

The Role of Siblings in Adoption Outcomes and Experiences From Adolescence to Emerging Adulthood

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In many families, siblings play important roles in shaping each other's outcomes and experiences across development. In adoptive families, siblings may affect adoptees' feelings about adoption and birth family contact. Among "target adoptees" (i.e., 1 participating adopted individual within adoptive families) with siblings who may have also been adopted or the biological children of the adoptive parents, we examined how adoption experiences and individual adjustment from adolescence into emerging adulthood were associated with sibling relationship dynamics. We present 3 studies using longitudinal, mixed method data within the same overarching sample of adoptive families. Study 1 was a follow-up to Berge et al.'s (2006) study of adolescent adoptees and their adopted siblings with birth family contact; we found evidence of changes in the status of contact collectively experienced by 26 adopted sibling pairs when target adoptees were emerging adults. In Study 2, we found that target adoptees ($n = 91$) with siblings (adopted or not) who were more involved with target adoptees' birth family contact demonstrated more favorable behavioral outcomes than target adoptees who had uninvolved siblings. Finally in Study 3, for target adoptees with siblings who were also adopted ($n = 51$), results showed that target adoptees felt more positively about their own adoption when siblings expressed similar positive feelings about individual adoption experiences. Implications of our findings are discussed in terms of the enduring contributions of sibling relationships from childhood into adulthood and the unique ways in which adoptive siblings are important in shaping one another's experiences of adoption.

Keywords: adoption, adolescence, birth family contact, emerging adulthood, siblings

As role models and social partners, siblings affect one another's development across the life span (McHale, Updegraff, & Whiteman, 2012). Sibling relationships are critical to consider, because they are often the longest lasting family relationship, beyond parent-child or spousal relationships (Noller, 2005). Positive sibling dynamics can buffer against the effects of adverse family processes, but negative ones can contribute to the impact of difficult family relationships (Brody, 1998, 2004). Adoptive families offer a unique context for examining the influence of sibling relationships. Within adoptive families, the possibility of negative sibling relationships could be exacerbated by discrepancies in biological relatedness or in birth family contact; for instance, when

one sibling is an adoptee and another is the adoptive parents' biological child, or when one adopted sibling has contact with his or her birth family while the other has no such contact (Baden & Raible, 2011; Berge, Green, Grotevant, & McRoy, 2006, 2009; Tan, 2008).

Experiences of openness in adoption have been examined in numerous studies that consider perspectives of different members of the adoption triad (i.e., adoptees, adoptive parents, birth family; e.g., Grotevant, 2012; Neil, 2013; Siegel, 2012). In families with multiple adopted children, the adoptive kinship network of birth and adoptive families is expanded. Contemporary adoptive families frequently experience the dilemma posed by differing levels of contact their adopted children have with their respective birth relatives (e.g., Berge et al., 2009). However, research has rarely addressed how adoptees' experiences with openness arrangements are shaped by sibling relationships. In this study, we used multiple assessment methods (i.e., self-report, sibling report, and interviews) to examine adoption experiences and outcomes among "target" adoptees (one per family; all of whom had been adopted via domestic, private, infant, same-race adoption) and how these were associated with sibling relationship dynamics (with both adopted and nonadopted siblings within their adoptive families) from adolescence to emerging adulthood.

Theoretical Framework

To provide a conceptual foundation for the current study, we review information in the section that follows about associations between individual adjustment and sibling relationships. We do

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this from the perspective of family systems theory, as well as from the literature specifically about adoptive family systems, particularly, openness arrangements, birth family contact, and the role of emotional distance regulation. Finally, we describe variation in the nature of different types of adoptive sibling relationships before more fully describing the current study.

Family Systems Theory

Family systems theory emphasizes the importance of understanding the development and adjustment of individual family members in the context of family relationships (Cox & Paley, 1997; Minuchin, 1988). Beyond parent–child and couple or marital relationships, there has been growing interest in the contributions of sibling relationships to individual adjustment across the life span (Brody, 1998, 2004; Cicirelli, 2005; Matthews, 2005; McHale et al., 2012; Noller, 2005; White, 2001). Sibling relationships are critical to examine in understanding children’s development, because siblings have formative and enduring influences on cognitive, emotional, and behavioral adjustment in both direct and indirect ways (Brody, 2004).

While few studies of adoptive family systems have focused on the contributions of sibling relationships to adoptees’ outcomes (e.g., Berge et al., 2006; Cossar & Neil, 2013; Tan, 2008), examining the influence of siblings in the absence of biological connections within adoptive families is a compelling area for further study. Uncovering significant associations with individual adjustment among adoptive siblings would support the notion that siblings are important to one another’s development not simply on the basis of biological relatedness. Research focusing on gene–environment interactions among twin, nontwin, and adoptive siblings is consistent with this idea (e.g., Hicks, Foster, Iacono, & McGue, 2013; Samek, McGue, Keyes, & Iacono, 2014). Research about adoptive siblings could provide insights about unique attributes of sibling relationships that exist beyond biological connections, as well as discovery of factors that are both distinct and similar among siblings in adoptive and nonadoptive families.

Two indicators of psychological adjustment, internalizing and externalizing behaviors, have been targeted in prior studies of sibling relationships, particularly during adolescence (Hamilton, 2005; Pilowsky, Wickramaratne, Nomura, & Weissman, 2006). Among siblings in adulthood, Hicks et al. (2013) found that sibling similarity, over and above parent–child similarity, uniquely contributed to a greater environmental risk for externalizing problems; this sample included twins, nontwin biological siblings, and adoptive siblings (average age = 26 years). One factor that appears to buffer individual risk for externalizing problems is sibling closeness, conceptualized as emotional and/or behavioral closeness. For instance, in studies where siblings reported being closer, individual externalizing problems were fewer (Branje, van Lieshout, van Aken, & Haselager, 2004; Criss & Shaw, 2005). Furthermore, in a sample including adoptees, Samek and Rueter (2011) revealed that while biological siblings tend to report greater behavioral closeness (i.e., frequency and quality of time spent together), biological and adoptive siblings were indistinguishable in terms of emotional closeness (i.e., perceptions of love, care, and trust between siblings). Regardless of adoptive status, siblings were more likely to report greater closeness (behavioral and emotional) when they

were from families with better and more open communication (Samek & Rueter, 2011).

