and are more likely to experience multiple transitions in intimate relationships, having supportive social networks can buffer effects of economic and emotional strains caused by intimate relationship dissolution experiences.

Findings from both stress and relationship research have consistently shown that social support including parental support act like "shock absorbers" and weaken the associations between relationship dissolution and individuals' experience of stress (Amato, 2000; Thoits, 2010). Young adults with higher levels of emotional support and larger social networks are

resilient after relationship dissolution (Booth & Amato, 1991). Lack of these stress-buffering assets, on the other hand, young adults may be doubly at risk of developing health problems (Thoits, 2010). Therefore, in the present study, parental support was hypothesized to moderate effects of relationship dissolution on CM disease risk through stress-proliferation and stress-response pathways.

Overarching Theoretical Framework – Stress Process Theory

The stress process theory (Pearlin, 1989; Pearlin et al., 2005) provides a useful theoretical framework for understanding why and how intimate relationship dissolution may have long-term health consequences. This theory suggests causal relations among stressors, stress, and stress responses (i.e., stress outcomes). Stressors and stress indicate environmental, social, biological, or psychological challenges that have negative consequences for health (Pearlin, 1989). Three major categories of social stressors include life events, chronic strains, and daily hassles (Carr & Umberson, 2013). Divorce or cohabitation dissolution is a life event that requires individual's adaptive capacities to adjust to a relatively acute change.

A stressful life event, such as divorce, can create new and multiple chronic stressors including economic stress and declined social connections and integration. Thus, a stress in one life domain may carry over to other domains creating an accumulation of stressors that can directly and indirectly be harmful to mental health (LeBlanc, Frost, & Wight, 2015). This process is called stress proliferation; “a process that places people exposed to a serious adversity at risk for later exposure to additional adversities” (Pearlin et al., 2005). This can also be called as stress spillover process which refers stressors in one domain can “spill over” to another domain creating a causal chain of stressors (Grzywacz, Almeida, & McDonald, 2002). The secondary stressors, together with the primary stressor, in turn, may repeatedly expose

individuals to stressors causing a range of maladaptive stress responses, including depressive symptoms, substance use, and physiological stress response such as allostatic load (McEwen, 1998).

The impact of stressors on health outcomes can be accounted for, in part, by individuals' coping resources (Pearlin et al., 2005). Coping resources are the personal and social resources that individuals can draw upon when dealing with stressors (Carr & Umberson, 2013). Social support, including parental support, is one of the main resources which provides emotional, instrumental, and informational assistance. Based on these core concepts of the stress process theory, the present study investigates the health consequences of cumulative relationship dissolution event experiences via proliferated stressors and psychobehavioral stress responses, and how these associations can be different depending on levels of parental support.

CURRENT STUDY

Although previous research indicates the direct impact of relationship breakups on young adults' health, less is known about the mechanisms to link relationship dissolution experiences and young adults' CM disease risk. The present study pursues to investigate stress pathways stemming from cumulative relationship dissolution events to physical health risk via proliferated stressors (i.e., economic stress, decline in social connections) and stress responses (i.e., feeling of isolation, substance use), and a protective effect of parental support on these pathways. The present study suggested four hypotheses as below, and each hypothesis is depicted in Figure 5.

Hypothesis 1. Relationship dissolution patterns during the transition to adulthood are associated with later physical health risk.

Hypothesis 2. Young adults' economic stress and decline in social connections mediate the association between relationship dissolution and physical health risk.

Hypothesis 3. Young adults' union dissolution experience, economic stress, and decline in social connections are associated with psychobehavioral stress responses (i.e., feeling of isolation and substance use), which in turn, influence physical health risk.

Hypothesis 4. Parental support moderates the associations among relationship dissolution, proliferated stressors, stress responses, and physical health risk.

METHODS

Sample and Data

Data for this study came from a nationally representative sample of adolescents participating in the National Longitudinal Study of Adolescent to Adult Health (Add Health). In 1995, baseline (Wave 1) data were derived from a complex stratified cluster-sampling of middle and high school students, yielding 20,745 respondents ($M_{\text{age}} = 15.5$ years; range = 12 - 20 years at baseline) from 134 middle and high schools. To ensure diversity, the sample was stratified by region (South, West, Midwest, and Northeast), urbanicity, school type (public vs. private), racial composition, and size. Wave 1 data from youth were collected in schools, while parent data were collected from in-home interviewer-administered questionnaires. The second, third, and fourth waves of data were collected in-home in 1996, 2001, and 2008 ($N_2 = 14,738$, $M_{\text{age}} = 16.18$; $N_3 = 15,100$, $M_{\text{age}} = 21.18$; $N_4 = 15,701$, $M_{\text{age}} = 29.13$). The present study used interview data from young adults who participated in Waves 1, 2, 3, and 4. The purpose of the present study is to investigate physical health risk of relationship dissolution experiences, and therefore, the analytic sample was restricted to young adults who provided information on biomarker data and who had

not formed co-living relationships during ages 18 and 30. Consequently, the final study sample included 9,275 respondents. Attrition analysis showed that respondents excluded from the current analyses due to missing data with those retained in the analyses did not identify significant differences with regard to the key variables (i.e., economic stress, social connections, feeling of isolation) and basic demographics (i.e., age, gender, race/ethnicity) except the sample respondents experienced slightly fewer cigarette and alcohol use (cigarette: 2.72 and 3.01; alcohol: 3.83 and 4.13, respectively). The final sample included approximately 54% women, and 47% of respondents reported a minority racial/ethnic status, with the largest percentages reported for Black (22%), Hispanic (16%), and Asian (5%). The present study used Wave 4 sample weights in the analyses.

Measures

Romantic relationship dissolution patterns. To identify romantic relationship dissolution patterns, three relationship dissolution variables were examined: cohabitation dissolution, divorce, and multiple transitions (i.e., experiencing two or more cohabitation dissolution and/or divorce). At Wave 4 (2008), young adults were asked their history of all romantic and sexual relationships since 1995. For each relationship, respondents were asked to report when the relationship started and ended. For each age from 18 to 30, a binary variable was created for each relationship status indicating whether the individual experienced the relationship dissolution for the first time at that age (coded 1) or had not experienced the dissolution by that age (coded 0). For cohabitation dissolution and divorce, month and year information of each relationship dissolution experiences was used. For multiple transitions, month and year information of the start of third co-living relationships (either cohabitation or marriage) that respondents formed with a different partner from the first two co-living relationships was used to reflect multiple

transitions in cohabitation dissolution and divorce that respondents experiences. Using discrete-time survival modeling and latent class analysis within the Discrete-Time Multiple Event Process Survival Mixture (MEPSUM) model, the following four classes were determined as the best solution to describe the underlying heterogeneity in cohabitation dissolution, divorce, and multiple transition experiences in this sample: 1) “*early multiple relationship dissolutions*” (n = 575, 6.2%), 2) “*late multiple relationship dissolutions*” (n = 657, 7.1%), 3) “*cohabitation dissolution only*” (n = 2,345, 25.3%), and 4) “*stable relationships*” (n = 5,698, 61.4%).

Economic stress. A measure of economic stress was generated by summing six economic hardship items reported at Wave 4 (2008). These economic stress items asked whether young adults or any member of the household were without phone service, could not pay rent or mortgage, were evicted from a house, could not pay utilities (e.g., gas, electricity), had the service turned off by the gas or electric company, and were worried whether food would run out. Higher scores reflect greater economic stress. This index had an internal consistency of .80.

Social connections. Social connections were measured with four questions about social participation at Wave 4 (2008): (1) using recreational facilities in neighborhood; (2) volunteer work or community service work; (3) participating in social clubs (including team sports such as football, soccer, and field hockey); and (4) attending church. For social club participation and recreational facilities use, responses ranged from 0 = not at all to 7 = 7 or more times per week. For volunteer work, responses ranged from 0 = 0 hours to 6 = 160 hours or more in the past 12 months. For church attendance, responses ranged from 0 = never to 5 = more than once a week. Items were standardized and then summed to produce social connection index. Higher scores reflect greater social connections.

Substance use behavior. Respondents' substance use was defined as a latent construct using cigarette use, alcohol use, and marijuana use to capture the general substance use behaviors. For the full structural model, factor loadings were .55, .41, .30 for cigarette use, alcohol use, and marijuana use. Young adults' cigarette use was assessed with a composite variable of four items to classify young adults into one of seven levels of cigarette use (Sieving, Perry, & Williams, 2000): 1 = *never smoked*; 2 = *ex-smoker, no use in past 30 days*; 3 = *currently smoking 1-2 cigarettes/day*; 4 = *currently smoking 3-5 cigarettes/day*; 5 = *currently smoking 6-10 cigarettes/day*; 6 = *currently smoking 11-20 cigarettes/day*; and 7 = *currently smoking more than 20 cigarettes/day*. Young adults' alcohol use was assessed with an item of binge drinking. Respondents were asked, "During the past 12 months, on how many days did you drink five or more drinks in a row?" Responses ranged from 0 = none to 6 = every day or almost every day. Marijuana use was assessed with a composite variable using two items to classify young adults into one of seven levels of marijuana use (Sieving et al., 2000): 1 = *never used*; 2 = *used 1-3 times in one's lifetime, but did not use in past 30 days*; 3 = *used more than 3 times in one's lifetime, but did not use in the past 30 days*; 4 = *used 1 time in the past 30 days*; 5 = *used 2-3 times in the past 30 days*; 6 = *used 4-5 times in the past 30 days*; and 7 = *used more than 5 times in the past 30 days*. Three substance use items were standardized and summed to produce substance use index. Higher scores reflect severe substance use.

