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Abstract

This study examines how often adolescents interact with family members and how adolescents feel when spending time with parents, nonresident parents, stepparents, siblings, and extended family members. Adolescents respond to who they spend time with, and how adolescents feel during social interactions with family has implications for adolescent relationships. Family structure remains a crucial dimension of heterogeneity in adolescent life, and family systems theory suggests family structure could differentially shape adolescent emotional functioning and social development due to differences in family-level contexts. However, less work has evaluated heterogeneity in social interactions and adolescent responses to family interactions stemming from variation in the home context. Using a large, nationally representative data sample of adolescents from the American Time Use Survey ($N = 1,735$), this study employs a within-group analysis to separately examine effects for adolescents living in nuclear and single-parent homes, as well as those living with stepparents. Results suggest adolescents in nuclear homes benefitted from interactions with parents and were less affected by siblings and extended family members. On the other hand, adolescents in nonnuclear homes benefitted from interactions with nonresident parents, older siblings, or extended family members, giving support to compensation models of family interactions. The study informs parents, clinicians, and policymakers designing interventions for adolescents, as it more precisely conveys information about which family members positively influences adolescent emotional responses.

Keywords: youth social development, family interactions, positive and negative affect, family systems theory

Adolescent Interactions with Family and Emotions during Interactions:
Variation by Family Structure

Despite stereotypical beliefs that adolescents spend too much time alone, in reality adolescents in the United States spend about 83% of their waking hours in the company of others (authors' calculation, using the American Time Use Survey). These daily interactions influence adolescent development in multiple domains, including socialization, behavior, and health. Adolescents respond emotionally to the people they spend time with (Kim, Holloway, Bempechat, & Li, 2018), and companionship patterns likely shape daily emotional experiences, relational health, and development. Relational regulation theory suggests adolescents regulate their affect, thought, and actions through social interactions, and that day-to-day interactions with supportive individuals can foster positive youth development (Rogers, Guyer, Nishina, & Conger, 2018). Extant research on youth affective state when interacting with others has focused almost exclusively on the parent-child relationship and has neglected other family relationships (Larson & Almeida, 1999), notwithstanding the important role that nonresident parents, stepparents, siblings, and extended family members likely play in shaping adolescent development. Additionally, family structure remains a crucial dimension of heterogeneity in adolescent life, considering that the family context constitutes a youth's nearest social environment. Family systems theory has emphasized the role that family life and family-level contexts play in adolescent emotional functioning (Elliott, Shuey, & Leventhal, 2016), and in how adolescents process social interactions and develop social skills (Engels, Finkenauer, Meeus, & Dekovic, 2001; Hillaker, Brophy-Herb, Villarruel, & Haas, 2008). However, less work has evaluated heterogeneity in social interactions with family members stemming from variation in home context. Despite previous research suggesting differential psychological well-being for

adolescents in stepfamilies (Jensen & Howard, 2015; Meggiolaro & Ongaro, 2014) and single-parent families (Turunen, 2013), most research exploring social interactions with adolescents focuses on nuclear families (Lam, McHale, & Crouter, 2012). We, therefore, account for the importance of the home context by allowing for potential differences in emotional impacts to emerge in different family structures. In particular, we separate adolescents based on family structure, examine how often adolescents interact with family members, and evaluate how adolescents feel when spending time with parents, nonresident parents, stepparents, siblings, and extended family members to more fully understand adolescents' family interactions.

There are clear benefits to examining short-term emotional responses. As children enter into adolescence, they increasingly diversify time across new activities, locations, and companions as they become more autonomous in their time use, transform family relationships, and develop a stronger sense of self (Steinberg, 2016). An analysis of short-term emotional responses provides insight into an important step in this diversification: adolescents may choose their long-term relationships based on a series of short-run responses to interactions. Hence, understanding how adolescents feel during or immediately after interacting with a particular family member is crucial in understanding why those from different family backgrounds prioritize different types of interactions. These differences may magnify over time, providing some adolescents with fewer chances to reap long-term benefits from particular types of relationships.

Family Structure Considerations in Social Interactions

A family systems perspective posits that each family member contributes to an interdependent system of relationships in which individuals react to other family members (Kerr & Bowen, 1988). Because parent-child relationships remain central to a family system, factors

affecting parent-child relationships, such as family complexity in stepfamilies and single parent families, alter all family interactions, family alliances, and family boundaries (Hetherington, 2003). Differences in parent-child interactions stemming from family structure differences may spill into and shape other family interactions. Family structure remains an important and understudied dimension of an adolescent's family context. Family structure can be defined by the living arrangements of a child with their parents or guardians. Jensen, Shafer, and Larson (2014) explain that an adolescent may live with two biological or adoptive parents (nuclear families), one biological and one non-biological parent (stepfamilies), one parent (single-parent families), or another situation. Prior research demonstrates that adolescent outcomes may vary substantially among youths of different family structures (Brown, 2008, 2010; Brown, Manning, & Stykes, 2015; Cavanagh, Crissey, & Raley, 2008; Doyle, Lawford, & Markiewicz, 2009). Despite this evidence, most research exploring shared time with adolescents focuses on nuclear families (Lam et al., 2012). Notable exceptions include previous research suggesting differential psychological well-being for adolescents in stepfamilies (Jensen & Howard, 2015; Meggiolaro & Ongaro, 2014) and single-parent families (Turunen, 2013), and differential parent time with children under age fourteen (Kalil, Ryan, & Chor, 2014). Because of this gap in the literature, as well as theoretical reasons suggesting home context plays a role in shaping familial relationships, we examine the potentially heterogeneous patterns in shared time on adolescent responses to family interactions.