Also from the family systems literature, and related to sibling closeness, is the notion of social or emotional contagion. Social contagion hypotheses have been studied among samples of adoptive (nonbiologically related) and nonadoptive (biologically related) siblings as related to risk for substance use (e.g., Samek, Rueter, Keyes, McGue, & Iacono, 2015). Emotional contagion hypotheses suggest that siblings do not simply affect one another’s behavior as a result of being in the same physical location; rather, contagion effects refer to the emotional influences that siblings can have on one another, leading to possible changes in individual choices or behaviors. One question yet to be explored in the research literature is how emotional contagion effects might be at work among adoptive siblings about their experiences of adoption and birth family contact. Family systems theory would predict that when one sibling feels positively about their adoption, it is likely that other adopted siblings would experience similar feelings—especially if these siblings also report greater closeness and involvement in one another’s lives.

Openness Arrangements

Theories directly relevant to adoptive family systems are pertinent to consider in understanding the influence of sibling relationships among these families, including those related to openness arrangements and birth family contact. Open adoption arrangements involve some level of contact or information sharing among members of the adoption kinship network (Grotevant, McRoy, Wrobel, & Ayers-Lopez, 2013). The type of contact may include communications via e-mail, Skype or FaceTime, social media (e.g., Facebook, Instagram, etc.), texts, phone calls, in-person visits, or the exchange of gifts or photographs. Contact frequency occurs along a continuum from contacts made only initially at the time of the adoptive placement to frequent and ongoing contact over time. The type, frequency, directness of contact (e.g., sharing identifying information vs. mediated contact via the adoption agency without sharing identifying information), and number of persons involved are variable and dynamic over time, depending on life circumstances, motivations, and other relationship factors (Grotevant et al., 2013). Thus, the complexities of adoption openness may be particularly notable among adoptive families with multiple adopted children. Of interest here is how the status of birth family contact evolves over time for target adoptees and their adopted siblings and also how target adoptees’ adoption experiences and outcomes may be related to siblings’ involvement in target adoptees’ birth family contact.

Emotional Distance Regulation

Another such theory related to adoptive family systems concerns *emotional distance regulation*, which Grotevant (2009) describes as the process underlying the dynamics of contact between birth and adoptive families. Within the adoptive kinship network, every person involved must manage his or her own level of emotional comfort as new relationships are developed, expanded, and maintained through dynamic processes of separation and connection across time. Of interest in this study is how siblings may uniquely contribute to target adoptees’ experiences of birth family contact over time, via processes of emotional distance regulation. For instance, when siblings are

actively involved with target adoptees' contact with birth relatives, this may cultivate more positive feelings and desires for connection among target adoptees in regard to their relationships with birth family members. Alternatively, when siblings are not engaged or supportive of target adoptees' birth family contact, or perhaps when adoptive siblings do not have positive experiences of their own adoption, target adoptees may be more likely to distance themselves from their birth families and/or have less positive feelings about their adoption. The vice versa could also be true: When siblings are not actively involved in target adoptees' birth family contact, perhaps target adoptees may feel more autonomy to explore their relationships with birth family. Little empirical research has addressed these issues; thus, we sought to contribute findings to fill this gap and extend findings about emotional distance regulation dynamics to adoptive sibling relationships.

In one of few studies about birth family contact among adopted siblings, Berge et al. (2006) explored adoption and family dynamics among 29 adopted sibling pairs ($N = 58$) when target adoptees from the current sample were adolescents. Adolescents in "dual contact" sibling sets (i.e., both siblings had contact with their own birth families) reported having fewer conversations about their adoption with their family or close friends than did the adolescents in "mixed contact" sibling sets (i.e., the target adoptee had no contact with birth family, while their adopted sibling did have birth family contact). Berge and colleagues highlighted that target adoptees in dual contact sibling sets had "fewer secrets or unanswered questions" regarding their adoption narrative, while those with confidential (closed) adoptions in mixed contact sibling sets expressed a greater need to talk about adoption with family and friends. These target adoptees reported a strong desire to connect with their own birth families, perhaps after observing their adopted siblings sharing a special bond with their respective birth families (Berge et al., 2006).

Types of Adoptive Sibling Relationships

Sibling relationships within adoptive families represent a diverse array of family formation pathways (Baden & Raible, 2011); of these, we consider three main types in the current study. First, multiple adopted children within the same family may represent different adoption placements from unrelated birth families. In these families, siblings are not biologically tied to one another, nor to the adoptive parents. Second, families may have multiple adopted children, who

may be biologically related to one another, but not to the adoptive parents. Third, siblings in adoptive families could represent adoptees as well as biological children of the adoptive parents. Here, siblings are biologically unrelated, and adopted children are not biologically tied to the adoptive parents, but biological children of the adoptive parents do share biological linkages. Of course, it should be acknowledged that sibling relationships could also involve those of birth siblings who are raised in separate adoptive families. While there is some research about connections among birth siblings (e.g., Cossar & Neil, 2013), these relationships are outside the scope of our work. Rather, this study examines relationships among siblings who have been reared within the same adoptive family system.

The Current Study

For clarity of presentation, methods and results of this article are organized into three studies, each of which focuses on a separate research question, using largely separate subsamples and measures from the larger project. Table 1 provides an overview of the three studies. Because adoptive sibling relationships can be complex, we have identified the "target adoptee" as the primary participant included in each family who met specific eligibility criteria. We use this term to make comparisons among siblings more interpretable. Study 1 was a longitudinal follow-up of Berge et al. (2006) and asked about changes in birth family contact for 26 adopted sibling pairs (including the target adoptee and his or her adopted sibling) from adolescence to emerging adulthood. Study 2 focused on target adoptees with birth family contact and asked how their siblings' (adopted or nonadopted) involvement in this contact is associated with target adoptees' behavioral adjustment and adoption experiences from adolescence to emerging adulthood. Study 3 asked how the behavioral adjustment of target adoptees in adolescence and emerging adulthood is associated with their adopted siblings' experiences with their own adoption.