Feeling of isolation. Feeling of isolation at Wave 4 (2008) was defined as a latent construct using three questions that capture perceived social acceptance and feeling of loneliness. Add Health does not have any established loneliness index, such as UCLA loneliness scale. Thus, it was hypothesized that common variance of these measures captures the overall feeling of isolation. Respondents were asked following three questions with responses on a 4-point scale

(ranging from 0 = never or rarely to 3 = most of the time or all of the time): how often in the past seven days (1) did you feel isolated from others; (2) did you feel people dislike you; and (3) did you feel people treated you with less respect or courtesy than other people. For the full structural model, factor loading of each question was .58, .48, and .58.

Parental support. A parental support scale was created by summing these items that are reflecting the feeling of closeness to parents and financial support from parents at Wave 4 (2008). Young adults were asked to indicate (1) how close do you feel to your mother/father figure and (2) how many times has your mother/father figure paid your living expenses or given you \$50 or more to pay living expenses during the past 12 months. For closeness to parents, the item was rated on a scale ranging from 1 (not at all close) to 5 (very close). For financial support item, the item was rated on a scale ranging from 0 (never) to 3 (3 or 4 times during the past 12 months). The ratings for both mother and father were standardized then averaged. Higher scores indicated higher parental support. Indices for mother and father scores had internal consistencies of .67 and .78.

Cardiometabolic disease risk. Young adults' CM disease risk was measured by their allostatic load, which was computed by summing standardized, continuous scores (z-scores) of nine biomarkers of cardiovascular and metabolic systems at Wave 4 (2008) (Wickrama, Lee, & O'Neal, 2015). Such an aggregated biological measure captures (a) multiple-system physiological dysregulation and, (b) the longitudinal context, or "weathering" over the early life course (Geronimus et al., 2006). Aggregate scores of biomarkers are typically computed as the number of markers for which a participant is in the highest risk quartile. However, prior research has shown that averaging the computed z-scores for each measure predicts health outcomes equally (Seeman, Singer, Rowe, Horwitz, & McEwen, 1997). Also, averaging continuous z-

scores more accurately reflects the continuous nature of CM disease risk. The biomarkers assessed in the current study include systolic blood pressure (SBP), diastolic blood pressure (DBP), pulse rate (PR), glycosylated hemoglobin (HbA1c), glucose, triglycerides (TG), high-density lipoprotein (HDL), low-density lipoprotein (LDL), and body mass index (BMI). Trained field researchers used oscillometric blood pressure monitors to measure SBP, DBP (mmHg), and PR. Measurements were taken on the right arm, unless contraindicated, while the participant was seated and resting. Using standard procedures, trained and certified researchers obtained whole blood spots for dried blood analysis. From these samples, HbA1c, an integrated measure of blood glucose over the preceding 2 to 3 months; total glucose values; TG; LDL; and HDL were assayed. Trained researchers also measured respondents' height and weight to compute their BMIs, the ratio of weight in kilograms to height in meters squared.

Control Variables. The present study included controls that have been found to be associated with young adults' physical health risk, including prior general health status, community adversity, family socioeconomic background (i.e., family economic hardship, parents' education and marital status), respondents' race/ethnicity, gender, and age.

Analysis Plan

The hypothesized models were tested using a structural equation modeling framework with Mplus statistical software (version 7.0; Muthén & Muthén, 1998-2012). Multiple-group analyses were conducted to test the model across high and low parental support groups. Chi-square difference tests were used to determine significant group differences (criterion = 3.84). The TYPE = COMPLEX command was used to account for potential bias in standard errors and chi-square computations, due to the nested structure of the Add Health school-based design. Full Information Maximum Likelihood (FIML) procedures (Enders & Bandalos, 2001) was used to

account for missing data, which estimates model parameters and standard errors from all available data to minimize potential biases that could influence the results. To evaluate the model fit, the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI) were used. According to Hu and Bentler (1999), fit indices that exceeded .90 and RMSEA that are .06 or lower are considered to support acceptable fit of the model. The TYPE = COMPLEX command was used to account for potential bias in standard errors and chi-square computations, due to the nested structure of the Add Health school-based design. Full Information Maximum Likelihood (FIML) procedures (Enders & Bandalos, 2001) was used to account for missing data, which estimates model parameters and standard errors from all available data to minimize potential biases that could influence the results.

RESULTS

Preliminary Analyses

Table 6 reports means, standard deviations, and bivariate correlations of the major study variables. The results of zero-order correlations were consistent with the expectations: In general, relationship dissolution groups were significantly correlated with increased economic stress, decline in social connections, higher levels of substance use, and higher levels of feelings of isolation. Relationship dissolution groups were also positively related with parental support. Economic stress was associated with increased substance use, feeling of isolation, and CM disease risk while social connection was associated with lower substance use, feeling of isolation, and CM disease risk. Substance use and feeling of isolation were positively correlated with CM disease risk.

Stress Proliferation Process Influencing Young Adult CM Disease Risk

The results of linking pathways between relationship dissolution patterns and CM disease risk can be seen in Figure 6. The model showed an adequate fit to the data; $\chi^2(60) = 284.07$, CFI = .96, TLI = .91, RMSEA = .02. As hypothesized, relationship dissolution experiences initiate stress processes influencing young adults' CM disease risk after controlling for sociodemographic characteristics and prior health status. More specifically, relationship dissolution experiences were significantly associated with economic stress and social connections. The “*early multiple relationship dissolutions*” group was associated with increased economic stress ($\beta = .11, p < .001$) and decline in social connections ($\beta = -.05, p < .001$). Similar patterns were observed with the “*late multiple relationship dissolutions*” group, “*cohabitation dissolution only*” group, and economic stress ($\beta = .07, p < .001$; $\beta = .06, p < .001$, respectively). Relationship dissolution experiences were consistently associated with decline in social connections as expected (C1: $\beta = -.05, p < .001$; C2: $\beta = -.03, p < .05$; C3: $\beta = -.07, p < .001$). These findings are consistent with stress proliferation hypothesis and divorce-stress-adaptation perspective which posit that relationship dissolution experiences can proliferate into stressful experiences in other life domains.

Economic stress and social connections, in turn, were associated with substance use and feeling of isolation. To be more specific, economic stress was associated with increased levels of substance use ($\beta = .23, p < .001$) and feeling of isolation ($\beta = .31, p < .001$). All three relationship dissolution groups were also associated with higher levels of substance use (C1: $\beta = .20, p < .001$; C2: $\beta = .15, p < .001$; C3: $\beta = .15, p < .001$). Social connections were associated with decreased levels of substance use ($\beta = -.21, p < .001$) and feeling of isolation ($\beta = -.04, p < .05$). Only the “*early multiple relationship dissolutions*” group was associated with higher level of feeling of isolation ($\beta = .09, p < .001$).

As expected, substance use and feeling of isolation were associated with the increased risk of CM disease risk ($\beta = .05, p < .05$; $\beta = .04, p < .05$, respectively). None of the romantic relationship dissolution groups were directly associated with CM disease risk. Several control variables were significantly associated with CM disease risk: previous levels of general health status ($\beta = -.04, p < .01$), respondents' age ($\beta = .08, p < .001$), being Black and Hispanic ($\beta = .04, p < .05, \beta = .03, p < .05$, respectively) were positively associated with CM disease risk.

Testing Indirect Effects

The indirect effects from relationship dissolution on CM disease risk was estimated in Mplus using maximum-likelihood. The "Model Indirect" command was used to produce standard errors of the indirect causal effects using the delta method (Muthén, 2011). Results revealed a significant total indirect effect between 1) the "*early multiple relationship dissolutions*" and CM disease risk with economic stress, substance use, and feeling of isolation as mediators ($b = .28, p < .01$), 2) the "*late multiple relationship dissolutions*" and CM disease risk with economic hardship and feeling of isolation as mediators ($b = .18, p < .01$), and 3) the "*cohabitation dissolution only*" and CM disease risk with substance use as a mediator ($b = .11, p < .01$).

Moderating Role of Parental Support in Stress Pathways

Adopting multiple-group analysis, the linking pathways presented in Figure 6 were tested across high and low levels of parental support (defined as the 25th and 75th percentile). Chi-square difference tests were used to determine significant group differences for each constraint parameter. The chose constraints to be released are expected to show statistically significant reduction in chi-square (criterion = 3.84) between the two groups. The multiple-group analysis revealed different linking pathways depending on the levels of parental support. As seen in

Figure 7, the relationship between the “*late multiple relationship dissolutions*” and a social connection was modified by parental support ($\Delta\chi^2 (1) = 5.79, p < .05$). The effect of “*late multiple relationship dissolutions*” on decline in social connections were stronger for low parental support group ($\beta = -.06, p < .001$), compared to no significant effect among high parental support individuals ($\beta = -.02$, not significant). In addition, the relationship between the “*late multiple relationship dissolutions*” and substance use was modified by parental support ($\Delta\chi^2 (1) = 3.91, p < .05$). That is, the effect of “*late multiple relationship dissolutions*” on increases in substance use were stronger for low parental support group ($\beta = .21, p < .001$) compared to high parental support group ($\beta = .13, p < .01$). The relationship between the “*cohabitation dissolution only*” and economic stress was also modified by parental support ($\Delta\chi^2 (1) = 5.41, p < .05$), showing stronger association among low parental support individuals ($\beta = .06, p < .001$) compared to no significant effect for high parental support group ($\beta = -.03$, not significant).