Past research suggests that differences in parent-child interactions in nonnuclear homes results from several factors. First, a youth in a nonnuclear home has a nonresident parent, which can constrain interaction time with that parent. Second, mothers in nonnuclear homes often stretch to fulfill two parental roles, leading to inconsistent parenting (McLanahan & Sandefur,

1994). A child in a stepparent family may compete with a new partner for a parent's time and attention (McLanahan & Booth, 1989). Family structure, manifesting prior family instability, may be selective of parents who differ in parenting time and skill (Brown et al., 2015). These differences likely have consequences for other family interactions. Notions of compensation (Noller, 2005) suggest that youths in nonnuclear families may systematically seek out and differentially benefit from interactions with siblings and extended family members to counteract absence of one parent in the household or difficulty spending time with resident parents (Derkman, Engels, Kuntsche, Van der Vorst, & Scholte, 2011). On the other hand, congruence suggests that positive interactions with parents spill into positive interactions with other family members due to a social learning theory mechanism (Derkman et al., 2011; McGuire, McHale & Updegraff, 1996). Thus, open questions remain surrounding how family structure shapes family interactions and youth responses to family members during interactions.

Family Interactions as a Context of Adolescent Development

Past research clearly establishes that adolescents respond emotionally to who is present (Kim et al., 2018), and differences in companionship patterns facilitate different daily emotional experiences. Socialization agents such as parents, siblings, and extended family members alter the context in which adolescents learn. When considering interactions with parents, past research suggests parents' interactions with adolescents remain paramount. Parents enable social learning (Bandura & Walters, 1959), and facilitate the response of parents to their youth's needs (Maccoby & Martin, 1983). Parent-adolescent interactions provide opportunities for parents to coach adolescents and model prosocial behavior. Time with parents can improve immediate well-being as adolescents make positive attributions about themselves (Lam et al., 2012). However, as adolescents increase in autonomy, conflict between parents and adolescents

generally increases (Adams & Laursen, 2001) while the quantity of parent-child time decreases (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996).

Social interactions with a stepparent may affect youth well-being through positive and negative mechanisms. A socialization hypothesis predicts improved adolescent affective state with a stepparent who provides positive support and warmth (Sweeney, 2010). Research found that adolescents perceived a more positive relationship when stepparents talked with them daily (Schrodt, Soliz, & Braithwaite, 2008) and when they spent time together (Ganong, Coleman, & Jamison, 2011). On the other hand, evolutionary theory and attachment theory suggest more difficulty in developing strong stepparent-adolescent relationships compared to biological parents (Hetherington, 2003). Interactions with a stepparent who is a “relative stranger” to an adolescent may feel uncomfortable and overly authoritative (Pace, Shafer, Jensen, & Larson, 2015), and strained interactions with stepparents can increase adolescent stress and overt conflict within the relationship (Turunen, 2013). The lack of clarity on stepparent-adolescent relationships may stem from the varying ways stepparents enact the stepparent role (King, Thorsen, & Amato, 2014).

Many of the theoretical reasons to believe that adolescents respond to interacting with parents apply equally to nonresident parents. Empirical findings connecting adolescent global well-being with the frequency of visitation with nonresident parents are mixed (see meta-analysis by Amato & Gilbreth, 1999). Deep interest and involvement during nonresident parent interactions strengthens a youth’s sense of emotional security, ability to cope with stress (Amato & Gilbreth, 1999), as well as the transfer of social capital (King & Amato, 2006). However, children’s attachment to nonresident parents remains considerably weaker compared to resident parents (Brown, 2008), and nonresident parents face difficulty in establishing a close relationship

with their adolescents (King & Amato, 2006) especially if interactions center on leisure and fun (Stewart, 1999). Thus positive and negative forces likely shape adolescent interactions with nonresident parents.