General Method

Participants

Participants for all three studies were drawn from the longitudinal, mixed-methods Minnesota-Texas Adoption Research Project (MTARP), which began in the mid-1980s and initially included 190 adoptive families headed by two-parent hetero-

Table 1

Key Research Questions (RQs), Sample, and Measures Used for Study 1, 2, and 3

Study 1. RQ	For adopted sibling pairs, have there been changes in birth family contact status from adolescence to adulthood?
Sample	29 adopted sibling pairs ($n = 58$, W2; target adoptees, siblings), at least one with contact (26 pairs, W3, $n = 52$)
Measures	<i>Birth family contact</i> : Presence of contact (yes/no) for target and sibling, coded from target interviews (W2, W3)
Study 2. RQ	For target adoptees with birth family contact, how is sibling (adopted or not) involvement in this contact associated behavioral adjustment and adoption experiences from adolescence to emerging adulthood?
Sample	91 target adoptees
Measures	<i>Siblings and birth family contact</i> : Were siblings involved in target adoptees' contact (W2)? yes/no from interviews <i>Behavioral adjustment</i> : Youth Self-Report (W2); Adult Self-Report (W3) <i>Perceptions of adoption experience</i> : Adoption Dynamics Questionnaire (W2, W3) <i>Frequency of and satisfaction with contact, affect toward birth family/adoption</i> : coded from interviews (W2, W3)
Study 3. RQ	How is target adoptees' behavioral adjustment associated with their adopted siblings' feelings about adoption?
Sample	51 adopted sibling pairs ($N = 102$; $n = 51$ target adoptees, $n = 51$ adopted siblings)
Measures	<i>Behavioral adjustment (target adoptee)</i> : Youth Self-Report (W2); Adult Self-Report (W3) <i>Perceptions of adoption experience</i> : Adoption Dynamics Questionnaire (W2, W3, target adoptee; W2, siblings)

sexual married couples. Families were recruited from 35 private domestic adoption agencies in 23 states (Grotevant et al., 2013). Parents were predominantly White; all had completed same-race, infant adoptions (mean age of placement = 4 weeks). In families with more than one adopted child meeting eligibility criteria (i.e., placed before first birthday via domestic, private, same-race adoption), the eldest child within the targeted age range (4 to 12 years) was generally chosen as the “target adoptee.” At Wave 2, 156 adolescent adoptees ($M_{\text{age}} = 16$; range = 11–20 years) participated; at Wave 3, 167 emerging adult adoptees ($M_{\text{age}} = 25$; range = 21–30 years) participated. Generally, no significant differences were found in Wave 1 (e.g., openness level, child and parent adjustment, demographic characteristics, etc.) between families who did and did not participate later waves.

Data from 88 siblings (adopted and nonadopted) were also collected at Wave 2. Adopted siblings represented 68 of these 88, while 20 were the biological children of the parents. For the majority of families, if the target adoptee had two or more siblings, only one sibling was chosen to participate. The sibling selected to participate was closest in age to the target adoptee, had to live at home with the adoptive parents, and needed to be present during the home visit for data collection and willing to participate. Thus, data were generally provided from only one sibling (adopted or nonadopted) of the target adoptee at Wave 2, even if the target adoptee had several siblings. (Data were not collected from siblings at Wave 3.) Data from different participants were used in each of the three studies, as specified in Table 1.

Because gender has been found to have significant associations with adoptees’ experiences of birth family contact (e.g., Farr, Grant-Marsney, Musante, Grotevant, & Wrobel, 2014), we ran preliminary analyses among adoptee gender, sibling gender, and all variables of interest. In general, there were few significant gender differences; for instance, male and female adoptees did not differ in behavioral adjustment, positive affect with own adoption, negative experiences of adoption, and frequency of birth family contact at Wave 2 or 3, nor did they differ in likelihood of sibling involvement in birth family contact (Wave 2). Moreover, there were no significant differences in any study variables on the basis of sibling gender. There were, however, a few significant associations between target adoptee gender and variables at Waves 2 and 3. In adolescence, female adoptees had greater positive affect toward birth mothers ($M = 3.24$, $SD = 1.22$) than did male adoptees ($M = 2.60$, $SD = 1.39$), $t(132) = 2.82$, $p = .006$. In emerging adulthood, satisfaction with birth mother contact was higher among male ($M = 2.80$, $SD = 1.15$) than female adoptees ($M = 2.31$, $SD = 1.33$), $t(164) = 2.55$, $p = .012$; negative affect about adoption was lower among male ($M = 1.71$, $SD = 1.02$) than female adoptees ($M = 2.25$, $SD = 1.05$), $t(163) = 3.21$, $p = .002$. Preoccupation with adoption history was significantly higher for female than male adoptees at both Wave 2 (female: $M = 43.67$, $SD = 14.67$; male: $M = 34.02$, $SD = 13.27$), $t(137) = 4.05$, $p < .001$, and Wave 3 (female: $M = 41.61$, $SD = 11.21$; male: $M = 36.01$, $SD = 11.16$), $t(153) = 3.11$, $p = .002$. Thus, for these variables, we further examined the role of adoptee gender in interpreting results.

Procedures

Target adoptees responded to a series of questionnaires and semistructured interview questions related to adoption dynamics and behavioral adjustment, which were completed in participants’ homes at Wave 2 (when target adoptees were adolescents) and online at Wave 3 (when target adoptees were emerging adults). Siblings who participated at Wave 2 completed hard copy questionnaires at the time of data collection. In Waves 2 and 3, target adoptees were interviewed by trained personnel (i.e., the principal investigator and/or advanced graduate students). These semistructured interviews covered a broad range of topics about adoption, birth family contact, and family relationships. Interview questions were designed to assess the status of contact with birth family (i.e., ongoing/opened vs. stopped), frequency of and satisfaction with contact, affect toward birth parents and adoption, and sibling involvement in birth family contact.

Trained research personnel globally rated each interview transcript (i.e., rated the interview as a whole). Coders were supervised by the principal investigator (the second author). Interrater reliability was .80 or above for all coding. Coding manuals are available from the authors upon request. This study was approved by the Institutional Review Boards of the University of Minnesota and the University of Massachusetts Amherst. No financial compensation was provided during Wave 2. At Wave 3, upon completing the questionnaires, emerging adult participants received \$75; upon completing the interview, participants received an additional \$75 as compensation.

Study 1

Study 1 represents a longitudinal follow-up to Berge et al.’s (2006) study of birth family contact among adopted sibling pairs when target adoptees were adolescents. Study 1 involved the following research questions: For adopted sibling pairs, has the status of birth family contact for the target adoptee and/or their adopted sibling changed from adolescence to emerging adulthood? How are changes in contact status characterized (e.g., has the contact opened or stopped for both the target adoptee and their adopted sibling or for just one individual in the pair)? Based on previous literature of family systems broadly and adoptive families specifically, we expected that there would be changes in the status of birth family contact among sibling pairs over time, as we know target adoptees’ frequency of contact with birth family generally decreased from adolescence into emerging adulthood among this sample, (e.g., Farr, Grant-Marsney, Musante et al., 2014).