Interestingly, a chi-square difference test found that the path estimate between the feeling of isolation and CM disease risk ($\Delta\chi^2 (1) = 4.89, p < .05$) was significantly different across high and low parental support groups. To be more specific, the association between the feeling of isolation and CM disease risk was stronger for low parental group ($\beta = .06, p < .05$) compared to no significant association among high parental group ($\beta = -.01$, not significant).

DISCUSSION

Although previous research has shown that romantic dissolution is associated with physical health problems (Liu & Umberson, 2008), little is known about stress proliferation processes leading to young adults’ risk of developing chronic illness (i.e., CM disease risk).

Moreover, health consequences of relationship dissolution experiences can be weakened or buffered by young adults' social assets, particularly parents' emotional and financial supports. Drawing on the stress process perspective and divorce-stress-adjustment perspective, the present study extends research on the cumulative history of relationship dissolution experiences on CM disease risk by investigating stress pathways during young adulthood and interactive stress-buffering effects of parental support on these processes.

The results are consistent with the stress proliferation hypothesis that romantic dissolution experiences would be associated with CM disease risk in young adulthood via subsequent exposures to stressful life experiences and stress responses (Pearlin et al., 1997). Romantic relationship dissolution experiences were not directly associated with CM disease risk; instead, the findings of significant total indirect effects between relationship dissolution patterns and CM disease risk suggest that the negative influences of relationship dissolution experiences on health risk were exerted via multiple domains of stressful life circumstances, which provides evidence for the creation of a cascade of risks through stress proliferation process.

Specifically, cumulative history of dissolution experiences was associated with both economic stress and decline in social connections, which in turn, were associated with increased substance use and feeling of isolation. It is notable that all three patterns of relationship dissolution experiences are significantly associated with economic stress and decline in social connections. The result shows that not only multiple transitions in co-living relationships (including divorce), which is generally considered to have detrimental impacts on adjustment after dissolution, but also a single cohabitation dissolution can bring declines both in economic and social resources (Avellar & Smock, 2005). As cohabitation has become more common, some researchers suggest that cohabitation seems to be moving toward being a form of dating with no

implications about the odds of marrying (Lichter et al., 2010; Stanley, Rhoades, & Markman, 2006). This societal change may motivate young people to enter into and exit out of cohabitation easily than ever. The weak financial independence of today's young people, likely due to the pursuit of higher education, might be exacerbated due to the frequent transitions in cohabiting relationships contributing to instability for future committed relationships.

In addition to the mediating pathways, the results suggest that relationship dissolution experiences exerted “direct” influences on the two constructs of stress responses, substance use and feeling of isolation. Notably, all three relationship dissolution experiences were associated with increased substance use. These findings are suggestive that there may be other indirect pathways that were not considered in the present study. These mediating pathways may include work-related stressors such as poor work-life balance and low job stability/satisfaction (Kalmijn, 2005), which can be caused by dissolution of partnerships and accompanying instability in living arrangements. Another potential mediator is family-related stressors, including role overload (e.g., single parenting) or conflicts with ex-partners (Bauserman, 2012). Due to the lack of available information, however, the potential mediating pathways were not tested in the present study.

The present study also provides evidence of stress-buffering effects of parental support on the stress pathways leading to young adults' CM disease risk. The “*late multiple relationship dissolutions*” pattern was associated with increased substance use and declines in social connections for those young adults with relatively lower levels of parental support. This finding suggests that parental support can weaken the association between dissolution experiences and negative adaptation for young adults who experience cohabitation dissolution and/or divorce during their late twenties. This may indicate that recent parental support after dissolution can

play a role as a protective factor for young adults. Also, the “*cohabitation dissolution only*” pattern was associated with increased economic stress for those individuals with low parental support, but not for those with relatively higher parental support. This finding may suggest that negative economic consequences of dissolution can be alleviated by parental support when the relationship was less likely to be long-term and economic dependence between romantic partners was less severe. These findings demonstrate that, as hypothesized, parental support can buffer negative adjustment outcomes of romantic dissolution for certain young adults. Interestingly, parental support did not exert a protective effect among individuals in the “*early multiple relationship dissolutions*” pattern. This may suggest that among the three relationship dissolution patterns investigated in the present study, the “*early multiple relationship dissolutions*” group exhibited the most risky adjustment outcomes after dissolution. That is, the influences of “*early multiple relationship dissolutions*” on economic stress, decline in social connections, substance use, and feeling of isolation were not affected by the levels of parental support. All young adults in this group experienced relationship dissolution at earlier ages than other groups, and also, underwent dissolution experiences multiple times. This may predispose them to experiencing harsher declines in economic and social resources. In addition, the “*early multiple relationship dissolutions*” group only showed a significant direct association with feeling of isolation, which indicates that economic stress and decline in social connections may not take into account the potential influence of “*early multiple relationship dissolutions.*”

Another interesting point worth noting is that parental support also moderated the association between feeling of isolation and CM disease risk. Specifically, feeling of isolation was associated with increased CM disease risk for those young adults with lower levels of parental support, but not among young adults who have higher levels of parental support. This

finding suggests that parental support not only has stress-buffering effects on the association between relationship dissolution and stressors/stress response, but also on the association between stress response and physical health risk. While decline in social connections represents the extent to which an individual is socially isolated (objective isolation), feeling of isolation is the extent to which an individual feels loneliness (subjective isolation) (Cacioppo & Cacioppo, 2014). Feeling of isolation is an emotional stress response that threatens health, including blood pressure, metabolic syndrome, (Cacioppo & Cacioppo, 2014), increased HPA activity (Doane & Adam, 2010), and diminished immunity (Dixon et al., 2006). However, findings suggest that parental support can be protective against the development of CM disease risk, potentially through the facilitation of positive coping resources (Cobb, 1976).

The findings of the present study support the proposed research hypotheses. Nevertheless, the study has some limitations. First, even though the time lag between the predictor (i.e., relationship dissolution patterns) and health outcome (i.e., CM disease risk) was allowed with longitudinal data, the time lag between mediating variables and health outcome were not considered in the tested model. Although the tested model was developed based on two theoretical perspectives, the stress process model and divorce-stress-adjustment perspectives, this lack of time intervals limits the extent of causal interpretations of the findings. Thus, the tested model does not rule out the possibility of reverse causations among the study variables. Second, the present study did not consider the prior level of CM disease risk due to the lack of information from earlier waves. Instead, general health status was considered to take into account the previous health status. As a consequence, the path coefficients predicting CM disease risk may show inflated estimates. Third, other than parental support, the present study did not examine potential moderating effects involving levels of conflict with formal partners,

young adults' self-esteem, and mastery, which may exacerbate or protect against the health risks of stressful circumstances. Lastly, previous research suggested that specific genetic polymorphisms can affect health risks in conjunction with stresses caused by relationship dissolution (Nederhof, Belsky, Ormel, & Oldehinkel, 2012). These are important questions in determining why dissolution experiences result in health complications for some young adults but not others. Therefore, future research may consider how stressful pathways and genetic moderation processes predict CM disease risk.

Despite the limitations of this research, its findings have several implications. The significant associations between different types of relationship dissolution patterns and physical health indicate the importance of considering cumulative and various relationship experiences when investigating potential health consequences. In addition, stress influences can be buffered by parental support indicating that parental support is an important social resource for young adults. This finding also indicates that heterogeneity exists even within young adults who experience relationship dissolution. Future studies thus should delve more into the psychosocial resources of young adults who experience frequent transitions in intimate relationships.

CHAPTER 4

CONCLUSION

SUMMARY OF RESULTS

Findings of Study 1 illustrated the variability in young adults' romantic relationship dissolution by identifying four unique relationship dissolution patterns; 1) "*early multiple relationship dissolutions*," 2) "*late multiple relationship dissolutions*," 3) "*cohabitation dissolution only*," and 4) "*stable relationships*." While young adults in the "*stable relationships*" group rarely experienced any types of romantic dissolution, all young adults both in the "*early multiple relationship dissolutions*" and "*late multiple relationship dissolutions*" groups experienced multiple transitions in co-living relationships. The results from longitudinal pathways stemming from early life contexts to relationship dissolution revealed that early structural adversity (i.e., structural adversity in community and family) was associated with declines in social and personal resources during adolescents (i.e., disrupted transitions, conflict in romantic relationships, future orientation, depressive symptoms), which in turn, predisposed adolescents to romantic dissolution experiences in young adulthood. On the other hand, nurturant-involved parenting provided independent effects in opposite direction of early structural adversity on both psychosocial characteristics and romantic dissolution outcomes.

Study 2 demonstrated how the four distinct relationship dissolution patterns influence the development of CM disease risk through proliferated stressors and stress responses in multiple domains. As hypothesized, young adults in the three relationship dissolution groups (i.e., "*early*

multiple dissolutions,” “*late multiple dissolutions*,” and “*cohabitation dissolution*”), compared to the “*stable relationships*” group, experienced increased levels of economic stress and declines in social connections, which were associated with increased substance use and feeling of isolation. These increased stress responses were, in turn, associated with heightened CM disease risk. Our findings also suggested that parents’ emotional and financial support in young adulthood had buffering effects on the association between the 1) “*late multiple dissolutions*” and economic stress, 2) “*late multiple dissolutions*” and substance use, and 3) “*cohabitation dissolution*” and social connections.