Siblings positively and negatively influence one another when spending time together. Spending time together as siblings provides opportunities to learn new skills and behaviors (Jensen, Whiteman, Loeser, & Bernard, 2018) and to practice resolving conflict (Brody, 1998). However, sibling conflicts in adolescence are associated with deviancy and internalizing problems (Buist, Deković, & Prinzie, 2013). Older siblings likely influence adolescent well-being differently than younger siblings. Youths model older siblings when developing attitudes, skills, and behaviors (Jensen et al., 2018). In line with a sibling-trainer hypothesis, older siblings can negatively influence younger adolescent siblings through negative modeling (Solmeyer, McHale, & Crouter, 2014; Whiteman, Jensen, Mustillo, & Maggs, 2016). On the other hand, older siblings can offer warmth, positive help, and guidance for younger siblings (Tucker, McHale, & Crouter, 2001). Because the literature on sibling interactions has focused on the impacts of older siblings, we know little about adolescent responses in relation to spending time with younger siblings. Interacting with and caring for younger siblings is a practice that occurs regularly and broadly across household types (Wikle, Jensen, & Hoagland, 2018), and adolescent affect during this type of contact deserves more attention.

Extended family members play a part in adolescent well-being and development. Grandparents, in particular, play an important role in their grandchildren's lives (Dunifon, 2013), with 19% of teens spending time with nonresident grandparents in a given week (Dunifon, Near, & Ziol-Guest, 2018). There is little difference across family structures in time with nonresident grandparents (Dunifon et al., 2018). Less is known about how adolescents feel when interacting

with extended family members. While there is evidence that extended family interactions may be most beneficial for younger children in single-parent households (Yorgason, Padilla-Walker & Jackson, 2011), less is known about adolescents. Extended family involvement in youth's lives show cultural variation; in general, African American and Latino families in the United States have more cohesive social networks tied to extended family members than European Americans (Harwood, Leyendecker, Carlson, Asencio, & Miller, 2002; Smetana, Campione-Barr, & Metzger, 2006).

Current Study

Considering the importance of family interactions in youth development, the current study documents social interaction patterns of adolescence with a broad set of family members. In examining social interactions, we allowed for family structure to differentially shape family interaction patterns, and we studied a variety of interaction partners (e.g., parents, stepparents, nonresident parents, siblings, and extended family member). Time spent with each of these types of people likely have different meaning for adolescents, and we therefore treated them separately. To better understand how adolescents responded to family members, we further evaluated affective state during social interactions. We explored multiple dimensions of emotional state in order to offer a rich view of emotions (Russell, 2003).

We make two distinct contributions to the literature. Our first contribution is a thorough study of adolescent-family interactions and affective state during social interactions with an expanded set of individuals in adolescents' daily lives. Second, we provided separate estimates for adolescents hailing from nuclear families, stepparent families, and single-parent families, extending the social interactions literature beyond nuclear families (Lam et al., 2012). Because family structure in part determines the set of people available to share time, sensitivity to family

structure enabled us to detect responses by adolescents in nonnuclear homes to nonresident parents and stepparents. There is great interest among parents and clinicians alike in understanding which types of social interactions help or hinder adolescents. Adolescence is a time of rapid social, emotional, and physical development, accompanied by academic pressures, social sensitivity, and a gradual detachment from parents and home life (Collins & Laursen, 2004). A focus within family type more precisely conveys an adolescent's experience. Identifying patterns of family interactions within a specific familial context provides refined information that remains relevant for clinicians. Specifically, our study provides insight into the types of social interactions that are protective and promote healthy development and positive family functioning within a family structure (King, Boyd, & Thorsen, 2015), thus allowing clinicians to better tailor and target interventions for adolescent clients.

Methods

Data and Procedures

We rely on data from the American Time Use Survey (ATUS; see Hofferth, Flood, & Sobek, 2015) to explore social interactions and emotional state during social interactions with family members. The Bureau of Labor Statistics administered the ATUS in connection with the Current Population Survey (CPS). A phone interview lasting about 30 minutes documented an individual's time use over a 24-hour period, from 4:00 a.m. of the previous day until 4:00 a.m. of the interview day, and respondents accounted for all time throughout the day (Hamermesh, Frazis, & Stewart, 2005). Interviewers used the day reconstruction method and computer assistance to elicit high-quality recall and accuracy (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004), and for each primary activity throughout a day, respondents reported who else was present.

For three activities—selected at random from all daily activities lasting at least 5 minutes except sleeping, grooming, and personal activities—the respondent evaluated his or her levels of happiness, sadness, and stress, as well as how meaningful the respondent viewed the activity to be. The ATUS survey provided activity-level weights specifically for the respondents in the well-being module in order to account for the fraction of time spent outside of eligible activities and adjust for the probability of selecting an eligible activity. Since 1987, researchers have utilized the method of experiential sampling as a time-sampling method (Loewenstein, Hamilton, Alagna, Reid, & De Vries, 1987). Experiential sampling provides “a valid instrument to describe variations in self-reports of mental processes” and is best used to obtain empirical data on the frequency, intensity, and pattern of emotional and other psychological states (Csikszentmihalyi & Larson, 2014, p. 35). In traditional experiential sampling, select individuals provide self-reports at random occasions during the day. One advantage of this approach is that it provides psychologically sound information “from within the ecologically valid contexts of people’s daily experience,” a feature critical for the examination of a context’s impact on adolescent development (Larson & Csikszentmihalyi, 2014, p. 32).