Method

For Study 1, 29 adopted sibling pairs in which at least one of the pair had some form of ongoing contact with their birth families were identified from the MTARP sample at Wave 2 (see Berge et al., 2006). Twenty-six of these 29 pairs provided sufficient data for analysis at Wave 3. Three target adoptees did not participate at Wave 3, two of whom are female and one male, and all were part of dual contact sibling groups at Wave 2. Thus, of the 26 pairs at Wave 3, 16 represented different-sex sibling pairs and 10 were same-sex sibling pairs. There were 23 men and 29 women among the 26 sibling pairs (or 52 individuals). Target adoptees in these 26

pairs were 12 men and 14 women (26 target adoptees) who were 24.41 years on average at Wave 3. Siblings in the 26 pairs were 10 men and 16 women (26 siblings). Although all were within several years' age of one another, target adoptees were older than their siblings in 19 of the 26 pairs, younger in 5 pairs, and 2 pairs were twins. All sibling pairs had separate birth families except for the two pairs of twins. Approximately half of target adoptees had additional siblings (in 12 of these 26 pairs), ranging from one to five siblings. Of these additional siblings, the majority were also adopted (77), while 11 were the biological children of the adoptive parents.

Analyses in this study used data about the presence of contact reported by target adoptees at Waves 2 and 3. Presence of contact for target adoptees was assessed at Waves 2 and 3 with a dichotomous "yes/no" code from target adoptees' interview transcripts. If they had siblings who were also adopted, target adoptees reported on whether these siblings had contact ("yes" or "no") with their own birth families at Waves 2 and 3. In this way, whether target adoptees and their adopted siblings had "dual," "mixed," or no contact with birth families at Wave 3 could be determined among these sibling pairs as a follow-up to Berge et al.'s (2006) study.

Results

As hypothesized, our results (Figure 1) showed changes in the status of birth family contact from adolescence to emerging adulthood for most ($n = 14$) of the 26 adopted sibling pairs (identified by Berge et al., 2006 at Wave 2 and who provided sufficient data at Wave 2 and 3). From interview ratings at Wave 2, 18 adopted sibling pairs were identified to have "dual contact" (both siblings had contact) and 8 had "mixed contact" (one sibling had contact) (Berge et al., 2006). At Wave 3, based on data reported by target adoptees in their semistructured interviews, only 9 of the 26 adopted sibling pairs had dual contact, while 13 had mixed contact, and 4 dropped to no contact in emerging adulthood. Thus, given

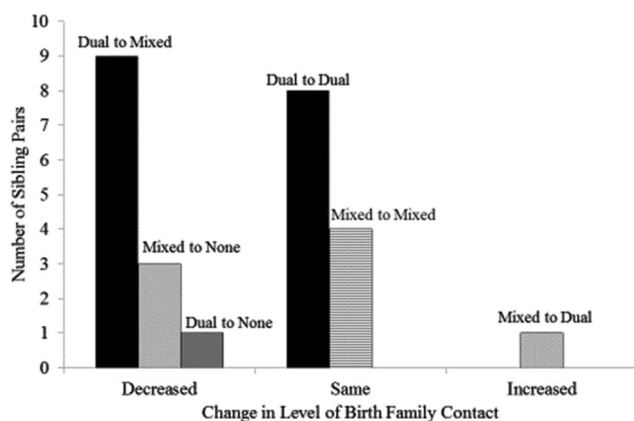


Figure 1. Contact among 26 adopted sibling pairs from adolescence to emerging adulthood. The frequency of sibling groups is represented on the y-axis and patterns of stability and change in level of birth family contact are displayed on the x-axis (decreased, same, or increased). Note that "dual" refers to dual contact, in which both siblings had contact; "mixed" refers to mixed contact, in which one of the two siblings had contact; "none" refers to cases in which both siblings had no birth family contact.

the shifts across these categories (e.g., 18 pairs had dual contact in Wave 2, and only 9 in Wave 3), it is clear that for most target adoptees and their adopted siblings, the status of contact changed from adolescence to emerging adulthood. The most common change in contact for sibling pairs was to decrease from having dual contact (both the target adoptee and sibling have contact) in adolescence to having mixed contact (one of the pair members has birth family contact and the other does not) in emerging adulthood ($n = 9$). Only one pair increased in contact (from mixed contact to dual contact) from adolescence to emerging adulthood. Furthermore, a number of sibling pairs ($n = 12$) maintained the same level of contact ("dual to dual" or "mixed to mixed") from adolescence to emerging adulthood. There were no differences in change patterns depending on sibling age differences (most were within 2–3 years of each other) or whether siblings were of the same or different sex. From adoptees' interview transcripts, this pattern of decreases in contact over time generally seemed to be the result of a gradual change, rather than being precipitated by some sort of discrete event; for additional details, please see Farr, Grant-Marsney, Musante et al. (2014).

Study 2

Study 2 focused on the following questions: For target adoptees with birth family contact, how is sibling involvement in this contact associated with target adoptees' behavioral adjustment and adoption experiences from adolescence to emerging adulthood? For Study 2, siblings included both adopted and nonadopted individuals, and "adoption experiences" were operationalized as feelings about birth parents and adoption, as well as frequency of and satisfaction with birth family contact. Because openness in adoption is generally associated with positive outcomes for adoptive parents, birth parents, and adoptees (e.g., Grotevant, 2012), we expected that target adoptees would derive benefits when they reported that their siblings were involved in their contact with birth family. In other words, sibling involvement in adoptees' birth family connections would likely share positive associations with target adoptees' adjustment and perceptions of adoption in adolescence and emerging adulthood. Furthermore, other research with this sample has revealed that target adoptees in emerging adulthood continue to be positively influenced by their adoptive parents via open communication about adoption (Farr, Grant-Marsney, & Grotevant, 2014); thus, we expected sibling relationships to be similarly important to target adoptees' experiences from adolescence to emerging adulthood.

Method

For Study 2, data from target adoptees with ongoing birth family contact at Wave 3 were utilized (those with no current contact were excluded). Reports from 91 emerging adult target adoptees included specific interview responses about ongoing birth family contact and whether siblings were involved in this birth family contact at Wave 3. Thus, while data were not collected directly from siblings at Wave 3, target adoptees could reference in their interviews any and all of their siblings, regardless of whether their siblings were adopted or not.

