5-2005

Adoptees' Knowledge about and Contact with Birth Parents and Their Adjustment in Adolescence and Young Adulthood

Kyung-Eun Park
Utah State University

ADOPTEES' KNOWLEDGE ABOUT AND CONTACT WITH BIRTH PARENTS AND THEIR ADJUSTMENT IN ADOLESCENCE AND YOUNG ADULTHOOD

by

Kyung-Eun Park

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Family, Consumer, and Human Development

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

2005

ABSTRACT

Adoptees' Knowledge about and Contact with Birth Parents and Their Adjustment in Adolescence and Young Adulthood

by

Kyung-Eun Park, Doctor of Philosophy

Utah State University, 2005

Major Professor: Brent C. Miller, Ph.D.
Department: Family, Consumer, and Human Development

This study described adoptees' knowledge of and contact with birth parents in adolescence and young adulthood, and analyzed the relationship between adoptees' knowledge of and contact with birth parents and the adoptees' adjustment in young adulthood. Data for the current study came from the National Longitudinal Study of Adolescent Health (Add Health). In total, 487 adoptees were identified for this study in Wave I (1995) and Wave III (2002). Descriptive and multivariate analyses using logistic regression were conducted.

Adoptees were more likely to be aware of their birth mothers than of their birth fathers and the percentage differences between their knowledge about birth mothers and about birth fathers were reduced over time. Adoptees were more likely to know about their birth parents during young adulthood than adolescence. Being female, being placed at an older age, never placed in a foster home, and being in young adulthood

were statistically significant factors to increase the probability of knowing about birth mothers; being placed at older age and being in young adulthood statistically significantly affected the probability of having knowledge about birth fathers.

Adoptees were more likely to contact their birth mothers than birth fathers and the differences in percentage concerning contacting birth mothers and birth fathers were increased seven years later. Being adopted at older age, never placed in a foster home, and being in young adulthood were statistically significantly associated with the probability of contacting birth mothers. Being adopted at an older age was associated with the probability of contacting birth fathers.

The more adoptees knew about or contacted their birth parents, the less they attended college and the more they formed couple relationships in young adulthood. However, this negative effect of knowing about or contacting birth parents almost disappeared when other variables were controlled. This study provides new information in adoption studies, but the results remain inconclusive until the dynamics of pre-adoption history and post-adoption relationships are better understood.

(183 pages)

ACKNOWLEDGMENTS

I would like to thank Dr. Brent C. Miller for making available to me the great project and the data set for this research (NIH grant#5 R01 HD 36479-02). I would especially like to thank my committee members, Drs. Eddy Berry, Shelley Lindauer, Kathy Piercy, and Sylvia Niehuis, for their support, thorough review, and critical comments of my research.

Many thanks go to family members, friends, and church members for their encouragement, love, and prayers, for getting through this whole process. Especially, thanks to my parents and Young Kim with all my heart. Finally, my Lord, all glory is yours! I love you.

Kyung-Eun Park

CONTENTS

Page

LIST OF TABLES

Table Page

Table Page

Table Page

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Adoption is the legal process of creating or transferring parent-child rights and responsibilities between individuals who are not birth parents and children (Shuman & Behrman, 1993). Contemporary adoption practice has been closely associated with changes in laws, which reflect the needs of individuals and society. Adoption practice has changed dramatically since the 1970s (Grotevant & McRoy, 1998) and adoption is characterized by greater diversity (Brodzinsky, Smith, & Brodzinsky, 1998; Haugaard, 1998). Grotevant and Kohler (1999) suggested several different types of characteristics in adoptions. The first type is distinguished by the adoptive family system. Some adoptions occur within biological relationships when a stepparent legally adopts the biological child of his or her new spouse, or relatives formally or informally adopt nieces or nephews, siblings, or grandchildren. The second type differs by characteristics of adopted children. Adopted children vary in age of placement or in racial, ethnic, or national origin from their adoptive parents. Adopted children also differ by whether they have been exposed to risks for long-term physical or mental abuse, whether they have information about their birthparents, and whether they are adopted with or without siblings. The last type by which adoptions differ is adoptive parents' circumstances (e.g., single parent or gay and lesbian couples).

In the United States, national data regarding adoption has been problematic. Since 1975, when the National Center for Social Statistics was discontinued, accurate and current adoption statistics have been difficult to obtain (Grotevant & Kohler, 1999).

Recently, Census 2000 inquired about the adoption status of children. There were 2.1 million adopted children and 4.4 million stepchildren in the U.S., which represented about 2.5% and 5.2%, respectively, of all children 18 years old and over (Kreider, 2003). Although it is the principal source of data on adopted children and their families on a national level, the Census did not define whether an adoption was of a relative or a nonrelative, or whether the child was adopted through a public agency, a private agency, or independently. Therefore, children who were adopted by their stepparents, those adopted by their biological grandparents or other relatives, and those adopted by other people to whom they were not biologically related, were not distinguishable. As suggested above, adoption is more complex to conceptualize and measure than is often assumed (Miller, Fan, Christensen, Grotevant, & van Dulmen, 2000). In order to avoid confusion about adoption for this study, the adopted child is defined as one who is legally adopted, and who did not live with either birth parent.

Statement of the Problem

Adoption was seen as a positive solution for young birth parents, their unplanned infants, and infertile couples during most of the 20th century in the U.S. (Chandra, Abma, Maza, & Bachrach, 1999; Miller et al., 2000). Historically, when an adoption occurred, the practice of permanently severing the relationship between the child and his or her birth parents was emphasized (Grotevant & McRoy, 1998), and secrecy was the way to accomplish that goal. Confidentiality gradually became an integral part of adoption to protect adoptive family relationships, shielding children

from stigma, minimizing questions that strangers might ask, and discouraging adoptive family members from thinking of themselves as an adoptive family. Under the policy of closed and sealed records, adoption agencies matched physical appearance, interests, intelligence, personality, or other traits of adoptive parents with the anticipated characteristics of their baby (Grotevant, Dunbar, Kohler, & Esau, 2000; Grotevant & McRoy).

Despite confidential or closed adoption practices, some researchers have reported that between 30% and 65% of adopted adolescents want to search for their birth parents (Benson, Sharma, & Roehlkepartain, 1994; Stein & Hoopes, 1985) and about 55% of adopted adults are actually searching for their birth parents (Sobol & Cardiff, 1983). A survey conducted in 1984 estimated that about 500,000 adopted persons were searching for, or had contacted, their birth parents. If 2-4% of adoptees search each year in the U.S., as many as 88,000 different adoptees per year are searching for their birth parents. According to statistics from England, at least 50% of those who were adopted and who have access to their original birth certificates have searched for a birth relative at some point of their lives, and more than half of those who search wanted to meet a birth relative. These searches by adoptees have been influenced by legal changes, which have gradually opened their birth records (Müller & Perry, 2001).

Grotevant and colleagues (2000) explained that the civil rights movements and greater awareness of biology and human genetics have challenged the institutionalized practices of secrecy and matching in adoption, and encouraged adopted persons to know

their medical history. Corresponding to needs of adopted persons and birth parents, public attitudes about searching and reunion of adoptees are also changing. Miall (1998) interviewed 150 Canadian respondents who were selected by systemic random sampling to examine community evaluations of open adoption, birth reunions, and disclosure of confidential information. About 90% of respondents agreed that adopted children should be told of their adoptive status; however, only 29% of respondents agreed with open adoption. Respondents did not approve open adoption on the grounds of (a) possible conflict between the two sets of parents, (b) confusion of the child, and (c) it is unnecessary for adoptive parents when they do not need any help from the birth parents. However, 84% of respondents reported that an adult adoptee has a right to a birth family reunion and can benefit from it under conditions of mutual agreement on reunion by both the adoptive and birth parents. According to a recent survey (Adoption Institute, 2002), 68% of respondents believed that an adopted person's successful search for birth parents is usually good for the adoptee, while the number who believed that such a search is usually was bad was 19% in 2002. For adoptive parents, 60% believed that it is usually good when adopted children find their birth parents, up from 44% in 1997. Likewise, adoptees' search for information about, or contact with, their birth families has become a familiar fact; such behavior is no longer assumed to indicate that the adoptee suffers from a mental health disorder (Samuels, 2001).

The increasing interest in adopting special needs children is another important change in adoption practice in America. Special needs adoption grew quickly after the passage of the Adoption Assistance and Child Welfare Act of 1980, which emphasized

the need to create nurturing permanent homes for children residing in foster care. The passage of the Adoption and Safe Families Act in 1997 confirmed a commitment to permanency planning for foster children through reunification with the birth family, or through creating alternative permanency plans like adoption (Gendell, 2001). Approximately 14,000 older and special needs children are adopted in the U.S. each year and the same number of special needs children each year is pending adoption (Haugaard & Hazan, 2003). Special needs adoption inherently has some characteristics of open adoption. For example, in a study of 120 special needs adopted children, Nelson (1985) reported that 20% of these adoptees continued contact with their birth families following their adoption. Ongoing contact between children and their birth parents is reasonably common after the adoption of older children.

Identity development is very important for adolescents-especially for adoptees. Identity development of adoptees has been considered as one of the factors explaining adoptees' problematic behaviors (Grotevant, 1997). Erikson (1968) described eight stages of psychosocial development over the life cycle. During the late adolescent years, which is the fifth stage, adolescents explore a sense of identity. However, identity is not only a developmental task for his fifth stage but is also a life long process in terms of exploration and commitment. In short, identity development (Grotevant) is "an ongoing process with antecedents in childhood, dramatic change during adolescence, and the potential for ongoing change and adaptation through adulthood" (p. 146). It is important because the development of identity in adolescence influences the development of later stages and serves as a foundation for adult psychological development and interpersonal

relationships. Brodzinsky and his colleagues (Brodzinsky, Schechter, & Henig, 1992; Brodzinsky et al., 1998) asserted that adopted adolescents generally have more complex identity formation tasks such as further exploration of the meaning and implications of being adopted, integrating adoption into a stable and secure identity, coping with adoption-related loss, considering the possibility of searching for biological family, and maintaining open communication with parents about adoption. In light of this, adopted adolescents' knowledge of and contact with birth parents are substantial factors for adopted persons' life long developmental tasks.

After adolescence, young adulthood or emerging adulthood is a life stage beginning in the late teens and continuing through the twenties (usually 18 through 26; Arnett, 2000). These two periods are usually distinguished not only by a time period and chronological age, but also by major life events or sociological characteristics such as the completion of school, labor-force entry, marriage, and parenthood (Arnett; Greene, Wheatley, & Aldava, 1992). Many people in this life period go through frequent changes in love, work, and worldviews, which have important consequences (Arnett). Badeau (1998) expected that leaving home during this period might be more difficult for adoptees than nonadoptees because it triggers all of the feelings that adoptees may have about their earlier separations from birth families.

In light of changing adoption practices (i.e., more frequent search and reunion, open adoption, and special needs adoption) and the importance of identity development in adolescence, basic questions need to be answered, such as, "How many adopted adolescents know about who their birth parents are and have met them?" "What kind of

information about their birth parents do they have?" and "Do they interact with their birth parents?" However, little is known about answers to these questions because many studies of adoption have focused on how changing practices in adoption affect the adoption triad (i.e., adopted children, adoptive parents, and birth mother) or the samples for such studies have been small and non-representative.

In studies of adopted persons' adjustment, methodological issues such as using clinical samples, narrow age range of subjects, selection bias, and inappropriate use of control groups have been raised as being problematic (Brodzinsky, Schechter, Braff, & Singer, 1984; Haugaard, 1998; Ingersoll, 1997; Warren, 1992). Recently, some researchers (e.g., Haugaard; Wilson, 2004) argued that the differences between adoptees and nonadoptees have been exaggerated or distorted due to such methodological problems. In addition, for a specific issue like knowledge of and contact with birth parents (the topic of this study), it is better to focus on only the one being adopted. Further, many studies have been conducted with a cross-sectional design, which has limitations for examining how adoption affects adopted persons over time. In order to examine adoptees' adjustment, a longitudinal design study is needed. For this reason, this study focuses on adoptees through two adjacent developmental periods (i.e., adolescence and young adulthood).

Conceptual Definitions

The major constructs for this study are defined as follows:

Adoption is the key concept in this study; adoption is defined as the legal process of creating or transferring parent-child rights and responsibilities between individuals who are not each other's birth parent and child. Adoptees' knowledge of, contact with, and involvement with birth parents were analyzed as both dependent variables and independent variables.

Knowledge (about birth parents) is defined as the adoptees' knowing anything about birth parents, as well as more specific information about birth mothers and birth fathers (e.g., disability or education level).

Contact (with birth parents) means that adoptees had some connect with birth parents, regardless of the way that they made contact (e.g., by telephone, letter, or face to face meeting).

Involvement (with birth parents) means that adopted persons shared physical activities with birth parents when they were together. Closeness to birth parents was also used in this study to reflect adoptees' feelings of closeness to birth parents.

The subjects for this study were adoptees in adolescence and young adulthood. Two developmental periods are defined based on respondents' age. *Adolescence* is defined as the period when respondents were mostly between the ages 12 to 18. *Young adulthood* is defined as the period when respondents were mostly between the ages 18 to 26.

Transitional adjustment is defined as the attainment of appropriate or expected statuses between adolescence and young adulthood. In this study, the focus was

attending college and formation of romantic relationships. Detailed operational definitions of these constructs are presented in Chapter III.

Objectives and Research Questions

This study was part of a larger project funded under a National Institutes of Health (NIH) grant, entitled "Adoption and late adolescents' well-being." This part of the study aims to describe adoptees' knowledge about and contact with their birth parents. The primary and the first objective of this study is to provide information from population-based surveys regarding adopted adolescents' knowledge about, and contact with, their birth parents. The second objective is to assess changes in adoptees' knowledge about and contact with their birth parents between their adolescence and young adulthood; how many adoptees know about and contact their birth parents, how many adoptees acquire new knowledge and initiate contact in young adulthood, and which variables affect knowledge about and contact with birth parents. Lastly, this study aims to examine if adopted adolescents' knowledge about and contact with their birth parents are related to their adjustment during their transition to young adulthood. Because the longitudinal data in this study were obtained during adolescence and young adulthood, transitional adjustment can be better understood than in previous studies of younger adoptees.

Specific research questions based on three objectives are as follows:

Objective 1: Description of adopted adolescents' knowledge about, contact with, and involvement with birth parents.

1a. What percentage of adopted adolescents and adopted young adults have information about, have contact with, and are involved with, their birth parents?

1b. Does the percentage of adolescents and young adults who know about, make contact with, and are involved with their birth parents differ by gender, current age, and age at placement?

Objective 2: Longitudinal changes between adolescence and young adulthood.

2a. Does knowledge about, contact with, and closeness to birth parents change from adolescence to young adulthood?

2b. Are variables such as gender, age, age of placement, abuse and neglect, and foster care related to adoptees' knowledge about, contact with birth parents in adolescence and in young adulthood?

Objective 3: Relations between transitional adjustment and knowledge about and contact with birth parents.

3a. Are adoptees' knowledge about and contact with birth parents in adolescence associated with their transitional adjustment in young adulthood?

3b. Are adoptees' knowledge about and contact with birth parents in adolescence associated with transitional adjustment for those in young adulthood after controlling gender, age, age of placement, abuse and neglect, and foster care?

CHAPTER II

LITERATURE REVIEW

Theories about Adoptees and Their Birth Families

"Why do adoptees want to know about their birth families and hope to see them?" "What factors affect adoptees' knowledge about and contact with birth parents?" "Is adoptees' knowledge of and contact with birth parents related to adoptees' adjustment?" The following section discusses some theories that could be applied to knowledge about and contact with birth parents by adopted people.

Adoptive Identity Development

According to Erikson's psychosocial theory, identity is the state of psychological equilibrium that one has self-definition and an inner cohesiveness in time through interaction between individuals and contexts (Erikson, 1968). Grotevant (1997) claimed that identity is associated with daily behaviors; thus, linkages between identity and behaviors have been reported.

Study findings about the identity of adoptees (e.g., Brodzinsky et al., 1992; Grotevant et al., 2000) pointed out that adoptees' identity development is more complex and difficult than nonadoptees because of their special contexts such as loss (Brodzinsky et al.), more complicated relations with families, intrapsychic components, and milieu outside the family (Grotevant et al.). In research comparing identity between adopted and nonadopted adolescents (e.g., Benson et al., 1994; Stein & Hoopes, 1985), few differences were observed between these two groups. Grotevant and associates

contended that it was because those researchers used an identity concept in general, rather than an adoptive identity development construct (described below).

Adopted people have to deal with what several dimensions during their adoptive identity development (Grotevant et al., 2000). Three aspects of adoptive identity were identified: self-definition, coherence of personality, and sense of continuity over time. Self-definition refers to the distinctive combination of personality characteristics by which one defines oneself and by which the individual is recognized by others within particular social and historical contexts. In light of this definition, adopted persons' identity is closely related to individual perceptions about how a society treats adoption and adoptees. Modell (1997) asserted, "Adoption is a fictive (or made) kinship that upholds cultural interpretations of real kinship, which is presumed to be based on the centrality of birth and a blood connection" (p. 45). From this perspective, the sealed records policy is a source of discrimination and stigmatization, which results in adopted persons having a lack of information about their intergenerational continuity. Consequently, adopted persons are more vulnerable to suspicion about their background, which is a key factor of adoptive identity development (i.e., self-definition). The more adoptees perceived their sense of stigma about being adopted, the more adoptees searched their birth family in order to neutralize social stigma and to attain a sense of intergenerational continuity (March, 1995).

Coherence of personality means the person's subjective sense of coherence of personality, or how the various aspects of one's identity fit together. Brodzinsky and colleagues (1992) claimed that the self consists of three components: physical,

psychological, and social. The physical self includes awareness and perceptions of one's own body; the psychological self means our notions of our own intangible qualities such as intelligence and capacity for empathy; the social self refers to our awareness of ourselves in relation to others and our view of how others see us. These three aspects of self are integrated into self-esteem. For example, because adoptees are more likely to feel different from their adoptive family members in looks, temperament, and so forth, the coherence of personality affects adoptive identity development. Thus, finding their birth parents and meeting them might help adoptees' coherence of personality.

The last aspect refers to one's sense of continuity over time, linking past, present, and future, and, across place, linking multiple contexts and relationships. Adoptive identity development is not a single event but a life long process. Brodzinsky and colleagues (1992) introduced the concept of adoption-related tasks across the life span. Adoptees need a sense of continuity about themselves over time. Thus, updated knowledge and continuous contact may enhance this continuity.

Social Role Theory of Adoption

Kirk (1964) claimed that adoptive parents must be faced with difficulties in parenting because there is no script about adoptive parents' roles—unlike birth parents. As coping strategies, he suggested two parenting patterns of adoptive parents to their adoptive child: acknowledgement-of-difference (AD) and rejection-of-difference (RD). Kirk thought that these two strategies consisted of each extreme pole in a continuum of

attitudes toward differences. The mechanisms of the two strategies, however, are not mutually exclusive; rather, in practice, they act in conjunction with each other.

Adoptive parents having an RD pattern tend to inhibit the development of an accepting and trusting family atmosphere to communicate adoption-related issues. In contrast, parents with an AD pattern tend to openly deal with differences associated with adoption through more active and direct involvement. Kirk (1964) claimed that the RD strategy made adjustment easier for adoptive parents and for adopted children right after adoption placement. However, in the longer-term, an RD pattern hampers the development of adoptive parents roles and adoptive children's curiosity, because empathic communication skills have not been developed. Kirk reported that parents who were characterized by an AD pattern were more likely to be empathic to their child's feelings, to think more about the child's birth parents, to feel greater satisfaction as adoptive parents, and to communicate more openly with their children.

Kirk's social role theory of adoption provides a theoretical basis for advocates of open adoption practice (Grotevant & McRoy, 1998). Grotevant and McRoy defined four categories of adoption by level of openness: confidential, time limited mediated adoption, ongoing mediated adoption, and fully disclosed adoption. Parents in fully disclosed adoptions were more likely to show a higher degree of empathy about adoption, to communicate about adoption more openly with their children, and be less fearful about reclaiming by the birth mother than were parents in confidential adoptions. Therefore, having knowledge of and making contact with birth parents would be encouraged by parents with AD patterns.

Stress and Coping Model of Adoption Adjustment

Brodzinsky (1990) applied a stress and coping model of adaptational outcomes to adoption adjustment, drawn by Lazarus and his colleagues (Lazarus, DeLongis, Folkman, & Gruen, 1985; Lazarus & Folkman, 1984), emphasizing the role of cognitive appraisal linking stress to coping. The stress and coping model of adoption adjustment assumes that adoption causes loss for adoptees, which is the core issue for their adjustments (Brodzinsky). Loss occurring by adoption, especially traditional early placement adoption, has unique characteristics, in terms of it being: (a) not universal in that it does not happen to everybody; (b) not a permanent experience like death of a parent; (c) seldom related to memories of the birth parents; (d) a voluntary decision on the part of the birth parents; (e) associated with loss of the whole family, cultural and genealogical heritage, and self and social status; and (f) differently acknowledged and supported by society (e.g., there is not a given ritual). Adoption becomes a stressful event and increases vulnerability for adoptive adjustment if adoptees perceive their loss as stressful. Generally, a young child shows the positive and limited attitude about adoption because of cognitive limitations. Thus, vulnerability among infant-placed adopted children typically does not emerge until the child is 5 to 7 years of age. However, when children enter the elementary school years, they come to understand family loss. Brodzinsky hypothesized that this occurs because they reach Piaget's concrete operational stage. During this time, many adoptees experience increases in anger, aggression, and oppositional behavioral, and uncommunicativeness, depression, and self-image problems. As adopted children become adolescents, with higher order

cognitive functions, their sense of loss may deepen from loss focused just on their birthparents, to loss in terms of their emerging identity (Brodzinsky).

Once adoptees recognize their loss cognitively, they have to cope with it. Coping can be defined as cognitive and behavioral efforts to manage specific external or internal demands. There are two forms of coping efforts: problem-focused and emotion-focused. A problem-focused strategy means directly managing or altering the problem causing the distress, including the instrumental action, negotiation, mobilizing support, information seeking, altering one's aspirations or expectations, and exercising restraint. An emotion-focused strategy means that individuals' regulate their emotional response to the problem at hand through minimization, denial, escapism, distancing, self-blame, and redefinition (Lazarus & Folkman, 1984). In a sense, searching and post adoption contact would be understood as one coping strategy caused by cognitive appraisal of loss. Brodzinsky and colleagues (1992) stated that sometimes a teenager's emerging disruptive behaviors can be a search in disguise, because birth parent information could be an enormous relief for a teenager, regardless of whether they actually discover more information or make direct contact with birth parents. Another aspect of this theory is to appreciate preadoption history that frequently was confused as adoption effects. In short, adoptive adjustment can be better predicted when preadoption history is considered.

Instead of using just one theoretical framework, three theoretical frameworks were introduced in order to provide a more diverse context for this study. These theories illustrate that facets of knowledge and contact, which are (a) a normative developmental

process (adoptive identity development); (b) mediated by the relationship with adoptive parents (Kirk's social role theory of adoption); and (c) coping strategy from a specific cognitive development period, considering preadoption history (Brodizinsky's stress and coping theory). In this study the first two theories provide a broader context; Brodzinsky's theory was used as an analytic framework for adoptees' transitional adjustment between adolescence and young adulthood.

Demographic Factors in Search and Contact

Studies in 1970s and 80s reported that females were the majority of searchers, when birth records were sealed (Schechter & Bertocci, 1990). Sorovsky, Baran, and Pannor (1974) explained that women's experience of pregnancy and child birth may intensify women's desire to search by heightening their awareness of the continuity of life through the generations, by activating thoughts about their own births and birth mothers, and by making salient the importance of knowing about their medical histories and genetic problems. In addition, because in Western societies women are more likely than men to take on the responsibilities for child rearing and the maintenance of family ties, they may develop a stronger interest in what it means to be a mother and a heightened sense of the importance of genetic heritage (Wrobel, Ayers-Lopez, Grotevant, McRoy, & Friedrick, 1996).

Women are more likely to search for their birth family information than men (Müller & Perry, 2001). Howe and Feast (2000) reported that women were more likely to use post-adoption services related to contact with birth families, and they were

significantly younger than men when they made their first contact. In the searcher group, women were twice as likely as men to want to make contact with their birth family. However, in the adolescent age group, results were mixed; female adolescents were more likely to want to meet their birthparents than boys (Benson et al., 1994), but there was no gender difference in searching behavior (Wrobel, Grotevant, & McRoy, 2004).

The most common factors that prompted requests for background information or searching were life-cycle transitions such as pregnancy, birth, marriage, abortion, and death of an adoptive parent. Thus, the age or age cohort may be a very important factor. Adult adoptees have become more outspoken, and with or without their adoptive parents' permission, they are searching for their birth parents. Although searching is not limited to any particular age group, studies generally have reported that the largest groups of searchers consist of 25- to 35-year-old individuals (Müller & Perry, 2001). For adolescents, the mean age of the adolescents who have already searched was also significantly older than those who were not interested in searching or who just had interest in searching (Wrobel et al., 2004).

Knowledge and Post-Adoption Contact with Birth Parents

Just as adoption experience differs in every case, search and reunion do not always have the same meaning to adoptees (Müller & Perry, 2001; Schooler, 1998). The process and reasons might be different by adoption practice (e.g., closed or open), age of adoptees, and the sample characteristics (e.g., clinic or nonclinic). Adoptees'

knowledge of and contact with birth parents have not been explicitly studied; therefore, previous studies about this topic are organized in three areas as follows: (a) search and reunion, (b) open adoption, and (c) preadoption history. Each category reflects a major type of adoption practice, closed adoption, open adoption, and special needs adoption, respectively.

Search and Reunion

Researchers have indicated the following reasons for why adoptees search for their birth parents or relatives: (a) curiosity, (b) wanting a sense of belonging, (c) seeking medical information, (d) developing a sense of personal identity, and (e) genealogy (Affleck & Steed, 2000; Feast & Howe, 1997; Gladstone & Westhues, 1998; Grotevant, 1997; Grotevant & McRoy, 1998). More recent studies with nonclinical adult adoptees reported similar reasons for searching. A group of 345 adult adoptees, who had been mostly placed within their first year of life, were recruited through a search organization and multiple adoption agencies in Massachusetts. All participants were asked why they wanted to search for their birth parents. They were able to choose multiple responses; approximately two thirds of the participants mentioned the need for medical information, followed by reasons such as the desire to meet a member of the birth family, to gain better self-understanding, the need for information, altruism (i.e., "for my children," "to let my birth mother know that I am ok"), curiosity, to fill a void, and to find physical similarity or a blood connection (Gibbs & Müller, 1999). Howe and Feast (2000) also asked 395 adult adoptees in England why they contacted an agency to seek information about their birth families. The three main reasons identified were "to

satisfy a long-standing curiosity about origin," "need to know more about oneself," and "wanting help and advice about how to search for a birth relative." The decision to search does not just depend on a single or simple psychological process but the outcome of a more complex process involving the weighing of different expectations on the basis of specific biographical situations (Howe & Feast; Müller & Perry, 2001). Because those reasons sometimes previously were understood from a psychopathological framework, adoptees who searched for their birth parents were viewed by some as being ungrateful or mentally unstable. However, since searching for one's birth parents has become more normative, adoptees who do not search for their birth parents are viewed as if something must be wrong with them (Samuels, 2001; Schooler, 1998).

The psychological aspects of adoption experiences influence the decision to search. In-depth interviews with three Australian adoptees in their 40s, who were self-identified as nonsearchers, revealed some curiosity about birth parents, a need for more identity, and even a desire to be found by their birth parents. Nonetheless, loyalty to their adoptive parents, who were supportive and nourished them, was stated as the main reason why they did not want to search, regardless of whether their adoptive parents were alive or supported searching (Roche & Perlesz, 2000).

Howe and Feast (2000) identified an "information seeker only" group, composed of nonsearchers who just want to get information about their birth parents, but not search for them. Nonsearchers, consisting of about 15% of the sample, gave as answers the following: loyalty to adoptive parents ("interested but don't want to upset adoptive parents"), readiness issues ("wanting to wait until the time is right," "not

wanting to complicate life"), fear of rejection ("interested but afraid of rejection by birth family," "interested but afraid contact might upset birth family"), and resource problems ("not enough time or money to pursue a search"). They reported that just having information helped to solve some problems of identity and confidence. In light of this result, knowledge itself is important to adoptees, even though concurrent contact is not necessary. When comparing searchers to nonsearchers (just want to get information about birth parents from agency) in terms of experience of adoptive families, half of the adult adoptee searchers in this study reported that they felt different from their adoptive families, while 27% of nonsearcher counterparts felt the same way. They categorized three types of adoptees in terms of differences and belongingness within their adoptive families: integrated, differentiated, and alienated experience of being adopted. If adoptees did not feel both difference and belonging, they were put in the integrated experience group. If they felt belongingness, even though they felt differences, they were classified into differentiated experience of adoption group. Finally, if they felt neither sameness nor belonging, they were put in the alienated group. Searchers were more likely to be included in the differentiated and alienated group than nonsearchers, while nonsearchers were significantly more likely to be included in the integrated group as compared to searchers.

Adoptees were most likely to meet their birth mother as the first member of the birth family (Campbell, Silverman, & Patti, 1991; March, 1995; Sachdev, 1992). Gibbs and Müller (1999) found that most adoptees who were interested in meeting their birth mother as their first biological family member, did meet her first, and reported a

positive response. However, the results of the reunion were not simple. Gladstone and Westhues (1998) interviewed 67 Canadian adult adoptees who initiated or experienced a reunion with their birth parents, and reported that the outcomes of reunion were differentiated in terms of frequency of contact, satisfaction with contact, and feelings of closeness toward their birth relatives. They categorized seven patterns by types of relationships: close (35%), close, but not too close (10%), distant (22%), tense (6%), ambivalent (14%), searching (8%), and no contact (6%). In addition, they identified contextual factors associated with the development of post-reunion relationships: structural (e.g., geographic distance and time), interactive (e.g., boundary and support), and motivating factors (e.g., sense of involvement or pleasure). As a result, when adoptees and birth relatives were able to establish clear boundaries around their relationships, when they were close to their adoptive parents, when they felt a sense of enjoyment from their contact, and when they had no expectations prior to their reunion, adoptees were more likely to develop "close" relationships with their birth relatives. Previous studies (Affleck & Steed, 2000; Pacheco & Eme, 1993; Sachdev, 1992) also pointed out similar factors for good experiences between adopted people and members of their birth family; besides similar life styles and compatible temperaments, warm reaction toward contact by birth family, and geographic close location have been confirmed as important factors.