This data set offers several advantageous features for this research. Using a nationally representative sample allows us to explore broad patterns as well as examine nuances of shared time stemming from diversity in familial contexts. The data were generated in natural settings and situations of daily life, thus minimizing concerns about generalizability of the findings. The data contain information about what people were doing during social interactions, allowing us to estimate companion effects on emotions separate from activity context (Lam et al., 2012). The study was declared exempt by an institutional review board due to its use of de-identified data.

Finally, as discussed below, the panel structure of the data is helpful in accounting for unobserved differences across individuals, allowing us to obtain more reliable estimates.

Participants

Our empirical analysis of adolescent well-being utilizes individual-level time-use diaries from the ATUS. Of particular interest is the survey's Well-Being Module, implemented in 2010, 2012, and 2013. During these years, respondents rated their well-being for up to three daily activities chosen at random. These states include happiness, sadness, and stress, as well as an indicator for how meaningful the respondent viewed the activity to be. This sample included 1,735 adolescents between the ages of 15 and 18 who were not parents or married. Within the final sample, adolescents reported their well-being for up to three distinct activities, giving a total of 5,054 activities for the analysis. We separated adolescents into family structures. We classified nuclear homes as those with two biological or adoptive parents. Stepparent homes had at least one biological/adoptive parent and an adult living in the home who was married to or cohabiting with the parent. Single-parent homes had only one biological/adoptive parent in the household. Table 1 identifies useful demographic information for the sample.

Dependent Variables. We used four dependent variables to evaluate adolescent subjective well-being. Each ATUS respondent answered the following questions: (a) How meaningful did you consider what you were doing [to be]? (b) How happy did you feel during this time? (c) How sad did you feel during this time? (d) How stressed did you feel during this time? For each question, the respondents chose their answers from a scale of 0 (e.g., not happy at all) to 6 (e.g., very happy). These questions mirror subjective well-being components of the Princeton Affect and Time study (Krueger et al., 2009), and the European Social Survey (OECD, 2013). Russell (2003) explained core affect along two independent dimensions: the

positive/negative dimension and the arousal dimension. Russell characterized emotions as one of four types: positive high arousal (e.g., happiness), positive low arousal (e.g., contentment), negative high arousal (e.g., stress), or negative low arousal (e.g., sadness). The well-being indicators in the ATUS capture these types of effects. The survey also included meaningfulness, allowing us to evaluate which interactions provided meaning independent of the reported negative and positive emotions of the situation. Given these justifications, indicators on meaning, happiness, sadness, and stress allowed for a broad investigation into well-being in adolescents. For our sample of adolescents, these distributions are largely left-skewed and unimodal. On average, adolescents reported moderate scores of activity meaningfulness and happiness, and extremely low scores of sadness. Table 2 explores the average differences in these ratings across respondent family structure.

Explanatory Variables. We constructed dichotomous variables to measure whether the adolescent survey respondent was interacting with a particular companion. We identified stepparents as household adults who were not biological or adoptive parents but who were in committed relationships (marriage or cohabitation) with adolescents' parents (Jensen & Howard, 2015). Table 3 examines differences in both frequency and duration of social interactions with companions, split by family structure. We included control indicators denoting the type of primary activity to control for the impact of certain primary activities on adolescent well-being. For example, adolescents may report higher levels of sadness when attending a funeral, regardless of the person with whom they share the experience. We included indicators for *when*

the adolescents performed each activity, controlling for time of day. We also controlled for how well rested an adolescent felt.

Analytic Approach

To explore adolescent interactions with family, we tested two separate models, one for interaction frequency and duration (the time spent interacting with family members), and one for adolescent affective state during interactions with family members. All estimates use sample weights to adjust for oversampling on weekends, correct for sample attrition, and ensure the sample is representative of the United States population.

Frequency and duration of adolescent interactions with family. The analysis measured average frequency and duration of adolescent interactions with various family members, split by family structure. Time was not mutually exclusive, and time with multiple companions counted in both categories. Additionally, the analysis tested for differences using independent means significance testing on leisure patterns between the samples of adolescents in different family structures. Independent sample means *t*-tests were calculated to determine the difference between the samples, as the samples in each pair were mutually exclusive (Larsen & Marx, 2012). We report inferences from these tests using the critical values of two-tailed tests, allowing for unequal variances across the two groups.

Adolescent affect during interactions with family. We take advantage of the multilevel nature of our data to consistently estimate the effects of contact with different family members. Rather than focus on absolute rankings, we measure affective state for each adolescent relative to reports of his or her own affective state when in different contexts. Because our data set consists of three activities and emotional evaluations per individual, we can estimate person-specific fixed effects to control for unobserved individual characteristics. By transforming variables to

deviations from the individual-specific means, we control for all invariant factors affecting emotions. That is, using adolescent-level fixed effects is equivalent to controlling for *all* factors that do not vary across the observation day, but that may have affected the outcome variables of interest if not controlled for. These potential factors include observable characteristics and demographics for the adolescent and their family, including age, race, socioeconomic status, and parental marital status; importantly, it also accounts for numerous other unobserved factors. We also control directly for factors that *do* vary within the survey day, including the type of activity being measured and the time of day the activity took place.