Measures. Data were drawn both from self-report questionnaires and coded from semistructured interviews with participants.

Behavioral adjustment. To assess behavioral adjustment, target adoptees completed the Youth Self Report (YSR; Achenbach, 1991) at Wave 2 and the Adult Self Report (ASR; Achenbach & Rescorla, 2003) at Wave 3 (the internalizing and externalizing behavior subscales as well as the total behavior scale were utilized here). Both the YSR and ASR are widely used, standardized questionnaires that include over 100 problem behavior items that assess internalizing, externalizing, and total behavior problems. The internalizing subscale includes items related to depression, anxiety, and somatic complaints. The externalizing subscale includes items related to aggression, anger, substance use, and antisocial behaviors. The total scale includes all items; higher numbers on this scale represent greater numbers of behavioral problems. Across the whole MTARP sample of adoptees, self-reports of internalizing, $r = .27, p < .01$ and externalizing problems, $r = .57, p < .01$ were significantly associated from adolescence to emerging adulthood (Musante, 2014).

Perceptions of adoption experience. The Adoption Dynamics Questionnaire (ADQ; Benson, Sharma, & Roehlkepartain, 1994) was used in Study 2 to assess experiences of adoption among target adoptees. Target adoptees responded to the ADQ at Waves 2 and 3. This scale includes 44 items on a 5-point Likert scale (1 = *not true or strongly disagree or never*; 5 = *always true or strongly agree or always*), choosing between seven levels of frequency (*never to everyday*), or marking “no,” “not sure,” or “yes”. The items comprise three subscales: positive affect about own adoption (PA; $\alpha = .89$, 20 items), preoccupation with own adoption history (PRE; $\alpha = .89$, 17 items), and negative experience with own adoption (NE; $\alpha = .59$, 7 items). The positive affect subscale include statements such as, “I think my parents are happy that they adopted me,” and “I’m glad my parents adopted me.” The preoccupation with adoption subscale includes items like, “It bothers me I may have brothers and sisters I don’t know”, and “I wish I knew more about my medical history.” The negative experiences with adoption subscale includes statements such as, “My parents told me I should be thankful that they adopted me,” and, “My parents tell me they can give me back if they want to.”

Sibling involvement. Target adoptees were asked at Wave 2, “How are the siblings in your adoptive family involved in your connections with your birth family?” Discrete codes were developed for rating target adoptees’ interview transcripts such that 0 = *siblings are not involved* and 1 = *siblings are involved*. This

question was not relevant (i.e., coded as not applicable) for any target adoptees without siblings and/or without current contact with birth relatives.

Frequency of contact. Target adoptees’ interview responses about frequency of birth family contact were coded at Waves 2 and 3, in which scores ranged from 1 to 5, where 1 = *never/stopped*, 2 = *once*, 3 = *rarely (less than once a year)*, 4 = *occasionally (once or twice a year)*, and 5 = *often (more than twice a year)*.

Satisfaction with contact. Target adoptees’ satisfaction with birth family contact was globally coded from interview transcripts at Waves 2 and 3, with responses ranging from 1 to 5 (i.e., 1 = *very dissatisfied*, 2 = *dissatisfied*, 3 = *neutral*, 4 = *satisfied*, and 5 = *very satisfied*).

Affect toward birth parents/adoption. Target adoptees’ positive affect toward parents at Wave 2 and toward adoption at Wave 3, respectively, were globally coded from their interview transcripts on a scale from 1 to 5, with 1 = *none or low* to 5 = *very strong*. Negative affect toward birth parents at Wave 2 and toward adoption at Wave 3 were separate global codes using the same rating scale as positive affect.

Results

As expected, siblings’ reported involvement in birth family contact was related to several outcomes for target adoptees in adolescence and emerging adulthood—particularly externalizing behavior problems, frequency of contact, and feelings about adoption and birth family (Table 2). Using independent samples *t* tests to compare outcomes based on sibling involvement at Wave 2 (yes/no) among available data from 91 target adoptees, we discovered that during adolescence, if siblings (whether adopted or not) were reported by target adoptees to be involved in contact and information sharing with the adoptees’ birth family, target adoptees reported fewer externalizing problems than did those who reported that their siblings were not involved. Sibling involvement was also significantly associated with target adolescent adoptees’ having more positive affect toward their birth mothers (as globally rated from target adoptees’ interviews at Wave 2). There were no significant gender effects related to this result, even though female adoptees were rated as having greater positive affect toward birth mothers than male adoptees at Wave 2. This pattern continued into adulthood: sibling involvement in target adoptees’ birth family

Table 2
Sibling Involvement as Related to Adoptees’ Outcomes in Adolescence and Emerging Adulthood

Variable, <i>M (SD)</i>	Adolescent adoptees (W2)		<i>t</i> -test or χ^2	Effect size (<i>d</i> or Cramer’s V)	Emerging adult adoptees (W3)			
	Siblings involved, W2 (<i>n</i> = 45)	No siblings involved, W2 (<i>n</i> = 46)			Siblings involved, W2 (<i>n</i> = 45)	No siblings involved, W2 (<i>n</i> = 46)	<i>t</i> -test or χ^2	Effect size (<i>d</i> or Cramer’s V)
Externalizing problems	49.33 (8.68)	55.42 (10.42)	2.52*	.64	48.59 (10.21)	51.22 (11.86)	<1	.24
Positive affect toward birth mothers/adoption	3.69 (1.05)	2.48 (1.27)	20.22**	.49	2.85 (1.27)	2.79 (1.32)	11.34*	.38
Contact with birth mothers	3.86 (.41)	2.48 (1.32)	26.21***	.59	3.65 (1.72)	1.85 (2.19)	19.09***	.49
Contact satisfaction	3.00 (1.00)	2.60 (1.72)	24.74***	.53	2.56 (1.33)	2.59 (1.31)	1.24	.13

Note. *t*-tests were conducted when externalizing problems were the dependent variable (Youth Self Report [YSR], Wave 2 [W2]; Adult Self Report [ASR], Wave 3 [W3]). χ^2 analyses were used for the other birth family contact variables (from global ratings of target adoptees’ interviews, Waves 2 and 3).