Adolescents' search and reunion have been little studied because their age is a legal barrier. Wrobel and colleagues (2004) pointed out that searching should be understood as including not only the action to request background information and to

make contact with members of the birth family, but also intent to search, especially for adolescent adoptees. Benson and colleagues (1994) reported that about 65% of adolescent adoptees want to meet their birth parents and 40% of adolescent adoptees want to know about their birth history. Although there is no difference in interest in adoption history and meeting birthparents by age, girls are more likely to express interest in both adoption history and meeting birthparents than boys. When the searcher was defined as "those subjects who described themselves as actively seeking information, with or without the intention of meeting their biological parents" (Stein & Hoopes, 1985, p. 43), only 32% wanted to pursue information more aggressively, where as most adoptees expressed an interest only in genealogical information.

Open Adoption

Berry (1993) defined open adoption as "the sharing of information and/or contact between the adoptive and birth parents of an adopted child, before and/or after the placement of the child, and perhaps continuing for the life of the child" (p. 126). Grotevant and McRoy (1998) argued that it is best understood as a continuum by degrees and modes of contact and communication among members in the adoptive family, the adopted child, and his or her birth family. When direct information sharing never happened and any exchange of information typically stops with the adoptive placement or shortly thereafter, it is called "confidential adoption." The other end of the continuum, which is "fully disclosed adoption," shows the opposite commitment and communication pattern. In fully disclosed adoptions, all triad members are involved with direct meetings and exchanges of telephone calls and letters. In between theses two

poles there is the "mediated adoption." In this adoption practice, information sharing, especially non-identifying, is mediated usually by an agency. In the case of ceasing the contact through agency, it is called time-limited mediated adoption and if contact by mediated adoption is continuing during the adoption, it is called ongoing mediated adoption.

Beyond the debate regarding which type (open versus closed) would be best, confidential adoption has been replaced by open adoption. As the social acceptance of single parenthood increased, birth mothers felt less pressure to give up their babies, without knowing where their baby would be placed or whether they could have ongoing contacts. Thus, birth mothers have more power to select adoptive parents in terms of not only personality and characteristics, but also in terms of adoption arrangement after placement for continuing contact. Changes of societal attitudes toward adoption have made adoption agencies incorporate openness in their adoption practice because adoption agencies regard birth mothers as their main customers (Grotevant & McRoy, 1998). Sixty-two percent of adoptive parents met the birth parents before the adoption in private agency adoptions that occurred in California between 1988 and 1989 (Berry, Barth, & Needell, 1996). In a nationwide sample of 35 private adoption agencies, Henny, Onken, McRoy, and Grotevant (1998) found that the percentage of agencies offering fully disclosed open adoption more than doubled from 1987 (35.5%) to 1993 (75.9%). Adoption agency personnel indicated that the most salient reasons for this change were client demand, changes in agency support of openness in adoption, and competition from independent or private adoptions. As a result, adoptive parents who

are not willing to consider open arrangements may find it more difficult to adopt (Grotevant & McRoy; Henny et al.). In concurrent longitudinal analysis, the trends toward offering and encouraging more open adoptions were continuing in 1999 and mediated adoptions remain the predominant arrangements (Henny, McRoy, Ayers-Lopez, & Grotevant, 2003).

Study findings about open adoption, and especially its advantages for children and adjustment of adopted children, may reflect the effect of knowledge and contact with birth parents. Children in open adoptions had significantly better behavior scores (modified Child Behavior Checklist, 28 items about external or acting-out behaviors) than children in adoptions who had no access to birth parents (Berry, 1991). More importantly, supporters of open adoption stressed that confidentiality and anonymity were harmful in terms of identity development for adoptees in adolescence, and knowing information about birth parents reduced adoptees' fears and unrealistic fantasies (Baran & Pannor, 1993; Berry, 1993; Siegle, 1993). However, information getting through contact may be not associated with adopted children's curiosity; rather as they come to know basic information, they tend to need more sophisticated and detailed information (Grotevant & McRoy, 1998; Ryburn, 1995). Grotevant and McRoy found that when children had more information about their own adoption, they had higher levels of understanding of adoption.

The method of contact may have different effects. Although indirect contact using a letterbox works for adopted children's identity tasks, this type of contact has disadvantages like difficulty in managing feelings and continuing contacts over time.

Direct contact, especially face-to-face contact, has been reported to help adopted children's identity tasks because they can be provided a better knowledge of the reasons why they were adopted (Neil, 2003). However, information and contact in open adoption needs to be considered over the long-term because open adoption tends to change the quality of contacts, which is the key ingredient for the benefit of contact.

Berry, Cavazos Dylla, Barth, and Needell (1998) examined how open adoption commitments changed over four years with 764 nonfoster parent adoptive families. By the fourth year, contact with birth parents decreased among those who planned to have continuing contact when they first adopted. Thirty percent of families showed reduced frequency of contact and 14% of adoptive families had ceased having contact with birth parents. Although birth parents were more likely to initiate reducing or stopping contact between birth and adoptive parents, a reduction in the frequency of contact was most common among adoptive parents who had chosen open adoption as an involuntary choice (i.e., fear of not being able to adopt, or recommended by agency). Frasch, Brooks, and Barth (2000) conducted a longitudinal study with the same sample as Berry et al., but included foster care adoption. In this study, after four and eight years, contact between children and birth parents was less common and contact frequency was very low (less than once per year for in-person contacts and between one and two contacts by mail). Accordingly, Siegel (2003) reported that open adoption showed much more diverse scenarios than Grotevant and McRoy (1998) had suggested.

Searching behavior by adoptees is possible in open adoption because contact is sometimes infrequent and not ongoing. Adoptees' desire to know more about birth

parents might increase after some contact to confirm the information they have about them. Wrobel and colleagues (2004) studied adolescent adoptees' searching by the level of openness. Openness in adoption was related to searching; about 43% of adopted adolescents in open adoptions were identified as active searchers, while no adolescents in confidential adoption was actively searching.

Preadoption History

Haugaard (1998) pointed out that heterogeneity exists in the adoption population, which is caused not only by the personal characteristics of adopted individuals, but also by the circumstances that led to their adoption. Recent increases in special needs adoption, which can be defined as any factors and conditions to prevent timely placement including age, disabilities, race, emotional and behavioral problems, a sibling status, and so forth, also make the adoption population more heterogeneous (Rosenthal & Groze, 1990; Smith, Howard, & Monroe, 2000).

Researchers have reported that an older age of adoption placement is related not only to more problems in adjustment, but also to a higher rate of disruption of adoption (Berry & Barth, 1990; Sharma, McGue, & Benson, 1996). Infant adoptions were disrupted at a rate of less than one percent, while disruptions of older children were estimated at about 10%. The highest disruption rate occurred for children adopted as teenagers at 24% (Adamec & Pierce, 2000).

According to Bowlby's attachment theory (1980), infants before 6 months do not build attachment relationships, between about 7 months to 2 years old most infants do form attachment relationships, and relationships become solidified until the end of

childhood attachment. Thus, adoptees placed at older ages are psychologically linked to their families of origin, which complicates their attachment to a new family. If adoption occurs after attachments have been formed, children might also experience a more profound sense of loss and disruption. Even though age of placement categories did not strictly follow attachment theory, a study by Sharma et al. (1996) verified the importance of earlier placement. They conducted a study comparing the emotional and behavioral adjustment of 4,682 adolescent adoptees by age at adoption with 4,682 nonadopted counterparts. Comparisons were made of those adopted at 0-1 year old, adopted at 2-5 years old, adopted at 6-10 years old, and adopted when over 10 years old. Infant adoptees were the most similar to the nonadopted group, while those in the oldest age at adoption group were the most different from nonadoptees and infant adoption groups. There were differences between two sets of groups (the oldest adopted group vs. nonadopted and the oldest adopted group vs. infant adoption group) on 10 of the 12 factors, including licit drug use, illicit drug use, negative emotionality, antisocial behavior, optimism/self-confidence, interests, amphetamine, school adjustment, parental nurturance, and parental involvement.

Simmel, Brooks, Barth, and Hinshaw (2001) studied externalizing behavior problems of adoptees aged 4-18 by interviewing adoptive parents. Histories of abuse/neglect, later age of adoption, birth parent drug exposure, and placement in multiple foster homes prior to adoption were significant predictors of ADHD (attention deficit hyperactivity disorder), ODD (oppositional defiant disorder), and ADHD/ODD. Logan, Morrall, and Chambers (1998) studied preadoption history with 97 adoptees

aged 4-12, based on adoptive parents' response to the Child Behavior Check List (CBCL) scores. Behavior problems were significantly higher in children who had experienced abuse prior to adoption, children who had multiple previous placements, and those adopted after the age of 2 years. Preadoption history also affected the family functioning of adoptive families. Parents who adopted children who had histories of physical and sexual abuse reported lower family functioning than parents with adopted children who only had histories of neglect. Parents who adopted sibling groups reported fewer externalizing child behavior problems but lower family functioning than parents who adopted a single child (Erich & Leung, 2002). Some characteristics of special needs and preadoption history may be linked to each other. For example, it is not simply older age at placement that poses the risk, but rather older placed children typically have pre-placement histories of adversity, deprivation, neglect, rejection and abuse (Howe, 2001). Many studies report that the older children were when adopted, the more likely that they were abused or neglected, and the longer children were placed in foster care, the more they showed negative outcomes (e.g., Festinger, 1990; Logan et al., 1998).

Reunion with birth parents by special needs adoptees is affected by the perceptions of adoptive parents. According to a study by Smith et al. (2000) with special needs adoptees (aged 3-20) and their adoptive parents, 32% of adopted children were reported to have conflicts related to search issues between them and their adoptive parents. Adoptees' need for search or reunion was not associated with behavioral problems of the adoptees (i.e., Children Behavioral Checklist), but other issues

(attachment, grief, identity, depress, PTSD symptoms) were significantly related to the adoptees' behavioral problems. Adoptive parents expressed the possibility of adoption dissolution only when their adopted children wanted to search for their birth parents. The need for adoptees to search was associated with age, being highest among older adolescents. Fifty-nine percent of adoptees in this study who wanted to search were girls. Although there was no comparison group in this study, the findings confirm that search and reunion is related to a kind of loyalty toward adoptive parents perceived by the adoptive parents as well as by adoptees.

Attachment issues are also related to adoptees' search and contact behaviors. For adult adoptees, more negative feelings about their adoption experience and adoptive parents were associated with the proportion who searched (Howe, Shemmings, & Feast, 2001). When the age at placement was categorized into three brackets (i.e., less than 6 months, 6-23 months, and more than 24 months), age at placement before 6 months was related to weekly contact with adoptive mothers in adulthood and feeling loved by adoptive mothers and belonging in their adoptive family (Howe, 2001). In addition, those placed at the youngest age showed more frequent contact including visits and telephone calls with birth parents, compared to older placed adoptees. The mean age at placement among those who ceased contact with their birth mothers was higher (15.44 months old) than that of those who contacted their birth mothers once a week or more (7.41 months old) or those who contacted their birth mothers less than once a week (9.37 months old). Those placed at older ages were not only more likely to search for their birth parents, but were also less likely to continue contact with them.

In summary, searching behaviors, open adoption, and preadoption histories are associated with adoptees' knowledge of and contact with their birth parents. Considering adoption contexts helps to explain how adoptees know/contact their birth parents, and what knowledge and contact means in each context.

Adoptees' Transitional Adjustment from Adolescence to Young Adulthood

The transition to adulthood is marked by five major events that include leaving school, starting a full-time job, leaving the home of origin, getting married, and becoming a parent for the first time (Shanahan, 2000). The timing and sequencing of transition markers have historically evolved toward becoming more individualized and less predictable. Since the late 1960s, transition markers have become less compressed, new pathways have emerged, and variability in the sequencing of markers has increased. For example, the school-work-marriage sequence of earlier times became less prevalent, cohabitation became a common way to form a family, more people returned to higher education after leaving school, and more have done schooling and parenthood at the same time (Shanahan).

People in their twenties delay marriage and parenthood, stay in schooling longer, and train for a long-term occupation (U.S. Census Bureau, 2005a, 2005b, 2005c). Thus, relatively traditional markers in the late teens and twenties have lost some of their power to reflect adulthood. Arnett (2000) argued that there is a new and distinct developmental period between adolescence and young adulthood, entitled "emerging adulthood," from approximately ages 18-25. According to Arnett, emerging adulthood

has characteristics of partial independence from presumed age-normative tasks in earlier times, and less serious commitment to relationships and organizational involvements (Shanahan, Porfeli, & Mortimer, 2005).

How is adoption related to one's transition to adulthood? Shanahan (2000) indicated that the transition to adulthood (the timing and sequencing of markers or adulthood criteria) is affected by individuals' variability in the life course, including different family experiences (e.g., divorce and poverty), stressful events in the family (e.g., the number of moves, the number of parental separations, and the number of remarriages), and some changes in families (e.g., family structural change). For example, young adults who experienced changes of family structure in their adolescence, and those who had a half-sibling, were more likely to leave home at an earlier age than those who had grown up in a two-parent intact family (Goldscheider & Goldscheider, 1998). Adoption surely includes different and sometimes stressful family experiences in terms of loss of biological family members. Some adoptees also experience a lot of change in living arrangements and moves from foster homes to adoptive homes. Thus, it is meaningful to examine how adoptees' knowledge about and contact with birth parents might affect their transitional adjustment from adolescence to young adulthood.

Summary of Literature Review and Hypotheses

Search and reunion under traditional adoption, open adoption, and special needs adoption are major areas of change in adoption. Adoption practices have been changing,

but there is a lack of factual data regarding adoptee's knowledge about and contact with birth parents. Three theoretical frameworks (i.e., adoptive identity theory, social role theory for adoptive parents, and stress and coping theory) provide a rationale for understanding adoptees' knowledge about and contact with their birth parents.

Studies about searchers show that females and adults are more likely to search for birth parents (mainly birth mothers). However, the general conclusion from the literature is that the routes and process that adoptees follow to know and contact their birth parents is not simple and is closely related to the relationship with adoptive parents. For both adoptive parents and adoptees, adoptive family relationships are related to adoptees' seeking information about and contacting birth parents.

Search and reunion issues in the context of traditional adoption practices (i.e., a confidential infant adoption) suggest that many adoptees (mostly adult) want to know their birth parents. Empirical studies about search and reunion support the idea that adoptees want to know about and meet their birth parents after they attain a level of maturity, and when identity issues become salient during adolescence. Search and reunion experiences might help adoptees resolve identity issues, even though some conditions make reunions more or less successful.

Open adoption is believed to help resolve adoptees' identity problems and contribute to more stable adoptive family functioning. Adoptive parents take a lead role in obtaining knowledge and maintaining contact with birth parents. In general, open adoption commitments evolved over time, but continuous contact appears to benefit adoptees, birth mothers, and adoptive parents. Adolescent adoptees who have

knowledge about birth parents still want to meet them; in fact, adoptees more actively search for their birth parents if they were placed in open adoptions.

Having knowledge about or continuous contact with birth parents might not always produce positive results. Age of adoption has been shown to be an important variable affecting adoptees' adjustment and associated with other detrimental factors such as abuse experience and placements in foster homes. In addition, preplacement risk factors are a key to understanding adoptees' adjustment.

Typical markers distinguish adolescence from young adulthood. The sequencing and timing of these markers have become more individualized in recent decades. Nevertheless, continuation of schooling and formation of romantic relationships like cohabitation/marriage, are important markers of young adulthood. Studies about the transition to adulthood suggest that a life course event like adoption could affect this life transition.

Based on the theoretical frameworks and literature review, alternative hypotheses to be tested in this study are as follows:

Hypothesis 1-1: Adoptees' knowledge of, contact with, and involvement with their birth parents will differ by birth parents' gender.

Hypothesis 1-2: Adoptees' knowledge of, contact with, and involvement with their birth parents will differ by adoptees' gender, age, and age of placement.

Hypothesis 2-1: Adoptees' knowledge of, contact with, and involvement with, birth parents will differ by developmental periods (i.e., adolescence and young adulthood).

Hypothesis 2-2: Adoptees' knowledge about, and contact with birth parents in adolescence and young adulthood will be predicted by their gender, age of placement, abuse and neglect, and foster care experiences.

Hypothesis 3-1: Adolescent adoptees' knowledge of and contact with birth parents will be associated with transitional adjustment (i.e., schooling and romantic relationship formation) in young adulthood.

Hypothesis 3-2: Adolescent adoptees' knowledge about and contact with birth parents will be associated with transitional adjustment in young adulthood after considering demographic variables (i.e., gender and age) and controlling variables (i.e., age at placement, abuse and neglect, and foster care experience).

CHAPTER III

METHODS

Data

Data for this study came from the National Longitudinal Study of Adolescent Health (Add Health), which initially surveyed adolescents in grades 7 though 12 in 1994. Add Health data included information about health and health-related behaviors of adolescents in order to examine the influence of individual and social contexts (i.e., families, peer groups/social networks, dyadic relationships, schools, and neighborhoods/communities) (Add Health, 2004a).

Data were obtained from a stratified cluster sample in which the clusters were selected with unequal probability (Add Health, 2004a). Schools were used as the primary sampling unit to screen for respondents' interest, and to access easily the majority of respondents' peer and social networks. Eighty high schools and 52 middle schools were selected through systematic methods with respect to region, urbanicity, school size, school type, distribution of ethnicity, grade span, and curriculum (Chantala & Tabor, 1999). Three waves of data have been released; in this study Wave II data was excluded from analysis because Wave I (1994-95) and Wave II (1996) data were close in time, with only one year gap between measurements. Wave I and Wave III data were used to examine changes over a seven-year period. Wave I surveys included interviews of both adolescents and parents at home. The Wave III In-Home survey (2002) was

completed with respondents who were adolescents in Wave I only. More specific explanations about Wave I and III data are described below.

Wave I Sample: In-School, In-Home, and Parent

Wave I data were collected from adolescents by a self-administered questionnaire (SAQ) in school and interviews at home, and from parents through questionnaires at home. First, the Add Health data were collected using a SAQ completed at school by 90,118 adolescent students in grades 7 through 12 from September 1994 through April 1995. The questionnaire included questions about the social and demographic characteristics of respondents, risk behaviors, future expectations, personal feelings, health status, friendships, extracurricular school activities, household structure, and education and occupation of the parents (Add Health, 2004b).

Next, Wave I home interviews were conducted between April and December 1995 using the core in-home sample. Students in each school were stratified by grade and gender with approximately 17 students randomly chosen from each stratum (~200 subjects from each school). For the core in-home interview, 12,105 adolescents, which included some students who did not complete the SAQ (e.g., those who were absent from school at the time of SAQ administration), were interviewed using both a direct interview by an interviewer and Computer Assisted Self-Interviewing methods (audio-CASI) for sensitive questions. In addition, in-home interviews with special over-samples were obtained for four ethnic groups (i.e., African American, Chinese, Cuban,

and Puerto Rican), disabled adolescents, genetic samples of sibling pairs living in the same home, including adopted adolescents and all students at sixteen of the schools selected for social network analysis. Including over samples, the total sample size for Wave I of the In-home interviews was 20,745. Interview topics included health status, family composition and dynamics, nonresident family information, educational aspirations and expectations, romantic and sexual partnerships, substance use, and delinquent activities (Add Health, 2004a).

A parent (or custodial adult) of each adolescent interviewed in Wave I was asked to complete an interviewer-assisted questionnaire consisting of topics such as inheritable health conditions, marriages and marriage-like relationships, health-affecting behaviors, parent-adolescent communication and interaction, and parent's familiarity with their adolescents' friends and friends' parents. Data were obtained from 17,715 of the parents (about 80%) who were selected (Add Health, 2004a).

Wave III: In-Home

Wave III data came from follow-up interviews with original Wave I In-home respondents between August 2001 and April 2002. A total of 15,197 persons were interviewed in Wave III. Although some questions were unchanged from earlier waves, new sections focused on topics more relevant to young adults. Because respondents were older at Wave III, measures reflected the social contexts such as college or work contexts, smaller and diverse networks of friends rather than school-based dense networking, and the influential role of romantic partners on decision making about cohabitation and marriage. Interviews were conducted mostly at home, but some

interviews were conducted in school settings, work places, and other mutually suitable locations. Respondents who were overseas for the duration of the field work were excluded from Wave III interviews. Wave III interview laptops were preloaded with the respondents' name, gender, and birth dates from earlier surveys, as well as with address information (Add Health, 2003).

Adopted Sample

Add Health surveys asked about adoption status differently and inconsistencies were found across data sets. Miller and colleagues (2001) tried to resolve this issue. Two SAQ questions in the school survey initially were used to measure the adoption status of an adolescent: "Are you adopted? (Yes/No)," and "Do you live with either of your biological parents? (Yes/No)." Respondents who answered "Yes" to the first question ("Are you adopted?") and "No" to the second question ("Do you live with a biological parent?) were classified as adoptees.

During the In-home interview, adolescents were asked to list the names of all persons living in the home. For each person listed, respondents were asked: "What is [this person's] relationship to you?" When the adolescent answered that the person named was his/her "father," "mother's husband," "mother," or "father's wife," the interviewer showed the adolescent a card with definitions for six different types of parent-child relationships (e.g., biological-, step-, adoptive-, step/adoptive-, foster-, other- father/mother), and asked the respondent to specify their exact parent-child relationship. Thus, adoption status was inferred from responses about who lived in the

respondent's home. If a respondent specified both adoptive father and adoptive mother, or only adoptive father without mother (mother not present), or only adoptive mother (father not present), the respondent was classified as an adoptee.

In the parent survey, parents were asked this question about their relationship with adolescents: "What is your relationship to [name of adolescent]?" If parents answered "adoptive mother" or "adoptive father," and reported that no birth parent lived in the household, the adolescent of this parent was identified as an adoptee. As a result, 609 adolescents were identified as the adopted sample.

During Wave III data collection several direct questions (e.g., "Were you ever adopted?" and "Were you adopted by a blood relative?") were asked about adoption status and experiences. Again, there were inconsistencies between Wave I (i.e., 609 adolescents) and Wave III about adoption status. To precisely identify the adopted sample across these several Add Health data sets without creating an impractical and unwieldy code, the following decision rules were applied: (a) The adopted sample was identified by directly comparing the adoption definitions only in the in-home adolescent interviews of Waves I and III; (b) To resolve inconsistent cases between Waves I and III (i.e., reported to be adopted in one but not the other), the adoption definition in the Wave I parent data was reviewed; (c) If the parent data did not clarify whether a child was or was not adopted, then the adoption definition from the Wave III in-home interview was accepted because the most direct questions were asked in Wave III, and because the respondents were older and more mature at Wave III.

After excluding step-adoptions (child lived with a birth parent), 560 and 530

adopted cases were identified from Wave I and III, respectively. There were 383 consistent cases of "adopted" status in both the Wave I and Wave III in-home interviews. Forty-four more cases were included because the parent's data concurred with either the Wave I or Wave III in-home interview. Twenty-five more were included in cases when Wave III reported adoption, and data were missing in either the Wave I interview and/or parent's data. Thirty more were included when Wave III reported adoption, Wave I data were missing, and the parent data was completed by a relative (grandma = 17, aunt = 12, uncle = 1). Finally, five more participants who reported adoption in Wave III were included in the adopted sample because they were adopted after the Wave I data collection in 1995 (two cases), or they reported that their parents had informed them about their adoptive status after Wave I in 1995 (three cases). The total adopted sample identified through this logic was 487, which is the analysis sample for this study.

One of the objectives in this study was to compare adoptees' knowledge about and contact with birth parents between Wave I and III. Nevertheless, the previously defined sample included two cases who were adopted after Wave I. In addition, some subjects gave invalid answers for the very first question (i.e., do you know anything about your birth mother/father?), which was a very important screening question for this study. Considering these issues, a sample of 436 adopted cases also was defined. The sample of 487 adoptees was utilized for describing adoptee's knowledge about and contact with birth parents in adolescence and young adulthood respectively; however, the sample of 436 adoptees was used for longitudinal comparisons and for predicting

transitional adjustment.

Sample Description

Demographic characteristics of the sample in this study are presented in Table 1. Of 487 adopted persons, more than half were female (53% vs. 47%). The mean ages at Wave I and Wave III were 16 years and 22 years old, respectively. Approximately 50% of the sample reported that they were adopted before 7 months of age. More than 70% of the sample were adopted before age 2; however, 16% were adopted after age 7. About 13% of adoptees reported physical or sexual abuse or neglect. Approximately a third of the sample had been placed in foster homes at least once. About 15% of adoptees were placed internationally or transracially. Around 60% of respondents were White.

Measurement

Knowledge, Contact, and Involvement Variables

Wave I In-home interviews included 14 questions about birth parents' demographic information, contact information, and closeness to each birth parent. The first question, a screening question, asked if adolescents knew anything about their birth parents. If adolescents answered "yes," they were asked other questions (living or not, adoptees' age when birth parent died, birthplace, disability, and education level). Questions about whether their birth parents smoke, communication in person, by telephone, or by letter, and about staying overnight with birth parents during the last 12

Table 1

Demographic Characteristics of the Add Health Adoption Sample

Demographic characteristics	*N*	%	Mean	Range
Gender	487			
Male	230	47.23		
Female	257	52.77		
Age in 1995 (Wave I)	485 [a]		16.07	12-20
Age in 2002 (Wave III)	487		22.37	18-26
Age at placement	487		2.50	0-17
0-6mon	243	49.90		
7m-2yr	109	22.38		
3-6yrs	56	11.50		
7yrs+	79	16.22		
Abuse and neglect experience	487			
Yes	63	12.94		
No	424	87.06		
Foster home experience	487			
One time	92	10.88		
Two times+	53	18.89		
No	342	70.23		
Adoption	487			
International adoption	17	3.49		
Domestic, transracial adoption	23	4.72		
International, transracial	32	6.57		
Domestic, intraracial	415	85.22		
Race				
White	289	59.59		
Hispanic	52	10.72		
African American	85	17.53		
Asian or Pacific Islander	45	9.28		
American Indians or Native American	14	2.89		

[a] Inconsistency in the sample size for age in 1995 was caused by slight differences in the adoption definitions.

months were asked only of adoptees who reported that their birth mother or birth father was still living.

In Wave III, a total of nine similar questions was asked; four questions were identical to Wave I: whether respondents knew about birth parents, whether their birth parents were still living, whether they had ever lived with birth parents, and how close they felt to birth parents. Other questions such as whether they kept in touch with birth parents, got financial help from birth parents, and experienced psychological feelings (enjoying activity with birth parents and feeling warmth to birth parents) were included in Wave III for the first time. Table 2 summarizes these questions from Add Health Wave I and Wave III interviews.

Transitional Adjustment Variables

Attending college after completion of high school ("What is the highest grade or year of regular school you have completed?") and formation of romantic relations ("How many time have you been married?" and "Have you ever lived with someone in a marriage-like relationship for one month or more?") were measured as transition variables. If years of education were 13 years or longer, then the attending college variable was coded as 1; if it was less than 13 years, then it was coded as 0. If adoptees reported that they had ever cohabited or been married, the variable of formation of romantic relations was coded as 1; if they had never cohabited or been married, this variable was coded as 0. More detailed information is presented in Table 3.

Table 2

Questions about Adoptees' Knowledge, Contact, and Involvement with Birth Parents in Add Health

Question category	Questions in Wave I (1995)		Questions in Wave III (2002)
Knowledge	1.	Know anything [a]	1. Know anything [a]
	2.	Still living (if Q1=yes) [a]	2. Still living (if Q1=yes) [a]
	3.	Disability (if Q1=yes)	
	4.	Born in the U.S. (if Q1=yes)	
	5.	Education (if Q1=yes)	
	6.	Smoking (if Q2=yes)	
Contact	7.	Ever lived (if Q1=yes) [a]	3. In touch with (if Q2=yes)
	8.	Age (if Q7=yes)	4. Ever lived with* (if Q2=yes)
	9.	Duration	
	10.	Communication (if Q2=yes)	
	11.	Stay over night (if Q2=yes)	
Involvement	12.	10 Activities (if Q11=yes)	5. Contribute to living expense (if Q2=yes)
	13.	Closeness (if Q2=yes) [a]	6. Enjoy doing things with (if Q2=yes)
			7. Birth parent is warm/loving (if Q2=yes)
			8. Closeness (if Q2=yes) [a]

[a] indicates an identical question for both waves.

#1-4, 6-7, and 12 in Wave I and #1-5 in Wave III were Yes (1) or No (0) questions; #10-11, and 13 in Wave 1 and #6-8 in Wave 3 were likert type of questions; #8-9 in Wave 1 were open ended; and #5 multiple choice.

Age of Placement

Age at adoption placement was categorized based on attachment theory as follows: adoption at 0-6 months , adoption at 7 months through 2 years old, adoption at 3 through 6 years, and adoption at 7 years or older.

Table 3

Measurement Characteristics for Multivariate Analyses

Variables	Hypothesis	Description and coding
Dependent variables		
Knowledge about birth mothers in each wave	#2-2	Know (1); Don't know (0)
Knowledge about birth fathers in each wave	#2-2	Know (1); Don't know (0)
Contact with birth mothers in each wave	#2-2	Contact (1); No contact (0)
Contact with birth fathers in each wave	#2-2	Contact (1); No contact (0)
Attending College	#3-1 and 3-2	What is the highest grade or year of regular school you have completed? Recoded as 1 (≥ 13 years) and 0 (< 13 years)
Romantic Relationship	#3-1 and 3-2	How many times have you been married? Have you ever lived with someone in a marriage-like relationship for one month or more? Combined and recoded as 1 (cohabit or married) and 0 (no cohabitation or marriage)
Independent variables		
Gender	#2-2, 3-1, and 3-2	Male (1); Female (0 = reference)
Age at wave 1	#3-1 and 3-2	Continuous variable
Age of placement	#2-2, 3-1, and 3-2	3 dummy variables; Placement between 7 months and 2 years old; placement between 3 years and 6 years; and placement 7 years and over (placement before 7 months was a reference)
Abuse and Neglect	Same as above	Ever abused (1); Never abused (0 = reference)
Foster Care	Same as above	2 dummy variables; one time and two more times (never is a reference)
Knowledge and contact with birth mothers	#3-1 and 3-2	3 dummy variables; don't know, know but not alive, and know but no contact (know and contact is a reference)
Knowledge and contact with birth fathers	Same as above	3 dummy variables; don't know, know but not alive, and know but no contact (know and contact is a reference)
Time	#2-2	Wave 1 (1); Wave 3 (2 = reference)

Abuse and Neglect

In the Wave III interview adoptees were asked if, while in the custody of adoptive, foster, or birth parents, they ever had experienced neglect, or physical or sexual abuse. One neglect and abuse question was asked only with respect to birth parents, while another asked about adoptive and/or foster parents. The resulting variable was coded to combine both questions into a dichotomous code to reflect neglect and/or abuse experiences in terms of never (0) or ever (1).