CONCLUSION

Previous research has pointed out that serial cohabitation is rapidly increasing among today’s young adults and relationship dissolution events are interdependent and linked across the age span (Lichter et al., 2010; Sassler, 2010). Although young adulthood is a period that the most dynamic transitions in romantic relationships occur, little research has paid attention to cumulative and heterogeneous intimate relationship dissolution patterns during young adulthood. To address this issue, Study 1 identified long-term relationship dissolution patterns considering the timing and sequence of multiple dissolution events.

Among the four relationship dissolution patterns, I focused on the “*early multiple relationship dissolutions*” pattern as the most risky relationship transition group because young adults in this group experienced dissolution of serial co-living unions at the early twenties. Formation of co-living unions at earlier ages and experience of multiple transitions are both risk factors that predict instability of future intimate relationships and negative adjustment outcomes (Amato, 2010; Lichter et al., 2010). Indeed, Study 1 illustrated that the “*early multiple*

relationship dissolutions” pattern was directly influenced by early structural adversity and associated with all four psychosocial problems during adolescence. Lack of nurturant-involved parenting also predicted increased likelihood of experiencing early multiple dissolution. Study 2, then, demonstrated that the “*early multiple relationship dissolutions*” group showed the strongest associations with proliferated stressors and stress responses, which in turn, predicted increased levels of CM disease risk. Considering the fact that young adults in this group are likely to experience highest levels of adversity and lowest levels of psychosocial development during earlier years, they may not have enough psychological, cognitive, and behavioral resources to adjust various stressful life events caused by dissolution of intimate relationships. Sequential accumulation of adverse experiences and erosion of physical health status of young adults in the “*early multiple relationship dissolutions*” group, therefore, might be partially responsible for the intergenerational continuity of adversity.

Both two studies of this dissertation also focused on the compensatory and protective effects of parental support during adolescence and young adulthood. In Study 1, nurturant-involved parenting was associated with positive psychosocial characteristics during adolescence, which in turn, contributed to decreased likelihood of experiencing relationship dissolution. In particular, nurturant-involved parenting predicted decreased likelihood of “early” union dissolution because it has a direct negative association with the “*early multiple relationship dissolutions*” and “*cohabitation dissolution only*” groups. Young adults in these two groups showed, in common, that they experience romantic dissolution at the early twenties. This compensatory effect of positive parenting behavior was independent of structural adversity. In Study 2, parents’ financial and emotional support showed protective effects on the stress pathways leading to young adults’ CM disease risk. In particular, the findings of Study 2

indicated that parental support buffered stress effects of recent relationship dissolutions (i.e., late multiple dissolution) and a single relationship dissolution event (i.e., cohabitation dissolution). However, parental support did not buffer stress paths stemming from the “*early multiple relationship dissolutions*” group to CM disease risk. This finding may support my previous assumptions that the “*early multiple relationship dissolutions*” group may show the most negative adjustment outcomes after dissolution.

Although the two studies investigated important issues which have not been addressed in previous studies, some limitations should be noted. Study 1 used an accelerated cohort design to examine romantic experiences of a broad range of ages (18-30 years of age). While an accelerated cohort design allows testing the hypothesized model over a longer period with fewer waves of data, it can be criticized because there is a possibility that it inadequately recovers information compared to the single-cohort longitudinal design. Relationship dissolution experiences were measured at Wave 4 (2008) using retrospective questions asking about start and end dates of each relationship since 1995. It is possible that individuals recall wrong information on the timing and number of dissolution over a period of 13 years, and this self-report biases may be intensified when heavily relying on an accelerated cohort design. Also, Study 2 did not allow time lags between mediating variables and CM disease risk due to the lack of time intervals in available data waves. Although the study model was developed based on theoretical principles and empirical findings, this limits the extent of causal interpretations of the findings. Therefore, the findings of this research should be replicated in a data set which allows time intervals among predictors, mediators, and health outcomes.

In conclusion, the present study showed great diversity in romantic relationship dissolution in young adulthood, and its developmental precursors and health consequences. The

influences of early life contexts on risky romantic transitional experiences (i.e., multiple partnerships and/or dissolution experiences at early ages) may matter for family policy because of its enduring effects on health outcomes in later years. Although not investigated in the present study, relationship dissolution patterns of young adults may also have critical impacts on health and well-being of children in households. Given that the close association between socioeconomic resources in the family of origin and young adults' relationship dissolution experiences, and considering the potential negative adjustment outcomes of children who experience frequent transitions in parents' partnerships, relationship dissolution experiences of young adults may have deleterious intergenerational health consequences. Given the stress-buffering effects of parental support, further studies are required to investigate psychosocial resources of young adults, especially among those who experience frequent transitions in intimate relationships at younger ages.

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Table 1

Model fit for latent classes

Number of classes	-2LL	Free parameters	AIC	BIC	Entropy	LMR-LTR	Smallest class size
1	-33451.36	39	66980.73	67258.99	-	-	-
2	-31984.44	79	64126.88	64690.55	.92	2925.84****	20.1%
3	-31624.35	119	63486.70	64335.78	.91	718.21****	8.3%
4	-31398.74	159	63115.49	64249.97	.89	449.99****	6.2%
5	-31375.57	199	62949.14	64369.02	.84	246.35****	3.1%
6	-31193.60	239	-	-	-	-	-

Note. LL = log likelihood; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; LMR-LTR = Lo-Mendell-Rubin Likelihood Ratio Test.

Table 2

Median cumulative distribution age of relationship dissolution events

	Class	Cohabitation dissolution	Divorce	Multiple transitions
1	Early multiple relationship dissolutions	19	-	22
2	Late multiple relationship dissolutions	26	27	27
3	Cohabitation dissolution only	22	-	-
4	Stable relationships	-	-	-

Table 3

Prevalence and means of romantic relationship dissolution and demographic characteristics

Characteristics	Class 1 Prevalence / Mean	Class 2 Prevalence / Mean	Class 3 Prevalence / Mean	Class 4 Prevalence / Mean
Romantic relationship				
Cohabitation dissolution	95.2%	81.8%	100.0%	12.5%
Divorce	22.7%	66.6%	0.7%	14.5%
Multiple transitions	100.0%	100.0%	23.2%	0.5%
Demographics				
Female	57.2%	52.7%	54.8%	55.4%
Age	29.8	28.9	29.3	29.6
Educational attainment	4.60	4.86	5.27	5.46
Household income per year	\$52,957	\$54,719	\$59,424	\$63,581
White	63.7%	57.3%	52.0%	52.4%
Black	18.3%	23.2%	26.9%	20.0%
Hispanic	11.1%	13.9%	12.4%	18.9%
Asian	2.2%	1.5%	4.9%	6.1%
Native	4.0%	2.9%	2.4%	1.6%
Other	0.4%	0.5%	1.1%	0.7%

Note. Class 1 = early multiple relationship dissolution; Class 2 = late multiple relationship dissolutions; Class 3 = cohabitation dissolution only; Class 4 = stable relationships. Educational attainment variable ranges from 1 (8th grade or less) to 13 (completed post baccalaureate professional education). Value 4 indicates some vocational/technical training after high school, value 5 indicates completed vocational/technical training after high school, and value 6 indicates some college.

Table 4

Bivariate associations linking early life contexts and psychosocial characteristics to romantic relationship dissolution patterns

Characteristics	Class 1 Prevalence / Mean	Class 2 Prevalence / Mean	Class 3 Prevalence / Mean	Class 4 Prevalence / Mean
Early life contexts				
Early structural adversity	2.05 _a	1.86 _b	1.76 _b	1.75 _b
Nurturant-involved parenting	22.65 _a	23.60 _b	23.12 _{a,b}	23.56 _b
Psychosocial characteristics				
Disrupted transitions	1.16 _a	1.13 _a	.90 _b	.84 _b
Conflict in romantic relationships	.20 _a	.18 _{a,b}	.12 _{b,c}	.08 _c
Future orientation	-.91 _a	-.73 _a	-.31 _b	-.17 _b
Depressive symptoms	6.62 _a	6.04 _b	5.89 _b	5.73 _b

Note. Means designated with the same subscript are not significantly different based on post hoc comparison for association. Class 1 = early relationship dissolution; Class 2 = late multiple relationship dissolutions; Class 3 = cohabitation dissolution only; Class 4 = stable relationships. Educational attainment variable ranges from 1 (8th grade or less) to 13 (completed post baccalaureate professional education). Value 4 indicates some vocational/technical training after high school, value 5 indicates completed vocational/technical training after high school, and value 6 indicates some college.