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

contact during adolescence was significantly associated with target adoptees' having greater positive affect about adoption (as globally rated from target adoptees' interviews at Wave 3) overall during emerging adulthood. Also during adolescence, there were significant associations between sibling involvement and more frequent birth mother contact among target adoptees, as well as target adoptees' greater satisfaction with birth mother contact. Associations regarding frequency of contact remained significant in emerging adulthood: target adoptees had greater contact with birth mothers in emerging adulthood when their siblings had been involved in earlier birth family connections. Last, we examined possible gender differences in all of the variables involved in Study 2, and discovered only one such finding. For female, but not male, adolescent adoptees, preoccupation with adoption history was less for those whose siblings were involved in birth family contact ($M = 36.38, SD = 9.39$) compared with those whose siblings were not involved ($M = 46.27, SD = 15.76$), $t(36) = 2.28, p = .031$.

Study 3

Study 3 focused on the following research question: How is the behavioral adjustment of target adoptees in adolescence and emerging adulthood associated with their adopted siblings' feelings about their own adoption? From a family systems perspective, we expected that target adoptees would feel more favorably about their adoption experiences in adolescence and emerging adulthood when their adopted siblings reported similarly positive feelings about their own adoption. Because siblings in both adoptive and nonadoptive families are influential to one another's behavioral adjustment in adolescence and early adulthood (e.g., Hicks et al., 2013; Samek et al., 2014), we expected that siblings in these adoptive families would play a role in target adoptees' behavioral adjustment in adolescence and emerging adulthood.

Method

MTARP data from adopted siblings of target adoptees at Wave 2 were used in this study. For Study 3, complete data were

available from 51 pairs of target adoptees and their adopted siblings to run correlational analyses regarding target adoptees' and their adopted siblings' individual experiences of adoption as well as target adoptees' behavioral adjustment. Described earlier, target adoptees completed the YSR (Wave 2) and ASR (Wave 3) to assess behavioral adjustment, and siblings who were themselves adopted completed the Adoption Dynamics Questionnaire at Wave 2 to assess perceptions of adoption.

Results

Results from bivariate correlational tests demonstrated that when adopted siblings reported positive adoption affect at Wave 2, target adolescent adoptees had fewer negative adoption experiences, $r(51) = -.33, p = .026$, as well as fewer externalizing behaviors, $r(51) = -.36, p = .015$ (see Table 3 for correlations of Study 3 variables). To more directly examine adopted siblings' perceptions of adoption, over and above target adoptees' own perceptions of adoption, in influencing target adoptees' externalizing behavior problems, we conducted a series of regression analyses. A hierarchical linear regression revealed that significantly more variance was accounted for in target adoptees' externalizing problems at Wave 2 when both siblings' and target adoptees' positive affect about adoption at Wave 2 were included, $F(1, 41) = 6.67, p = .003 (R^2 = .21)$, compared with when only target adoptees' positive affect was included as a predictor, $F(1, 42) = 9.29, p = .004 (R^2 = .16)$. Some of these effects were also noted in emerging adulthood—adoptees reported fewer externalizing problems as adults when their siblings reported being less preoccupied with their own adoption history, $r(51) = .29, p = .043$, and when siblings had more positive affect about their own adoption, $r(51) = -.31, p = .047$, at Wave 2.

Regression analyses also revealed that adopted siblings' greater positive affect about adoption at Wave 2 continued to predict target adoptees' fewer externalizing behavior problems at Wave 3 even when target adoptees' positive affect at Wave 3 was included in the same model as a predictor, $F(2, 37) = 4.35, p = .020 (R^2 = .15)$. Moreover, if siblings had been more preoccupied with their own adoption when target adoptees were adolescents (Wave 2),

Table 3
Correlations Among Target Adoptees' Outcomes at Waves 2 (W2) and 3 (W3) and Sibling Adoption Experiences at Wave 2

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Int (W2)	—													
2. Ext (W2)	.41****	—												
3. Tot (W2)	.79****	.82****	—											
4. Int (W3)	.24***	.19**	.26***	—										
5. Ext (W3)	.23**	.56****	.51****	.65****	—									
6. Tot (W3)	.26***	.41****	.43****	.87****	.89****	—								
7. Preoc (W2)	.29***	.23***	.31****	.20**	.15	.16*	—							
8. Pos (W2)	-.11	-.37***	-.26***	-.20*	-.23**	-.22**	-.24***	—						
9. Neg (W2)	.19**	.23***	.25***	.15	.12	.18*	.17*	-.47****	—					
10. Preoc (W3)	.07	.05	.07	.42****	.27***	.37****	.42****	-.06	.07	—				
11. Pos (W3)	-.07	-.15	-.10	-.41****	-.33***	-.36****	-.13	.52****	-.20**	-.23***	—			
12. Neg (W3)	-.003	.12	.05	.29****	.15*	.20**	-.05	-.27***	.25***	.22***	-.66****	—		
13. Sib Preoc (W2)	.17	.22	.22	.25*	.29**	.24*	.24†	-.06	.15	.28*	.01	-.17	—	
14. Sib Pos (W2)	-.10	-.36**	-.27*	-.08	-.31**	-.22	-.15	.28*	-.33**	.04	.20	-.02	-.33**	—
15. Sib Neg (W2)	-.03	.06	.06	.21	.10	.18	.05	.02	.24*	.20	.13	-.16	.42***	-.23

Note. Int = internalizing; Ext = externalizing; Tot = total behavior problems; Preoc = adoption preoccupation (Adoption Dynamics Questionnaire [ADQ]); Pos = positive affect toward adoption (ADQ); Neg = negative adoption experience (ADQ); Sib = adopted sibling report.

† $p < .05$. * $p < .10$. ** $p < .05$. *** $p < .01$. **** $p < .001$.

global ratings from emerging adult adoptees' interviews at Wave 3 were more likely to indicate greater negative affect about adoption overall, $F(4, 45) = 2.84, p = .035$ (because each level of negative affect was a global code, negative affect represented the independent variable or factor in the analysis of variance (ANOVA), with preoccupation with adoption history as the continuous dependent variable). No significant gender effects were found with the correlational or regression results in Study 3.