Foster Care

Two questions were asked about living in foster homes. If respondents answered that they had lived in a foster home, they were then asked in how many foster homes they had lived. This variable was coded so that "0" reflected no foster care experience, "1" reflected one foster home, and "2" included adoptees who had lived in two or more foster homes.

Demographic Variables

Age was measured as a continuous variable. Adopted adolescents ranged from 12 to 20 years of age were separated into three age groups for analysis. Group 1 consisted of those 12 to 14 years old for the first objective; Group 2 consisted of those 15 to 17 years old; and Group 3 consisted of those 18-20 years old. In Wave III, adopted persons were also categorized into three age brackets. Group 1 consisted of those 18-20 years old; Group 2 consisted of those 21-23 years old; and Group 3 consisted of those 24-26 years old. Age was also used as continuous variable in

multivariate analyses. Adoptees' gender was coded as a dummy variable (Female = 0; Male = 1).

Analytic Plan

The analyses for the first two research objectives consisted of two parts. The first part was the descriptive analyses to report adoptees' knowledge of, contact with, and involvement with birth parents in Wave I (1995) and Wave III (2002). Questions presented in Table 2 were analyzed using frequencies and percentages for nominal or ordinal variables and mean scores and standard deviation for interval variables.

The second part of analyses of objectives 1 and 2 involved hypotheses testing. For hypotheses 1-1, 1-2, and 2-1 statistical tests were conducted to examine if there were differences in knowledge, contact, and involvement by birth parents' gender, adoptees' gender, age group, age at adoptive placement, or time at interview (Wave I and III). Chi-square tests (knowledge and contact by gender, age, age at placement, or time at interview) and *t* test (involvement by gender), and one-way ANOVA (involvement by age group, age at placement) were used, depending on level of measurement. In addition to statistical significance tests, effect sizes were also presented. Effect Size (ES) combines two features: difference between population means and population standard deviation. The larger the ES posited, other things (significant criterion, sample size) being equal, the greater the power of the test (Cohen, 1988). In this study, Standardized mean difference effect size (SMDE) for *t* test, eta square for ANOVA, and Odds Ratio (OR) and Critical Interval (CI) for logistic

regression were used. The magnitude of the effect size of each test is presented in Chapter IV.

For hypothesis 2-2, to analyze how knowledge about and contact with birth parents in 1995 and 2002 were related to age, gender, age of placement, abuse and neglect, and foster care experience, regression analysis with Generalized Estimating Equation (GEE) model was used. The GEE was introduced by Liang and Zeger (1986) as an extending method of the Generalized Linear Model (GLM), which is a method of estimation of regression model parameters when dealing with correlated data. When data are collected on the same units across successive points in time, these repeated observations are correlated. Thus, if this correlation is not taken into account, then the standard errors of the parameter estimates will not be valid and hypothesis testing results will be non-replicable. In the GLM, all observations are assumed to be independent of each other, which is not generally appropriate for the analysis of longitudinal data. Regression analysis with the GEE methodology is also appropriate when the outcome measure of interest is discrete (e.g., binary or count data from a binomial or Poisson distribution) rather than continuous.

The GEE model describes the logit of the marginal probability of a dependent variable (e.g., having knowledge about birth mothers) like GLM for the regression of y on X and the within-subject dependence (i.e., the association parameters) separately. In other words, the GEE approach is not concerned with the variance-covariance matrix of the repeated measures but is focused on the regression parameters. The GEE assumes that the distribution of the same measurement in time 1 and time 2 are two univariate

distributions, rather than assuming a (joint) bivariate distribution. Thus, beta coefficients can be interpreted in the same way as the usual logistic regression betas for independent observations (Hedeker & Gibbsons, in progress).

Another specification in a GEE model is for the working correlation structure of the repeated measures. The working correlation matrix refers to size $n \times n$ because it is assumed that there are a fixed number of time points that subjects are measured. Each individual's correlation matrix R_i depends on a vector of association parameters (a). These parameters a are assumed to be the same for all subjects. They represent the average dependence among the repeated observations across subjects. Statistical power is reduced if the choice of R is incorrect. There are four forms of working correlations; Independence, Exchangeable, AR(1), and unstructured form. The Independence method assumes that the cross time correlation is 0; exchangeable means the correlations are equal across time points; AR(1) structure indicates that within-subject correlation over time is an exponential function of the lag; and unstructured form estimates all $n(n\text{-}1)/2$ correlations of R , which is the most efficient and useful when there are relatively few time points (Allison, 1991; Hedeker & Gibbsons, in progress).

The GEE model was adopted in this study because knowledge about and contact with birth mothers and birth fathers were repeated measures for the same subjects; thus, this model allows for multiple observations of an individual, and these dependent variables are binominal. In this study, with the correlated measures, each independent variable has a marginal effect to predict knowledge about birth mothers at each wave. Four logistic regression models were developed: knowledge about birth mothers,

knowledge about birth fathers, contact with birth mothers, and contact with birth fathers. Adoptees' ages at Wave I and Wave III were inserted as independent variables in each model to control two time points on knowledge. Three dummy age of placement variables (7 month-2 years, 3-6 years, and ≥ 7 years; < 7 months are reference), gender (male = 1, female = 0), abuse and neglect (yes = 1, no = 0), and two dummy variables for foster care experience (one time and two times or more; none is reference) were included in each logistic regression model. Time variable (time being interviewed) was inserted as the class variable for model in order to examine the effect of each developmental period. As a working correlation form, unstructured form was used because this study has only two time points.

For hypotheses 3-1 and 3-2, the usual logistic regression analyses were conducted to determine the effects of adoptees' knowledge about and contact with their birth parents on transitional adjustment, controlling for factors which might have an impact such as abuse and neglect experience, foster care experience, and age of placement. For each dependent variable, two models were tested. Description and coding for variables for hypotheses 2-2, 3-1, and 3-2 were shown in Table 3.

Statistical significance for all tests was set at $p < .05$. Based on the hypotheses, all were two tailed tests. All numbers in tables including frequencies, percentages, mean scores, etc were unweighted numbers. Specific analyses for all hypotheses are presented in Table 4.

Table 4

Hypotheses, Comparison Groups, and Significance Tests

Hypothesis	Comparison group in the within-subject design	Dependent variables	Test (Effect Size)
#1-1	· Those who know about birth mothers (BM) vs. birth fathers (BF) at Wave I and III	· Knowledge	· 2x2 chi-square test (Phi coefficient)
	· Those who contact BM vs. BF at Wave I and III	· Contact (Ever lived, communication, & sleep over night)	Same as above
	· Those who felt closeness to BM vs. BF at Wave I and III	· Closeness	· Paired dependent sample *t* test (SMDE)
#1-2	· Female vs. male /three age groups/four age of placement group) for BM/BF at Wave I and III	· Knowledge	2(yes/no)x2(female/male) chi-square test; 2 (yes/no)x3(age group) chi-square test; 2 (yes/no)x4(age of placement) chi-square test (Cramer's *V*)
	· Same as above	· Contact (Ever lived & communication/being in touch with)	Same as above
	· Same as above	· Closeness	Independent sample *t* test and one-way ANOVA (eta square)
#2-1	· Those who know about BM/BF at Wave I and those who do at Wave III	· Knowledge	· 2x2 chi-square test (Phi coefficient)
	· Those who contact with BM/BF at Wave I and those who do at Wave III	· Contact (communication/being in touch with)	Same as above
	· Those who answered to this question about BM/BF at Wave I and those who do at Wave III	· Closeness	· Paired dependent sample *t* test (SMDE)
#2-2	· Each individual at each wave	· Knowledge · Contact (communication/being in touch with)	Logistic Regression with GEE model (Z statistic)
#3-1 and 3-2	· Those in four different levels by knowledge of and contact with birth parents	Transitional adjustment (attending college & forming romantic relations)	Logistic Regression (OR)

Note. All tests set at $p < .05$, and was two-tailed.

CHAPTER IV

RESULTS

This chapter consists of three main parts: description of adopted adolescents' knowledge about and contact with birth parents, longitudinal changes of knowledge and contact, and the relationship of knowledge and contact to transitional adjustment.

Description of Adopted Adolescents' Knowledge about and Contact with Birth Parents

The following analyses were conducted to describe adopted adolescents' and adopted young adults' knowledge about, contact with, and involvement with birth parents. Thirteen questions for Wave I, and eight questions for Wave III, were broken down into three categories: knowledge, contact, and involvement.

Overall Knowledge, Contact, and Involvement in Adolescence (Hypothesis 1-1)

Table 5 presents frequencies and percentages of adoptee's knowledge about birth parents. Approximately 50% of adoptees reported knowing something about their birth mothers, while a quarter of adoptees had any knowledge of their birth fathers. In other words, adopted adolescents were more likely to know about their birth mothers than their birth fathers; almost twice as many adopted adolescents in this sample had some knowledge regarding their birth mothers (n = 219 of 464, 47.2%) versus their birth fathers (n = 120 of 467, 25.7%).

Table 5

Adopted Adolescents' Knowledge about Birth Parents, 1995

	Mother			Father		
Questions	*n*	*f*	%	*n*	*f*	%
Know anything about birth parent?	464			467		
Yes		219	47.20		120	25.70
No		245	52.80		347	74.30
Is she/he still living?	219			120		
Yes		156	71.23		93	77.80
No		25	11.42		10	8.33
Don't know		38	17.35		17	14.17
Disability mentally or physically?	219			120		
Yes		32	14.61		16	13.33
No		160	73.06		93	77.50
Don't know		27	12.33		11	9.17
Born in the U.S.?	219			120		
Yes		186	84.93		103	85.83
No		20	9.13		11	9.17
Don't know		13	5.94		6	5.00
Education Level?	219					
< High school		45	20.55		20	16.67
High school		56	25.57		39	32.50
Some college+		25	11.42		15	12.50
Don't know		93	42.47		46	38.33
Has birth parent ever smoked cigarettes?	156			92		
Yes		103	66.03		57	61.96
No		27	17.31		22	23.91
Don't know		26	16.67		13	14.13

More than 70% of adopted adolescents who knew anything concerning their birth mothers ($n = 219$) and birth fathers ($n = 120$) reported that their birth parent(s) were alive. Adopted adolescents were slightly more likely to know information about birth fathers being alive (78%) than their birth mothers (71%). Adoptees who reported knowing something about their birth parents were also asked about their birth parents' disability, birthplace, and educational level. Less than 15% of birth parents were reported to have a mental or physical disability. About 85% of birth parents were reported to have been born in the U.S. Adoptees were least likely to know about their birth parents' educational level - approximately 40% of adopted adolescents answered "don't know," with roughly half reporting graduation from high school or less. More than 60% of adopted adolescents who reported their birth parents being alive ($n = 156$ for birth mothers and $n = 92$ for birth fathers), stated that their parents had ever smoked, with the percentage of their birth mother's smoking (66%) being slightly higher than that of their birth fathers' (62%). Although more adoptees reported knowing something more regarding birth mothers than birth fathers, the percentage of the answer, "don't know," in other detailed questions tended to be higher for birth mothers than birth fathers.

Adoptees' contact experience with birth parents is presented in Table 6. As a follow-up question to the first one ("Do you know anything about your biological mother/biological father?), adolescents were asked whether or not they had ever lived with them. If they answered, "yes" to this question, the adolescents were then asked their age, and the duration of their stay, when they last lived with their birth parents.

Table 6

Adopted Adolescents' Contact with Birth Parents, 1995

Questions	Mother			Father		
	n	*f*	%	*n*	*f*	%
Ever lived with birth parent?	219			120		
Yes		128	58.45		59	49.17
No		90	41.10		59	49.17
Don't Know		1	0.46		2	1.67
Age when last lived with birth parent?	126			59		
≤ 1		24	19.05		8	13.56
2-5 years old		39	30.95		24	40.68
6-10 years old		39	30.95		16	27.12
11-15 years old		18	14.29		8	13.56
16-18 years old		6	4.76		3	5.08
Mean (*SD*)		6.23	(5.02)		6.08	(4.90)
Duration lived with birth parent? [a]	101			50		
≤ 1		8	7.92		3	6.00
2-5 years		44	43.56		26	52.00
6-10 years		36	35.64		15	30.00
≥ 11 years		13	12.87		6	12.00
Mean (*SD*)		5.91	(4.07)		5.66	(3.90)
Communication [b] *with birth parent in last 12 months?*	156			93		
None		63	40.38		38	40.86
Once or twice		21	13.46		14	15.05
Several times		22	14.10		18	19.35
About once a month		12	7.69		5	5.38
About once a week		16	10.26		11	11.83
More than once a week		22	14.10		7	7.53
Stay overnight with birth parent in last 12 months?	156			93		
None		112	71.79		69	74.19
Once or twice		18	11.54		9	9.68
Several times		16	10.26		11	11.83
About once a month		4	2.56		1	1.08
About once a week		1	.64		2	2.15
More than once a week		5	3.21		1	1.08

[a] These were asked to adopted adolescent who reported they last lived with birth parents at two years or older.

[b] Commnication indicated talking to birth parents in person, on the telephone, or receiving a letter from birth parents in the last 12 months

Fifty to sixty percent of adopted adolescents with knowledge of their birth parents reported that they had lived with their birth parents; they were approximately 10% more likely to live with their birth mothers (n = 128 of 219, 58.5%) than birth fathers (n = 59 of 120, 49.2%). The average age when adoptees last lived with their birth parents was around 6 years old and range was from 0 to 18 years old. Nineteen percent of adoptees last lived with their birth mothers and 14% with birth fathers when they were infants. About 19% of adopted adolescents reported last living with a birth parent between the ages of 11-18. When adopted adolescents reported that they last lived with a birth parent at two years of age or older, they were asked the duration of time they last lived with them. Over 90% (n = 93 for birth mothers and n = 47 for birth fathers) who lived with their birth parents ranged from 2 years to 11 years. The percentage in the bracket of "2-5 years" showed the highest duration of living with a birth parent (44% for birth mothers and 52% for birth fathers). The mean duration for last living with a birth parent was approximately six years.

Adopted adolescents who reported that their birth parents were alive (n = 156 for birth mothers and n = 93 for birth fathers), were also asked about their recent contact and reunion experience. Nearly 60% of adopted adolescents reported having some recent communication (including in person, on the telephone, or by mail) with their birth parents. Although percentage of each category between birth parents differed little, in the most frequent category (i.e., "more than once a week"), nearly two times as many adoptees had continued contact with their birth mother (n = 22, 14.1%) as with their birth father (n = 7, 7.5%). Roughly 30% of adopted adolescents reported at least once in

the last 12 months staying overnight with their birth mothers, and 25% with their birth fathers. Among them, the 'once or twice' and 'several times' categories made up 10% of adopted adolescents for both birth parents.

Table 7 shows adoptees' physical and psychological involvement with birth parents. Adopted adolescents who had communicated with their birth parent(s) during the past 12 months were asked about more specific activities with them in the past four weeks (n = 94 for birth mothers and 55 for birth fathers). Of the 10 activities which adoptees reported with their birth mothers, ranked highest were talking-centered activities, such as "talking about school work" (n = 48, 51.1%), "talking about life (e.g., dating)" (n = 39, 41.5%), "talking about other things in school" (n = 32, 34.0%), and "talking about personal problem" (n = 29, 30.9%). For activities with birth father, the percentage for activities ranged from 9.1% to 49.1%. Similar to birth mothers, "talking about school work" (n = 27, 49.1%), "talking about other things in school" (n = 20, 36.4%), and "talking about personal problem" (n = 17, 30.9%) were the main activities with birth fathers. In general, most activities with adoptees' birth mothers showed higher percentages than those with birth fathers. An interesting reversal, however, was that adoptees were about twice more likely to report doing things such as "play sports" (6.4% vs. 14.6%) and "go to a movie or museum" (8.5% vs. 14.6%), with their birth fathers than with their birth mothers.

Those who reported their birth parents being alive were asked about their closeness to them. Overall, adopted adolescents in this sample reported not having close relationships with their birth parents. Sixty percent of adopted adolescents did not feel

Table 7

Adopted Adolescents' Involvement with Birth Parents, 1995

Questions	Mother			Father		
	n	*f*	%	*n*	*f*	%
Activity with birth parent in past 4 weeks?	94			55		
Go shopping		19	20.21		12	21.82
Play sport		6	6.38		8	14.55
Religious event		15	15.96		7	12.73
Go to movie, etc		8	8.51		8	14.55
Talk about life		39	41.49		15	27.27
Talk about personal problems		29	30.85		17	30.91
Serious argument		12	12.77		5	9.09
Talk about school work		48	51.06		27	49.09
Work on school project		9	9.57		6	10.91
Talk about other things in school		32	34.04		20	36.36
Closeness to birth parent?	155			92		
Not close at all		72	46.45		35	38.04
Not very close		20	12.90		10	10.87
Somewhat close		23	14.84		22	23.91
Quite close		20	12.90		16	17.39
Extremely close		20	12.90		9	9.78
Mean (*SD*)		2.33	(1.48)		2.50	(1.40)

Note. Mean scores for closeness indicate: Not close at all=1, somewhat close=3, and extremely close=5.

close ("not close at all" or "not very close") to their birth mothers, while 50% did not feel close to their birth fathers. About 25% of adopted adolescents reported that they felt close ("quite close" or "extremely close") to birth mothers (25.8%) and to birth fathers (27.2%). In cases of "extremely close to birth parent," adopted adolescents were more likely to feel closeness to birth mothers (12.9%) than to birth fathers (9.8%). The mean score of closeness to birth mothers reported by adoptees was 2.33 (*SD* = 1.48), with a

mean score of 2.50 (SD = 1.40) in closeness to birth fathers. Although the mean scores indicated that adoptees felt somewhat distant from both birth parents, they felt slightly closer to their birth fathers than birth mothers.

Table 8 presents the results of significance tests regarding differences in knowledge, contact, and closeness between birth mothers and birth fathers. Effect size for a 2x2 chi-square test was the phi coefficient, indicating the measure of association (the square root of the results of dividing the sample's chi-square value by the number of subjects in a sample). Cohen's (1988) conventions for phi coefficient state that .10 is a small effect size, .30 a medium effect size, and .50 a large effect size. Effect sizes of t tests are interpreted as small magnitude of .20, medium magnitude of .50, and large magnitude of .80.

As shown in Table 8, adoptees' knowledge about, experiences of living, communication, and sleeping overnight with their birth mothers were statistically different than those with their birth fathers. Effect sizes ranged from .42 to .58, which is a large magnitude. In other words, knowledge of, ever lived with, communication, and sleeping overnight with mothers were statistically significantly higher than for fathers. However, the mean scores of closeness toward their birth mothers and birth fathers were not statistically different.

Knowledge about, Contact with, and Involvement with Birth Parents by Adoptees' Gender, Age, and Age of Placement in Adolescence (Hypothesis 1-2)

Five questions ("know about biological mother/father," "ever lived with

Table 8

Significance Test of Differences Between Birth Parents in Knowledge, Contact, and Involvement

Comparison group	*n*	*df*	χ^2/t	*ES*
Know anything about birth mothers vs. birth fathers	461	1	115.83*	.50
Ever lived with birth mothers vs. birth fathers	103	1	34.89*	.58
Communication with birth mothers vs. birth fathers	66	1	16.16*	.49
Sleep overnight with birth mothers vs. birth fathers	66	1	11.42*	.42
Mean scores for closeness toward birth mothers vs. birth mothers.	65	64	.56	.07

Note. Effect size (ES) for 2x2 chi-square test = phi-coefficient; the magnitude indicates that .10 = small, .30 = medium, and .50 = large.
Effect size (ES) for dependent means *t* test = M (means of differences)/ S (standard deviation of differences); the magnitude indicates that .20 = small, .50 = medium, and .80 = large.
*$p < .05$

biological mother/father," "stay overnight with biological mother/father," "communication with biological mother/father," and "closeness to biological mother/father") were selected for analyses in relationship to adoptees' gender, age, and age of placement. Detailed information regarding excluded questions is presented in Tables A1-A20 in the Appendix.

Table 9 shows the results of frequency, percentage, and chi-square statistics regarding adopted adolescents' information about their birth mothers and birth fathers by gender. Overall, female adopted adolescents were more likely to be aware of their

Table 9

Adopted Adolescents' Knowledge about Birth Parents by Adopted Adolescents' Gender, 1995

	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Know anything about birth mother?	245			219		
Yes		131	53.47		88	40.18
No		114	46.53		131	59.82
Chi-square test (*df* = 1)		$\chi^2 = 8.19$*			*ES* = -.13	
Know anything about birth father?	248			219		
Yes		70	28.23		50	22.83
No		178	71.77		169	77.17
Chi-square test (*df* = 1)		$\chi^2 = 1.77$			*ES* = -.06	

Note. Effect Size (ES) = phi coefficient; the magnitude indicates that .10 = small, .30 = medium, and .50 = large.
*$p < .05$

birth parents than were their male counterparts. Female adopted adolescents (53.5%) were approximately 15% more likely to know their birth mothers than were male adopted adolescents (40.2%). Knowledge of birth mothers was statistically significantly different by gender, $\chi^2(1, N = 464) = 8.19, p < .05$, when a chi-square analysis was conducted; however, effect size was small between males and females on adoptees' knowledge in relation to their birth mothers. Female adopted adolescents (28.2%) were 5% more likely than their male counterparts (22.8%) to have any information regarding their birth fathers, but was not statistically significant.

Table 10 presents adoptees' contact information with birth parents by adoptees' gender. Male adoptees (68.2% of 88) were 16% more likely to have ever lived with their birth mothers, compared with female adoptees (51.9% of 131); this difference was

Table 10

Adopted Adolescents' Contact with Birth Parents by Adopted Adolescents' Gender, 1995

	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Ever lived with birth mother?	131			88		
Yes		68	51.91		60	68.18
No		63	48.09		27	30.68
Don't know					1	1.14
Chi-square test (*df* = 1)	$\chi^2 = 6.27$*			*ES* = .17		
Ever lived with birth father?	70			50		
Yes		37	52.86		22	44.00
No		33	47.14		26	52.00
Don't know					2	4.00
Chi-square test (*df* = 1)	$\chi^2 = .56$			*ES* = -.07		
Communication with birth mother in last 12 months?	84			72		
Yes		49	58.33		44	61.11
No		35	41.67		28	38.89
Chi-square test (*df*=1)	$\chi^2 = .12$			*ES* = .03		
Communication with birth father in last 12 months?	49			44		
Yes		31	63.27		24	54.55
No		18	36.73		20	45.45
Chi-square test (*df* = 1)	$\chi^2 = .73$			*ES* = -.09		
Stay overnight with birth mother in last 12 months?	84			71		
Yes		25	29.76		18	26.39
No		59	70.24		53	73.61
Chi-square test (*df* = 1)	$\chi^2 = .22$			*ES* = -.04		
Stay overnight with birth father in last 12 months?	49			44		
Yes		14	28.57		10	22.73
No		35	71.43		34	77.27
Chi-square test (*df* = 1)	$\chi^2 = .41$			*ES* = -.07		

Note. "Don't Know" answers were excluded for chi-square tests.

Effect Size (ES) = phi coefficient; the magnitude indicates that .10 = small, .30 = medium, and .50 = large.

*$p < .05$

statistically significant, $\chi^2(1, N = 218) = 6.27, p < .05$. However, the practical association between "ever lived with birth mother" and gender was small (ES = .17). With respect to having lived with their birth fathers, nearly 53% of females reported to have ever lived with them, compared to 44% of males.

Male adoptees were also more likely to be in touch with their birth mothers than birth fathers, although female adoptees were more likely to communicate with their birth fathers than birth mothers. During the last 12 months, about 58% of 84 female adoptees and 61% of 72 male adoptees had ever communicated with their birth mothers; approximately 63% of 49 female adoptees and 55% of 44 male adoptees communicated with their birth fathers. Regarding staying overnight with their birth parents, female adopted adolescents were slightly more likely to stay overnight with their birth mothers and birth fathers than male adopted adolescents. The differences regarding communication and staying overnight were not statistically significant.
Male adopted adolescents were more likely than females to feel close to their birth mother. The difference by gender in mean scores of closeness to birth fathers was larger than the difference of closeness to birth mothers; however, either mean difference was not statistically significant (Table 11).

Table 12 summarizes adoptees' knowledge about birth parents by three age groups: ages 12-14, 15-17, and 18-20. As an effect size, Cramer's *V* (the square root of the result of dividing the sample's chi-square by the product of the total number of people in the sample times the degrees of freedom for the smaller side of the table) was used because phi coefficient can be used only for a 2x2 situation (Aron, Aron,

Table 11

Adopted Adolescents' Involvement with Birth Parents by Adopted Adolescents' Gender, 1995

	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Closeness to birth mother?	84			71		
Not close at all		40	47.62		32	45.07
Not very close		12	14.29		8	11.27
Somewhat close		8	9.52		15	21.13
Quite close		13	15.48		7	9.86
Extremely close		11	13.10		9	12.68
Mean (*SD*)	2.32 (1.51)			2.34 (1.45)		
t test	*df* = 153		*t* = -.07	*ES* = -.01		
Closeness to birth father?	49			43		
Not close at all		18	36.73		17	39.53
Not very close		5	10.20		5	11.63
Somewhat close		14	28.57		8	18.60
Quite close		9	18.37		7	16.28
Extremely close		3	6.12		6	13.95
Mean (*SD*)	2.47 (1.32)			2.53 (1.50)		
t test	*df* = 90		*t* = -.22	*ES* = -.05		

Note. Mean scores for closeness indicate: not close at all = 1, somewhat close = 3, and extremely close = 5. Effect size (*ES*) for independent mean *t* test = $\{(M_1-M_2)/S_{pooled}\}$; the magnitude indicates that .20 = small, .50 = medium, and .80 = large.

& Coups, 2005). The magnitude of Cramer's *V* depends on the degrees of freedom. When degree of freedom is 2, it shows respectively that .07 is small, .21 is medium, and .35 is large (Cohen, 1988).

Percentages of knowledge of birth fathers showed big differences by age groups, compared to relatively even distribution (47.6-55.5%) by age group for birth mothers. In the middle age group, 75% of adopted adolescents knew something about their birth

Table 12

Adopted Adolescents' Knowledge about Birth Parents by Adopted Adolescents' Age Group, 1995

	Age Group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*F*	%	*n*	*f*	%
Know anything about birth mother?	98			263			103		
Yes		48	48.98		146	55.51		49	47.57
No		50	51.02		117	44.49		54	52.43
Chi-square test ($df = 2$)	$\chi^2 = 2.03$					*ES* = .07			
Know anything about birth father?	99			264			104		
Yes		25	25.25		199	75.38		30	28.85
No		74	74.75		65	24.62		74	71.15
Chi-square test ($df = 2$)	$\chi^2 = .71$					*ES* = .04			

Note. Effect size = Cramer's *V*; the magnitude (when $df = 2$) indicates that .07 = small, .21 = medium, and .35 = large.

fathers, while only about 25% of adopted adolescents in the other two age groups knew about their birth fathers. Adoptees' knowledge about birth parents was not statistically significant in association with their age.

Adopted adolescents in the middle age group (ages 15-17) were most likely to know about their birth mothers or birth fathers compared with those in the other two age groups. Forty-nine percent of adoptees aged 12-14, 55.5% of adoptees aged 15-17, and 47.6% of adoptees aged 18-20, reported knowing about their birth mothers.

Adopted adolescents in the oldest age group were most likely to have ever lived with birth parents (see Table 13). More than half of the adoptees in each age group reported having ever lived with their birth mothers. However, less than half of adoptees,

Table 13

Adopted Adolescents' Contact with Birth Parents by Adopted Adolescents' Age Group, 1995

	Age group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Ever lived with birth mother?	48			117			54		
Yes		27	56.25		65	55.56		36	66.67
No		21	43.75		51	43.59		18	33.33
Don't know					1	.85			
Chi-square test ($df = 2$)	$n = 218$			$\chi^2 = 1.87$			*ES* = .09		
Ever lived with birth father?	25			65			30		
Yes		12	48.00		28	43.08		19	63.33
No		13	52.00		35	53.85		11	36.67
Don't know					2	3.08			
Chi-square test ($df = 2$)	$n = 118$			$\chi^2 = 2.95$			*ES* = .16		
Communication with birth mother?	43			78			35		
Yes		29	67.44		39	50.00		25	71.43
No		14	32.56		39	50.00		10	28.57
Chi-square test ($df = 2$)	$n = 156$			$\chi^2 = 6.12$*			*ES* = .20		
Communication with birth father?	23			48			22		
Yes		16	69.57		23	47.92		16	72.73
No		7	30.43		25	52.08		6	27.27
Chi-square test ($df = 2$)	$n = 93$			$\chi^2 = 5.23$			*ES* = .24		
Stay overnight with birth mother in last 12 months?	43			78			35		
Yes		13	30.23		18	23.08		13	37.14
No		30	69.77		60	76.92		22	62.86
Chi-square test ($df = 2$)	$n = 156$			$\chi^2 = 2.48$			*ES* = .13		
Stay overnight with birth father in last 12 months?	23			48			22		
Yes		9	39.13		6	12.50		9	40.91
No		14	60.87		42	87.50		13	59.09
Chi-square test ($df = 2$)	$n = 93$			$\chi^2 = 9.19$*			*ES* = .31		

Note. Effect Size (ES) = Cramer's *V*; the magnitude (when $df = 2$) indicates that .07 = small, .21 = medium, and .35 = large.