Table 5

Intercorrelations and descriptive statistics for Study 1 variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. ESA	-													
2. NP	-.01	-												
3. DT	.25**	-.04**	-											
4. CRR	.09**	-.10**	.14**	-										
5. FO	-.20**	.12*	-.27**	-.06**	-									
6. DEP	.09**	-.18**	.13**	.17**	-.37**	-								
7. Age	-.01	-.07**	.23**	.09**	-.02	.01	-							
8. Female	.02	-.13**	-.01	.03**	.10**	.14**	-.10**	-						
9. White	-.18**	-.02	-.03*	-.02	.08**	-.09**	-.04**	-.01	-					
10. Black	.18**	.07**	.02	.02*	-.01	.03*	-.01	.01	-.57**	-				
11. Hispanic	.12**	-.03*	.06**	-.01	-.09**	.06**	.05**	.01	-.47**	-.24**	-			
12. Asian	-.09**	-.03*	-.05**	-.01	-.02	.06**	.04**	-.01	-.25**	-.13**	-.10**	-		
13. Native	.01	.01	-.01	.01	-.01	-.01	-.03*	-.01	-.15**	-.08**	-.06**	-.03**	-	
14. Other	.01	.01	-.01	-.01	.01	.01	-.03*	.01	-.10**	-.05**	-.04**	-.02*	-.01	-
Mean	1.78	23.39	.90	.15	-.29	5.86	15.42	54.1%	53.3%	22.0%	16.4%	5.3%	2.0%	0.8%
SD	1.10	4.50	.85	.44	2.69	3.41	1.18	-	-	-	-	-	-	-

Note. ESA = Early structural adversity; NP = Nurturant-involved parenting; DT = Disrupted transitions; CRR = Conflict in dating relationships; FO = Future orientation; DEP = Depressive symptoms; SD = Standard deviation.

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

Table 6

Intercorrelations and descriptive statistics for Study 2 variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. EMRD	-													
2. LMRD	-.07**	-												
3. CD	-.15**	-.16**	-											
4. SR	-.31**	-.32**	-.76**	-										
5. ES	.10**	.06**	.03**	-.11**	-									
6. SC	-.04**	-.02*	-.06**	.08**	-.10**	-								
7. Cigarette	.15**	.10**	.09**	-.20**	.21**	-.19**	-							
8. Alcohol	.04**	.04**	.04**	-.07**	.08**	-.05**	.22**	-						
9. Marijuana	.06**	-.02	.01	-.02	.09**	-.05**	.17**	.12**	-					
10. FI 1	.06**	.02*	.01	-.04**	.16**	-.04**	.08**	.04**	.07**	-				
11. FI 2	.07**	.01	.03**	-.07**	.19**	-.05**	.08**	-.02	.01	.28**	-			
12. FI 3	.05**	.02*	.02*	-.06**	.19**	-.04**	.10**	.01	.09**	.34**	.28**	-		
13. PS	.06**	.05**	.06**	-.10**	.25**	-.07**	.08**	.04*	.03	.14**	.21**	.14**	-	
14. CM risk	.01	.01	-.02	.01	.03**	-.02*	.03**	.13**	.10**	.06**	-.02**	.04*	-.01	-
Mean	.06	.07	.25	.61	.90	-.04	2.90	3.92	2.40	.32	.96	.98	-.03	.01
SD	-	-	-	-	1.39	.56	1.89	2.08	2.07	.60	.94	.84	1.28	.98

Note. EMRD = Early multiple relationship dissolutions; LMRD = Late multiple relationship dissolutions; CD = Cohabitation dissolution only; SR = Stable relationships; ES = Economic stress; SC = Social connections; FI 1 = Feeling of isolation 1 (felt isolated); FI 2 = Feeling of isolation 2 (felt people disliked me); FI 3 = Feeling of isolation 3 (felt people treated me with less respect or courtesy than other people); PS = Parental support; CM risk = Cardio-metabolic disease risk.