This approach allows us to consistently estimate the contact effects of interest without any concern for unobservable confounding factors in a robust framework (Wooldridge, 2016).

We conceptualized the basic model in matrix form as follows:

$$y_{ij} = \beta_0 + X'_{ij}\beta_1 + W'_{ij}\beta_2 + \alpha_i + \varepsilon_{ij}$$

We represent affective state for person i in context j (including who else is present) as the dependent variable. Each measure of affect was estimated as a separate regression with y_{ij} differing across specifications. The vector X_{ij} represents the vector of activity companions, so that β_1 contains the effects of interest. In addition to controlling directly for activity type and time of day in W_{ij} , we control for all time-invariant factors using the person-specific fixed effect on well-being α_i and an idiosyncratic exogenous factor ε_{ij} . We assumed the person-specific unobserved effect was the same regardless of the well-being observation, and we assumed the idiosyncratic exogenous factor was independent of the contextual and activity-level covariates and the context-invariant covariates. Alone time was not included, and all estimates were comparable to time spent alone as the baseline comparison. We separately estimated results for

nuclear, stepparent, and single-parent homes to highlight adolescent responses to family members seen in various family structures.

In order to assess the suitability of our regression approach, we tested the data for homoscedastic error terms, which prompted the use of heteroskedastic-robust standard errors. We also used a Hausman test to verify that the person-level fixed effect α_i and the idiosyncratic error term ϵ_{ij} were uncorrelated, an important assumption for a fixed-effects model.

Results

Frequency and duration of adolescent interactions with family

Table 3 reports average frequency of contact with family members. While the table reports differences across family times, we remain focused on within family-structure analysis and do not interpret the differences. Considering adolescents in nuclear homes, 84% spent time with at least one biological or adoptive parent on the sample day, with 55% spending some time with both parents. Additionally, 49% spent some time with younger siblings, 25% spent some time with older siblings, and 24% spent time with an extended family member. Conditional on spending time with an individual, adolescents in nuclear homes spent 3.3 hours with a parent and 2.3 hours with both parents, 3.7 hours with younger siblings, 3.5 hours with older siblings, and 3.3 hours with extended family.

Considering adolescents in stepparent homes, 72% spent time with at least one biological or adoptive parent on the sample day, 59% spent time with a stepparent, and 51% spending time with a biological parents and stepparent simultaneously. Only 6% of adolescents in stepparent homes spent time with nonresident parents on the sample day. Additionally, 54% spent time with younger siblings, 16% spent some time with older siblings, and 29% spent time with an extended family member. Conditional on spending time with an individual, adolescents in stepparent

homes spent 3 hours with their biological parent, 2.8 hours with a stepparent, and 2.5 hours with a biological parent and stepparent simultaneously. For those spending time with a nonresident parent, average time together was 1.4 hours. Adolescents spent 3.9 hours with younger siblings, 2.8 hours with older siblings, and 3.4 hours with extended family.

For adolescents in single-parent homes, 69% spent time with their resident parent on the sample day. Only 4% of adolescents in single-parent homes spent time with nonresident parents on the sample day. 37% spent time with younger siblings, 18% spent some time with older siblings, and 35% spent time with an extended family member. Conditional on spending time with an individual, adolescents in single-parent homes spent 3 hours with their biological parent. For those spending time with a nonresident parent, average time together was 5.8 hours. Adolescents spent 3.9 hours with younger siblings, 3.3 hours with older siblings, and 3.0 hours with extended family.

Adolescent Affect during Family Interactions

In Table 4, we report results from fixed effects regression estimating the impact of contact with individuals on adolescent well-being for those living in nuclear homes. The magnitudes correspond to how much a covariate changed immediate well-being on a 6-point scale. For adolescents in nuclear homes, spending time with only one parent did not affect immediate adolescent well-being compared to spending time alone. However, these adolescents reported that interacting with both parents was meaningful and that they experienced increased happiness during this time. Adolescents in nuclear homes were less sad when with younger siblings, and they did not respond differently compared to being alone when interacting with older siblings or extended family members.

In Table 5, we report estimates of the impact of contact with individuals on adolescent well-being for those adolescents living in stepparent homes. Spending time with a resident parent did not affect adolescent well-being in stepparent families, regardless of whether the parent was a biological parent or stepparent. Spending time with a biological parent and a stepparent together also did not improve adolescent well-being in stepparent homes compared to spending time alone. Conversely, spending time with nonresident parents did improve well-being for these adolescents. They experienced increased positive feelings and lower levels of stress when interacting with a nonresident parent. Well-being was unaffected when sharing time with younger siblings in stepparent homes. However, well-being improved when sharing time with older siblings; adolescents expressed more positive feelings and lower stress when with older siblings. Spending time with extended family was more meaningful, happier, and less sad than spending time alone for adolescents in stepparent homes.