*$p < .05$

with the exception of the oldest age group, reported having ever lived with their birth fathers. Again, however, the differences by age group were not statistically significant. When sorted by adoptees' age, the distribution of percentage of communication and staying overnight experiences clearly showed a V-shaped pattern. Communication with birth mothers was statistically significantly different by age group, $\chi^2(2, N = 156) = 6.12$, $p < .05$, showing a medium effect size (.20). The oldest age group had the highest communication with birth parents (71%), followed by the youngest (67%), and the middle age (50%) group. Communication with birth fathers showed a similar pattern as with birth mothers, but was not statistically significant. Regarding staying overnight experiences, the middle age group reported the lowest percentage (23% for birth mothers and 13% for birth fathers); in the other two age groups, 30-40% of adoptees reported staying overnight with their birth parents in the last 12 months. The experience of staying overnight with birth fathers was statistically different by adoptees' age group, $\chi^2 (2, N = 93) = 9.19$, $p < .05$. The magnitude of effect size was .31, which meant a large association between adoptees staying overnight with their birth fathers and adoptees' age group. With the exception of the middle age group, percentages of the other two age groups in communication with and sleeping overnight with birth fathers were slightly higher than with birth mothers.

Adopted adolescents in the youngest group were most likely to feel a closeness to both birth mother ($M = 2.56$, $SD = 1.45$) and birth fathers ($M = 2.83$, $SD = 1.53$), but scores implied that a closeness to birth parents in each category did not reach the level of "somewhat close" (Table 14). Adoptees in the middle group reported the lowest

Table 14

Adopted Adolescents' Involvement with Birth Parents by Adopted Adolescents' Age Group, 1995

	Age group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Closeness to birth mother?	43			77			35		
Not close at all		14	32.56		40	51.95		18	51.43
Not very close		10	23.26		8	10.39		2	5.71
Somewhat close		6	13.95		11	14.29		6	17.14
Quite close		7	16.28		8	10.39		5	14.29
Extremely close		6	13.95		10	12.99		4	11.43
Mean (*SD*)	2.56 (1.45)			2.22 (1.49)			2.29 (1.51)		
One-Way ANOVA	*df* = 2			*F* = .73			*ES* = .01		
Closeness to birth father?	23			47			22		
Not close at all		7	30.43		20	42.55		8	36.36
Not very close		2	8.70		7	14.89		1	4.55
Somewhat close		7	30.43		6	12.77		9	40.91
Quite close		2	8.70		10	21.28		4	18.18
Extremely close		5	21.74		4	8.51			
Mean (*SD*)	2.83 (1.53)			2.38 (1.44)			2.41 (1.18)		
One-Way ANOVA	*df* = 2			*F* = .83			*ES* = .02		

Note. Mean scores for closeness indicate: not close at all = 1, somewhat close = 3, and extremely close = 5. Effect size (ES) in ANOVA test = eta squared; the magnitude indicates that .10 = small, .25 = medium, .40 = large.

mean scores, which are far behind "somewhat close," for closeness to both birth mothers and birth fathers. For a statistical test, an analysis of variance (ANOVA) was used. For effect size for ANOVA, an eta squared value was used; Cohen's conventions for effect size for ANOVA are .10 for a small effect, .25 for a medium effect, and .40

for a large effect size. Differences in closeness to birth parents by adoptees' age group were not statistically significant.

Tables 15-17 present the frequencies and percentages of knowledge, contact, and involvement by adoptees' age of placement. The magnitude of Cramer's *V* shows that .06 is small, .17 is medium, and .29 is large, when degree of freedom is 3 (Cohen, 1988). As expected, the older adoptees were when placed, the more they knew about their birth parents. Knowledge of birth mothers was statistically significantly associated with age at placement, $\chi^2(3, N = 464) = 58.90, p < .05$, and the effect size showed a large magnitude (.36). The association between adoptee's knowledge of birth fathers and age of placement was a statistically significant linear relationship, $\chi^2(3, N = 467) = 39.38, p < .05$. The effect size was .29, which is lower than for mothers, but still a large effect size. Adolescents placed during or after the sensitive period for formation of attachment relationships were two to three placed before the sensitive period (< 7 months of age). Adoptees placed before sensitive placed before the sensitive period (< 7 months of age). Adoptees placed before sensitive period reported not knowing about their birth mothers as much as any other placement age group (about 30%). On the other hand, more than 50% of adopted adolescents placed between 7 months and 2 years old reported knowing their birth mothers; twice as many adoptees placed between 3-6 years knew their birth mothers as the youngest placement group; and the majority (about 80%) of adoptees in the oldest placement group knew about their birth mothers. Similarly, only 15% of adoptees placed at the six months and younger age reported having any knowledge about their fathers and even in the oldest placement group, the

Table 15

Adopted Adolescents' Knowledge about Birth Parents by Adopted Adolescents' Age at Placement, 1995

	Age at placement												
	6 month			7month-2years			3-6 years			7 years +			
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	Chi-square test ($df = 3$)
Know anything about birth mother?	232			102			54			76			
Yes		73	31.47		53	51.96		33	61.11		60	78.95	$\chi^2 = 58.90$*
No		159	68.53		49	48.04		21	38.89		16	21.05	*ES* = .36
Know anything about birth father?	235			102			54			76			
Yes		34	14.47		31	30.39		18	33.33		37	48.68	$\chi^2 = 39.38$*
No		201	85.53		71	69.61		36	66.67		39	51.32	*ES* = .29

Note. Effect size (ES) = Cramer's *V*; the magnitude (when $df = 3$) indicates that .06 = small, .17 = medium, .29 = large.
*$p < .05$

percentage of adoptees with knowledge of their birth fathers did not exceed 50% of adoptees. In addition, in each age of placement category, adoptees were twice as likely to know of their birth mother as their birth fathers (see Table 15).

Almost by definition, living with birth parents and age of placement were strongly related. While around 10% of adopted adolescents placed at less than seven months reported having ever lived with birth mothers or birth fathers, 80-90% of adoptees placed at seven years old or older reported having ever lived with birth mothers or birth fathers (see Table 16). In other words, the older adoptees were when placed, the more likely they ever had lived with a birth parent. Differences in percentage of ever living with each birth parent by adoptees' age of placement were statistically significant, $\chi^2(3, N = 218) = 124.77, p < .05$ for birth mothers, and $\chi^2(3, N = 118) = 32.52, p < .05$ for birth fathers. The effect size for birth mothers was .76, and the effect size for birth fathers was also very large (.53).

Contact and reunion by age of placement did not show a linear association similar to the responses regarding knowledge about and ever lived with birth parents. Adopted adolescents placed between 0-6 months were least likely to communicate with birth parents. The percentage of being in contact with a birth parent by the youngest placement group (under 7 months) was less than 40% for both parents. As for birth mothers, the percentage of communication went up to 68% in the "7 months to 2 years old" placement age group and to 78% in the "3-6 years" placement group, however, the percentage decreased to 62% in the "7 years and over" placement group. Differences in

Table 16

Adopted Adolescents' Contact with Birth Parents by Adopted Adolescents' Age at Placement, 1995

	Age at Placement												
	6 month			7month-2years			3-6 years			7 years +			Chi-square test
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	($df = 3$)
Ever lived with birth mother?	73			53			33			60			
Yes		7	9.59		33	62.26		31	93.94		57	95.00	$\chi^2 = 124.77$*
No		66	90.41		20	37.74		1	3.03		3	5.00	*ES* = .76
Don't know								1	3.03				
Ever lived with birth father?	34			31			18			37			
Yes		4	11.76		15	48.39		12	66.67		28	75.68	$\chi^2 = 32.52$*
No		30	88.24		15	48.39		5	27.78		9	24.32	*ES* = .53
Don't know					1	3.23		1	5.56				
Communication with birth mother?	42			37			27			50			
Yes		16	38.10		25	67.57		11	77.78		31	62.00	$\chi^2 = 12.87$*
No		26	61.90		12	32.43		6	22.22		19	38.00	*ES* = .29
Communication with birth father?	19			26			16			32			
Yes		7	36.84		18	69.23		9	56.25		21	65.63	$\chi^2 = 5.62$
No		12	63.16		8	30.77		7	43.75		11	34.38	*ES* = .26
Stay overnight with birth mother in last 12 months?	42			37			27			50			
Yes		12	28.57		12	32.43		8	29.63		12	24.00	$\chi^2 = .79$
No		30	71.43		25	67.57		19	70.37		38	76.00	*ES* = .07
Stay overnight with birth father in last 12 months?	19			26			16			32			
Yes		4	21.05		9	34.62		3	18.75		8	25.00	$\chi^2 = 1.70$
No		15	78.95		17	65.38		13	81.25		24	75.00	*ES* = .14

Note. Effect size (ES) = Cramer's *V*; the magnitude (when $df = 3$) indicates that .06 = small, .17 = medium, and .29 = large.
*$p < .05$.

communication with birth mothers by age of placement were statistically significant, $\chi^2(3, N = 156) = 12.87, p < .05$. The effect size was .29, which is also large. The percentage of communicating of birth fathers in the placement group at "7 months–2 years" (69%) was almost twice as large as the "before 7months" group. The percentage of next placement group was 56% compared to 66% in the oldest placement age group. Differences by age of placement for birth fathers were not statistically significant (see also Table 16).

Staying overnight with birth parents did not show a statistically significant relationship with age of placement. Adoptees placed during the sensitive period of attachment relationship reported the highest percentage for staying overnight with a birth parent (32% for birth mothers and 35% for birth fathers). The percentage distribution for birth mothers was almost even (29%, 32%, and 30%) for first three placement groups, but decreased to 24% in the oldest placement group. As for birth fathers, differences were little bigger than birth mothers and the adoptees in the "3-6 years" placement group were the least likely (19%) to have stayed overnight with their birth fathers (see also Table 16).

Table 17 shows frequencies, percentage, and mean scores of closeness to birth parents by age of placement and ANOVA test results. Overall, adoptees placed when they were infants showed the lowest closeness scores, whereas adoptees placed after the sensitive period of attachment showed the highest scores. Mean scores reported by the youngest group of placement age was below two, which meant they did not feel very close to their birth mothers or birth fathers. Although those who were placed between

Table 17

Adopted Adolescents' Involvement with Birth Parents by Adopted Adolescents' Age at Placement, 1995

	Age at Placement												
	6 month (A)			7 month-2 years (B)			3-6 years (C)			7 years + (D)			
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*N*	*f*	%	ANOVA test (*df* = 3)
Closeness to birth mother?	41			37			27			50			
Not close at all		25	60.98		17	45.95		6	22.22		24	48.00	
Not very close		6	14.63		4	10.81		5	18.52		5	10.00	
Somewhat close		4	6.76		8	21.62		3	11.11		8	16.00	
Quite close		4	6.76		4	10.81		7	25.93		5	10.00	$F = 4.07$*
Extremely close		2	4.88		4	10.81		6	22.22		8	16.00	(C>D,B>A)
Mean (*SD*)	1.83 (1.24)			2.30 (1.43)			3.07 (1.52)			2.36 (1.55)			*ES* = .07
Closeness to birth father?	18			26			16			32			
Not close at all		12	66.67		10	38.46		5	31.25		8	25.00	
Not very close		1	5.56		2	7.69		2	12.50		5	15.63	
Somewhat close		2	11.11		5	19.23		4	25.00		11	34.38	
Quite close		2	11.11		6	23.08		3	18.75		5	15.63	
Extremely close		1	5.56		3	11.54		2	12.50		3	9.38	$F = 1.74$
Mean (*SD*)	1.83 (1.34)			2.62 (1.50)			2.69 (1.45)			2.69 (1.28)			*ES* = .06

Note. Mean scores for closeness indicate: not close at all = 1, somewhat close = 3, and extremely close = 5.
A,B,C, and D stand for each category of age of placement.
Effect size (ES) = eta squared; the magnitude indicates that .10 = small, .25 = medium, and .40 = large.
For post hoc comparison, Scheffé test was used.
*$p < .05$

three and six years reported "somewhat close," all others reported at far less than the level of "somewhat close." Adoptees' closeness to their birth mothers was statistically significantly associated with age of placement, $F(3, N = 155) = 4.07, p < .05$. Scheffé test was conducted as *post hoc* test in order to determine which means of the group of age placement differ from which means of other groups of age placement. This test was used because it is the most conservative with respect to Type I error and does not require the same sample size in each comparison group. The third group's mean was statistically higher than other groups; mean scores of the group placed between seven months and two years and the group placed between three and six years were statistically different from the infant adoption group. However, the effect size was small (.07). With the exception of closeness scores of adoptees placed before attachment relationship (< 7 months of age), the scores for birth fathers of the other three placement categories were almost identical; the closeness by age of placement was not statistically significant.

Adoptees' Knowledge, Contact, and Involvement in Young Adulthood (Hypothesis 1-1)

In Wave III, eight questions were asked about adoptees' birth parents: any knowledge, being alive or not, ever lived with birth parent, being in touch or not, birth parents' contribution to living expense, and three questions concerning emotional response to birth parents. Like Wave I, the frequencies, percentage, mean scores and significance tests are reported by birth parents' and adoptees' gender, age group, and age of placement.

Table 18 shows that adoptees were still more likely to have information regarding their birth mothers than birth fathers seven years later. Fifty-five percent of adoptees reported that they had some knowledge of their birth mother; 35% of participants said that they had some knowledge about their birth father. The difference in the percentage of adoptees who knew about birth mothers and birth fathers in Wave III was not as big as in Wave I; nonetheless, this difference was statistically significant, $\chi^2(1, N = 448) = 149.42$, $p < .05$, and the magnitude of effect size was .58.

Slightly more than 60% of adoptees in Wave III who knew something concerning their birth mothers ($n = 251$) or birth fathers ($n = 161$) reported that their birth mothers or birth fathers were still living. Over 50% of adopted young adults in Wave III reported ever having lived with birth mothers, and nearly 40% of them had lived with birth fathers. Adoptees' experiences of living with a birth parent were statistically significantly different by the birth parents' gender, $\chi^2(1, N = 76) = 19.46$, $p < .05$. The effect size was .50, which is a large magnitude.

In the area of communication, approximately 70% of adopted young adults reported being in touch with birth mothers, and nearly 55% with birth fathers. Adoptees' contact behaviors with their birth parents differed by birth parents' gender. The difference between birth mothers and birth fathers was statistically significant, $\chi^2(1, N = 76) = 4.55$, $p < .05$, and the effect size was .24.

Table 19 reports adopted young adults' involvement with their birth parents. The question about financial support by birth parents was new in Wave III. Birth fathers

Table 18

Adopted Young Adults' Knowledge about and Contact with Birth Parents, 2002

	Mother			Father		
Questions	*n*	*f*	%	*n*	*f*	%
Know anything about birth parent?	459			459		
Yes		251	54.68		161	35.08
No		208	45.32		298	64.92
Chi-square test (*df* = 1)	*n* = 448		$\chi^2 = 149.42$*		*ES* = .58	
Is she/he still living?	251			161		
Yes		154	61.35		99	61.49
No		34	13.55		29	18.01
Don't know		63	25.10		33	20.50
Ever lived with birth parent?	153			98		
Yes		83	54.25		39	39.80
No		70	45.75		59	60.20
Chi-square test (*df* = 1)	*n* = 76		$\chi^2 = 19.46$*		*ES* = .50	
Are you in touch with birth parent?	153			99		
Yes		105	68.63		53	53.54
No		48	31.37		46	46.46
Chi-square test (*df* = 1)	*n* = 76		$\chi^2 = 4.55$*		*ES* = .24	

Note. "Don't know" answers were excluded for chi-square tests.
Effect size (ES) = phi coefficient; the magnitude indicates that .10 = small, .30 = medium, and .50 = large.
*$p < .05$

were more likely to provide financial support to their biological offspring than birth mothers. Among those who were in touch with their birth parent (n = 105 for birth mothers and n = 53 for birth fathers), 27% were given financial aid from birth mothers and 36% from birth fathers. Because it was reported that there was a cell with less than 5 expected cases, Fisher's Exact Test replaced the chi-square test; as a result, the

Table 19

Adopted Young Adults' Involvement with Birth Parents, 2002

	Mother			Father		
Questions	*n*	*f*	%	*n*	*f*	%
Birth parents contribute to living expense?	105			53		
Yes		28	26.67		19	35.85
No		77	73.33		34	64.15
Fisher's Exact Test	*df* = 1, *n* = 35			Fisher's Exact Test = .11		
Enjoy doing things with birth parents? [a]	102			52		
Strongly disagree		6	5.88		7	13.46
Disagree		7	6.86		2	3.85
Neither disagree nor agree		31	30.39		13	25.00
Agree		30	29.41		17	32.69
Strongly agree		28	27.45		13	25.00
Mean (*SD*)		3.66	(1.13)		3.52	(1.29)
t test	*df* = 32		*t* = 2.27*		*ES* = .06	
Birth parents warm/loving to you? [a]	104			53		
Strongly disagree		5	4.81		5	9.43
Disagree		2	1.92		3	5.66
Neither disagree nor agree		11	10.58		7	13.21
Agree		45	43.27		23	43.40
Strongly agree		41	39.42		15	28.30
Mean (*SD*)		4.11	(1.00)		3.75	(1.21)
t test	*df* = 34		*t* = 1.43		*ES* = .16	
Closeness to birth parents? [b]	105			53		
Not close at all		11	10.48		9	16.98
Not very close		21	20.00		12	22.64
Somewhat close		29	27.62		16	30.19
Quite close		22	20.95		6	11.32
Extremely close		22	20.95		10	18.87
Mean (*SD*)		3.22	(1.28)		2.92	(1.34)
t test	*df* = 34		*t* = .69		*ES* = .11	

[a] Mean scores indicate: strongly disagree = 1, neutral = 3, and strongly agree = 5.

[b] Mean scores indicate: not close at all = 1, somewhat = 3, and extremely close = 5.

Effect size (ES) for dependent means *t* test = M (means of differences)/ S (standard deviation of differences); the magnitude indicates that .20 = small, .50 = medium, and .80 = large.

*$p < .05$

difference was not statistically significant.

In addition to financial support, the questions "are you enjoying doing things with birth mother/father?" and "most of the time, are birth parents warm/loving toward you?" were newly added in Wave III. Adopted young adults agreed somewhat that they enjoyed doing things with their birth parents in terms of mean scores. Adoptees were more likely to enjoy sharing activities with birth mothers (3.66) than with birth fathers (3.52). The *t* test statistic on this question between birth mothers and birth fathers was statistically significant ($p < .05$); however, the effect size was very small.

Adoptees in young adulthood perceived their birth parents' caring for them as warm and loving in general. Respondents were more likely to report that their birth mothers were warm and loving toward them than their birth fathers, but this difference in mean scores was not statistically significant (*Ms* = 4.11 for birth mothers and 3.75 for birth fathers).

Mean scores of closeness to birth parents by adoptees demonstrated 'somewhat close' mean scores (3.22 for birth mothers and 2.92 for birth fathers). Compared to the previous two emotional involvement scores, the mean scores of closeness were a little lower. Adoptees were more likely to feel closeness to their birth mothers than their birth fathers, but this difference between birth parents was not statistically significant.

Adoptees' Knowledge about, Contact with, and Involvement with Birth Parents by Gender, Age, and Age of Placement in Young Adulthood (Hypothesis 1-2)

Table 20 shows that female adopted young adults were more likely to know

Table 20

Adopted Young Adults' Knowledge about and Contact with Birth Parents by Young Adults' Gender, 2002

	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Know anything about birth mother?	247			212		
Yes		141	57.09		110	51.89
No		106	42.91		102	48.11
Chi-square test (*df* = *1*)	$\chi^2 = 1.24$			*ES* = -.05		
Know anything about birth father?	251			208		
Yes		91	36.25		70	33.65
No		160	63.75		138	66.35
Chi-square test (*df* = *1*)	$\chi^2 = .34$			*ES* = -.03		
Ever lived with birth mother?	79			74		
Yes		46	58.23		37	50.00
No		33	41.77		37	50.00
Chi-square test (*df* = *1*)	$\chi^2 = 1.04$			*ES* = -.08		
Ever lived with birth father?	53			45		
Yes		24	45.28		15	33.33
No		29	54.72		30	66.67
Chi-square test (*df* = *1*)	$\chi^2 = 1.45$			*ES* = -.12		
In touch with birth mother?	79			74		
Yes		58	73.42		47	63.51
No		21	26.58		27	36.49
Chi-square test (*df* = *1*)	$\chi^2 = 1.74$			*ES* = -.11		
In touch with birth father?	54			45		
Yes		32	59.26		21	46.67
No		22	40.74		24	53.33
Chi-square test (*df* = *1*)	$\chi^2 = 1.56$			*ES* = -.13		

Note. Effect size (ES) = phi coefficient; the magnitude indicates that .10 = small, .30 = medium, and .50 = large.

about birth parents than male adoptees. Female adoptees were also more likely than male adoptees to report having ever lived with birth mothers or with birth fathers. Female adoptees were also more likely to be in contact with their birth mothers or birth fathers. Seventy-three percent of female adopted young adults, who reported their parents being alive, reported being in touch with their birth mothers, while approximately 64% of male adopted young adults reported keeping in touch with them. Similarly, 60% of female adopted young adults reported keeping in touch with their birth fathers, whereas around 47% of male adopted young adults reported being in contact with them. However, these differences in adoptees' knowledge and contact in young adulthood were not statistically significant (see Table 20).

Table 21 shows adopted young adults' involvement with birth parents by adoptees' gender. Female adoptees were more likely than male adoptees to receive financial aid for their living expenses from their birth mothers and birth fathers. However, the difference of percentage between females and males was not statistically significant. Female adoptees were slightly more likely than male adoptees to enjoy activities with birth mothers (*M*s = 3.68 and 3.63 for female and male, respectively), while male adoptees ($M = 3.57$) compared to female adoptees ($M = 3.48$) were more likely to enjoy activities with their birth fathers. However, differences in mean scores by gender in the area of interaction with birth parents were not statistically significant. Female adopted young adults were more likely to sense that their birth parents were warm and loving toward them than the male adoptees, but these differences were not statistically significant. While fewer adopted young adult males than females felt that

Table 21

Adopted Young Adults' Involvement with Birth Parents by Young Adults' Gender, 2002

	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Birth mother contributes to living expense?	58			47		
Yes		16	27.59		12	25.33
No		42	72.41		35	74.47
Chi-square test (*df* = 1)	*n* = 105		χ^2 = .06		*ES* = -.02	
Birth father contributes to living expense?	32			21		
Yes		12	37.50		7	33.33
No		20	62.50		14	66.67
Chi-square test (*df* = 1)	*n* = 53		χ^2 =.10		*ES* = -.04	
Enjoy doing things with birth mother?	56			46		
Mean (*SD*) [a]		3.68	(1.05)		3.63	(1.24)
t test	*df* = 100		*t* = .21		*ES* = .20	
Enjoy doing things with birth father?	31			21		
Mean (*SD*) [a]		3.48	(1.26)		3.57	(1.36)
t test	*df* = 50		*t* = -.24		*ES* = .03	
Birth mother warm/loving to you?	58			46		
Mean (*SD*) [a]		4.14	(.89)		4.07	(1.14)
t test	*df* = 102		*t* = .37		*ES* = .04	
Birth father warm/loving to you?	32			21		
Mean (*SD*) [a]		3.84	(1.25)		3.62	(1.16)
t test	*df* = 51		*t* = .66		*ES* = .09	
Closeness to birth mother?	58			47		
Mean (*SD*) [b]		3.16	(1.25)		3.30	(1.32)
	df = 103		*t* = -.57		*ES* = .06	
Closeness to birth father?	32					
Mean (*SD*) [b]		2.88	(1.24)		3.00	(1.52)
t test	*df* = 51		*t* = -.33		*ES* = .05	

[a] Mean scores indicate: strongly disagree = 1, neutral = 3, and strongly agree = 5.

[b] Mean scores indicate: not close at all = 1, somewhat = 3, and extremely close = 5.

Effect size (ES) for chi-square test = phi coefficient; the magnitude indicates that .10 = small, .30 = medium, and .50 = large.

Effect size (ES) for independent mean *t* test = $\{(M_1-M_2)/S_{pooled}\}$; the magnitude indicates that .20 = small, .50 = medium, and .80 = large.

their birth parents were warm and loving, male adoptees felt closer to their birth mothers and birth fathers versus female adoptees.

Tables 22-23 present adopted young adults' knowledge of, contact with, and involvement with birth parent by adoptees' age in young adulthood. Three age groups for adoptees in young adulthood were classified: ages of 18-20, 21-23, and 24-26. Adoptees in the middle age group, aged 21-23, were least likely to know about their birth mothers and birth fathers. In the case of birth mothers, more than 50% of adoptees reported knowing about them in all three groups. However, the percentage of knowledge about birth fathers varied by age group. Only one-third of adopted young adults in the middle age group knew something about their birth fathers, whereas more than 40% in other age groups knew about fathers. This difference was statistically significant, $\chi^2(2, N = 459) = 7.28, p < .05$; the effect size was small to medium (.13) (see Table 22).

The distribution of "ever lived with birth mothers" showed a v-shaped pattern. Approximately 45% of adoptees in the middle age group reported having lived with their birth mothers, while more than 60% of adoptees in the youngest and oldest age groups reported ever having lived with their birth mothers. Ever living with birth fathers increased by age group. Only 25% of adoptees aged 18-20 reported living with birth fathers, compared with 40% of adoptees aged 21-23 and 56% of adoptees aged 24-26. However, these differences regarding living with birth parents were not statistically significant (see Table 22).

'Keeping in touch with birth mothers' showed a reverse pattern by age group.

Table 22

Adopted Young Adults' Knowledge about and Contact with Birth Parents by Young Adults' Age Group, 2002

	Age group								
	18-20			21-23			24-26		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Know anything about birth mother?	102			263			94		
Yes		61	59.80		135	51.33		55	58.51
No		41	40.20		128	48.67		39	41.49
Chi-square test (*df* = 2)	$\chi^2 = 2.83$						*ES* = .08		
Know anything about birth father?	103			261			95		
Yes		42	40.78		78	29.89		41	43.16
No		61	59.22		183	70.11		54	56.84
Chi-square test (*df* = 2)	$\chi^2 = 7.28$*						*ES* = .13		
Ever lived with birth mother?	42			81			30		
Yes		27	64.29		37	45.68		19	63.33
No		15	35.71		44	54.32		11	36.67
Chi-square test (*df* = 2)	$\chi^2 = 5.10$						*ES* = .18		
Ever lived with birth father?	25			48			25		
Yes		6	24.00		19	39.58		14	56.00
No		19	76.00		29	60.42		11	44.00
Chi-square test (*df* = 2)	$\chi^2 = 5.34$						*ES* = .23		
In touch with birth mother?	42			80			31		
Yes		34	80.95		48	60.00		23	74.19
No		8	19.05		32	40.00		8	25.81
Chi-square test (*df* = 2)	$\chi^2 = 6.18$*						*ES* = .20		
In touch with birth father?	26			48			25		
Yes		13	50.00		25	52.08		15	60.00
No		13	50.00		23	47.92		10	40.00
Chi-square test (*df* = 2)	$\chi^2 = .59$						*ES* = .08		

Note. Effect size (ES) = Cramer's *V*; the magnitude (when *df* = 2) indicates that .07 = small, .21 = medium, and .35 = large.

*$p < .05$

The youngest group was highest (81%), followed by the oldest (74%), and the middle (60%) age groups. 'Current contact with birth mothers' was statistically significant by adoptees' age in young adulthood, $\chi^2(2, N = 153) = 6.18, p < .05$, showing a moderate effect size (.20). 'Keeping in touch with birth fathers' showed increased by age group, similar to 'ever lived with birth fathers.' However, the difference of percentage of adoptees in each age group was not large. Fifty to sixty percent of adoptees by each age group were reported to have contact with their birth fathers (see Table 22).

The 'contribution of birth mothers to adoptees' living expenses' declined with age: 64% of adoptees aged 18-20 reported getting some financial support from birth mothers, 27% of those aged 21-23, and 22% of those aged 24-26 (see Table 23). Similarly, adoptees in the youngest group were most likely to receive financial help from their birth fathers. About 46% of adoptees in the youngest age group reported receiving some living expenses from birth fathers and slightly more than 30% in the other two age groups reported receiving some financial help beyond occasional monetary assistance from their birth fathers.

Table 23 also presents adoptees' psychological involvement with their birth parents by adoptees' age group. The youngest age group exhibited the highest percentage of those enjoying activities with their birth mothers, and the oldest age group indicated the highest percentage of enjoying activities with their birth fathers. The highest mean score in activity enjoyment with birth mothers was in the youngest age group (3.76); for birth fathers, the highest mean score was in the oldest (3.87). The middle age group was least likely to enjoy doing things with both birth mothers ($M =$

Table 23

Adopted Young Adults' Involvement with Birth Parents by Young Adults' Age Group, 2002

	Age group								
	18-20			21-23			24-26		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Birth mother contributes to living expense?	42			48			23		
Yes		27	64.29		13	27.08		5	21.74
No		15	35.71		35	72.92		18	78.26
Chi-square test (*df* = 2)	*n* = 105			χ^2 = .42			*ES* = .06		
Birth father contributes to living expense?	13			25			15		
Yes		6	46.15		8	32.00		5	33.33
No		7	53.85		17	68.00		10	66.67
Chi-square test (*df* = 2)	*n* = 53			χ^2 = .80			*ES* = .12		
Enjoy doing things with birth mother?	34			46			22		
Mean (*SD*)[a]		3.76	(1.16)		3.57	(1.09)		3.68	(1.21)
ANOVA test (*df* = 2)				*F* = .31			*ES* = .01		
Enjoy doing things with birth father?	13			24			15		
Mean (*SD*)[a]		3.54	(1.45)		3.29	(1.37)		3.87	(.99)
ANOVA test (*df* = 2)				*F* = .91			*ES* = .04		
Birth mother warm/loving to you?	34			47			23		
Mean (*SD*)[a]		4.18	(.94)		4.04	(1.04)		4.13	(1.06)
ANOVA test (*df* = 2)				*F* = .18			*ES* = .00		
Birth father warm/loving to you?	13			25			15		
Mean (*SD*)[a]		3.54	(1.45)		3.72	(1.28)		4.00	(.85)
ANOVA test (*df* = 2)				*F* = .52			*ES* = .02		
Closeness to birth mother?	34			48			23		
Mean (*SD*)[b]		3.24	(1.35)		3.10	(1.21)		3.43	(1.34)
ANOVA test (*df* = 2)				*F* = .52			*ES* = .01		
Closeness to birth father?	13			25			15		
Mean (*SD*)[b]		3.15	(1.41)		2.76	(1.27)		3.00	(1.46)
ANOVA test (*df* = 2)				*F* = .32			*ES* = .02		

Note. [a] Mean scores indicate: strongly disagree = 1, neutral = 3, and strongly agree = 5. [b] Mean scores indicate: not close at all = 1, somewhat = 3, and extremely close = 5. Effect size (ES) for chi-square = Cramer's *V*; the magnitude (when df = 2) indicates that .07 = small, .21 = medium, and .35 = large. Effect size (ES) for ANOVA test = eta squared; the magnitude indicates that .10 = small, .25 = medium, .40 = large.