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

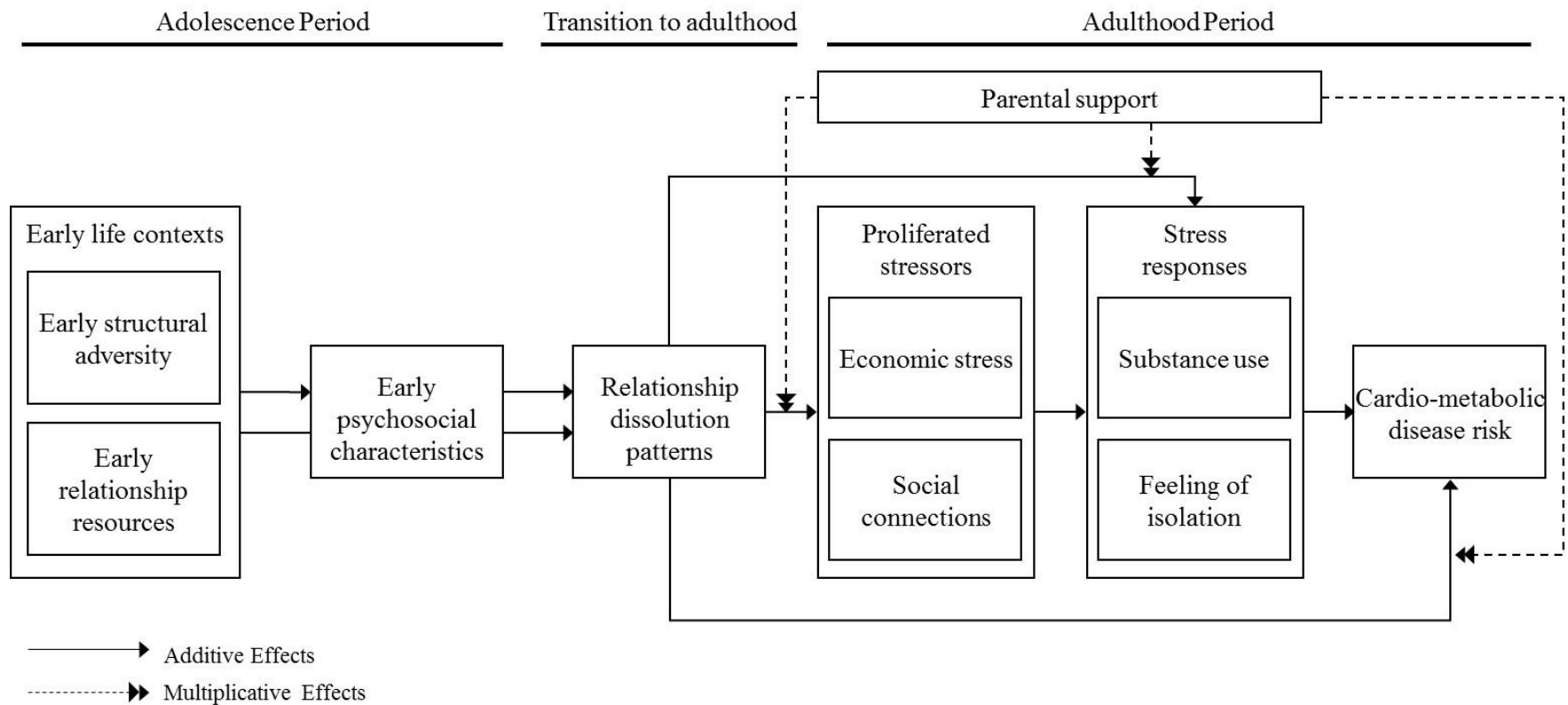


Figure 1. Overall conceptual model

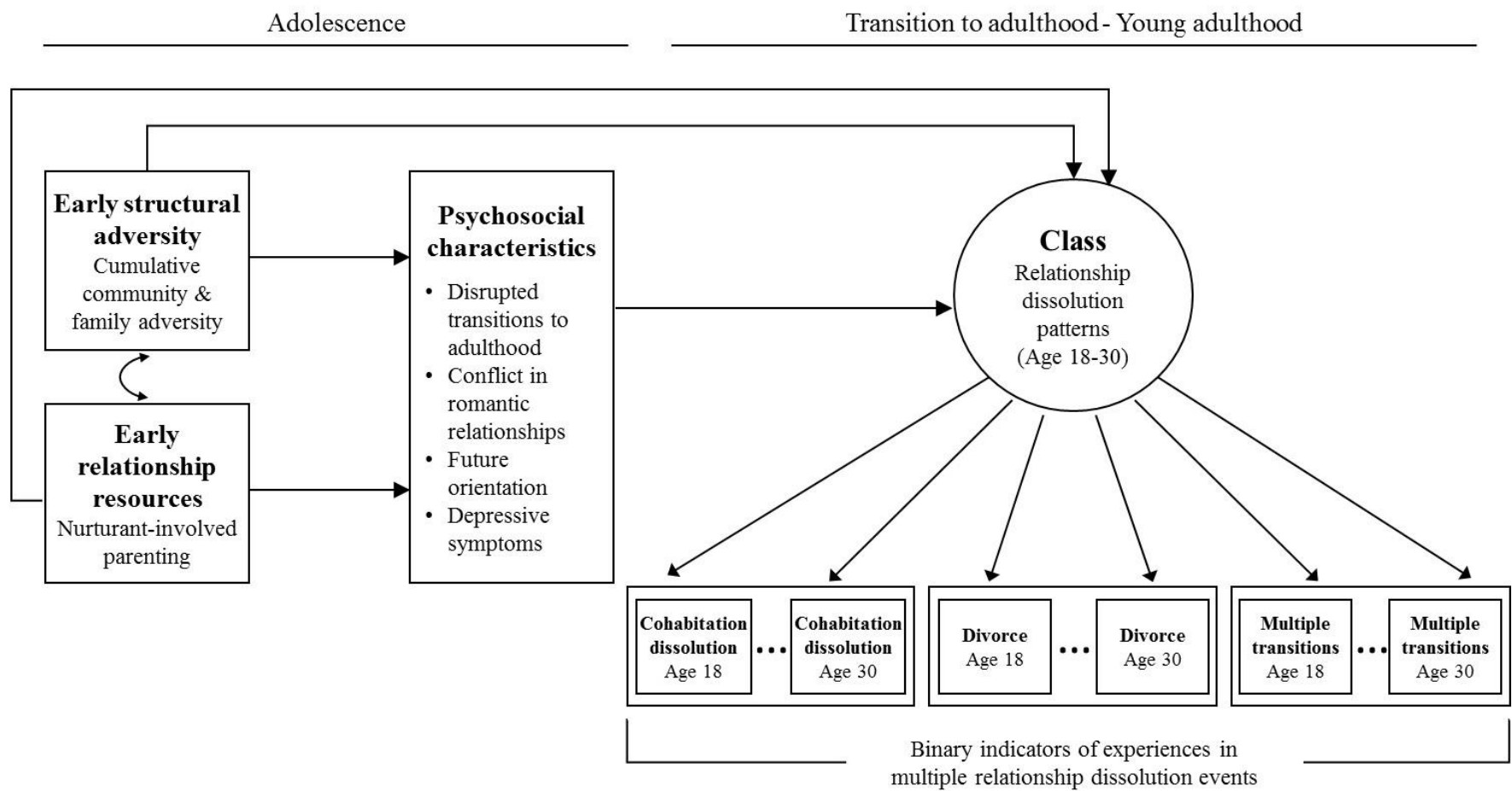
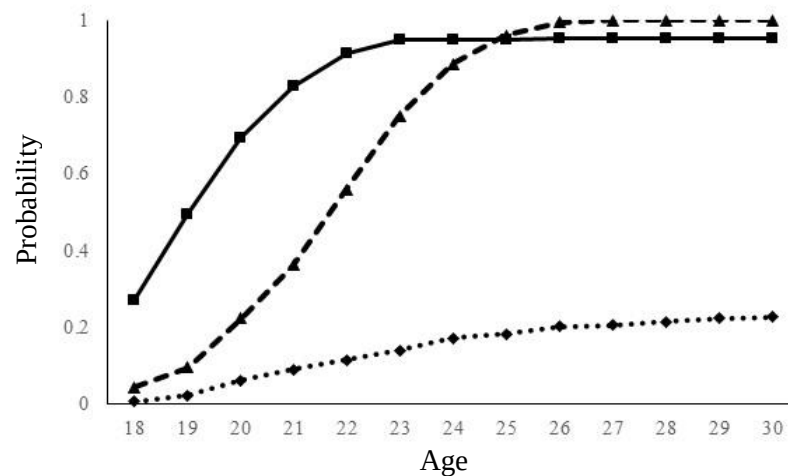
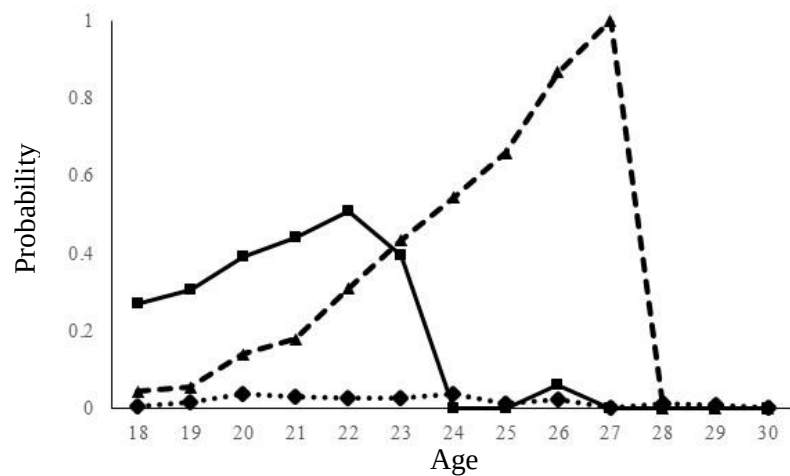


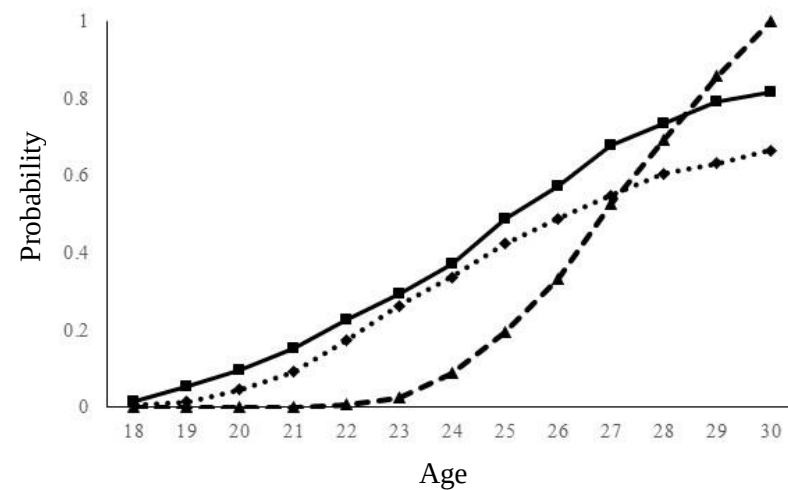
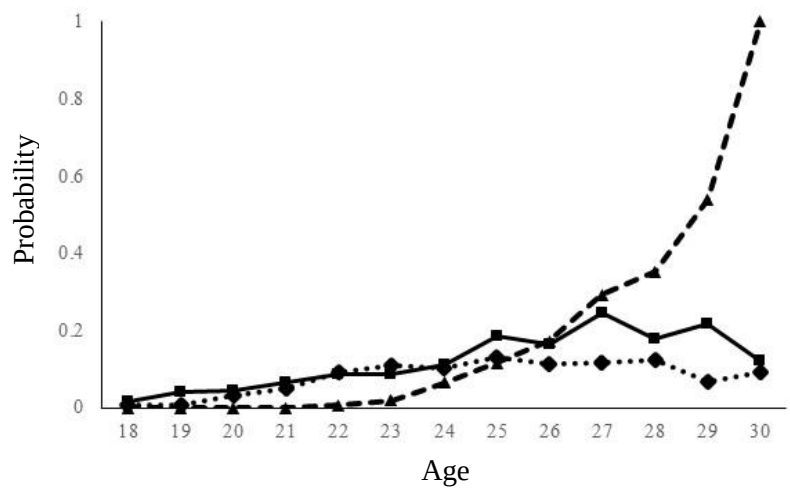
Figure 2. Conceptual model for Study 1

Cohabitation dissolution —■— Divorce◆..... Multiple transitions - - -▲ - - -

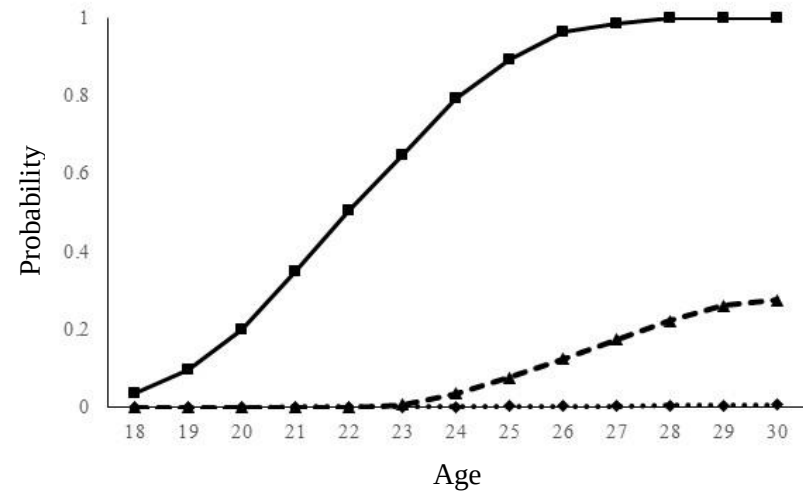
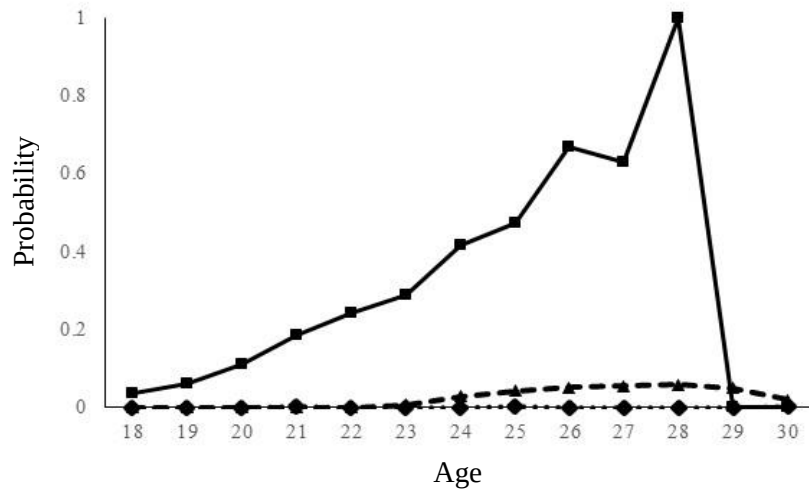
Class 1: Early multiple relationship dissolutions (n = 575, 6.2%)



Class 2: Late multiple relationship dissolutions (n = 657, 7.1%)



Class 3: Cohabitation dissolution only (n = 2,345, 25.3%)



Class 4: Stable relationships (n = 5,698, 61.4%)