Table 6 contains estimates of the impact of contact with individuals on adolescent well-being for those adolescents living in single-parent homes. We found positive benefits of adolescents spending time with their resident parents. Adolescents reported that time spent with their resident parent was more meaningful than time spent alone. However, sharing time with nonresident parents did not impact adolescent well-being in single-parent homes. Shared time with younger siblings decreased negative feelings of sadness, and contact with an older sibling increased positive feelings of happiness and meaningfulness. Adolescents in single-parent homes did not respond differently when with extended family compared to spending time alone.

In addition to the results reported here, we examined potentially differential responses by an adolescent's reported sex and ethnicity (specifically, we included interaction terms evaluating whether being female, Black, Hispanic, or from a racial minority impacted individual emotional

responses to shared time). Overall, we found no evidence that sex, race, or ethnicity distorted the results presented in this paper.

Discussion

We used the ATUS to examine differences in responses to social interactions by family structure, underscoring the importance of social interactions with family members as a critical context of adolescent development. Scrutinizing adolescent social interactions and affective responses allowed us to understand how adolescents interact with family members and how they feel during interactions. We also conducted the research in order to provide insight into the lived experiences of adolescents hailing from different family structures, providing relevant information for parents, clinicians, and social scientists.

In nuclear homes, we found that parents played a central role in adolescent emotional responses. Time with one parent was less important than time with both parents, and affect improvements when spending time with both parents affirms prior work (Hofferth & Sandberg, 2001), which suggested benefits to spending time with multiple family members. Our finding puts prior findings on firmer ground as we verify that well-being improvements stem from interacting with parents, rather than the types of activities adolescents did with parents (Crouter, Head, McHale, & Tucker, 2004). While parents were particularly important in improving affective state in nuclear homes, other family members were less important. In nuclear homes, sharing time with younger siblings marginally decreased feelings of sadness, suggesting that despite some level of conflict in sibling relationships (Kim, McHale, Osgood, & Crouter, 2006), siblings played a positive role in daily well-being. However, adolescents did not immediately respond to spending time with older siblings and extended family members. These findings suggest that in nuclear homes, despite increased autonomy from parents during adolescence,

parent interactions remained valuable for adolescents and other social interactions with family members were less immediately impactful.

Similar to youths in nuclear homes, youths in single-parent homes had positive feelings when interacting with their custodial parent. In contrast, adolescents in stepparent homes did not immediately respond to spending time with resident parents. This lack of connection to parents may come from a lack of inclination by an adolescent or lack of emotional availability of parents, and it is unclear why adolescents in stepfamilies were less responsive to interacting with their parents. Adolescents in stepparent homes showed neither positive responses (Ganong et al., 2011) nor negative responses (Turunen, 2013) to shared time with stepparents, regardless of whether a biological parent was also present during interactions. These findings, taken with previous work on adolescent perspectives of stepparent relationships, suggests that there is not a single universal path for adolescents and stepparents to build a strong relationship.

Adolescents in stepparent homes particularly benefited from spending time with nonresident parents; they reported more positive feelings and lower levels of stress when interacting with nonresident parents. This finding has noteworthy importance considering the documented long-term consequences of stress on the development and health of the youth brain (Tottenham & Galvan, 2016). The positive role of nonresident parents additionally deserves attention, given empirical work that inadequately measures children's immediate well-being when with nonresident parents and sometimes casts doubt on the benefit of nonresident parents beyond financial support (Amato & Gilbreth, 1999). Only 6% of adolescents in stepparent homes spent time with nonresident parents on a given day and the contact lasted only 1.4 hours, suggesting that infrequent and brief contact limited the benefits of this type of contact. Clinicians

could educate parents on these positive benefits in the lives of their adolescent children in stepparent homes.

Adolescents in single-parent homes did not often spend time with non-resident parents, but the length of contact was 5.7 hours, longer than with any other companion type. Adolescents did not immediately respond to shared time with nonresident parents. It is not clear why adolescents in single-parent families did not respond to nonresident parents, and more research is needed to explain the difference observed.

In stepparent homes and single-parent homes, older siblings played a valuable role in adolescent immediate well-being. Adolescents found interactions to be meaningful, happy, or less stressful when spending time with older siblings, and the effect sizes were similar to those of nonresident parents in stepparent homes. However, adolescents interacted with older siblings more often than with nonresident parents. This suggests older siblings made an important and consistent contribution to adolescent well-being in nonnuclear homes. From the perspective of the older sibling, adolescents were either positively affected or unaffected by interactions with younger siblings. Older siblings, therefore, played a positive role in the daily well-being of their younger siblings without sacrificing their own well-being.