3.57) and birth fathers ($M = 3.29$).

Adoptees' perceptions regarding how their birth mothers treated them also revealed the highest mean scores in the youngest age group. The youngest age group was most likely to report that their birth mothers treated them warmly and lovingly ($M = 4.18$), followed by the oldest ($M = 4.13$) and the middle ($M = 4.04$) age groups. However, all three mean scores implied that adoptees thought their birth mothers had warmth and love for them, regardless of age group. Conversely, the older adoptees were, the more they felt their birth fathers were warm and loving: 3.54 for ages 18-20, 3.72 for ages 21-23, and 4.00 for ages 24-26.

In the area of closeness, the oldest adoptees reported the highest mean scores for birth mothers; the youngest adoptees reported the highest mean scores for birth fathers. As for closeness to birth mothers, the oldest group had the highest a mean score (3.43), followed by the youngest (3.24), and the middle (3.10) groups. Regarding closeness to birth fathers, the youngest age groups showed the premier score (3.15), followed by the oldest age group (3.00), and those in the middle age group (2.73). Scores of psychological involvement with birth parents were not statistically different by adoptees' age group.

Tables 24 and 25 show frequencies, percentages, and significance tests regarding adoptees' knowledge of, contact with, and involvement with birth parents by age of placement. With the exception of adoptees keeping in touch with their birth fathers, 'knowledge of,' 'ever lived with,' and 'keeping in touch with' birth parents were statistically significant when associated with adoptees' age of placement. The

effect sizes were of large magnitude (.27 to .58). The percentage of knowledge about birth mothers and birth fathers increased by placement age, and these increases were statistically significant, $\chi^2(3, N = 459) = 53.14, p < .05$ for knowledge of birth mothers, $\chi^2(3, N = 459) = 57.57, p < .05$ for knowledge of birth fathers. For 'ever lived with experiences with birth parents,' the percentage increased by age of placement, $\chi^2(3, N = 153) = 52.14, p < .05$ for living with birth mothers, and $\chi^2(3, N = 98) = 11.07, p < .05$ for living with birth fathers.

Adoptees placed before seven months of age showed the lowest percentage for keeping touch with birth parents. About half of the adoptees in the youngest placement age group reported knowing about their birth mothers. About 70% of adoptees in other placement groups reported contacting birth mothers. This distribution was statistically significant, $\chi^2(3, N = 153) = 11.21, p < .05$. Contacting birth fathers increased by placement age, but differences were not as large as for birth mothers. Forty percent of adoptees in the youngest placement group reported contact with birth fathers, over 50% of those adopted between 3-6 years old reported contact with their birth fathers, and 62% those placed at seven years or older reported being in touch with their birth fathers.

Young adults adopted before seven months were least likely to receive financial help from birth parents. Less than 20% of adoptees in this youngest placement group reported receiving living expenses from their birth parents. Twice as many adoptees placed between 7 months and 2 years and between 3 and 6 years received some financial support from their birth mothers compared with adoptees placed before seven months. Nearly four times as many adoptees placed at older ages got financial help

Table 24

Adopted Young Adults' Knowledge about and Contact with Birth Parents by Young Adults' Age at Placement, 2002

	Age at placement												
	6 month			7month-2years			3-6 years			7 years +			
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	Chi-square test (*df* = 3)
Know anything about birth mother?	230			104			52			73			
Yes		95	41.30		56	53.85		36	69.23		64	87.67	$\chi^2 = 53.14$*
No		135	58.70		48	46.15		16	30.77		9	12.33	*ES* = .34
Know anything about birth father?	232			102			53			72			
Yes		50	21.55		36	35.29		26	49.06		49	68.06	$\chi^2 = 57.57$*
No		182	75.45		66	64.71		27	50.94		23	31.94	*ES* = .35
Ever lived with birth mother?	47			36			23			47			
Yes		7	14.89		19	52.78		16	69.57		41	87.23	$\chi^2 = 52.14$*
No		40	85.11		17	47.22		7	30.43		6	12.77	*ES* = .58
Ever lived with birth father?	22			23			16			37			
Yes		3	13.64		8	34.78		7	43.75		21	56.76	$\chi^2 = 11.07$*
No		19	88.36		15	65.22		9	56.25		16	43.24	*ES* = .34
In touch with birth mother?	46			37			23			47			
Yes		23	50.00		27	72.97		19	82.61		36	76.60	$\chi^2 = 11.21$*
No		23	50.00		10	27.03		4	17.39		11	23.40	*ES* = .27
In touch with birth father?	22			23			17			37			
Yes		9	40.91		12	52.17		9	52.94		23	62.16	χ^2=2.54
No		13	59.09		11	47.83		8	47.06		14	37.84	*ES* = .16

Note. Effect size (ES) = Cramer's *V*; the magnitude (when *df* = 3) indicates that .06 = small, .17 = medium, and .29 = large.
*$p < .05$

Table 25

Adopted Young Adults' Involvement with Birth Parents by Adopted Adults' Age at Placement, 2002

	Age group												Chi-square & ANOVA Tests ($df = 3$)
	6 month			7month-2years			3-6 years			7 years +			
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	
Birth mother contributes to living expense?	23			27			19			36			
Yes		4	17.39		9	33.33		6	31.58		9	25.00	χ^2=1.91
No		19	82.61		18	66.67		13	68.42		27	75.00	*ES* = .13
Birth father contributes to living expense?	9			12			9			23			
Yes		1	11.11		5	41.67		3	33.33		10	43.48	χ^2=3.18
No		8	88.89		7	58.33		6	66.67		13	56.52	*ES* = .24
Enjoy doing things with birth mother?	21			27			19			35			*F*=1.37
Mean (*SD*) [a]		3.81 (1.21)			3.30 (1.32)			3.89 (.94)			3.71 (.99)		*ES* = .04
Enjoy doing things with birth father?	9			12			9			22			*F* = .23
Mean (*SD*) [a]		3.56 (1.24)			3.25 (1.54)			3.56 (1.67)			3.63 (1.05)		*ES* = .01
Birth mother warm/loving to you?	22			27			19			36			*F* = .98
Mean (*SD*) [a]		4.18 (1.18)			3.96 (.94)			4.42 (.67)			4.00 (1.10)		*ES* = .03
Birth father warm/loving to you?	9			12			9			23			*F* = .06
Mean (*SD*) [a]		3.78 (.97)			3.67 (1.44)			3.89 (1.36)			3.74 (1.18)		*ES* = .00
Closeness to birth mother?	23			27			19			36			*F* = 1.28
Mean (*SD*) [b]		3.22 (1.44)			2.89 (1.45)			3.63 (1.07)			3.25 (1.11)		*ES* = .04
Closeness to birth father?	9			12			9			23			*F* = .70
Mean (*SD*) [b]		2.67 (1.50)			2.67 (1.56)			3.44 (1.42)			2.96 (1.15)		*ES* = .04

[a] Mean scores indicate: strongly disagree = 1, neutral = 3, and strongly agree = 5; [b] Mean scores indicate: not close at all = 1, somewhat = 3, and extremely close = 5. ES for chi-square test = Cramer's *V*; the magnitude (when $df = 3$) indicates that .06 = small, .17 = medium, and .29 = large. ES for ANOVA test = eta squared; the magnitude indicates that .10 = small, .25 = medium, .40 = large.

from their birth fathers, as compared to those placed before seven months (see Table 25).

In terms of the psychological involvement with birth parents, the mean scores of adoptees in the youngest placement group were not the lowest. Rather, in all three areas of enjoying doing things with birth mothers, perception of warm and loving feelings from birth parents, and closeness to birth parents, adoptees placed in the sensitive period for attachment relationship (7 months-2 years) showed the lowest scores. Overall, adoptees placed after the sensitive period (3-6 years) showed the highest scores, except in one instance, 'enjoying activities with birth fathers.' However, no differences in involvement by age of placement were statistically significant (see Table 25).

Longitudinal Changes between Adolescence and Young Adulthood

In order to examine whether there were changes in adoptees' knowledge about, contact with, and involvement with birth parents, the responses of the 436 adoptees included in both Wave I (1995) and Wave III (2002) were compared with each other. Four questions in both waves regarding knowledge of, contact with, ever lived with, and closeness to birth parents were used for analyses.

Changes in Knowledge, Contact, and Closeness (Hypothesis 2-1)

Table 26 shows frequencies, percentages, and significance test statistics of the 436 adoptees' knowledge of, contact with, and closeness to birth parents in both Wave I and III. Adoptees' knowledge regarding birth mothers and birth fathers in

Table 26

Adopted Adolescents' Knowledge about, Contact with, and Closeness to Birth Parents in 1995 and 2002

	1995			2002		
Questions	*n*	*f*	%	*n*	*f*	%
Know anything about birth mother?	436			436		
Yes		200	45.87		234	53.67
No		236	54.13		202	46.33
Chi-square test (*df* = 1)		$\chi^2 = 110.99$*		*ES* = .50		
Know anything about birth father?	436			436		
Yes		107	24.54		154	35.32
No		329	75.46		282	64.68
Chi-square test (*df* = 1)		$\chi^2 = 115.75$*		*ES* = .52		
Ever lived with birth mothers?	200			143		
Yes		119	59.50		78	54.55
No		81	40.50		65	45.45
Chi-square test (*df* = 1)		$\chi^2 = 47.54$*		*ES* = .64		
Ever lived with birth fathers?	106			93		
Yes		52	49.06		37	39.78
No		54	50.94		56	60.22
Chi-square test (*df* = 1)		$\chi^2 = 18.47$*		*ES* = .55		
Contact with birth mother?	144			142		
Yes		82	56.94		98	69.01
No		62	43.06		44	30.99
Chi-square test (*df* = 1)		$\chi^2 = 22.93$*		*ES* = .46		
Contact with birth father?	81			94		
Yes		45	55.56		49	52.13
No		36	44.44		45	47.87
Chi-square test (*df* = 1)		$\chi^2 = 10.52$*		*ES* = .41		
Closeness to birth mothers	143			98		
Mean (*SD*)[a]		2.25	(1.45)		3.15	(1.27)
t test (*df* = 79)		*t* = -2.70*		*ES* = -.31		
Closeness to birth fathers	80			49		
Mean (*SD*)[a]		2.39	(1.37)		2.88	(1.35)
T test (*df* = 38)		*t* = .61		*ES* = -.18		

[a] Mean scores indicate: not close at all = 1, somewhat = 3, and extremely close = 5. Effect Size (ES) for 2x2 chi-square test = phi-coefficient; the magnitude indicates that .10 = small, .30 = medium, and .50 = large. ES for dependent means *t* test = M (means of differences)/ S (standard deviation of differences); the magnitude indicates that .20 = small, .50 = medium, and .80 = large.

*$p < .05$

Wave III had statistically significantly increased, compared to in Wave I; those changes were statistically significant, $\chi^2(1, N = 436) = 110.99, p < .05$ for birth mothers and $\chi^2(1, N = 436) = 115.75, p < .05$ for birth fathers. Effect size indicated that knowledge of each birth parent increased substantially (.50 for birth mothers and .52 for birth father).

Overall, the percentage of 'ever lived with birth mother or birth father' in Wave III decreased, and this decrease was statistically significant, $\chi^2(1, N = 117) = 47.54, p < .05$ for birth mothers, and $\chi^2(1, N = 61) = 18.47, p < .05$ for birth fathers. Effect sizes for this area were the largest among other areas (.64 for birth mothers and .55 for birth fathers).

Among the subgroup of adopted adolescents who knew something about their birth parents, approximately 60% reported making contact with them in 1995, compared to 70% of adoptees contacting with birth mothers seven years later. Although contacts with birth mothers increased in Wave III, contacts with birth fathers slightly decreased. Those changes were statistically significant, $\chi^2(1, N = 110) = 22.93, p < .05$ for birth mother and $\chi^2(1, N = 61) = 10.52, p < .05$ for birth fathers. Effect sizes were moderate for contacting a birth parent by wave of data collection (.46 for birth mothers and .41 for birth father).

Mean scores of closeness to birth parents increased in Wave III in comparison to Wave I. Adopted adolescents in Wave I reported feeling "not very close" to birth parents ($M = 2.25$ for birth mothers, and $M = 2.39$ for birth fathers). Seven years later, as young adults, adoptees felt "somewhat close" to birth mothers ($M = 3.15$) resulting in

a statistically significant difference, t (79) = 2.70, $p < .05$. The mean score of closeness to birth fathers also increased in Wave III, but was still between "not very close" and "somewhat close."

Patterns of Knowledge about and Contact with Birth Parents

When examining the adoptees' report of knowledge about and contact with birth parents over the seven years between Wave I and Wave III, four patterns emerged (see Tables 27-28): *Never had knowledge/contact (*no knowledge/contact was reported in either of the two waves), *Knowledge/Contact lost(*knowledge/contact was reported in Wave I but not at Wave III), *Knowledge/Contact gained/initiated* (no knowledge/contact was reported in Wave I but acquired/initiated knowledge/contact by Wave III), and *Knowledge/Contact at both waves (*knowledge/contact was reported at both waves). Detailed information about this is presented in tables A-21 and A-22 in Appendix.

The numbers in the first row of tables 27 and 28 indicate the percentage of adoptees in the aforementioned four patterns, being calculated with 436 adoptees as a denominator. The rest of tables displayed detailed changes in each pattern, and the percentage in other columns was calculated based on the number of adoptees in each pattern (refer to the column "Total").

Approximately 35% of adoptees (n = 154) reported never having any knowledge of either of their birth parents. In the *Knowledge lost* pattern, 8.5% of the 436 adoptees (n = 37) reported to have no knowledge of her/him in Wave III, although they reported

Table 27

Patterns of Adoptees' Knowledge about Their Birth Parents over 7 Years

		Knowledge over 7 years			
Patterns and changes	Total	Never had knowledge (n = 154)	Knowledge lost (n = 37)	Knowledge gained (n = 71)	Knowledge at both waves (n = 174)
% of pattern of adoptees' knowledge about birth parents over 7 years	436	35.32	8.49	16.28	39.91
Changes in detail					
Both at Wave I (W1) to neither at Wave III (W3)	37		13 (35.14%)		
Birth mother (BM) only at W1 to neither at W3	37		22 (59.46%)		
Birth father (BF) only at W1 to neither at W3	37		2 (5.41%)		
Neither at W1 to both at W3	71			34 (47.89%)	
Neither at W1 to BM only at W3	71			37 (52.11%)	
Neither at W1 to BD only at W3	71			0	
No change	174				127 (72.99%)
Both at W1 to BM/ BF at W3	174				10 (5.75%)
BM/BF at W1 to BF/BM at W3	174				1 (.57%)
BM/BF at W1 to both at W3	174				36 (20.69%)

Note. Never had knowledge = no knowledge was reported in either of the two waves. *Knowledge lost* = knowledge was reported for Wave I but not by Wave III. *Knowledge gained* = no knowledge was reported in Wave I but acquired knowledge by Wave III. *Knowledge at both waves* = knowledge was reported at each of two waves.

knowing about one of their birth parents in Wave I. Among the 37 adoptees, around 35% of them lost contact with both birth parents, but the greater part of this pattern consisted of those who lost contact with their birth mothers (about 60%). Sixteen percent (n = 71) of 436 adoptees were categorized *Knowledge gained* because they did not know about either of their birth parents in Wave I but came to be aware of at least one of them over the seven-year period. Among them, 48% gained knowledge of both birth parents, and 52% acquired knowledge for their birth mothers only. Lastly, approximately 40% (n = 174) reported that they had information about at least one of their birth parents in each Wave. In this pattern, most adoptees (73%) reported no change in their knowledge. In addition, 20% reported having knowledge concerning both birth parents, despite knowing information about just one birth parent in Wave I. Six percent in this pattern lost contact with either birth mothers or birth fathers by Wave III, although they knew something about both birth parents previously (see Table 27). Table 28 provides information about four patterns regarding adoptees' contact with birth parents. Approximately 70% of adoptees reported having no contact with either of their birth parents and 30% of adoptees were in contact with one or both birth parents. Nearly 5% (n = 21) reported that they stopped contacting at least one birth parent during the seven-year period, now contacting neither of them. In this *Contact Stopped* pattern, 24% of adoptees lost contact with both their birth parents, with 48% of them no longer contacting their birth mothers, and the rest of them (about 29%) losing contact with their birth fathers. Eight percent of adoptees (n = 36) reported initiating contact with one birth parents or both of them after Wave I, although they contacted

Table 28

Patterns of Contact between Adoptees and Their Birth Parents over 7 Years

	Contact over 7 years				
Patterns and changes	Total	Never had contact (n = 302)	Contact stopped (n = 21)	Contact initiated (n = 36)	Contact at both waves (n = 77)
% of pattern of contact between adoptees and birth parents over 7 years	436	69.27	4.82	8.26	17.66
Changes in detail					
Both at Wave I (W1) to neither at Wave III (W3)	21		5 (23.81%)		
Birth mother (BM) only at W1 to neither at W3	21		10 (47.62%)		
Birth father (BF) only at W1 to neither at W3	21		6 (28.57%)		
Neither at W1 to both at W3	36			9 (25.00%)	
Neither at W1 to BM only at W3	36			24 (66.67%)	
Neither at W1 to BD only at W3	36			3 (8.33%)	
No change	77				62 (80.52%)
Both at W1 to BM/ BF at W3	77				5 (6.49%)
BM/BF at W1 to BF/BM at W3	77				4 (5.19%)
BM/BF at W1 to both at W3	77				6 (7.79%)

Note. Never had contact = no contact was reported in either of the two waves. *Contact stopped* = contact was reported for Wave I but stopped by Wave III. *Contact initiated* = no contact was reported in Wave I but started by Wave III. *Contact at both waves* = contact was reported at each of two waves.

neither of them in Wave I. Among adoptees who initiated contact with their birth mothers and birth fathers (*Contact initiated* pattern), 25% of them contacted both birth parents, 67% of them contacted just their birth mothers, and the rest (8%) just their birth fathers. Finally in both interviews, approximately 18% of the 436 adoptees reported contacting at least one of their birth parents. In this *Contact at both waves* pattern, most of them (81%) reported no change in contact with birth parents between 1995 and 2002. However, about 6% lost connection with one of their birth parents and 8% of them gained additional contact with birth parent. In addition, 5% of them lost contact with a birth parent but initiated contact with the other birth parent from Wave I.

In certain cases, adoptees know about/contact both birth parents or only one of them. Figure 1 shows the percentages of adoptees who knew about their birth parents in 1995 and in 2002. In 1995, 22% of adopted adolescents reported knowing something about both birth mothers and fathers, with this percentage increasing to 33% in 2002. In contrast, the percentage of those who had information concerning just their birth mothers slightly declined from 24% to 21% during the seven-year period. Only 2.5% of adopted adolescents reported knowing about their "birth fathers only," with the same percentage seven years later. The percentage of adopted adolescents who never knew anything about either of their birth parents dropped from 52% to 44% between 1995 and 2002.

To further examine just those who knew something about their birth parent(s) in Wave I ($n = 211$), responses in Wave III were analyzed (see Figure 2). In this subgroup, the percentage of adoptees' awareness of birth fathers did not change at all seven years

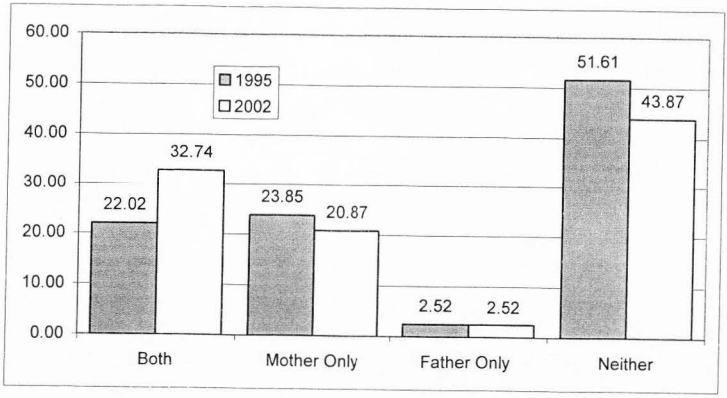

Figure 1. Percentage of adoptees' reporting knowledge of birth parents in 1995 and 2002 ($N = 436$).

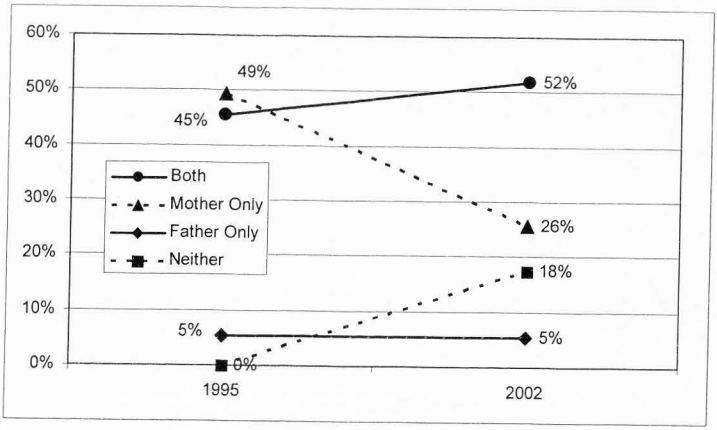

Figure 2. Percentage of adoptees' knowledge of birth parents in 2002 among those who knew about birth parents in 1995 ($N = 211$).

later. The percentage having knowledge about "mother only" dropped from 49% to 26%. The proportion of adoptees who knew something about both birth parents increased from 45% to 52%, by 2002. Finally, 18% reported knowing about neither birth mothers nor birth fathers in 2002 although they reported knowing something about at least one of their birth parents in 1995.

The percentage of the 436 adopted persons who made contact with birth parents at both waves was also analyzed in detail. Figure 3 shows that about 25% of adoptees contacted at least one birth parent in 1995 and 2002. Among those who had some contact, the adoptees who were in contact with just birth mothers made up the highest percentage. Less than 10% of adoptees reported having contact with both birth parents in each wave (7% in Wave I and 8% in Wave III). Approximately 15% of adoptees reported contacting just birth mothers in 2002, increasing from 12% in 2002. The percentage of adoptees that were in contact with just birth fathers was less than 4% in both 1995 and 2002.

Ninety-eight adoptees who reported making contact with at least one birth parent in 1995 were further analyzed. Overall, adoptees who contacted their birth parent(s) decreased seven years later. As shown in Figure 4, among adoptees who reported contacting birth parent(s) in 1995, 21% reported contacting neither of them in 2002. The percentages of contact in the other categories, which were 'both,' 'mother only,' and 'father only,' decreased as adoptees became older.

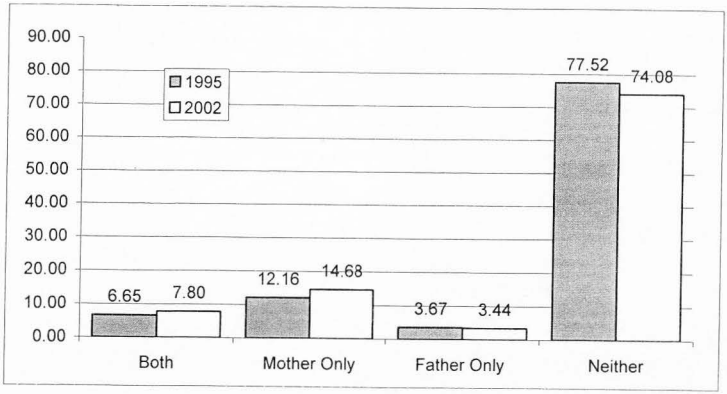

Figure 3. Percentage of adoptees' reporting contact with birth parents in 1995 and 2002 ($N = 436$).

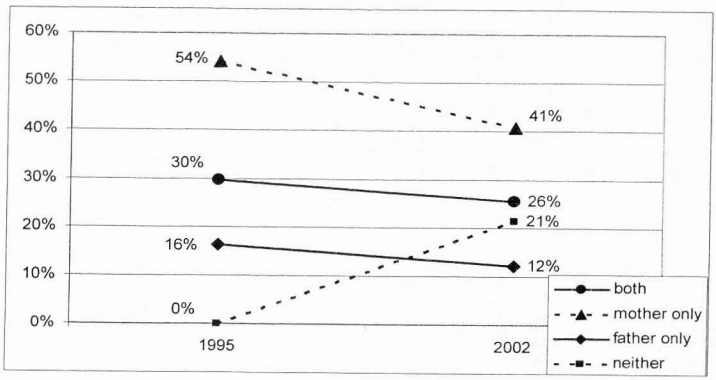

Figure 4. Percentage of adoptees' contact with birth parents in 2002 among those who reported contact with birth parents in 1995 ($N = 98$).

Knowledge about and Contact with Birth Parents in 2002 by Age, Gender, Age of Placement, Abuse and Neglect, and Foster Care Experience (Hypothesis 2-2)

Tables 29-32 show beta estimates, standard errors, *z* scores, and calculated Odds Ratio (OR) from GEE models concerning adoptees knowledge of and contact with birth mothers and birth fathers by predictors (i.e., age, gender, age of placement, abuse and neglect, foster care experience, and time as wave). Estimates of logistic regression of GEE model in this study are equivalent to coefficients of the more familiar logistic regression. The coefficient for a predictor variable estimates the change in the dependent variable for any one-unit increase in the independent variable. For a much easier interpretation, the OR was used. The OR in logistic regression analysis indicates the change in the odds of membership in the target group for a one-unit increase in the predictor. When the OR is larger than 1, it means that a predictor increases individually the membership of the dependent variable (e.g., having knowledge of birth mothers); when the OR is less than 1, a predictor decreases the membership of the group designated as 1 of the dependent variable. Because the SAS package does not provide an OR in this analysis, ORs were calculated based on beta coefficients.

Adoptees' knowledge about birth mothers was statistically significantly affected by gender, age of placement, foster care, and time, respectively, when other independent variables were controlled (Table 29). Females were more likely than males to know about birth mothers. Being male reduced the probability of knowledge of birth mothers 40% compared to being female. In addition, those placed in foster care homes once were 40% less likely to know about birth mothers than those who were never

Table 29

Logistic Regression with GEE Model on Adoptees' Knowledge about Their Birth Mothers (N = 436)

Variable	Estimate	SE	*Z* score	Calculated OR
Intercept	1.42	1.38	1.03	4.15
Age in 1995	0.33	0.18	1.77	1.38
Age in 2002	-0.31	0.18	-1.70	0.74
Gender (reference = female)				
Male	-0.58	0.18	-3.19*	0.56
Age of placement (reference = adopted before 7 months)				
Age adopted b/w 7 months and 2 years	0.64	0.23	2.83*	1.90
Age adopted b/w 3-6 years	1.22	0.30	4.04*	3.37
Age adopted 7years and over	2.10	0.35	6.06*	8.19
Abuse and neglect (reference = never)				
Abused and neglected	0.11	0.36	1.12	1.11
Foster care (reference = never)				
Foster care once	-0.52	0.23	-2.28*	0.60
Foster care twice and more	0.23	0.39	0.59	1.25
Time (reference = Wave 3)	-0.37	0.11	-3.27*	0.69

*$p < .05$

placed at a foster home. About 30% fewer adopted adolescents were likely to know about their birth mothers as adoptees in young adulthood.

Age of placement was strongly related to knowledge about birth mothers. Compared to those adopted before seven months of age, those who were adopted at seven years or older were eight times as likely to report knowing something about their birth mothers.

Age of placement and whether adoptees were in adolescence or in young adulthood were associated with the probability of adoptees' knowing something about their birth fathers (see Table 30). Similar to birth mothers, those who were adopted

Table 30

Logistic Regression with GEE Model on Adoptees' Knowledge about Their Birth Fathers (N = 436)

Variable	Estimate	SE	*Z* score	Calculated OR
Intercept	-0.07	1.71	-0.04	0.94
Age in 1995	0.21	0.22	0.99	1.24
Age in 2002	-0.20	0.22	-0.92	0.82
Gender (reference = female)				
Male	-0.28	0.20	-1.43	0.75
Age of placement (reference = adopted before 7 months)				
Age adopted b/w 7 months and 2 years	0.87	0.25	3.45*	2.39
Age adopted b/w 3-6 years	1.22	0.31	3.89*	3.40
Age adopted 7years and over	1.76	0.33	5.42*	5.83
Abuse and neglect (reference = never)				
Abused and neglected	0.50	0.34	1.49	1.65
Foster care (reference = never)				
Foster care once	-0.49	0.26	-1.87	0.61
Foster care twice and more	-0.06	0.36	-0.16	0.94
Time (reference = Wave 3)	-0.59	0.12	-4.96*	0.55

*$p < .05$

between 7 months and 2 years and 3-6 years were about two or three times more likely to know about birth fathers than those placed before 7 months old. Adoptees who were placed at 7 years or older were six times more likely to know something about their birth fathers. When adoptees became young adults, more of them reported knowing something about their birth fathers; adolescents were 45% less likely to know about their birth fathers than adoptees in young adulthood.