Discussion

Overall, the findings from the three studies highlight how target adoptees' developmental outcomes and adoption experiences from adolescence to emerging adulthood are associated with sibling relationship dynamics. It is important that our results are situated within the specific context of private, same-race, domestic, infant adoptive placements, which often involve younger child age at placement and voluntary relinquishment by birth parents; this pathway contrasts with others, such as international or child welfare adoptions, which may be related to different adoptive sibling dynamics and associated outcomes. Consistent with expectations, our results indicated that the transition to emerging adulthood may relate to changes in birth family contact for some adopted siblings. Adulthood brings new developmental tasks, such as moving away from home, changes in living arrangements, career, and marriage; birth family contact may become difficult to maintain (Farr, Grant-Marsney, Musante et al., 2014). Some recent work has underscored the importance of adoptive parents for emerging adult adoptees' experiences of birth family contact (Farr et al., 2014), and this study is among the first to highlight how sibling relationships are also critical to emerging adult adoptees' experiences of their adoption and overall adjustment. Despite developmental changes, and consistent with family systems theory, our results support ongoing associations of earlier sibling relationships with adult adoptee outcomes.

Overall, and consistent with our Study 1 hypothesis, dual contact among adopted sibling pairs was more common in adolescence than in emerging adulthood. The general decline in contact may reflect processes of emotional distance regulation (e.g., Grotevant, 2009), because who initiates contact for adoptees may shift from adolescence into emerging adulthood. Adoptive parents are most often responsible for birth family contact when adoptees are adolescents, but this responsibility may shift to adoptees as they become adults (Farr, Grant-Marsney, & Grotevant, 2014). On the other hand, a number of adopted sibling pairs maintained the same level of birth family contact from adolescence into emerging adulthood, which aligns with social contagion hypotheses (i.e., what is positive for one sibling is also likely to be positive for other siblings in the family). This finding, indicating stability in patterns of birth family contact for some adopted sibling pairs, may suggest that processes of emotional distance regulation are shared by or are similar among adopted sibling pairs, despite having separate birth families. This finding also supports that for some adopted sibling pairs, the developmental transition from adolescence to emerging adulthood does not result in marked changes in the status of birth family contact. Our results extend those of Berge et al. (2006) about adopted sibling pairs in adolescence as well as the literature about adopted siblings' experiences in emerging adulthood.

Regarding our Study 2 hypotheses, we uncovered several significant associations among target adoptees' experiences and sibling involvement in birth family contact. When adolescent target adoptees reported that contact included their siblings (adopted or not), target adoptees also reported fewer externalizing problems, more frequent contact, more positive affect toward birth mothers, and greater satisfaction with contact. For female adoptees in adolescence, sibling involvement with contact appeared related to less adoption preoccupation compared with those without sibling involvement. Some of these effects carried into adulthood—if siblings had been involved in adolescent target adoptees' birth family contact, target adoptees had more frequent contact and more positive adoption affect as emerging adults. When siblings are involved in contact, it may be that target adoptees can more often or more directly draw on siblings' support to successfully manage emotional distance regulation processes inherent to birth family contact (Grotevant, 2009), and perhaps these processes are linked with better overall adjustment. Siblings may provide models for target adoptees to test out thoughts and behaviors related to adoptive identity and birth family contact, consistent with social contagion hypotheses evaluated in other studies of adoptive and non-adoptive siblings (e.g., Samek et al., 2015). It may also be that when the target adoptee and his or her birth family enjoy good relationships (i.e., less emotional distance), adoptive siblings may feel more "welcome" to be involved in this contact.

Aligned with our Study 3 hypothesis, target adoptees felt more positively about their own adoption and demonstrated better adjustment across development when their adopted siblings had positive perceptions of their own adoption experiences. Even after accounting for the influence of target adoptees' own experience, how adopted siblings felt about their own adoption had bearing on target adoptees' externalizing behaviors: target adoptees had fewer problems when adopted siblings reported less adoption preoccupation. Our results are thus aligned with broader literature about the benefits of sibling similarity and closeness for healthy behavioral adjustment (Branje et al., 2004; Criss & Shaw, 2005; Hicks et al., 2013). Our results also point to the importance of adopted siblings having positive feelings about their adoption experiences, since target adoptees reported more favorable perceptions about their adoption experiences when adopted siblings reported positive affect about their own adoption. This phenomenon is supported by the theoretical perspective of family systems—what is positive for one member of the family likely contributes to more positive experiences for other family members.

It appears that siblings are an important resource for adoptees, given that adoptees demonstrated better adjustment and more positive birth family contact experiences when siblings were involved in this contact and when adopted siblings reported positive feelings about their own adoption. Sibling support may be particularly vital for adopted individuals over time, because adoptees face not only typical developmental tasks, but also numerous adoption-specific experiences. Both adopted and nonadopted siblings were found to be important to target adoptees' positive experiences of birth family contact, by virtue of being actively engaged in this contact. It is critical to acknowledge that the direction of positive effects may not only move from siblings to target adoptees over time, but also from target adoptees to siblings. When target adoptees have been able to establish good relationships with birth relatives, this may create a general feeling of

“shared family positivity,” which would extend to siblings, as well as to adoptive parents who often orchestrate birth family contact especially when children are young. Nonetheless, our results indicate that siblings are helping to shape adoptees’ relationships and experiences of self, particularly as related to adoption, from adolescence into adulthood.

Our findings suggest that adoptive parents might consider including siblings in the openness arrangements of adopted children in the family, as adoptees seem to benefit in lasting ways from their siblings’ involvement in birth family relationships, consistent with existing research about siblings across the life span (e.g., Cicirelli, 2005; White, 2001). Furthermore, for adoptees with adopted siblings, how each child experiences his or her own adoption and birth family may strongly influence the perception of the other(s). Adoptive parents and professionals would do well to cultivate the positive adoption experiences of all children in the family, as there appear to be “contagion effects” of siblings’ perceptions and experiences. Our results fit with other studies with larger samples of siblings who are biologically and nonbiologically related, suggesting that adoptive siblings share many important environmental similarities, both in terms of risks and benefits (e.g., Hicks et al., 2013; Samek et al., 2014). At the same time, it is important for parents to help their children understand that each of their relationships with their birth relatives is unique and that what happens in one relationship may not be possible in another because of a variety of practical developmental, relational, and other circumstances.

Together, these findings may suggest the importance of open family communication about adoption and birth family contact, which can facilitate emotional closeness among siblings (Samek & Rueter, 2011) and contribute to satisfaction with contact, whatever it may be (Farr, Grant-Marsney, Musante et al., 2014). These findings reflect the importance of family cohesion around aspects of adoptive family life; these family processes related to feelings about adoption and birth family connections ideally do not happen in isolation for adopted individuals. Engaging in aspects of birth family contact and having adoption conversations together as a family, including siblings (adopted or not), appears to yield advantageous results for target adoptees. Our findings contribute new insights about how adoptive sibling relationships, beyond the bounds of biological relatedness, are uniquely associated with individual outcomes and experiences.