Interactions with extended family members proved to be valuable for adolescents in stepparent homes. Adolescents in single-parent homes had regular contact with extended family members, and in these homes, where adolescents were not responsive to social experiences with parents, adolescents found extended family relationships to be beneficial.

Our findings give support to a compensation theory of family interactions in nonnuclear homes (Jenkins, 1992). Although adolescents in stepparent homes found less value in interactions with resident parents compared to time alone, they benefited from interacting with

family role models like nonresident parents, older siblings, and extended family members. This pattern suggests non-parent role models play an important compensatory role in family interactions for adolescents in stepfamilies. Similarly, in single-parent homes, adolescents benefitted from interacting with older siblings. These findings suggest siblings in nonnuclear homes typically formed stronger relationships and drew closer together.

This research speaks to the broader question of whether certain family members help or hinder adolescents in their development. Our findings suggest that parents play a central role in adolescent well-being in nuclear homes. Nonresident parents, older siblings or extended family role models play an especially valuable role in nonnuclear families. Adolescents in nonnuclear homes thrive when spending time with family role models and likely rely on them for emotional support more than researchers previously realized. Policies, programs, and interventions aimed at nonnuclear families could educate parents and grandparents about the unique part family role models play in reducing stress and improving immediate well-being of family members.

The results from this analysis lend themselves to important and perhaps novel policy and clinical implications. Adolescents in stepparent homes particularly benefitted from spending time with nonresident parents. They experienced less stress, an important consideration during a time of heightened vulnerability to the lifelong consequences of stress on health (Tottenham & Galvan, 2016). Parents, counselors, social workers, policy-makers, and judges alike can renew efforts to enable and encourage nonresident parent involvement in their children's lives.

The ATUS data set allowed us to make substantial progress in understanding the immediate impact of interacting with family on adolescent well-being, yet limitations of this research remain. The ATUS data contains well-being responses that were collected a few hours after interactions, rather than in real time. We are not concerned that this significantly alters the

importance of the result, but we suggest caution when comparing our findings to experiential sampling studies. By limiting our analysis to immediate emotional responses, we inherently restrict attention to a specific class of research questions. Our results say nothing about long-term responses to spending time with family members; we cannot say, for example, that teens view days in which they spend time with friends as happier than days without friend interaction. Longitudinal data would allow researchers to trace impacts throughout development.

A related issue stems from a need to better measure the quality of social interactions, and future work delineating the quality of an experience would provide a richer understanding of how adolescent interactions with people impact well-being and development. Given limitations in ATUS data on parent information, we were limited in types of family compositions to study (Pearce, Hayward, Chassin, & Curran, 2018). We hope to see future research exploring contact with adolescents using more refined variability in household makeup, including more refined measures of family complexity, and a study of adolescents living with single fathers, relatives, unmarried parents, and homosexual parents. Additionally, while our data did not suggest heterogeneous responses based on adolescent sex, race, or ethnicity, we hope to see future work verifying this fact more explicitly, perhaps using data with more power to detect these kinds of differences.

Despite these limitations, our study contributes to the current literature by expanding our understanding of differences experienced by adolescents when interacting with family members. Adolescents in nuclear homes benefitted from time with parents while adolescents in nonnuclear homes benefitted from spending time with other family role models such as nonresident parents, older siblings, or extended family members.

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Table 1
Household and Individual Demographics—Descriptive Statistics^a

Variables	Full sample (<i>N</i> ₁ = 1,735)			Nuclear household (<i>N</i> ₂ = 991)		Stepparent household (<i>N</i> ₃ = 147)		Single-parent household (<i>N</i> ₃ = 542)	
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Household Level:</i>									
Younger sibling ^b	0.58	0.49	0–1	0.61	0.49	0.68	0.47	0.52***	0.50
Older sibling ^c	0.49	0.50	0–1	0.48	0.50	0.30***	0.46	0.50	0.50
Low-income ^d	0.26	0.44	0–1	0.14	0.35	0.26***	0.44	0.51***	0.50
<i>Respondent Level:</i>									
Age	16.52	1.04	15–18	16.50	1.06	16.51	0.98	16.56	1.04
Female ^e	0.49	0.50	0–1	0.48	0.50	0.50	0.50	0.48	0.50
White, non-	0.59	0.49	0–1	0.63	0.48	0.62	0.48	0.49***	0.50
Black, non-	0.13	0.33	0–1	0.06	0.24	0.06	0.24	0.28***	0.45
Hispanic ^h	0.23	0.42	0–1	0.24	0.43	0.29	0.45	0.19*	0.39
Spring ⁱ	0.26	0.44	0–1	0.27	0.44	0.27	0.44	0.22*	0.41
Summer ^j	0.25	0.43	0–1	0.25	0.43	0.31	0.46	0.25	0.44
Fall ^k	0.24	0.43	0–1	0.23	0.42	0.20	0.40	0.25	0.43
Morning ^l	0.29	0.45	0–1	0.29	0.45	0.28	0.45	0.29	0.45
Afternoon ^m	0.44	0.50	0–1	0.43	0.50	0.45	0.50	0.43	0.50
Evening ⁿ	0.23	0.42	0–1	0.23	0.42	0.22	0.41	0.23	0.42
Night ^o	0.04	0.21	0–1	0.04	0.20	0.05	0.21	0.05	0.21