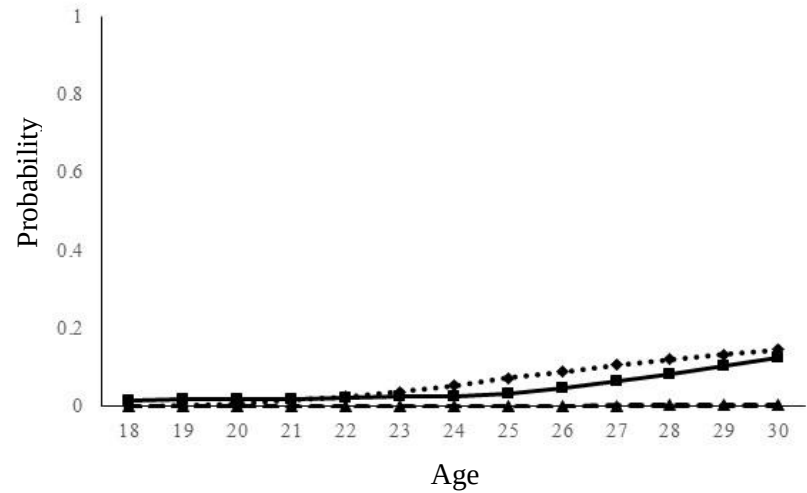
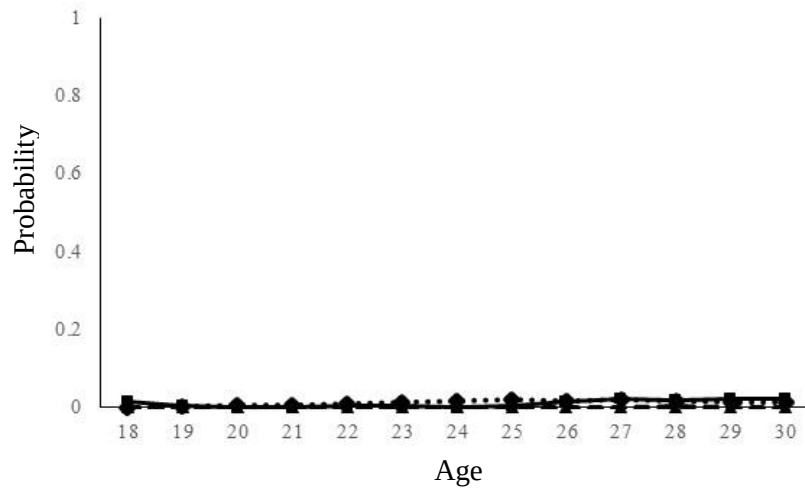


Figure 3. Hazard (left) and cumulative probabilities (right) of romantic relationship dissolution experiences in latent classes

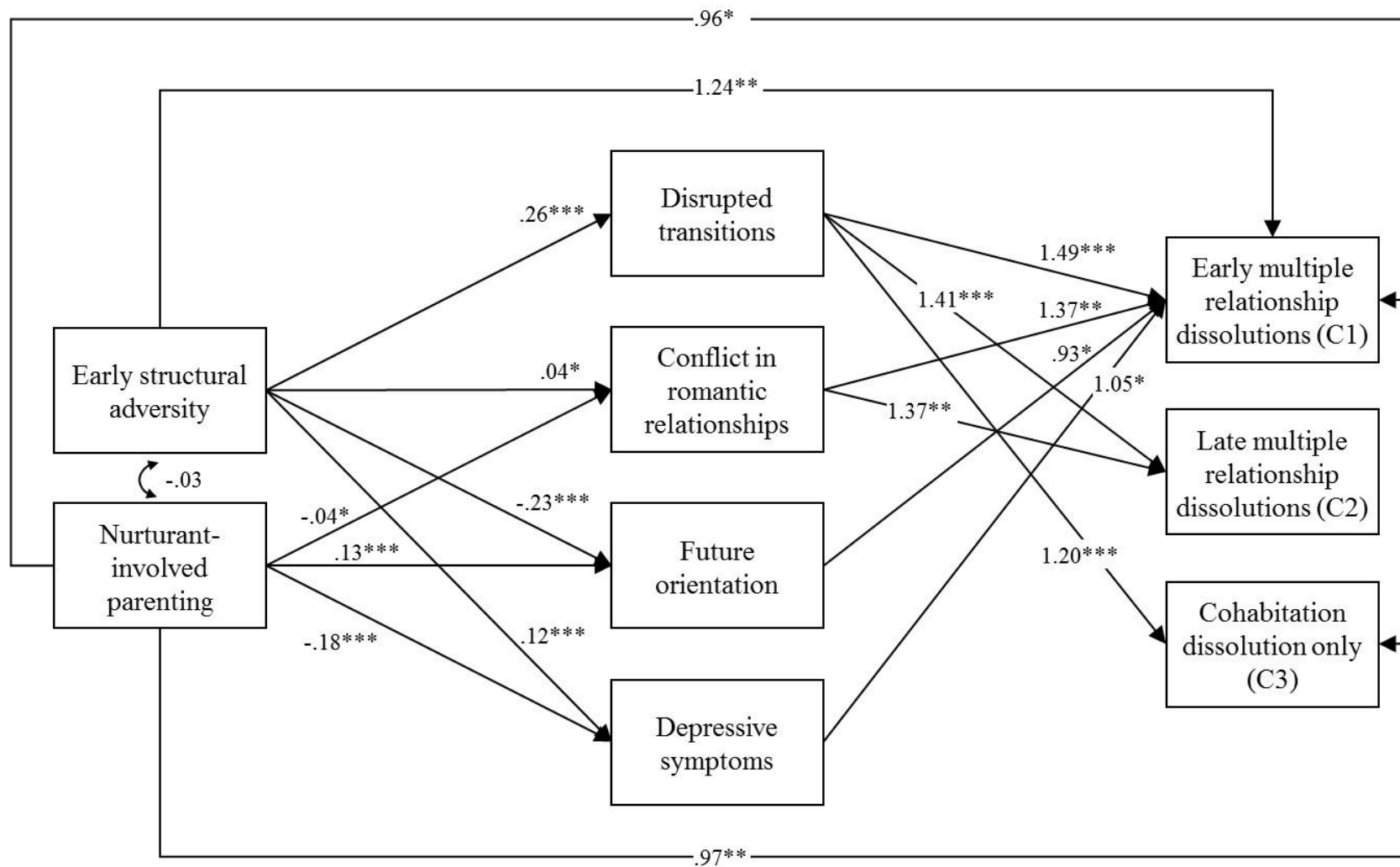


Figure 4. Model predicting pathways to relationship dissolution classes

Note. Pathways predicting psychosocial characteristics during adolescence are standardized betas; pathways to relationship dissolution classes are odds ratios where the reference group is the “stable relationships” group. Respondents’ age, gender, and race/ethnicity were controlled. * $p < .05$. ** $p < .01$. *** $p < .001$