Strengths, Limitations, and Directions for Future Research

This study is noteworthy in being among the first to focus on siblings’ contributions to adoptees’ experiences of birth family contact and behavioral adjustment over time. The results are from longitudinal data, multiple informants (i.e., target adoptees and their siblings), and a mixed methods design, all of which add to the overall strength of this study. Despite strengths, the results represent a small sample and only one particular type of adoption (domestic, private agency, within-race, infant adoptive placements). More research could explore the dynamics of sibling relationships among families who have completed international, child welfare, older child, and/or transracial adoptions. Our results also do not address mechanisms that may underlie siblings’ influence on target adoptees’ experiences and outcomes, which future

research could investigate. Because Study 1 regarding adopted sibling pair represents a particularly small sample, findings about changes in levels of birth family contact should not be regarded as conclusive. Future research should include larger samples of adopted sibling pairs with and without birth family contact. It must be acknowledged that the siblings who participated in this study may have felt more positively about their sibling relationship, and this could have been related to greater involvement in the target adoptees’ birth family contact and/or their own feelings about adoption, if adopted themselves. We did find at least one gender difference among target adoptees as related to sibling relationships and birth family contact—thus, in future studies with larger samples, the role of potentially distinct experiences for male and female adoptees should be considered. Given that our sample included siblings who joined the adoptive family through a variety of pathways, future research should differentiate siblings who do not share biological ties with others in the family from those who may be biologically related to the adoptive parents. Our study was limited in combining these potentially distinct groups in our sample.

Nonetheless, our findings highlight important questions about sibling relationships in adoptive families with varying levels of openness. What is best for a child who cannot have birth family contact when their adopted siblings do, or when access to contact differentially changes for adopted siblings over time? It is feasible that discrepant birth family contact (for adopted sibling pairs) or having connections with birth family without sibling involvement may drive an emotional wedge between siblings, disrupting feelings of closeness, and may be linked with greater behavioral difficulties; future research could address this and related questions.

Our results underscore the necessity of understanding the developmental trajectories of adoptees within the context of adoptive family relationships, including siblings. Taken with earlier research on sibling relationships in adoptive families (which often has been focused on samples of younger and/or international adoptees, e.g., Tan, 2008), our findings from another adoptee population (i.e., from domestic adoptive families) shed light on the importance of cultivating positive sibling relationships early in life and supporting them across childhood into adulthood, given the vital contributions of sibling relationships on individual outcomes.

Implications for Practice and Policy

Our findings are consistent with a growing consensus in the field of adoption psychology that openness arrangements with birth families tend to be beneficial for adoptees, as well as other members of adoptive families (e.g., Grotevant, 2012; Siegel, 2012). Advantages of openness are often apparent when adoptees are children; our results support that these effects may last into emerging adulthood. Thus, if it is safe and in the best interests of the child, policies supporting appropriate accommodations for birth family contact may be beneficial. In particular, our results suggest that discrepancies among adopted siblings in adoption perceptions and involvement with birth family contact may be important issues for postadoption services to consider. From a family systems perspective, guiding adoptive families in cultivating a strong and shared family identity is important, regardless of

whether children have birth family contact. Practitioners who work with adoptive families might benefit from understanding complexities of adoptive sibling relationships, such as how siblings' feelings about and involvement with birth family contact may relate to adoptees' adoption perceptions. Practitioners should be aware of the role that siblings can play in adoptees' positive adoption experiences and birth family contact, as these relationships appear to contribute to adoptees' better overall adjustment over time.

Conclusion

Overall, our results are aligned with broader family systems research about sibling relationships and add depth to this literature by extending findings to adoptive families. The findings underline the important and dynamic role that sibling relationships have in affecting adoptees' outcomes and adoption experiences across the life span. The results also lend support to laws and policies advocating for greater openness in adoption, as adoptees reported better overall adjustment when their adopted siblings had more positive adoption experiences and when their siblings were involved in their birth family connections. Overall, siblings in adoptive families, whether they themselves are adopted individuals or not, are capable of contributing to adoptees' more positive feelings about adoption, greater desires and motivations for birth family contact, and greater overall psychological adjustment. As such, these results are informative to clinicians, practitioners, and adoption professionals, who can work to support the successful outcomes of adoptees of all ages in the context of healthy, high-quality sibling relationships.

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Call for Papers for a Special Section of the *Journal of Family Psychology*

Military Deployment Communication: New Findings and Conceptual Frameworks

Editors: Steven L. Sayers and Galena Rhoades

The *Journal of Family Psychology* invites manuscripts for a special section on military deployment communication.

The ability of military service members to maintain regular communication with their intimate partners and spouses during their deployment to a combat has increased dramatically in the last decade. Researchers have begun to expand beyond investigating the role of written communication for couples experiencing this type of separation. Only recently have studies been conducted on the impact of modern communication (e.g., Skype and instant messaging) on the job of the service member and the functioning of both service member and spouse. The literature in this area, however, lacks an accepted conceptual framework for understanding these modes of communication. Furthermore, there has not been an exploration of the reasons why inquiry in this area is important. For instance, what individual- and couple-based outcomes are important to examine and why, and what implications do these findings have for military policy, training, and deployment preparation for military families?

The intent of this special section is to bring together empirical papers that contribute to the developing conceptual frameworks of deployment communication and a broader consideration of the impact of deployment communication on the psychological health and well-being of military families. Papers that contribute new findings and advance the development of this important area of research will be considered for publication.

The deadline for receipt of papers for this special section is **August 1, 2016**.

Questions regarding the special section should be addressed to the section editors, Steven L. Sayers (steven.sayers@va.gov) and Galena Rhoades (grhoades@du.edu). Please follow the journal's Instructions to Authors found elsewhere in this journal for information about how to prepare an article. Manuscripts must be submitted electronically through the Manuscript Submission Web Portal of the *Journal of Family Psychology* (<http://www.apa.org/pubs/journals/fam/?tab=4>).

Please be sure to specify in the cover letter that the submission is intended for the special section on Military Deployment Communication. All papers will be initially screened by the editors, and papers that fit within the scope of this special section will be sent out for blind peer review.