Table 31 shows the probability of making contact with birth mothers by each predictor. Age of placement was again a strong, statistically significant predictor of the probability of contacting birth mothers. Placement after 7 months increased the probability of contact with birth mothers about 4.5 times, compared to those who were

Table 31

Logistic Regression with GEE Model on Adoptees' Contact with Their Birth Mothers (N=436)

Variable	Estimate	SE	*Z* score	Calculated OR
Intercept	-1.80	2.54	-0.71	0.17
Age in 1995	-0.04	0.31	-0.12	0.96
Age in 2002	0.12	0.32	0.38	1.13
Gender (reference = female)				
Male	-0.56	0.32	-1.75	0.57
Age of placement (reference = adopted before 7 months)				
Age adopted b/w 7 months and 2 years	1.52	0.42	3.61*	4.55
Age adopted b/w 3-6 years	2.07	0.48	4.33*	7.90
Age adopted 7years and over	1.80	0.48	3.75*	6.08
Abuse and neglect (reference = never)				
Abused and neglected	-0.41	0.06	-0.81	0.66
Foster care (reference = never)				
Foster care once	-1.18	0.42	-2.83*	0.31
Foster care twice and more	-0.88	0.44	-2.01*	0.42
Time (reference = Wave 3)	-0.56	0.22	-2.59*	0.57

*$p < .05$

placed as infants (before seven months). The OR for those who were placed between 3–6 years was the largest, which was almost eight. Foster care experience reduced contact with birth mothers. Adoptees who were once placed in foster care were 70% less likely to have contact with birth mothers, and those placed twice or more were 60% less likely to have contact with birth mothers than those who never experienced foster care. Being in young adulthood increased the probability of contacting birth mothers. Adopted adolescents were approximately 40% less likely than young adults to have contact with birth mothers.

For contact with birth fathers, age of adoption placement was the only statistically significant predictor. Adoptees placed between 7 months and 2 years or 7

years or older were 3.5 times more likely to have contact with birth fathers, compared with those placed earlier than 7 months. However, adoptees placed between 3 and 6 years were not statistically different in the probability of contacting birth fathers from placed during infancy (see Table 32).

Transitional Adjustment

The last objective of this study was to examine whether adoptees' knowledge of and contact with birth parents in adolescence were associated with transitional adjustment (i.e., attending college and forming romantic relationships) in young adulthood. Because the dependent variables were dichotomous variables, logistic

Table 32

Logistic Regression with GEE Model on Adoptees' Contact with Their Birth Fathers (N = 436)

Variable	Estimate	SE	*Z* score	Calculated OR
Intercept	-3.90	3.58	-1.09	0.02
Age in 1995	-0.43	0.49	-0.88	0.65
Age in 2002	0.47	0.49	0.95	1.59
Gender (reference = female)				
Male	-0.39	0.35	-1.09	0.68
Age of placement (reference = adopted before 7 months)				
Age adopted b/w 7 months and 2 years	1.27	0.51	2.49*	3.57
Age adopted b/w 3-6 years	0.97	0.54	1.78	2.63
Age adopted 7years and over	1.27	0.56	2.26*	3.56
Abuse and neglect (reference = never)				
Abused and neglected	-0.30	0.58	-0.52	0.74
Foster care (reference = never)				
Foster care once	-0.12	0.54	-0.22	0.89
Foster care twice and more	-0.22	0.55	-0.40	0.80
Time (reference = Wave 3)	-0.01	0.26	-0.03	0.99

*$p < .05$

regression analyses were used for predicting the odds of the likelihood of attending college or forming romantic relationships in young adulthood.

Adoptees' knowledge about and contact with birth mothers/fathers were combined into a variable having four levels used as predictors: (a) those who did not know their birth mothers/fathers; (b) those who did know about birth mothers/fathers but their birth parents were dead; (c) those who knew about their birth mothers/fathers but they reported no contact with them; and (d) those who had contact with their birth mothers/fathers. This variable was recoded as a series of dummy variables, placing the group that had contact with their birth mothers/fathers as a reference category. Additionally, age in 1995, gender, abuse and neglect, foster care placement, same as age in 1995 and age of adoptive placement were selected as control variables. All control variables except age in Wave I were also recoded as dummy variables. Two logistic regression analyses for each dependent variable were conducted; in the first model, only variables regarding the level of knowledge of and contact with birth mothers and birth fathers were included; the second model included other adoption-related variables and demographic variables for discerning the effect of predictors. The coefficient for the predictors (b), standard error (SE), Odds Ratio (OR), the 95% Confidence Intervals (CI) for each OR, and criteria for a goodness for fit of the model are presented in tables (33 and 34).

Table 33 presents the results regarding whether adoptees' knowledge of and contact with a birth parent affect adoptees' college attendance. The goodness-of-fit

Table 33

Logistic Regression for Attended College by Adoptees' Knowledge of and Contact with Birth Parents (N = 436)

	Model 1			Model 2		
Variable	b (SE)	OR	CI	b (SE)	OR	CI
Knowledge and contact with birth mother (reference = contact with mom)						
Don't know birth mom	.68 (.30)	1.98*	1.09-3.57	.41 (.33)	1.50	.79-2.85
Know birth mom but she was not alive	.30 (.39)	1.34	.63-2.86	.06 (.41)	1.06	.48-2.36
Know birth mom but had no contact	.30 (.37)	1.35	.67-2.78	.23 (.38)	1.26	.60-2.66
Knowledge and contact with birth father (reference = contact with dad)						
Don't know birth dad	.95 (.39)	2.58*	1.20-5.53	.82 (.40)	2.26*	1.03-4.97
Know birth dad but he was not alive	1.22 (.56)	3.37*	1.13-10.12	1.07 (.57)	2.90	.94-8.95
Know dad but had no contact	.40 (.50)	1.49	.55-3.99	.34 (.52)	1.45	.51-3.86
Age of placement (reference = adopted before 7 months)						
Adopted at 7 month-2 years				-.55 (.26)	.58*	.34-.97
Adopted at 3 -6 years				-.52 (.36)	.59	.29-1.20
Adopted at 7years+				-.32 (.39)	.73	.34-1.56
Abuse and neglect (reference = never)				-.41 (.39)	.66	.31-1.42
Foster care (reference = never)						
One time				.29 (.26)	1.34	.80-2.23
Two times				-.34 (.41)	.71	.32-1.58
Gender (reference = female)				.03 (.21)	1.03	.68-1.56
Age at Wave I				.07 (.06)	1.07	.95-1.20
Intercept	-1.18 (.36)			-1.74 (1.02)		
Model	-2LL chi-square = 25.12* (df = 6) % Concordant = 48.8			-2LL chi-square = 56.10* (df = 14) % Concordant = 70.4		

*$p < .05$

statistics for the first model, which is the likelihood of attending college predicted by the level of knowledge about and contact with birth mothers or birth fathers, showed that this model rejected the null hypotheses (all of the independent variables have coefficients equal to zero) at the level of $p < .05$. Attending college was correctly predicted by the first model for nearly 49% of cases. Less knowledge of or contact with a birth parent increased the likelihood of attending college by adoptees, compared to those who had contact with birth parents. Adoptees who did not know their birth mothers in adolescence were two times more likely to attend college than those who had contact with their birth mothers in adolescence. Adoptees who did not know about their birth fathers in adolescence were 2.6 times more likely to go to college than those who had contact with birth fathers in adolescence. Those who knew something about birth fathers, but whose fathers who were dead, were three times more likely to attend college than those who had contact with birth fathers in adolescence.

In Model 2, when age of placement, abuse and neglect, foster care, gender, and age at Wave I were controlled, the effect of knowledge about and contact birth mothers/fathers became weaker. Nevertheless, adoptees who did not know about their birth fathers were twice as likely to attend college as those who contacted birth fathers when other variables were controlled. Among the control variables, the age of placement was the only, statistically, significant variable. Overall, older age of adoption was negatively associated with attending college, compared to those who were adopted before seven months old. The odds of attending college decreased 42% when adoptees were placed between 7 months and 2 years old, compared to those placed before seven

months old. The second model classified correctly 67% of cases, and the model has a goodness of fit statistic at $p < .05$.

Table 34 presents the results of logistic regression concerning how adoptees' knowledge of and contact with a birth parent in adolescence was associated with cohabitation or marriage in young adulthood. The first model regarding formation of romantic relations correctly predicted 47% of the observations and had the goodness-of-fit statistic which was statistically significant at the level of $p < .05$. Having no knowledge of, less knowledge of, or no contact with birth parents generally decreased the odds of adoptees' cohabitation or marriage in young adulthood, except in cases where they knew their birth mothers, but their mothers were not alive. Among adoptees placed at an older age, only those placed between seven months and two years had statistically significantly lower odds of having married or cohabited, 50% less likely than those placed before seven months.

The percentage of formation of romantic relationship, correctly predicted by Model 2, was 70%; a goodness-of-fit statistic indicated that this model was appropriate. The likelihood of forming romantic relations by the level of knowledge of and contact with a birth parent were not changed, compared to Model 1. The level of knowledge of and contact with a birth parent were not statistically significantly associated with formation of adoptees' cohabitation or marriage in young adulthood, when other variables were controlled. Instead, age of placement and age in Wave I were statistically significant variables. Adoptees who were placed between seven months and two years old were two times more likely to cohabit or get married than those who were placed

Table 34

Logistic Regression for Formation of Romantic Relations by Adoptees' Knowledge of and Contact with Birth Parents (N = 434)

	Model 1			Model 2		
Variable	b (SE)	OR	CI	b (SE)	OR	CI
Knowledge and contact with birth mother (reference = contact with mom)						
Don't know birth mom	-.70 (.31)	.50*	.27-.91	-.58 (.35)	.56	.28-1.11
Know birth mom but she was not alive	.61 (.43)	1.84	.79-4.27	.59 (.47)	1.80	.72-4.51
Know birth mom but had no contact	-.15 (.37)	.86	.41-1.78	-.13 (.40)	.88	.40-1.90
Knowledge and contact with birth father (reference = contact with dad)						
Don't know birth dad	-.40 (.40)	.67	.31-1.46	-.33 (.43)	.72	.31-1.68
Know birth dad but he was not alive	-.95 (.58)	.39	.12-1.22	-1.03 (.63)	.36	.10-1.23
Know dad but had no contact	-.71 (.50)	.49	.18-1.32	-.64 (.53)	.53	.19-1.49
Age of placement (reference = adopted before 7 months)						
Adopted at 7 month-2 years				.65 (.28)	1.92*	1.10-3.33
Adopted at 3 -6 years				-.51 (.37)	.60	.29-1.25
Adopted at 7years+				.70 (.43)	2.01	.87-4.63
Abuse and neglect (reference = never)				-.34 (.42)	.71	.31-1.63
Foster care (reference = never)						
One time				-.43 (.27)	.65	.38-1.11
Two times				.25 (.44)	1.28	.55-3.03
Gender (reference = female)				-.34 (.22)	.71	.46-1.10
Age at Wave I				.27 (.06)	1.30*	1.15-1.48
Intercept	1.07 (.36)			-3.21 (1.06)		
Model	-2LL chi-square = 20.52* (*df* = 6) % Concordant = 46.9			-2LL chi-square = 56.10* (*df* = 14) % Concordant = 70.4		

*$p < .05$

before seven months of age. For each year of age, the odds ratio of formation of romantic relations increased by 30%.

CHAPTER V

DISCUSSION

Adoption has been practiced confidentially for a long time in the United States. Basic factual information, such as how many adoptees know their birth mother or father, or how many adoptees keep in touch with her/him has not been known. Due to changing adoption practices (i.e., open adoption and special needs adoption), better information regarding adoptees at various ages has become available. The National Longitudinal Study of Adolescent Health (Add Health), initiated in 1994, provides rich health-related information dealing with U.S. adolescents in general. The Add Health data make it possible to examine adoption issues because important adoption related questions were included with a national sample. This study was conducted to describe adoptees' knowledge about and contact with birth parents as the main objective. Variables associated with adoptees' knowledge about and contact with birth parents, and how this knowledge and contact are related to life events in the long term, also were studied.

Hypothesis 1-1

The hypothesis, "adoptees' knowledge of, contact with, and involvement with their birth parents will differ by birth parents' gender in adoptees' adolescence and young adulthood," was tested using bivariate analyses. This hypothesis was supported for most measures; adoptees' knowledge about and contact with birth mothers were significantly different from birth fathers' in adolescence (1995) and in young adulthood (2002).

Adoptees knew more about and had more contact with birth mothers than birth fathers in adolescence and in young adulthood. Adopted adolescents were almost twice as likely to know about their birth mothers as birth fathers in 1995. Seven years later, the percentage who knew something about birth mothers and fathers increased; the difference between knowledge about birth mothers and fathers was reduced, but remained statistically significant. The effect size of knowledge about birth parents in 2002 was increased compared to in 1995, but in both years there was a large effect size (.50 and .58, respectively). Knowledge about birth mothers and birth fathers was highly associated with each other. This association in knowledge between birth mothers and birth fathers was stronger in young adulthood (2002) than in adolescence (1995).

Although adoptees were much more likely to know something about their birth mothers than fathers, there was little difference between the percentage of knowing specific information regarding their birth parent(s): whether they were alive or not, birthplace, education level, disability, and smoking habits. In addition, a higher percentage of adopted adolescents were more likely to report valid answers (i.e., "yes" or "no") about their birth fathers than their birth mothers.

Among adoptees who knew something about a birth parent, more than half reported 'having ever lived with a birth parent' (approximately 60% for birth mothers and 50% for birth fathers) in adolescence. This seems to imply that 40-50% of adoptees knew something about their birth parents, but had not lived with them. Adoptive parents or an adoption agency might have given adoptees knowledge of birth mothers or fathers. Considering that nearly half of adoptees in this study were adopted before seven months

of age, those who reported living with a birth parent were probably adopted at an older age. Someone who was adopted in infancy could have reported living with a birth parent if reunions occurred as a result of adoption disruption, but this rarely occurred in this sample.

It is difficult to identify a general pattern of contact between adopted adolescents and their birth parents because questions about contact behaviors were posed "within the last 12 months." These questions did not give enough information concerning when the contacts were initiated, or how contacts with birth parents had changed. Adoptees reported communication by phone, by mail, or in person, twice as often as staying overnight. Approximately 60% of adoptees who knew something about birth mothers and birth fathers who were alive communicated with them, and the percentage (about 30%) was similar in staying overnight with either birth mothers or birth fathers. Considering that nearly 50% of adoptions occurred before 7 months of age, 60% of the sample who contacted birth parents in direct ways and 30% of them stayed overnight with them were by no means a small proportion. It is probably the case that adoptees placed at older ages were most involved with contacting birth parents. When contacts occurred, data showed that the main topic of conversation was about the adoptees' school or personal life.

The percentage of adoptees who contacted birth mothers increased from 1995 to 2002, while the percentage of those contacting birth fathers decreased, compared to those in 1995. The effect size of association between contacting birth mothers and birth fathers over seven years was reduced from a large effect (.49) to a medium effect (.24).

These effect sizes imply that if adoptees contacted their birth mothers in adolescence, they were also likely to contact birth fathers; however, the reduced effect size indicates that this association lessened in young adulthood.

Increased percentage differences and the reduced effect size between birth mothers and birth fathers in adoptees' contact with them in 2002 may be caused by (1) changes in adoptees' life environment, and/or (2) conditions promoting successful contact/reunion. Longitudinal studies regarding open adoption (Berry et al., 1998; Siegel, 2003) reported various open adoption scenarios. Contact before young adulthood might happen in a situation where the adoptive parents have more control, or under mandatory supervision of an adoption agency. Various factors including adoptees' independence, adoptive parents' satisfaction, similar expectations among the adoption triad, motivation of reunion, or geographic closeness alter these circumstances (Gladstone & Westhues, 1998). As a result of such conditions, the adoptees in this sample were more likely, in young adulthood, to keep in touch with their birth mothers than birth fathers.

There were greater similarities in adoptees' 'closeness toward their birth mothers and birth fathers,' compared to 'knowledge of and contact with' them. Differences in feelings of closeness to birth mothers and fathers were not statistically significant; hypothesis 1-1, which is adoptees' closeness to birth mothers will be different from closeness to birth fathers, was rejected. Although little has been known about adoptees' closeness to birth parents, the result in Wave I (1995), which is higher mean scores in closeness toward birth fathers than birth mothers, was somewhat

unexpected because more adoptees reported knowing about their birth mothers than their birth fathers. There may be two explanations for this result. When adoptees do not know anything about their birth parents, they more easily could form fantasies about them. That is, they imagine that their birth parents are really lofty people and their adoptive parents merely substitutes (Nickman, 1996). Consistent with this reasoning, males had less knowledge of their birth parents and thus male adoptees would have a friendlier feeling toward birth parents than females. However, the question regarding closeness toward birth parent(s) was asked to those who knew that their birth parent(s) was alive; thus males' fantasies about their birth parent(s) might not be a good explanation. Another possibility could be that adoptees in adolescence tended to be more generous to their birth fathers than birth mothers. Adoptees may have felt more rejection from their birth mothers than from their birth fathers, because birth mothers are expected to be the primary caregivers (Wrobel et al., 1996). This stereotype could lessen by young adulthood. When they enter young adulthood, adoptees might better understand the context surrounding their birth mothers deciding to place them for adoption.

Overall, adoptees' feeling of closeness to birth parents increased over time between 1995 and 2002. Adoptees generally felt that their birth parents cared for them; they also felt good regarding activities and/or meeting with their birth parents. However, mean scores of adoptees' closeness to birth parents were far lower than the mean scores of "enjoyed doing something with birth parents" and "feeling warm/loving to them." There may be some barriers to perceiving closeness to their birth parent(s); closeness

for adoptees may be a feeling beyond enjoying activities, and the acknowledgment of love and care from their birth parent(s).

Hypothesis 1-2

Adoptees' knowledge of and contact with their birth parents were analyzed by adoptees' gender, age group, and age of placement. Based on previous research, the hypothesis 1-2 was: "adoptees' knowledge of, contact with, and closeness with their birth parents will be different by adoptees' gender, age, and age of placement in their adolescence and young adulthood." This hypothesis was partially supported by the data.

Overall, female adoptees were more likely than male adoptees to know about a birth parent. Adoptees' gender effect was largest in adolescence. Adopted adolescents' knowledge of, and experience of living with, birth mothers were statistically significantly different by male and female adoptees, showing a small magnitude in effect size. Female adoptees were more likely to "have ever lived with" and "communicate with" birth fathers, while male adoptees were more likely to do so with birth mothers. In Wave III (2002), an adoptee gender pattern emerged, but it was not statistically significant. Females were more likely "to know about," "to have ever lived with," and "to have contact with" birth parent(s) than males. This result fits with previous research (e.g., Müller & Perry, 2001) reporting that adopted females are the main searchers in their adulthood. In present study, males were more likely than females to feel closeness to birth parents in both waves, even though these differences were not statistically significant. Regardless of which gender was more likely to know

about, or be in contact with a birth parent, males generally reported feeling closer to their birth parents. In light of this, closeness to birth parents may not be affected by adoptees' knowledge of and contact with their birth parents, but rather, by adoptees' gender itself.

Hypothesis 1-2 was supported in the relationship between adoptees' age and their knowledge of birth fathers in young adulthood, and their contact with birth parents in each period. More specifically, (1) knowledge of birth fathers in Wave III, (2) communication with birth mothers in Wave I, (3) staying overnight with birth fathers in Wave I, and (4) contact with birth mothers in Wave III, were statistically different by adoptees' age groups. The magnitude of effect sizes for a statistically significant relationship ranged from small (.13) to large (.31). The middle-teen age group (ages 15-17) of adoptees differed from the other two groups (12-14 and 18-20) in knowledge of, contact with, and closeness to birth parents. Adoptees aged 15-17 were most likely to know about their birth parent(s), but they were least likely to have ever lived with, to have communications with, to have stayed overnight with, and to report close feelings to their birth parent(s). It is not clear why so many adoptees in this age category had knowledge of but did not make contact with their birth parents in Wave I, as did those in other age groups. It does show that adoptees' contact with a birth parent did not always happen in proportion to having knowledge of her/him. In Wave III, the percentages of knowledge, contact, and closeness to birth parents of the middle age group (ages of 21-23) were also different, compared to adoptees who were younger (18-20) and older (24-26). Those in the middle group were least likely to know about birth

mothers or birth fathers, to have ever lived with birth mothers or birth fathers, to have contact with birth mothers, and to have a feeling of closeness to birth parents. Considering the seven year time gap between Wave I (1995) and III (2002), those in the 15-17 (middle) age group in Wave I were likely to be included in the middle age (21-23) in Wave III. Lesser contact and interaction in 1995 may produce a comparatively smaller percentage in knowledge of, and lower mean scores of closeness to, a birth parent in 2002 because interactions between adoptees and their birth parents were not built up through contacts that occurred between the two waves.

Age at adoptive placement showed stronger associations than adoptees' gender or age group with knowledge, contact, and closeness to birth parents. In 1995 adopted adolescents' "knowledge about their birth parents," "ever lived with their birth parents," "communication with their birth mothers," and "closeness to their birth mothers" were statistically different by age of adoptive placement. In young adulthood (2002), "knowledge concerning their birth parents," "ever lived with their birth parents," and "contact with their birth mothers" were also statistically different by age of placement. The effect sizes for knowledge of and contact with birth parents in both waves were large magnitude (.27 to .35); the effect sizes for "living experience with birth parents" (except birth fathers in Wave III) showed very large magnitude (.53 to .76). In both waves, age of placement showed a clear linear relationship with "knowledge about" and "ever lived with" a birth parent. 'Contact with a birth parent' did not have a consistent linear association with regard to age of placement, although there were certain differences between those adopted before, and after, seven months of age. A higher

percentage of birth parent contact by adoptees placed at older ages supports a series of studies on the subject of older age adoption (e.g., Nelson, 1985) and search and reunion behaviors by age of placement (e.g., Howe, 2001).

The formation of attachment relationships between adoptees and their birth parents are also related to adoptees' "feeling of closeness" to their birth parents. Adopted adolescents who spent the sensitive period (ages 7 months to 2 years) with birth parents reported higher closeness to their birth parents than those who did not. Those who were placed at 0-6 months old reported the lowest closeness to birth parents and those who were placed at 3-6 years old showed the highest closeness scores. However, seven years later, those who were placed between seven months and two years old had the lowest closeness to birth parents, while those who were placed between three and six years were the closest. Attachment theory says that attachment formation with a caregiver in the sensitive period influences the attachment relationship in later life; an insecurely attached baby goes through difficulties in later intimate relationships with friends, teachers, spouses, etc, compared to a securely attached baby. The changing of primary caregivers during the sensitive period due to adoption placement could be one reason for lower scores in young adult adoptees' psychological closeness to birth parents for those who were adopted between the ages of seven months and two years. The relationship with birth parents may be affected by how adoptees perceive their adoption. Adolescents' preoccupation with adoption (e.g., how often they think about their adoption or birth parents) is associated with adoptees' feeling of alienation or trust for their adoptive parents; the more adopted adolescents are

preoccupied with adoption, the higher they report alienation from and mistrust of their adoptive mothers and/or fathers (Kohler, Grotevant, & McRoy, 2002). Kohler and colleagues asserted that preoccupation with adoption is a key element of adoption identity. Their study suggests that adoption-consciousness may also affect the relationship with their birth parents. More studies are needed to investigate the relationship between adoptees' preoccupation with adoption and how they get along with their birth parents.

Hypothesis 2-1

The second major objective of this study was to investigate whether or not there were longitudinal changes of adoptees' knowledge of and contact with birth parents. It was hypothesized that "adoptees' knowledge of, contact with, and involvement with, birth parents would be different by developmental periods (i.e., adolescence and young adulthood)." As a result of significance tests, this hypothesis was supported, with the exception of closeness to birth fathers.

The percentages of adoptees who knew about and had contact with birth parents, and their mean scores of closeness to them increased from 1995 to 2002. Exceptions were 'ever lived with birth parents' and 'contact with birth fathers.' Through chi-square tests and t tests, it was found that differences in 'knowledge of,' 'ever lived with,' and 'contact with,' birth parents and 'closeness to birth mothers' between Wave I and Wave III were statistically significant. Effect sizes were highest in order, 'ever lived with birth parents (.64 and .55),' 'knowledge about birth parents (.50 and .31),' 'contact with birth

parents (.46 and .41),' and 'closeness to birth mothers (.31).' Adoptees' 'knowledge of,' 'contact with,' and 'closeness to birth parents' in both periods were closely associated with each other.

The decreasing percentage of adoptees' 'having ever lived with birth parents' may be due to the 'skip pattern' of the surveys. In Wave I, those who answered that they knew something about their birth parent(s) were then asked whether or not they had ever lived with them. However, in Wave III the question relating to 'ever living with birth parents' was asked when they answered that their birth parent(s) was still living. Thus, if their birth parent(s) had died after Wave I, adoptees were not asked this question.

Adoptees' 'knowledge of' and 'contact with' birth parents between two periods were categorized into four patterns: *Never had knowledge/contact, Knowledge/Contact lost, Knowledge/Contact gained/initiated, and Knowledge/Contact at both waves*. Considering the two waves together, 35% of the 436 adoptees reported knowing nothing about a birth parent, and 70% of the 436 adoptees stated that they had no contact with either of their birth parents (*Never had knowledge/contact*). Approximately 40% and 18% of adoptees, respectively, reported knowing about and having contact(s) with one or both birth parents in 1995 and in 2002 (*Knowledge/Contact at both waves*). Similarly, 16% of adoptees were categorized into the *Knowledge gained* pattern, and 8% into the *Contact initiated* pattern. Lastly, about 8.5% lost knowledge about their birth parent(s) and 5% lost contact with them in 2002, although they reported knowledge of and contact with them in 1995 (*Knowledge/Contact lost*).

Knowledge lost (8.5%, 37 of 436) indicated a kind of logical inconsistency in adoptees' responses in terms that knowledge about birth parents is not expected to be lost. Even among those in *Knowledge at both waves* pattern, other than the *Knowledge lost* pattern, 11 cases (of 436) reported losing information about one of their birth parents. Consequently, 11% (48 of 436) of adoptees who had any information about either of their birth parents in 1995 reported that they did not have any knowledge in 2002. There are two possible explanations for these inconsistencies. The first possibility is that either of the responses of the two waves was not a true answer. Fan et al. (2002) identified "jokesters," who mischievously gave wrong answers about their adoption status in Add Health Self-Administered Questionnaire (SAQ) data in Wave I. Although the data for this study were collected through the In-Home interview, which had a higher reliability than SAQ data, knowledge of birth parents could be answered in the same way as adoption status, especially in Wave I. The other possibility is that the knowledge that adoptees had in the previous interview could have been information that was revealed to be wrong or obscure. Adoptees who had reported having knowledge of birth parents in 1995, might then answer "no" in 2002 to the question "do you know anything about birth mother/birth father?"

Adoptees' knowledge about and contact with birth parents were also considered simultaneously. Although the percentage of those who had knowledge of only birth mothers was slightly higher than the percentage who knew about both birth parents in Wave I, Wave III percentages of those who knew about both birth parents exceeded the percentage of those who knew only about birth mothers. The percentage of those who

knew only about birth fathers was very low and showed no changes between the two waves. Around 25% of the 436 adoptees in each wave had experienced contact with their birth parents. Those who had contact with birth mothers were the biggest percentage in both waves, even though the percentage of those who contacted both parents increased over time. More than 20% who had contact in Wave I had lost contact in Wave III. That is, increases in contact in Wave III came from those adoptees who were not in contact with either birth mother or birth father in Wave I.

Hypothesis 2-2

Hypothesis 2-2, that "adoptees' knowledge about and contact with birth parents in adolescence and young adulthood will be predicted by their gender, age, age of placement, abuse and neglect, and foster care experience" was tested by multivariate analyses using generalized estimating equation (GEE) models, which is the appropriate way to analyze the same measures over time.

In multivariate GEE models, females were more likely than males to know about and have contact with a birth parent, although it was statistically significant only for knowledge of birth mothers. Females are more likely than males to identify themselves with their birth mothers (Sorovsky et al., 1974), and thus they may more actively pursue knowledge about their birth mothers.

Age of placement was positively associated with knowing about and contacting birth parents. The probability of knowing about birth mothers or birth fathers increased with older age of placement. Compared to those who were adopted before seven months

of age, those who were adopted between seven months and two years, between three and six years, and at seven years or older were 1.9, 3.4, and 8.2 times, respectively, more likely to know about birth mothers; adoptees in these older age of placement groups were 2.4, 3.4, and 5.8 times more likely than those placed as infants to know about birth fathers. In the area of contact, although older placed adoptees, compared to adoptees before seven months old, were more likely to have contact with their birth parents, the increment of Odds Ratio (OR) did not correspond to the increase with the age of placement. Adoptees who were adopted between three and six years were most likely (eight times more likely) to be in contact with birth mothers than those placed before seven months. The ORs for the other two placement categories (between seven months and two years and between seven years and over) were 4.6 and 6.1, respectively more likely to be in contact with birth mothers. For contact with birth fathers, those adoptees placed between seven months and two years, and those placed at age seven or older, were about 3.6 times more likely to contact their birth fathers, compared to those placed before 7 months; the OR for those placed between 3 and 6 years was smallest (2.6 times) compared with the other age of placement categories, without statistical significance. Howe's study (2001) based on attachment theory regarding adult adoptees' contact behaviors, reported that mean ages of those who stopped contact with birth mothers was in the sensitive period of attachment relationship (between 6 months and 2 years). According to this study with adoption placement categories based on the same theory, adoptees placed at an older age (after 7 months) showed higher probability

to be in contact with a birth parent, compared to those adopted before seven months of age at $p < .05$.

Adoptees who were abused or neglected were more likely to know about a birth parent, compared to those had no abuse or neglect. Suffering negative experiences from caregiver(s) reduced the probability of being in contact with birth parents, although these differences were not statistically significant. Because "abuse or neglect" measures in this study were constructed by combining all related experiences with birth, adoptive, or foster caregivers and ignoring types of abuse, it is difficult to identify a precise effect of abuse or neglect experiences. Erich and Leung's (2002) reported that adopted children's abuse experiences, especially sexual abuse, are negatively associated with adoptive family functioning. Contact with birth parents usually requires adoptive parents' support (Grotevant & McRoy, 1998; Kirk, 1964). Adoptees who reported being abused or neglected had a lower probability of contacting birth parents; this might be because adoptees who report "abuse or neglect" live in less cohesive adoptive families which are less likely to facilitate adoptees' search or reunion.

Foster placement experiences statistically significantly predicted the probability of knowledge of and contact with birth mothers; those who were placed once at a foster home were less likely to know about and contact their birth mothers, compared to those never placed at a foster home. It could be that foster care placement works to disconnect adoptees from their information sources and routes to reach their birth mothers. Multiple placements at foster homes also statistically significantly reduced the probability of contacting birth mothers. However, the magnitude of probability did not

increase in proportion to the number of times that an adoptee was placed in foster care. Rather, the magnitude of the OR was stronger for adoptees who were placed once at a foster home, compared with those who were placed twice or more.