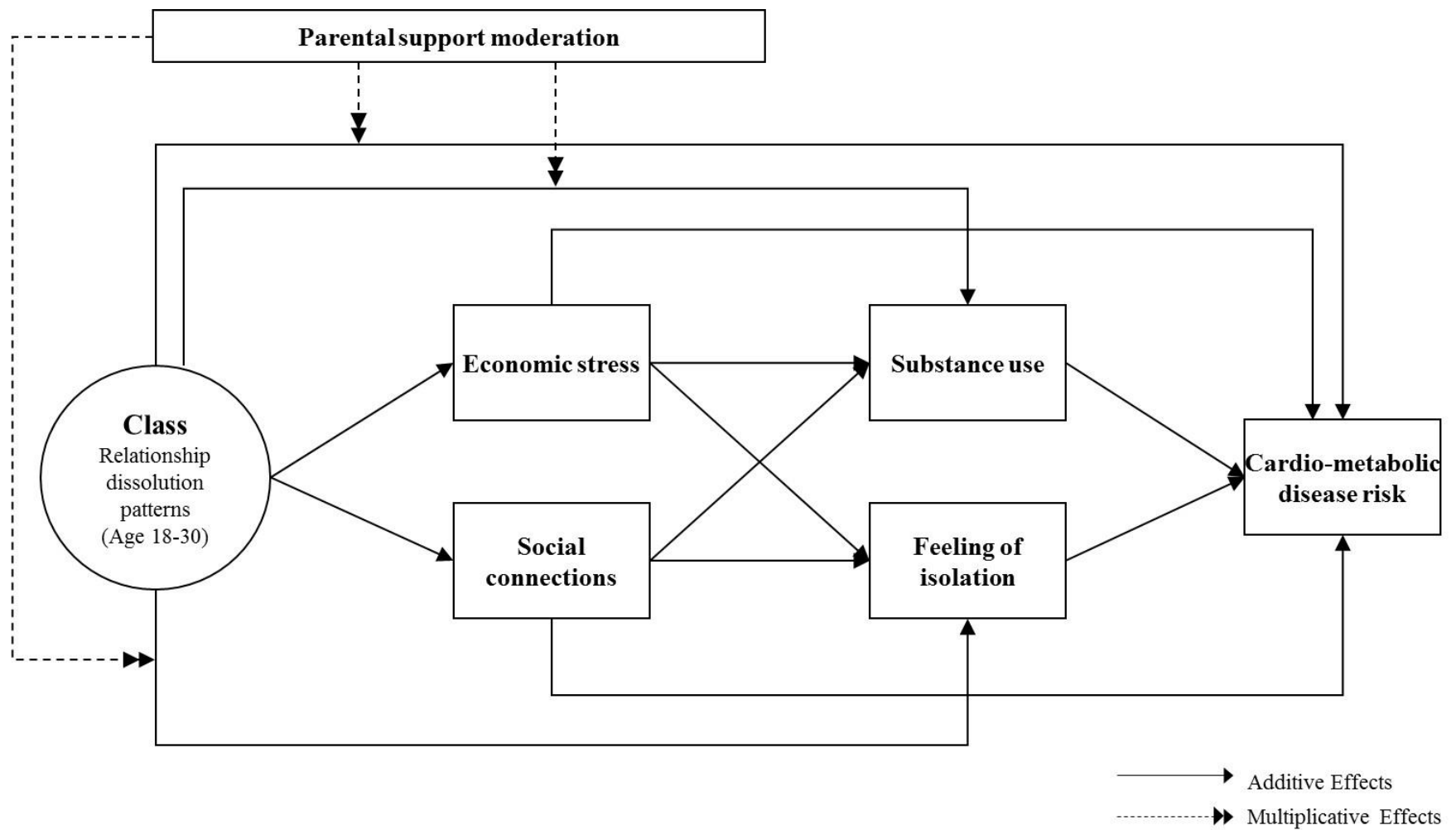


Figure 5. Conceptual model for Study 2

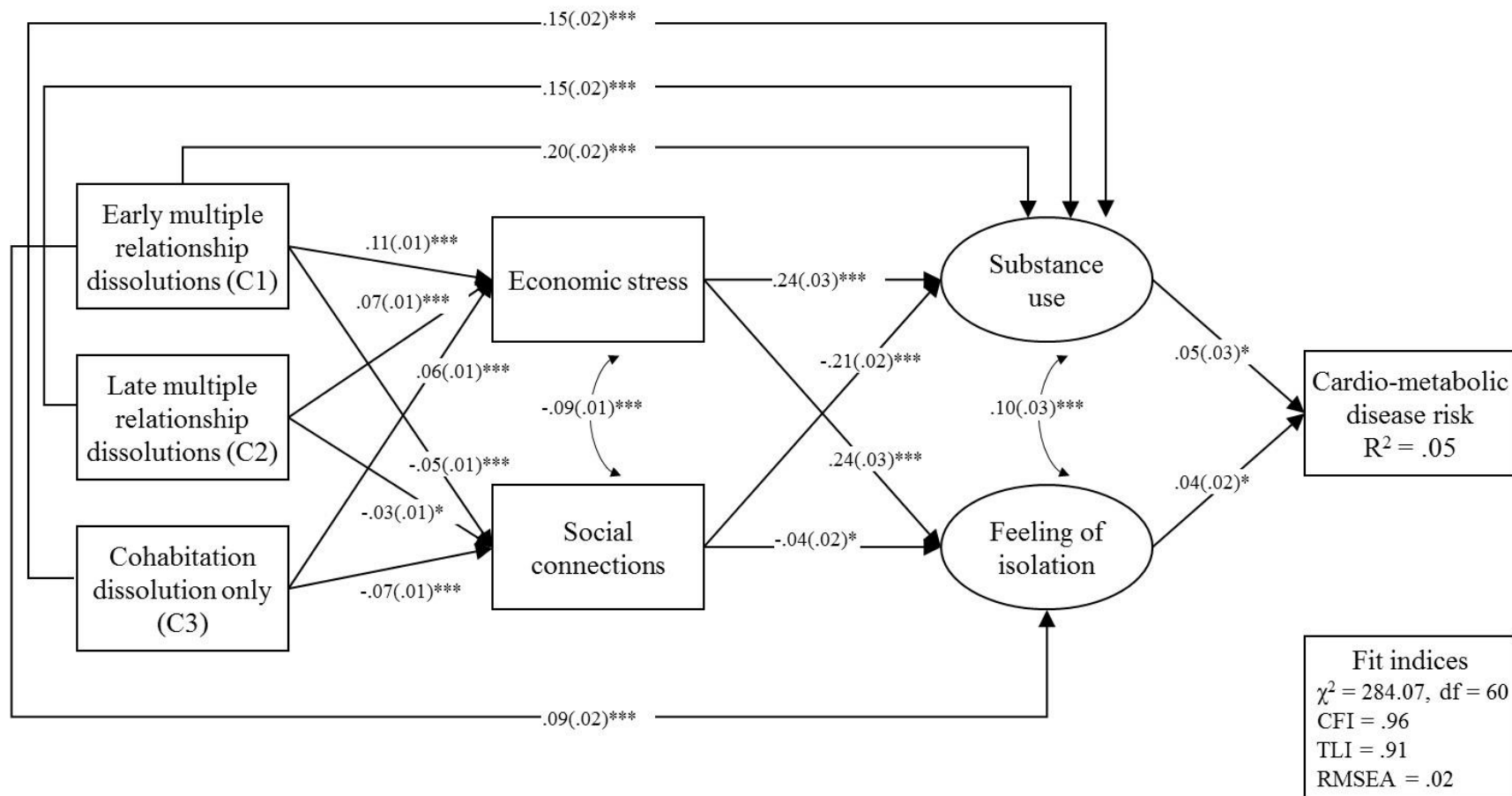


Figure 6. Influence of romantic relationship dissolution on CM disease risk through the proliferated stressors and psychobehavioral stress-responses

Note. Standardized coefficients are shown with standard errors in parentheses for statistically significant paths. Coefficients can be interpreted with reference to stable relationship group (C4, reference group). Respondents' age, gender, race/ethnicity, general health status at Wave 1 were controlled. The independent factors were allowed to covary.

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

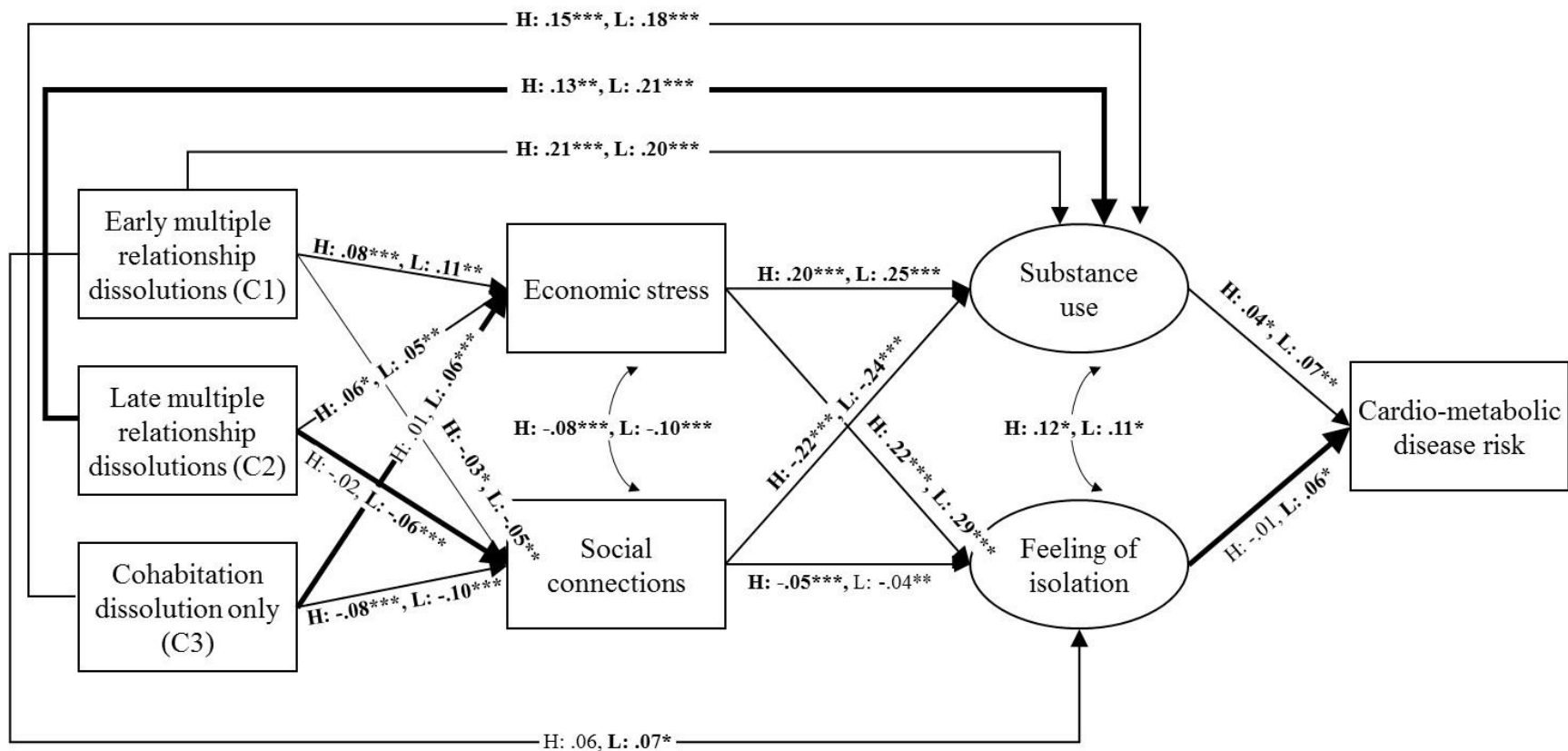


Figure 7. Multiple-group comparison for high parental support ($n = 2,262$) vs. low parental support ($n = 2,370$)

Note. Standardized coefficients are shown for significant paths. The bold lines are the paths that were modified by parental support. Respondents' age, gender, race/ethnicity, general health status at Wave 1 were controlled. The independent factors were allowed to covary.

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