The older that adoptees were in 1995, the higher the probability of their knowing about a birth parent. By contrast, in 2002 the younger adoptees were more likely to know about their birth parents. Combining these data, the probability of knowing about birth parents showed a unimodal distribution peaking in the late teens or early 20s. This might indicate that getting knowledge would not be easy until reaching specific ages (e.g., 18-20) when adoptive parents recognize that their adoptive offspring are able to handle this issue, or when adoptees are relatively independent of their adoptive parents. In young adulthood (2002), the probability of having knowledge of a birth parent in these ages (18-20) was also highest. According to this result, it seems that obtaining information about their birth parents is a kind of developmental task which is best achieved around 20 years old. Adoptees may tend to acquire knowledge about their birth parents as soon as possible when it becomes feasible, not postponing it until older ages.

Younger adoptees in adolescence (1995) were more likely to keep in touch with birth parents, whereas the older adoptees in young adulthood (2002) were more likely to have contact with birth parents; the probability of contact with birth parents showed a bimodal distribution. Contact between adoptees and their birth parents occurs most easily when adoptive parents are supportive (Berry et al., 1998); thus, higher probabilities of younger adoptees' contacting their birth parents in 1995 may be

associated with relationships with their adoptive parents. Adoptees contact with birth parents in 2002 might be related to older adoptees' more independent life style; they become autonomous in making decisions in many aspects of life. According to previous research, most adoptees who initiated search and reunion were mid twenties to thirties (Müller & Perry, 2001).

Adoptees were more likely to have any knowledge of and contact with their birth parents in young adulthood than in adolescence. Although some adoptees reported less information and stopping contact with their birth parents in 2002 (Hypothesis #2-1), the percentage of those who had knowledge of and contact with birth parents had increased. In the more precise analysis, this result was duplicated.

Hypotheses 3-1 and 3-2

The last objective of this study was to examine whether adoptees' knowledge of and contact with their birth parents was related to adoptees' adjustment in adolescence and young adulthood. Two hypotheses were stated for this objective as follows:

Hypothesis 3-1: Adopted adolescents' knowledge of, and contact with birth parents will be associated with transitional adjustment from adolescence to young adulthood.

Hypothesis 3-2: Adopted adolescents' knowledge about and contact with birth parents on relationship to transitional adjustment from adolescence to young adulthood will change when controlled age at placement, abuse and neglect, and foster care experience and demographic variables (gender and age).

Before taking into account controlling variables (Hypothesis 3-1), having knowledge of or making contact with birth parents in adolescence was associated with attending college and cohabiting/getting married in young adulthood. Adoptees' contact with their birth parents was associated with a lower probability of their attending college and a higher probability of forming romantic relations. These results were unexpected in that adoptees having knowledge of and contact with birth parents might help their adjustment by resolving identity related issues. Seeking out information regarding birth parents can be seen as a coping strategy for distress caused by adoption (Brodzinsky, 1990), but the result of these analyses suggests that having knowledge of and contact with a birth parent was not an effective coping strategy. Rather, it is possible that having knowledge of and contact with a birth parent might work as another stressor. In some other studies, when adoptees searched and reunited with their birth parents, they reported unexpected difficulties in dealing with reality and their lives became more complicated (Schooler, 1998). In addition, some adoptees experienced a second rejection by their birth parents (e.g., Pacheco & Eme, 1993). In this case, contact with birth parents would be negatively related to adoptees' adjustment.

In each transitional adjustment model, the magnitude of OR by the level of knowledge of and contact with a birth parent was associated with birth parents' gender. Adoptees who did not know about their birth mothers were approximately two times more likely to attend college than those who contacted their birth mothers, whereas those reporting not knowing their birth fathers were 2.6 times more likely to attend college as those contacting their birth fathers. In addition, adoptees who knew their

birth fathers but the birth fathers were dead, were more than three times more likely to attend college than those contacting birth fathers. The only variable associated with forming romantic relationships was the level of knowledge of and contact with birth mothers. Adoptees who did not know about their birth mothers were 50% less likely to cohabit or marry in young adulthood, compared to those contacting their birth mothers. However, in order to examine whether knowledge of and contact with birth mothers or fathers have a different effect on adoptees' adjustment, more detailed analyses are needed.

Graduating from college probably links one to a better and a more stable economic future than those who have lower educational attainment. Forming cohabitation/marriage relationships in earlier 20s might negatively affect the stability of couple relationships and well-being in adult life. However, when other controlling variables were considered, the lack of information about birth fathers remained as the only, statistically, significant predictor for attending college; the statistically significant association between the level of adoptees' knowledge and contact with birth mothers and the formation of romantic relationships disappeared. Instead, age of adoptive placement turned out as the statistically significant variable for two transitional adjustments in young adulthood. Those who were placed during the sensitive period of attachment relationship (between seven months and two years) were 60% less likely to go to college and approximately twice more likely to cohabit or marry, compared to those who were placed before the sensitive period of attachment relationships (between

0-6 months). In addition, each increase of a year of age reduced the probability of forming a romantic relationship by 30%.

Erikson (1968) asserted that teens should develop their self-identity or they might encounter identity-related problems during the rest of their lives. Whether or not adoptees attended college in young adulthood, hidden problems might remain if they have not figured out their identity issues. Whether adopted or not, however, the sequence of transitional markers is extremely individualized (Shanahan, 2000), which means there are many chances to catch up on academic achievement later. For this reason, further studies with adoptees in their thirties and forties are necessary. In addition, this study did not consider other possible factors that might be associated with attending college such as the academic ability of adoptees, financial resources, the educational attainment of birth parent, and so forth. Therefore, whether or not adoptees' knowledge of and contact with birth parents would help adoptees' adjustment remains inconclusive.

Conclusion

This study on the subject of adoptees' knowledge about, and contact with their birth parents, and their transitional adjustment was conducted to answer three main research questions: (1) What is the level of adopted adolescents' knowledge about, contact with, and involvement with birth parents?, (2) Are there longitudinal changes in adoptees' knowledge of, contact with, and involvement with birth parents between adolescence and young adulthood?, and (3) Is there a relationship between adoptees'

transitional adjustment and their knowledge about and contact with birth parents? The results of this study contribute new information about adopted adolescents and their birth parents. This study had some advantages. First, it had a clear adoption definition for adoptees' knowledge of and contact with birth parents. The definitions of adoption may vary as well as contexts surrounding knowledge of and contact with birth parents. In the current study, the adoptees who are living with one of the birth parents were excluded in adoption definition because knowledge of and contact with birth parents probably have different meanings for them, compared to adoptees adopted by non-biological parents. Next, this was a large longitudinal study with a national sample. In many adoption studies, the between-group design (e.g., comparison between adoptees and nonadoptees) is more common. This study focused on longitudinal changes among adoptees, which allow individual dynamic changes regarding adoptees' knowledge and contact with their birth parents to be analyzed. At the same time, this study also took advantage of a cross-sectional design, providing rich information for each wave. Lastly, this study considered various the pre-adoption history and detailed ages of adoptive placement that could confound the adoption effect on adoptive outcomes. Because the current study considered detailed information prior to adoption (i.e., abuse and neglect and foster care experience) and more detailed age of placement categories based on attachment theory, such possible confounding issues were better controlled.

Combining the findings for descriptive and multivariate analyses, conclusions were as follows:

First, adoptees are more likely to know information about their birth mothers than birth fathers; differences in percentages of knowing more about mothers than fathers decreased as adoptees became young adults.

Second, approximately half of adoptees in adolescence who communicated with their birth parents stayed overnight with them. The percentage of adoptees' contact with their birth mothers was equivalent to the percentage of adoptees' contact with their birth fathers in adolescence. Differences of percentage between contact with birth mothers and with birth fathers became larger in young adulthood.

Third, about 65% of the 436 adoptees had any knowledge of either birth mothers or birth fathers over seven years. Approximately 30% of the sample's 436 adoptees, which is about half of the percentage having knowledge of birth parent(s), had contact with one or both birth parents over seven years. Young adulthood seems to be the period when more adoptees possess information about and contact their birth parent, rather than in adolescence. In addition, adoptees who knew about and contacted both birth mothers and fathers increased from adolescence to young adulthood.

Fourth, considering each individual's change over seven years, the probability of knowing about and contacting birth parents was associated with several variables such as gender, foster care experience, age of placement, as well as wave at interview.

Fifth, the level of knowledge of and contact with birth parents were associated with adoptees' transitional adjustments without considering other variables; contacting birth parents was associated with adoptees' lower college attendance and higher probability of adoptees' cohabitation or marriage. The effect of adoptees' knowledge

and contact disappeared or became weak however, after other controlling variables (i.e., age of placement and/or age) were included.

Lastly, age of adoption placement was strongly related to adoptees' knowledge about, and contact with, their birth parents, and transitional adjustment. Adoptees placed at older ages were more likely to know about and contact birth parents, compared to those placed before the sensitive period of attachment relationship. Those placed between seven months and two years were less likely to attend college and were more likely to cohabit or marry, compared to those placed before seven months.

Limitations

In the analysis of adoptees' contact with their birth parents, two different questions were used. In Wave I a time limitation was given for contact, specifically such as 'within the last 12 months' but, contact in Wave III had no period of limitation. In addition, the constructs of knowledge and contact were measured using only one question. These kinds of problems are inherent in research using secondary data. The Add Health data included rich and important information (i.e., when adoptees were adopted, whether they had experienced abuse and neglect before or after adoption, and if they spent time in a foster home); however, some key questions regarding contexts in order to understand adoptees' knowledge of and contact with their birth parents, such as the reason for adoption, how adoptees acquired knowledge of their birth parents, or who initiated contact, were not asked because the survey was not designed specifically for adoption research. The meaning or effect of having information about and contact with birth parents needs to be more carefully researched before drawing firm conclusions.

The Add Health sampling design employed scientific techniques to identify a nationally representative sample of adolescents attending U.S. schools. In this process, adopted teens were deliberately over sampled to create subgroups of genetically unrelated cases. In addition, although Add Health recommended using a specific statistic package, STATA, for fixing sampling errors being caused by stratified cluster sampling, the current study used only unweighted numbers. This was because the subsample for adoptees is relatively small, which produced some counter-intuitive results when weights were applied. Because sample weights were not applied, the results of this study cannot be generalized to the U.S. adoption population.

The current study showed statistically significant results in adoptees' knowledge of and contact with birth parents. However, there were small frequencies in some cells that were used for comparisons. Thus, for interpretation, one should consider the effect size, because the effect size is the measure of practical significance of results, not tied to sample size.

Another limitation of this study is a lack of theory. There were very few theories appropriate to use for quantitative research regarding adoptees' knowledge about and contact with their birth parents. This study referred to three theoretical frameworks. However, more specific, theory-based research is needed.

Future Directions

Grotevant et al. (2000) claimed that adoption identity studies should consider various environmental factors beyond the intrapsychic level. A broadened view considering the whole adoptive family, and the relationship between adoptees and

adoptive parents, is necessary to understand adoptees' identity. In this study, adoptees' identity was used as a key concept underlying why adoptees' knowledge of and contact with birth parents is sought by many adoptees. Kirk's theory (1964) and Grotevant and McRoy's (1998) study showed that there could be an indirect effect of contact with birth parents on adopted child' adjustment because adoptive parents moderated contact between the adoptive child and his/her birth parent, as well as the direct effect of contact with birth parents. Loyalty to adoptive parents could also prevent adoptees from searching for birth parents (Roche & Perlesz, 2000). Future studies should develop an analytic model considering more multilevel factors of adoption, like adoptive family factors.

The present study mostly emphasized objective facts, such as knowledge and contact, rather than subjective facts like feelings toward birth parents. In addition, while variables such as age of placement, abuse and neglect, and foster care experience were considered, psychological variables like self-esteem were not taken into account. Brodzinsky (1990) and his colleagues (1998) hypothesized that cognitive appraisal and self-esteem are the important mediating and moderating variables, respectively, to predict adoptees' adjustment. The relationship between adoptees and their birth parents, and variables reflecting the psychological aspects of their relationships, are worthwhile for future studies.

While the current study presented factual data about adoptees' knowledge of and contact with birth parents, future studies could be more detailed. For example, if researchers could discover what kind of information about birth parents, and what kind

of activities with them would be the most beneficial to adoptees, it might be possible to better help adoptees.

Adoption should be considered within a life-cycle perspective (Brodzinsky et al., 1998). Therefore, longitudinal adoption studies with data collection across the life span are needed. This study analyzed data over a period of 7 years, but future studies still are needed to consider other stages of life. Studies regarding adoptees' adjustment need a very careful approach because the results could affect adoption policies.

REFERENCES

Add Health. (2003). *Add Health data documentation* [Electronic copy of the code book]. Retrieved November 4, 2005, from http://www.cpc.unc.edu/projects /addhealth/codebooks/wave3

Add Health. (2004a). *Design focus in wave I.* Retrieved April 6, 2005, from http://www.cpc.unc.edu/projects/addhealth/design_focus/wave1

Add Health. (2004b). *Design focus in wave III.* Retrieved April 6, 2005, from http://www.cpc.unc.edu/projects/addhealth/design_focus/wave3

Adamec, C., & Pierce, W.L. (2000). *The encyclopedia of adoption* (2nd ed.). New York: Facts on File.

Adoption Institute. (2002). *2002 National adoption attitudes survey highlights.* Retrieved April 19, 2004, from http://www.adoptioninstitute.org/survey/survey_ summary.html

Affleck, M.K., & Steed, L.G. (2000). Expectation and experiences of participants in ongoing adoption reunion relationships: A qualitative study. *American Journal of Orthopsychiatry, 71*, 38-48.

Allison, P.D. (1991). *Logistic regression using the SAS system: Theory and application.* Cary, NC: Wiley.

Arnett, J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*, 469-480.

Aron, A., Aron, E.N., & Coups, E.J. (2005). *Statistics for the behavioral and social sciences: A brief course* (3rd ed.). Upper Saddle River, NJ: Pearson Education.

Badeau, S. (1998). *Young adults leaving home: Special issues when the young adults are adoptees.* Retrieved January 05, 2005, from http://www.nysccc.org/articles/ leavetaking.htm

Baran, A., & Pannor, R. (1993). Perspectives on open adoption. *The Future of Children, 3*, 119-124.

Benson, P.L., Sharma, A.R., & Roehlkepartain, E.C. (1994). *Growing up adopted.* Minneapolis, MN: Search Institute.

Berry, M. (1991). The practice of open adoption: Findings from a study of 1396 adoptive families. *Children and Youth Services Review, 13*, 379-395.

Berry, M. (1993). Risks and benefits of open adoption. *The Future of Children, 3*, 125-138.

Berry, M., & Barth, R.P. (1990). A study of disrupted adoptive placements of adolescents. *Child Welfare, 69*, 209-225.

Berry, M., Barth, R.P., & Needell, B. (1996). Preparation, support, and satisfaction of adoptive families in agency and independent adoptions. *Child and Adolescent Social Work Journal, 13*, 157-183.

Berry, M., Cavazos Dylla, D.J., Barth, R.P., & Needell, B. (1998). The role of open adoption in the adujstment of adopted children and their families. *Children and Youth Services Review, 20*, 151-171.

Bowlby, J. (1980). *Attachment and loss* (Vol. 3). New York: Basic.

Brodzinsky, D.M. (1990). A stress and coping model of adoption adjustment. In D.M. Brodzinsky & M.D. Schechter (Eds.), *The psychological of adoption* (pp. 3-24). New York: Oxford University Press.

Brodzinsky, D.M., Schechter, D.E., Braff, A.M., & Singer, L.S. (1984). Psychological and academic adjustment in adopted children. *Journal of Consulting and Clinical Psychology, 52*, 582-590.

Brodzinsky, D.M., Schechter, M.D., & Henig, R.M. (1992). *Being adopted: The lifelong search for self.* New York: Doubleday.

Brodzinsky, D.M., Smith, D.W., & Brodzisnky, A.B. (1998). Children's adjustment to adoption: Developmental and clinical issues. *Developmental Clinical Psychology and Psychiatry, 38*. Thousand Oaks, CA: Sage.

Campbell, L.H., Silverman, P.R., & Patti, P.B. (1991). Reunions between adoptees and birth parents: The adoptees' experience. *Social Work, 36*, 329-335.

Chandra, A., Abma, J., Maza, P., & Bachrach, C. (1999). Adoption, adoption seeking, and relinquishment for adoption in the United States. *Vital and Health Statistics*, 306.

Chantala, K., & Tabor, J. (1999). *Strategies to perform a design-based analysis using the Add Health data.* Retrieved from April 9, 2002, from http://www.cpc.unc.edu /projects/addhealth/strategies.html

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Erich, S., & Leung, P. (2002). The impact of previous type of abuse and sibling adoption upon adoptive families. *Child Abuse & Neglect, 26*, 1045-1058.

Erikson, E. (1968). *Identity: Youth and crisis.* New York: Norton.

Fan, X., Miller, B.C., Christensen, M., Park, K-E, Grotevant, H.D., van Dulmen, M., et al. (2002). Questionnaire and interview inconsistencies exaggerated differences between adopted and non-adopted adolescents in a national sample. *Adoption Quarterly, 6*, 7-27.

Feast, J., & Howe, D. (1997). Adopted adults who search for background information and contact with birth relatives. *Adoption and Fostering, 21*, 8-15.

Festinger, T. (1990). Adoption disruption: Rates and correlates. In D.M. Brodzinsky & M.D. Schechter (Eds.), *The psychological of adoption* (pp. 201-218). New York: Oxford University Press.

Frasch, K.M., Brooks, D., & Barth, R.P. (2000). Openness and contact in foster care adoptions: An eight-year follow-up. *Family Relations*, 49, 435-446.

Gendell, S.J. (2001). In search of permanency: A reflection on the first 3 years of the Adoption and Safe Families Act implication. *Family Court Review, 39*, 25-42.

Gibbs, P., & Müller, U. (1999). *Search in the adoption experience*. Retrieved April 24, 2004, from http://www.centerforadoptionresearch.org/default.asp?action= article& ID=33&CategoryID=11&CategoryName=

Gladstone, J., & Westhues, A. (1998). Adoption reunions: A new side to intergenerational family relationships. *Family Relations, 47*, 177-184.

Goldscheider, F.K., & Goldscheider, C. (1998). The effects of childhood family structure on leaving and returning home. *Journal of Marriage and the Family, 60*, 745-756.

Greene, A.L., Wheatley, S.M., & Aldava IV., J.F. (1992). Stages on life's way: Adolescents' implicit theories of the life course. *Journal of Adolescent Research, 7*, 364-381.

Grotevant, H.D. (1997). Family processes, identity development, and behavioral outcomes for adopted adolescents. *Journal of Adolescent Research, 12*, 139-161.

Grotevant, H.D., Dunbar, N., Kohler, J.K., & Esau, A.M.L. (2000). Adoptive identity: How contexts within and beyond the family shape developmental pathways. *Family Relations, 49*, 379-387.

Grotevant, H.D., & Kohler, J.K. (1999). Adoptive families. In M.E. Lamb (Ed.). *Parenting and child developopment in nontradistional families* (pp. 161-190). Mahwah, NJ: Erlbaum.

Grotevant, H.D., & McRoy, R.G. (1998). *Openness in adoption: Exploring family connections.* Thousand Oaks, CA: Sage.

Haugaard, J.J. (1998). Is adoption a risk factor for the development of adjustment problems? *Clinical Psychology Review, 18,* 47-69.

Haugaard, J.J., & Hazan, C. (2003). Adoption as a natural experiment. *Development and Psychopathology, 15*, 909-926.

Hedeker, D., & Gibssons, R.D. (in progress). *Longitudinal data analysis*. Retrieved April 17, 2005, from http://www.uic.edu/classes/bstt/bstt513/chap8.pdf

Henny, S.M., McRoy, R.G., Ayers-Lopez, S., & Grotevant, H.D. (2003). The impact of openness on adoption agency practices: A longitudinal perspective. *Adoption Quarterly, 3*, 31-51.

Henny, S.M., Onken, S., McRoy, R.G., & Grotevant, H.D. (1998). Changing agency practices toward openness in adoption. *Adoption Quarterly, 1*, 45-76.

Howe, D. (2001). Age at placement, adoption experience and adult adopted people's contact with their adoptive and birth mothers: An attachment perspective. *Attachment and Human Development, 3*, 222-237.

Howe, D., & Feast, J. (2000). *Adoption, search, and reunion: The long-term experience of adopted adults*. London: The children's society.

Howe, D., Shemmings, D., & Feast, J. (2001). Age at placement and adopted people's experience of being adopted. *Child and Family Social Work*, 6, 337-349.

Ingersoll, B.D. (1997). Psychiatric disorders among adopted children: A review and commentary. *Adoption Quarterly, 1*, 57-73.

Kirk, H.D. (1964). *Shared fate*. New York: Free Press.

Kohler, J.K., Grotevant, H.D., & McRoy, R.G. (2002). Adopted adolescents' preoccupation with adoption: The impact on adoptive family relationships. *Journal of Marriage & Family*, 64, 93-105.

Kreider, R.M. (2003). *Adopted children and stepchildren: 2000.* Retrieved April 24, 2004, from http://www.census.gov/prod/2003pubs/censr-6.pdf

Lazarus, R.S., DeLongis, A., Folkman, S., & Gruen, R. (1985). Stress and adaptational outcomes: The problem of confounded measures. *American Psychologist, 40*, 770-779.

Lazarus. R.S., & Folkman, S. (1984). Stress, appraisal and coping. New York: Springer.

Liang, K-Y., & Zeger, S.L. (1986). Longitudinal data analysis using generalized linear models. *Biometrika, 73*, 13-22.

Logan, F.A., Morrall, P.M.E., & Chambers, H. (1998). Identification of risk factors for psychological disturbance in adopted children. *Child Abuse Review, 7*, 154-164.

March, K. (1995). Perception of adoption as a social stigma: Motivation for search and reunion. *Journal of Marriage and the Family, 57*, 653-660.

Miall, C. (1998). Community assessments of adoption issues: Open adoption, birth reunions, and the disclosure of confidential information. *Journal of Family Issues, 19*, 556-577.

Miller, B.C., Fan, X., Christensen, M., Grotevant, H.D., & van Dulmen, M. (2000). Comparisons of adopted and non adopted adolescents in a large nationally representative sample. *Child Development, 71*, 1458-1473.

Miller, B.C., Fan, X., Christensen, M., Coyl, D., Grotevant, H.D., van Dulmen, M., et al. (2001). Who is adopted? Measuring adoption status using national survey data. *Adoption Quarterly, 5*, 23-43.

Modell, J. (1997). "Where do we go next?" Long-term reunion relationships between adoptees and birth parents. *Marriage and Family Review, 25*, 43-66.

Müller, U., & Perry, B. (2001). Adopted persons' search for and contact with their birth parents I: Who searches and why? *Adoption Quarterly, 4*, 5-37.

Neil, E. (2003). Adoption and contact: A research review. In A. Bainham, B. Lindley, M. Richards, & L. Trinder (Eds.). *Children and their families: Contact, rights, and welfare* (pp. 275-300). Oxford: Hart.

Nelson, K. (1985). *On the frontier of adoption: A study of special needs adoptive families*. New York: Child Welfare League of America.

Nickman, S.L. (1996). Retroactive loss in adopted persons. In D. Klass, P.R. Silverman, & S.L. Nickman (Eds.). *Continuing bonds: New understandings of grief* (pp. 257-294). Bristol, PA: Taylor & Francis.

Pacheco, F., & Eme, R. (1993). An outcome study of the reunion between adoptees and biological parents. *Child Welfare, 72*, 53-64.

Roche, H., & Perlesz, A. (2000). A legitimate choice and voice: The experience of adult adoptees who have chosen not to search for their birth families. *Adoption and Fostering, 24*, 8-19.

Rosenthal, J. A., & Groze, V. (1990). Special-needs adoption: A study of intact families. *Social Service Review, 64,* 475–505.

Ryburn, M. (1995). Adopted children's identity and information needs. *Children and Society, 9*, 41-64.

Sachdev, P. (1992). Adoption reunion and after: A study of the search process and experience of adoptees. *Child Welfare, 71*, 53-67.

Samuels, E.J. (2001). The strange history of adult adoptees access of original birth records. *Adoption Quarterly, 5*, 63-74.

Schooler, J. (1998). Search and reunion issues. In V. Groza & K.F. Rosenberg (Eds.), *Clinical and practice issues in adoption* (pp. 49-80). Westport, CT: Praeger.

Shanahan, M.J. (2000). Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology, 26*, 667-692.

Shanahan, M.J., Porfeli, E., & Mortimer, J. T. (2005). *Subjective age identity and the transition to adulthood: When does one become an adult*? Retrieved March 21, 2005, from http://www.transad.pop.upenn.edu/restricted/frontier/ch7-shanahan%20et%20al(05-03).htm

Sharma, A.R, McGue, M.K., & Benson, P.L. (1996). The emotional and behavioral adjustment of United States adopted adolescents: Part II. Age at adoption. *Children and Youth Services Review, 18*, 101-114.

Schechter, M.D., & Bertocci, D. (1990). The meaning of search. In D.M. Brodzinsky & M.D. Schechter (Eds.), *The psychological of adoption* (pp. 62-92). New York: Oxford University Press.

Shuman, I., & Behrman, R.E. (1993). Adoption: Overview and major recommendations. *The Future of Children, 3*, 4-16.

Siegle, D.H. (1993). Open adoption of infants: Adoptive parents' perceptions of advantages and disadvantage. *Social Work, 38*, 15-22.

Siegle, D.H. (2003). Open adoption of infants: Adoptive parents' feelings seven years later. *Social Work, 48*, 409-419.

Simmel, C., Brooks, D., Barth, R.P., & Hinshaw, S.P. (2001). Externalizing symptomatology among adoptive youth: Prevalence and preadoption risk factors. *Journal of Abnormal Child Psychology, 29*, 57-69.

Smith, S.L., Howard, J.A., & Monroe, A.D. (2000). Issues underlying behavior problems in at-risk adopted children. *Children and Youth Services Review, 22*, 539-562.

Sobol, M., & Cardiff, J. (1983). A sociopsychological investigation of adult adoptees' search for their birth parents. *Family Relations*, 32, 477-483.

Sorovsky, A., Baran, A., & Pannor, R. (1974). The reunion of adoptees and birth relatives. *Journal of Youth and Adolescence, 3*,195-206.

Stein, L.M., & Hoopes, J.L. (1985). *Identity formation in the adopted adolescent*. New York: Child Welfare League of America.

U.S. Census Bureau. (2005a). *Statistical abstract of the United States: 2004-2005*. Retrieved October 23, 2005, from http://www.census.gov/prod /2004pubs /04statab/pop.pdf

U.S. Census Bureau. (2005b). *Statistical abstract of the United States: 2004-2005*. Retrieved October 23, 2005, from http://www.census.gov/prod/2004pubs /04statab/educ.pdf

U.S. Census Bureau. (2005c). *Statistical abstract of the United States: 2004-2005*. Retrieved October 23, 2005, from http://www.census.gov/prod/2004pubs /04statab/labor.pdf

Warren, S.B. (1992). Lower threshold for referral for psychiatric treatment for adopted adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 512-527.

Wilson, S.L. (2004). A current review of adoption research: Exploring individual differences in adjustment. *Children and Youth Services Review, 26*, 687-696.

Wrobel, G.M., Ayers-Lopez, S., Grotevant, H.D., McRoy, R., & Friedrick, M. (1996). Openness in adoption and the level of child participation. *Child Development, 67*, 2358-2374.

Wrobel, G.M., Grotevant, H.D., & McRoy, R.G. (2004). Adolescent search for birthparents: Who moves forward? *Journal of Adolescent Research, 19,* 132-151.

APPENDIX

Table A-1

Adopted Adolescents' Knowledge about Birth Mother by Gender, 1995

	Gender					
	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Is she still living?	131			88		
Yes		84	64.12		72	81.82
No		17	12.98		8	9.09
Don't know		30	22.90		8	9.09
Disability mentally or physically?	131			88		
Yes		19	14.50		13	14.77
No		93	70.99		67	76.14
Don't know		19	14.50		8	9.09
Born in the U.S.?	131			88		
Yes		105	80.15		81	92.05
No		12	9.16		6	6.82
Don't know		14	10.69		1	1.14
Education Level?	131			88		
< High school		32	24.43		13	14.77
High school		27	20.61		29	32.95
Some college+		16	12.21		9	10.23
Don't know		56	42.75		37	42.05
Have birth mother ever smoked cigarettes?	84			72		
Yes		55	65.48		48	66.67
No		13	15.48		14	19.44
Don't know		16	19.05		10	13.89

Note. All frequencies and percentages are unweighted numbers.

Table A-2

Adopted Adolescents' Knowledge about Birth Father by Gender, 1995

	Gender					
	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Is he still living?	70			50		
Yes		49	70.00		44	88.00
No		7	10.00		3	6.00
Don't know		14	20.00		3	6.00
Disability mentally or physically?	70			50		
Yes		9	12.86		7	14.00
No		52	74.29		41	82.00
Don't know		9	12.86		2	4.00
Born in the U.S.?	70			50		
Yes		58	82.86		45	90.00
No		8	11.43		3	6.00
Don't know		4	5.71		2	4.00
Education Level?	70			50		
< High school		13	18.57		7	14.00
High school		28	40.00		11	22.00
Some college+		8	11.43		7	14.00
Don't know		21	30.00		25	50.00
Have birth father ever smoked cigarettes?	49			43		
Yes		27	55.10		30	69.77
No		12	24.49		10	23.26
Don't know		10	20.41		3	6.98

Note. All frequencies and percentages are unweighted numbers.

Table A-3

Adopted Adolescents' Contact with and Involvement with Birth Mother by Gender, 1995

	Gender					
	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Age when last lived with birth mother?	67			59		
≤ 1		10	14.93		14	23.73
2-5 years old		20	29.85		19	32.20
6-10 years old		25	37.31		14	23.73
11-15 years old		8	11.94		10	16.95
16-18 years old		4	5.97		2	3.39
Mean (*SD*)		6.52 (4.93)			5.68 (5.13)	
Duration lived with birth mother?	56			45		
≤ 1		4	7.14		4	8.89
2-5 years		22	39.29		22	48.89
6-10 years		23	41.07		13	28.89
≥ 11 years		7	12.50		6	13.33
Mean (*SD*)		6.25 (4.24)			5.49 (3.85)	
Activity with birth mother in past 4 weeks?	50			44		
Go shopping		15	30.00		4	9.09
Play sport		4	8.00		2	4.55
Religious event		8	16.00		7	15.91
Go to movie, etc		6	12.00		2	4.55
Talk about life		22	44.00		17	38.64
Talk about personal problems		20	4.00		9	20.45
Serious argument		9	18.00		3	6.82
Talk about school work		27	54.00		21	47.73
Work on school project		4	8.00		5	11.36
Talk about other things in school		20	40.00		12	27.27
Closeness to birth mother?	84			71		
Not close at all		40	47.62		32	45.07
Not very close		12	14.29		8	11.27
Somewhat close		8	9.52		15	21.13
Quite close		13	15.48		7	9.86
Extremely close		11	13.10		9	12.68
Mean (*SD*)		2.32 (1.51)			2.34 (1.45)	

Note. All frequencies and percentages are unweighted numbers.

Table A-4

Adopted Adolescents' Contact with and Involvement with Birth Father by Gender, 1995

	Gender					
	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Age when last lived with birth father?	37			22		
≤ 1		4	10.81		4	18.18
2-5 years old		15	40.54		9	40.91
6-10 years old		12	32.43		4	18.18
11-15 years old		4	10.81		4	18.18
16-18 years old		2	5.41		1	4.55
Mean (*SD*)		6.08 (4.81)			6.09 (5.14)	
Duration lived with birth father?	33			17		
≤ 1		3	9.09		0	0
2-5 years		15	45.45		11	64.71
6-10 years		11	33.33		4	23.53
≥ 11 years		4	12.12		2	11.76
Mean (*SD*)		5.73 (4.20)			5.53 (3.36)	
Activity with birth father in past 4 weeks?	31			24		
Go shopping		6	19.35		6	25.00
Play sport		3	9.68		5	20.83
Religious event		4	12.90		3	12.50
Go to movie, etc		4	12.90		4	16.67
Talk about life		8	25.81		7	29.17
Talk about personal problems		8	25.81		9	37.50
Serious argument		2	6.45		3	12.50
Talk about school work		17	54.84		10	41.67
Work on school project		3	9.68		3	12.50
Talk about other things in school		12	38.71		8	33.33
Closeness to birth father?	49			43		
Not close at all		18	36.73		17	39.53
Not very close		5	10.20		5	11.63
Somewhat close		14	28.57		8	18.60
Quite close		9	18.37		7	16.28
Extremely close		3	6.12		6	13.95
Mean (*SD*)		2.47 (1.32)			2.53 (1.50)	

Note. All frequencies and percentages are unweighted numbers.

Table A-5

Adopted Adolescents' Knowledge about Birth Mother by Age Group, 1995

	Age Group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Is she still living?	48			117			54		
Yes		43	89.58		78	66.67		35	64.81
No		2	4.17		12	10.26		11	20.37
Don't know		3	6.25		27	23.08		8	14.81
Disability mentally or physically?	48			117			54		
Yes		11	22.92		14	11.97		7	12.96
No		35	72.92		86	73.50		39	72.22
Don't know		2	4.17		17	14.53		8	14.81
Born in the U.S.?	48			117			54		
Yes		42	87.50		99	84.62		45	83.33
No		3	6.25		9	7.69		8	14.81
Don't know		3	6.25		9	7.69		1	1.85
Education Level?	48			117			54		
< High school		9	18.75		23	19.66		13	24.07
High school		14	29.17		30	25.64		12	22.22
Some college+		7	14.58		10	8.55		8	14.81
Don't know		18	37.50		54	46.15		21	38.89
Have birth mother ever smoked cigarettes?	43			78			35		
Yes		29	67.44		53	67.95		21	60.00
No		10	23.26		10	12.82		7	20.00
Don't know		4	9.30		15	19.23		7	20.00

Note. All frequencies and percentages are unweighted numbers.

Table A-6

Adopted Adolescents' Knowledge about Birth Father by Age Group, 1995

	Age Group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Is he still living?	25			65			30		
Yes		23	92.00		48	73.85		22	73.33
No		1	4.00		4	6.15		5	16.67
Don't know		1	4.00		13	20.00		3	10.00
Disability mentally or physically?	25			65			30		
Yes		4	16.00		9	13.85		3	10.00
No		21	84.00		48	73.65		24	80.00
Don't know					8	12.31		3	10.00
Born in the U.S.?	25			65			30		
Yes		24	96.00		57	87.69		22	73.33
No		1	4.00		4	6.15		6	20.00
Don't know		0	0		4	6.15		2	6.67
Education Level?	25			65			30		
< High school		4	16.00		10	15.38		6	20.00
High school		8	32.00		20	30.77		11	36.67
Some college+		4	16.00		8	12.31		3	10.00
Don't know		9	36.00		27	41.54		10	33.33
Have birth father ever smoked cigarettes?	23			48			21		
Yes		14	60.87		29	60.42		14	66.67
No		7	30.43		8	16.67		7	33.33
Don't know		2	8.70		11	22.92		0	0

Note. All frequencies and percentages are unweighted numbers.

Table A-7

Adopted Adolescents' Contact with and Involvement with Birth Mother by Age Group, 1995

	Age Group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Age when last lived with birth mother?	26			64			36		
≤ 1		3	11.54		16	25.00		5	13.89
2-5 years old		11	42.31		20	31.25		8	22.22
6-10 years old		11	42.31		16	25.00		12	33.33
11-15 years old		1	3.85		11	17.19		6	16.67
16-18 years old		0	0		1	1.56		5	13.89
Mean (*SD*)		5.19 (3.57)			5.66 (4.94)			7.64 (5.79)	
Duration lived with birth mother?	22			48			31		
≤ 1		3	13.64		3	6.25		2	6.45
2-5 years		9	40.91		24	50.00		11	35.48
6-10 years		9	40.91		15	31.35		12	38.71
≥ 11 years		1	4.55		6	12.50		6	19.35
Mean (*SD*)		5.18 (3.61)			5.88 (3.95)			6.48 (4.57)	
Activity with birth mother in past 4 weeks?	29			40			25		
Go shopping		6	20.69		11	27.50		2	8.00
Play sport		6	20.69		0	0		0	0
Religious event		6	20.69		5	12.50		4	16.00
Go to movie, etc		2	6.90		4	10.00		2	8.00
Talk about life		10	34.48		18	45.00		11	44.00
Talk about personal problems		8	27.59		14	35.00		7	28.00
Serious argument		5	17.27		2	5.00		5	20.00
Talk about school work		14	48.28		24	60.00		10	40.00
Work on school project		4	13.79		3	7.50		2	8.00
Talk about other things in school		10	34.48		15	37.50		7	28.00
Closeness to birth mother?	43			77			35		
Not close at all		14	32.56		40	51.95		18	51.43
Not very close		10	23.26		8	10.39		2	5.71
Somewhat close		6	13.95		11	14.29		6	17.14
Quite close		7	16.28		8	10.39		5	14.29
Extremely close		6	13.95		10	12.99		4	11.43
Mean (*SD*)		2.56 (1.45)			2.22 (1.49)			2.29 (1.51)	

Note. All frequencies and percentages are unweighted numbers.

Table A-8

Adopted Adolescents' Contact with and Involvement with Birth Father by Age Group, 1995

	Age Group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Age when last lived with birth father?	12			28			19		
≤ 1		0	0		5	17.86		3	15.79
2-5 years old		7	58.33		13	46.43		4	21.05
6-10 years old		4	33.33		5	17.86		7	36.84
11-15 years old		1	8.33		4	14.29		3	15.79
16-18 years old		0	0		1	3.57		2	10.53
Mean (*SD*)		5.25 (3.49)			5.46 (4.74)			7.53 (5.73)	
Duration lived with birth father?	12			22			16		
≤ 1		0	0		1	4.55		2	12.50
2-5 years		9	75.00		14	63.64		3	18.75
6-10 years		3	25.00		4	18.18		8	50.00
≥ 11 years		0	0		3	13.64		3	18.75
Mean (*SD*)		4.17 (2.76)			5.36 (3.76)			7.19 (4.46)	
Activity with birth father in past 4 weeks?	16			23			16		
Go shopping		3	18.75		5	21.74		4	25.00
Play sport		5	31.25		2	8.70		1	6.25
Religious event		3	18.75		3	13.04		1	6.25
Go to movie, etc		3	18.75		3	13.04		2	12.50
Talk about life		2	12.50		8	34.78		5	31.25
Talk about personal problems		3	18.75		10	43.48		4	25.00
Serious argument		2	12.50		1	4.35		2	12.50
Talk about school work		7	43.75		13	56.52		7	43.75
Work on school project		4	25.00		2	8.70		0	0
Talk about other things in school		5	31.25		11	47.83		4	25.00
Closeness to birth father?	23			47			22		
Not close at all		7	30.43		20	42.55		8	36.36
Not very close		2	8.70		7	14.89		1	4.55
Somewhat close		7	30.43		6	12.77		9	40.91
Quite close		2	8.70		10	21.28		4	18.18
Extremely close		5	21.74		4	8.51		0	0
Mean (*SD*)		2.83 (1.53)			2.38 (1.44)			2.41 (1.81)	

Note. All frequencies and percentages are unweighted numbers.

Table A-9

Adopted Adolescents' Knowledge about Birth Mother by Age at Placement, 1995

	Age at placement											
	6 month			7month-2years			3-6 years			7 years +		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Is she still living?	73			53			33			60		
Yes		42	57.53		37	69.81		27	81.82		50	83.33
No		2	2.74		8	15.09		5	15.15		10	16.67
Don't know		29	39.73		8	15.09		1	3.03		0	0
Disability mentally or physically?	73			53			33			60		
Yes		5	6.85		10	18.87		4	12.12		13	21.67
No		49	67.12		36	67.92		28	84.85		47	78.33
Don't know		19	26.03		7	13.21		1	3.03		0	0
Born in the U.S.?	73			53			33			60		
Yes		54	79.97		47	88.68		31	93.94		54	90.00
No		7	9.59		6	11.32		1	3.03		6	10.00
Don't know		12	16.44		0	0		1	3.03		0	0
Education Level?	73			53			33			60		
< High school		11	15.07		14	26.42		8	24.24		12	20.00
High school		14	19.18		12	22.64		11	33.33		19	31.67
Some college+		3	4.11		5	9.43		3	9.09		14	23.33
Don't know		45	61.64		22	41.51		11	33.33		15	25.00
Have birth mother ever smoked cigarettes?	42			37			27			50		
Yes		14	33.33		26	70.27		24	88.89		39	78.00
No		10	23.81		7	18.92		2	7.41		8	16.00
Don't know		18	42.86		4	10.81		1	3.70		3	6.00

Note. All frequencies and percentages are unweighted numbers.

Table A-10

Adopted Adolescents' Knowledge about Birth Father by Age at Placement, 1995

	Age at placement											
	6 month			7month-2years			3-6 years			7 years +		
Questions	*n*	*f*	%	*n*	*n*	*f*	%	*n*	*n*	*f*	%	*n*
Is he still living?	34			31			18			37		
Yes		19	55.83		26	83.87		16	88.89		32	86.49
No		1	2.94		2	6.45		2	11.11		5	13.51
Don't know		14	41.18		3	9.68		0	0		0	0
Disability mentally or physically?	34			31			18			37		
Yes		2	5.88		4	12.90		3	16.67		7	18.92
No		23	67.65		25	80.65		15	83.33		30	81.08
Don't know		9	26.47		2	6.45		0	0		0	0
Born in the U.S.?	34			31			18			37		
Yes		26	76.47		29	93.55		16	88.89		32	86.49
No		3	8.82		2	6.45		1	5.56		5	13.51
Don't know		5	14.71		0	0		1	5.56		0	0
Education Level?	34			31			18			37		
< High school		4	11.76		7	22.58		2	11.11		7	18.92
High school		14	41.18		8	25.81		6	33.33		11	29.73
Some college+		2	5.88		5	16.13		0	0		8	21.62
Don't know		14	41.18		11	35.48		10	55.56		11	29.73
Have birth father ever smoked cigarettes?	18			26			16			32		
Yes		10	55.56		19	73.08		7	43.75		21	65.63
No		2	11.11		6	23.08		6	37.50		8	25.00
Don't know		6	33.33		1	3.85		3	18.75		3	9.38

Note. All frequencies and percentages are unweighted numbers.

Table A-11

Adopted Adolescents' Contact with Birth Mother by Age at Placement, 1995

	Age at placement											
	6 month			7month-2years			3-6 years			7 years +		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Age when last lived with birth mother?	7			33			31			55		
≤ 1		6	85.71		11	33.33		5	16.13		2	3.64
2-5 years old		0	0		13	39.39		15	48.39		11	20.00
6-10 years old		0	0		3	9.09		6	19.35		30	54.55
11-15 years old		1	14.29		5	15.15		4	12.90		8	14.55
16-18 years old		0	0		1	3.03		1	3.23		4	7.27
Mean (*SD*)		2.14 (5.67)			4.52 (5.35)			5.03 (4.86)			8.22 (3.98)	
Duration lived with birth mother?	1			22			25			53		
≤ 1		1	100.00		2	9.09		3	12.00		2	3.77
2-5 years		0	0		15	68.18		15	60.00		14	26.42
6-10 years		0	0		2	9.09		6	24.00		28	52.83
≥ 11 years		0	0		3	13.64		1	4.00		9	16.98
Mean (*SD*)		0 (n.a)			4.41 (4.51)			4.16 (3.23)			7.47 (3.62)	

Note. All frequencies and percentages are unweighted numbers.

Table A-12

Adopted Adolescents' Contact with Birth Father by Age at Placement, 1995

	Age at placement											
	6 month			7month-2years			3-6 years			7 years +		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Age when last lived with birth father?	4			15			12			28		
≤ 1		1	25.00		4	26.67		1	8.33		2	7.14
2-5 years old		1	25.00		7	46.67		10	83.33		6	21.43
6-10 years old		1	25.00		4	26.67		1	8.33		10	35.71
11-15 years old		1	25.00		0	0		0	0		7	25.00
16-18 years old		0	0		0	0		0	0		3	10.71
Mean (*SD*)		6.25 (6.24)			3.47 (3.50)			3.50 (2.20)			8.57 (5.07)	
Duration lived with birth father?	2			11			11			26		
≤ 1		0	0		1	9.09		1	9.09		1	3.85
2-5 years		1	50.00		7	63.64		10	90.91		8	30.77
6-10 years		1	50.00		3	27.27		0	0		11	42.31
≥ 11 years		0	0		0	0		0	0		6	23.08
Mean (*SD*)		6.00 (5.66)			4.09 (3.45)			3.09 (1.51)			7.38 (3.97)	

Note. All frequencies and percentages are unweighted numbers.

Table A-13

Adopted Adolescents' Involvement with Birth Mother by Age at Placement, 1995

	Age at placement											
	6 month			7month-2years			3-6 years			7 years +		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Activity with birth mother in past 4 weeks?	16			25			21			32		
Go shopping		4	25.00		5	20.00		5	23.81		5	15.63
Play sport		1	6.25		2	8.00		1	4.76		2	6.25
Religious event		2	12.50		5	20.00		2	9.52		6	18.75
Go to movie, etc		1	6.25		3	12.00		1	4.76		3	9.38
Talk about life		5	31.25		9	36.00		10	47.62		15	46.88
Talk about personal problems		5	31.25		7	28.00		7	33.33		10	31.25
Serious argument		1	6.25		4	16.00		2	9.52		5	15.63
Talk about school work		6	37.50		11	44.00		13	61.90		18	56.25
Work on school project		3	18.75		3	12.00		1	4.76		2	6.25
Talk about other things in school		3	18.75		8	32.00		9	42.86		12	37.50
Closeness to birth mother?	41			37			27			50		
Not close at all		25	60.98		17	45.95		6	22.22		24	48.00
Not very close		6	14.63		4	10.81		5	18.52		5	10.00
Somewhat close		4	9.76		8	21.62		3	11.11		8	16.00
Quite close		4	9.76		4	10.81		7	25.93		5	10.00
Extremely close		2	4.88		4	10.81		6	22.22		8	16.00
Mean (*SD*)	1.83 (1.12)			2.30 (1.43)			3.07 (1.52)			2.36 (1.55)		

Note. All frequencies and percentages are unweighted numbers.

Table A-14

Adopted Adolescents' Involvement with Birth Father by Age at Placement, 1995

	Age at placement											
	6 month			7month-2years			3-6 years			7 years +		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Activity with birth father in past 4 weeks?	7			18			9			21		
Go shopping		2	28.57		5	27.78		2	22.22		3	14.29
Play sport		2	28.57		4	22.22		2	22.22		0	0
Religious event		2	28.57		3	16.67		1	11.11		1	4.76
Go to movie, etc		2	28.57		3	16.67		2	22.22		1	4.76
Talk about life		1	14.29		6	33.33		2	22.22		6	28.57
Talk about personal problems		3	42.86		6	33.33		4	44.44		4	19.05
Serious argument		0	0		3	16.67		0	0		2	9.52
Talk about school work		5	71.43		8	44.44		5	55.56		9	42.86
Work on school project		2	28.57		3	16.67		1	11.11		0	0
Talk about other things in school		3	42.86		7	38.89		4	44.44		6	28.57
Closeness to birth father?	18			26			16			32		
Not close at all		12	66.67		10	38.46		5	31.25		8	25.00
Not very close		1	5.56		2	7.69		2	12.50		5	15.63
Somewhat close		2	11.11		5	19.23		4	25.00		11	34.38
Quite close		2	11.11		6	23.08		3	18.75		5	15.63
Extremely close		1	5.56		3	11.54		2	12.50		3	9.38
Mean (*SD*)	1.83 (1.34)			2.62 (1.50)			2.69 (1.45)			2.69 (1.28)		

Note. All frequencies and percentages are unweighted numbers.

Table A-15

Adopted Young Adults' Knowledge about and Involvement with Birth Mother by Gender, 2002

	Gender					
	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Is she still living?	141			110		
Yes		79	56.03		75	68.18
No		22	15.60		12	10.91
Don't know		40	28.37		23	20.91
Birth mother contributes to living expense?	58			47		
Yes		16	27.59		12	25.53
No		42	72.41		35	74.47

Note. All frequencies and percentages are unweighted numbers.

Table A-16

Adopted Young Adults' Knowledge about and Involvement with Birth Father by Gender, 2002

	Gender					
	Female			Male		
Questions	*n*	*f*	%	*n*	*f*	%
Is he still living?	91			70		
Yes		54	59.34		45	64.29
No		17	18.68		12	17.14
Don't know		20	21.98		13	18.57
Birth father contributes to living expense?	32			21		
Yes		12	37.50		7	33.33
No		20	62.50		14	66.67

Note. All frequencies and percentages are unweighted numbers.

Table A-17

Adopted Young adults' Knowledge about Birth Mother by Age Group, 2002

	Age Group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*F*	%
Is she still living?	61			135			55		
Yes		42	68.85		81	60.00		31	56.36
No		3	4.92		16	11.85		15	27.27
Don't know		16	26.23		38	28.15		9	16.36
Birth mother contributes to living expense?	34			48			23		
Yes		10	29.41		13	27.08		5	21.74
No		24	70.59		35	72.92		18	78.26

Note. All frequencies and percentages are unweighted numbers.

Table A-18

Adopted Young Adults' Knowledge about Birth Father by Age Group, 2002

	Age Group								
	12-14			15-17			18-20		
Questions	*n*	*f*	%	*n*	*f*	%	*n*	*f*	%
Is he still living?	42			78			41		
Yes		26	61.90		48	61.54		25	60.98
No		5	11.90		12	15.38		12	29.27
Don't know		11	26.19		18	23.08		4	9.76
Birth father contributes to living expense?	13			25			15		
Yes		6	46.15		8	32.00		5	33.33
No		7	53.85		17	68.00		10	66.67

Note. All frequencies and percentages are unweighted numbers.

Table A-19

Adopted Young Adult' Knowledge about Birth Mother by Age at Placement, 2002

	Age at placement											
	6 month			7month-2years			3-6 years			7 years +		
Questions	*n*	*f*	*%*	*n*	*f*	*%*	*n*	*f*	*%*	*n*	*f*	*%*
Is she still living?	95			56			36			64		
Yes		47	49.47		37	66.07		23	63.89		47	73.44
No		4	4.21		13	23.21		6	16.67		11	17.19
Don't know		44	46.32		6	10.71		7	19.44		6	9.38
Birth mother contributes to living expense?	23			27			19			36		
Yes		4	17.39		9	33.33		6	31.58		9	25.00
No		19	82.61		18	66.67		13	68.42		27	75.00

Note. All frequencies and percentages are unweighted numbers.

Table A-20

Adopted Young Adults' Knowledge about Birth Father by Age at Placement, 2002

	Age at placement											
	6 month			7month-2years			3-6 years			7 years +		
Questions	*n*	*f*	*%*	*n*	*f*	*%*	*n*	*f*	*%*	*n*	*f*	*%*
Is he still living?	50			36			26			49		
Yes		22	44.00		23	63.89		17	65.38		37	75.51
No		5	10.00		8	22.22		6	23.08		10	20.41
Don't know		23	46.00		5	13.89		3	11.54		2	4.08
Birth father contributes to living expense?	9			12			9			23		
Yes		1	11.11		5	41.67		3	33.33		10	43.48
No		8	88.89		7	58.33		6	66.67		13	56.52

Note. All frequencies and percentages are unweighted numbers.

Table A-21

Changes of Adoptees' Knowledge about Birth Parents between 1995 and 2002 (N=436)

2002 / 1995	Both		Mother		Father		Neither	
Both	(1)	73 (16.74%)	(2)	8 (1.83%)	(3)	2 (0.46%)	(4)	13 (2.98%)
Mother	(5)	35 (8.03%)	(6)	46 (10.55%)	(7)	1 (0.23%)	(8)	22 (5.05%)
Father	(9)	1 (0.23%)	(10)	0 (0.00%)	(11)	8 (1.83%)	(12)	2 (0.46%)
Neither	(13)	34 (7.80%)	(14)	37 (8.49%)	(15)	0 (0.00%)	(16)	154 (35.32%)

Note. The number in parenthesis indicates the cell number

Table A-22

Changes of Adoptees' Contact with Birth Parents between 1995 and 2002 (N=436)

2002 / 1995	Both		Mother		Father		Neither	
Both	(1)	19 (4.36%)	(2)	4 (0.92%)	(3)	1 (0.23%)	(4)	5 (1.15%)
Mother	(5)	5 (1.15%)	(6)	35 (8.03%)	(7)	3 (0.69%)	(8)	10 (2.29%)
Father	(9)	1 (0.23%)	(10)	1(0.23%)	(11)	8 (1.83%)	(12)	6 (1.38%)
Neither	(13)	9 (2.06%)	(14)	24 (5.50%)	(15)	3 (0.69%)	(16)	302 (69.27%)

Note. The number in parenthesis indicates the cell number

CURRICULUM VITAE

Kyung-Eun Park
PhD Candidate

ADDRESS

Dept. of Family, Consumer, and Human Development
Utah State University
2905 Old Main Hill
Logan, UT 84322

Phone: 435-797-8786 (O), 435-797-6321 (H)
Fax: 435-797-3845
Email: kypark@cc.usu.edu

EDUCATION

2000-present	Ph.D. Candidate	Utah State University, Logan, UT Dissertation title: *Adoptees' knowledge about and contact with birth parents and their adjustment in adolescence and young adulthood* (Major: Marriage & Family Relations)
1999	MS.	Korea University, Seoul, Korea. Thesis title: *Generational transmission of household work from mothers and married daughters and related variables* (Major: Family Resource Management)
1995	BA	Korea University, Seoul, Korea (Major: Home Economics Education)

EMPLOYMNET

2005 Sep-Present	Research Assistant for Cache Valley Memory Studies with Dr. Maria Norton (Data programming)
2004-2005	Research Assistant for Department Assessment Project with Dr. Tom Lee (Constructing survey materials)

2001-2005 Feb	Research Assistant for project "Adoption and late adolescent well-being" with Dr. Brent C. Miller, Xitao Fan, and Harold Grotevant (Data management, data analysis, and writing manuscripts)
2001 Summer	Research Assistant for project "A Parent-Education Program for Guarani Parents in Paraguay" with Dr. Ann Austin (Data cleaning and analysis)
2000-2001	Graduate Assistant for Dr. Shelley Lindauer, Brent C. Miller, and Marcelo Diversi (Writing book chapter, literature review, and literature search)
1999 (Jan-Aug)	Coordinator, Korean Home Economic Education Association (Coordinating submitted manuscripts, managing journal publication, designing and executing conferences, managing memberships, accounting, etc.)
1998-1999	Project Manger for the project "Generational transmission of Household Work" Dr. Yon Suk Lee (Major Professor) (Research Design, Developing survey, Data gathering, Data management and analysis, and writing scripts)
1996-1997	Department Coordinator, Department of Home Economics Education, Korea University, Seoul, Korea (Mentoring undergraduates, coordinating developing curriculums, etc.)
1995-1996	Teacher, Heawon Girls' High School, Seoul, Korea

PUBLICATIONS

Miller, B.C., Park, K.E., & Winward, B. (in press). Adoption outcomes. In K. Stolley (Ed.).

Miller, B.C., Leavitt, S.C., Junius, M., & Park, K.E. (2004). Marriages and Families in the United States. In U.P. Gielen (Ed.). *Families global perspective*. Allyn & Bacon, Boston, MA.

Miller, B.C., Park, K.E., & Thomas, A. (2003). Nonmarital childbearing. In J.J. Ponzetti (Ed.) *International Encyclopedia of Marriage and Family Relationships,* (pp. 1175-1181, 2nd edition). MacMillan, NY.

Fan, X., Miller, B.C., Christensen, M., Bayley, B., Park, K.E., Grotevant, H.D., van Dulmen, M., & Dunbar, N. (2002). Questionnaire and interview inconsistencies between adopted and non adopted adolescents in a national sample. *Adoption Quarterly, 6(2),* 7-27.

Lee, Y.S., & Park, K.E. (2000). Generational transmission of household work form mothers to married daughters. *Journal of Korean Home Management Association, 18(2)*, 29-44.

Lee, Y.S., & Park, K.E. (2000). Generational transmission of household work form mothers to married daughters and related variables. *Journal of Korean Home Management Association, 18(3)*, 129-146.

MANUSCRIPT SUMBITTED FOR PUBLICATION

Fan, X., Miller, B.C., Park, K.E., Winward, B.W., Christensen, M., & Grotevant, H.D., (under revision). Response invalidity in adolescent self-report surveys: An exploratory study of "jokesters" and their distorting effects. Submitted to *FIELD METHODS.*

PRESENTATIONS

Park, K.E., Miller, B.C., Christensen, M., Fan, X., & Grotevant, H.D. (2003, November) Adopted adolescents knowledge of, and contact with, birth parents. Poster presentation given at annual meeting of the National Council on Family Relations, Vancouver BC.

Koh, S, Kwon, H-K, Park, K.E (2003, November). Sharing experience, knowledge, and tips: Perspectives of international NCFR attendances. Round Tables at the meeting of the National Council of Family Relations, Vancouver BC.

Park, K.E. and Kwon, H-K (2002, November). Sharing experience, knowledge, and tips: Perspectives of international NCFR attendances. Round Tables at the meeting of the National Council of Family Relations, Houston, TX.

Fan, X., Miller, B.C., Christensen, M., Bayley, B., Park. K.E., Grotevant, H.D., Kouneski, E.F., van Dulmen, M.H., & Dunbar, N. (2002, July). Questionnaire and Interview Inconsistencies between Adopted and Non-Adopted Adolescents in a National Sample. Paper presented at the meeting of the Add Health Users Workshop, Bethesda, MD.

Kouneski, E.F., Grotevant, H.D., Dunbar, N., van Dulmen, M.H., Miller, B.C., Fan, X., Christensen, M., Bayley, B., & Park, K.E. (2002, July). Antisocial behavior in adopted and nonadopted adolescents: A structural equations approach. Paper presented at the meeting of the Add Health Users Workshop, Bethesda, MD.

Leavitt, S.C., Miller, B.C., Junius, M., & Park, K.E. (2001). Age of mother and relinquishment of children for adoption in New Zealand. Poster presentation at the meeting of the National Council on Family Relations, Rochester, NY.

GRANT

1998-1999 "Generational transmission of household work from mothers and marred daughters and related variables." funded by Korean Research Foundation ($12,000). Yon Suk Lee, PI and Kyung-Eun Park, Project Manager

TEACHING EXPERIENCES

2005 (Feb-Mar) 6 sessions workshop for Korean families in dual cultures (Topics: Attachment, Bilingual Education, Communication with Teens, Premarital Relationship, Gender Issues in Family, and Preventing Divorce)

2002-2003 Teaching Assistant for Undergraduate Courses (Human Development, Research Methods, and Family Policy) of Utah State University (Grading)

1998-1999 Teaching Assistant for Undergraduate Courses (Women and Work, Family Resource Management, Teaching Methods for Home Economics, and Practicum of Family Resource Management) of Korea University (Material development and guest lecturing)

TEACHING TRAINING

2004 fall Completion International Teaching Assistant Workshop given by the Intensive English Institute at Utah State University (This means "Kyung-Eun Park is recommended for a Teaching Assistantship without limitations")

COMMUNITY SERVICES

2005 March Special Lecture about Premarital Relationships in Annual Youth Retreat of Logan Oriental Mission Church

SERVICES IN PROFESSIONS

2002-2004 Reviewer of International Section in National Council on Family Relations.

SERVICES IN DEPARTMENT

1998 President of Graduate Student Association of Dept. of Home Economics, College of Education, Korea University, Seoul, Korea.

1991 Vice Senator of Undergraduate Student of Dept. of Home Economics Education, College of Education, Korea University, Seoul, Korea.

PROFESSIONAL MEMBERSHIPS

2001-2005 Member of National Council on Family Relations

AWARDS

1991 Fall Scholarship with honors of the semester

1994 Fall Scholarship with honors of the semester

Last updated October 24th, 2005