Note. ^a Asterisks represent significance of two-sample *t*-tests with unequal variances comparing non-nuclear families with nuclear families. **p* < .05. ***p* < .01. ****p* < .001. ^b Younger sibling: 0 = no younger sibling living at home, 1 = has a younger sibling living at home. ^c Older sibling: 0 = no older sibling living at home, 1 = has an older sibling living at home. ^d Low-income household: 0 = household income is greater than \$40K (\$2016), 1 = household income is at or above \$40K (\$2016). ^e Female: 0 = not female, 1 = female. ^f White, non-Hispanic: 0 = not white or Hispanic, 1 = white and non-Hispanic. ^g Black, non-Hispanic: 0 = not African American or Hispanic, 1 = African American and non-Hispanic. ^h Hispanic: 0 = not Hispanic, 1 = Hispanic. ⁱ Spring: 0 = surveyed outside March to May, 1 = surveyed during March to May. ^j Summer: 0 = surveyed outside June to August, 1 = surveyed during June to August. ^k Fall: 0 = surveyed outside September to November, 1 = surveyed during September to November. ^l Morning: 0 = surveyed activity not from 6 a.m. to 12 p.m., 1 = surveyed activity from 6 a.m. to 12 p.m. ^m Afternoon: 0 = surveyed activity not from 12 p.m. to 6 p.m., 1 = surveyed day from 12 p.m. to 6 p.m. ⁿ Evening: 0 = surveyed activity not from 6 p.m. to 10 p.m., 1 = surveyed day from 6 p.m. to 10 p.m. ^o Night: 0 = surveyed activity not from 10 p.m. to 6 a.m., 1 = surveyed day from 10 p.m. to 6 a.m.

Table 2
Adolescent's Emotional Self-Reporting—Descriptive Statistics^a

	Full sample ($N_1 = 5,054$)		Nuclear household ($N_1 = 2,879$)		Stepparent household ($N_2 = 434$)		Single-parent household ($N_3 = 1,579$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Meaningful	3.40	1.98	3.36	1.96	3.36	1.95	3.52*	2.03
Happiness	4.24	1.51	4.25	1.46	4.22	1.43	4.12**	1.61
Sadness	0.42	1.07	0.41	1.05	0.38	0.90	0.46	1.15
Stress	1.11	1.55	1.09	1.54	1.22	1.49	1.12	1.58

Note. ^aAsterisks represent significance of two-sample unpaired *t*-tests with unequal variances comparing stepparent and single-parent households to nuclear households. * $p < .05$. ** $p < .01$. *** $p < .001$. ^bAverages are calculated at the activity level and therefore represent approximately three activities per adolescent.

Table 3
Incidence and Duration of Activity Companions

Activity Companions	Nuclear homes ($N_1 = 986$)		Stepparent homes ($N_2 = 147$)		Single-parent homes ($N_3 = 541$)	
	Fraction with time>0	Average duration ^a	Fraction with time>0	Average duration	Fraction with time>0	Average duration
1 biological parent	0.84	3.30	0.72***	2.97	0.69***	2.97
1 stepparent	—	—	0.59	2.82	—	—
2 parents (either type)	0.55	2.31	0.51	2.47	—	—
Nonresident parent	—	—	0.06	1.41	0.04	5.76
Younger sibling	0.49	3.73	0.54	3.87	0.37***	3.86
Older sibling	0.25	3.52	0.16*	2.82*	0.18**	3.32
Extended family members	0.24	3.28	0.29	3.35	0.35***	3.05

Note. Asterisks represent significance of two-sample *t*-tests with unequal variances for frequencies and intensities. * $p < .05$. ** $p < .01$. *** $p < .001$. Nuclear home is the base of comparison in all tests except for “1 stepparent” and “Nonresident parent,” for which Stepparent homes are the base. ^aAverages are calculated conditional on interaction in the day with the companion type. Duration measured in hours.

Table 4

Adolescent Well-Being—Impact of Companions on Emotional Reporting, Two Biological/Adoptive Parents (N = 2,879 activities, 986 adolescents)

	Meaning	Happiness	Sadness	Stress
One parent	0.05 (0.14)	-0.12 (0.10)	0.03 (0.06)	0.02 (0.10)
Two parents	0.61** (0.20)	0.24+ (0.13)	-0.08 (0.09)	0.05 (0.11)
Younger sibling	-0.21 (0.17)	-0.09 (0.12)	-0.13+ (0.07)	0.04 (0.12)
Older sibling	0.17 (0.29)	0.03 (0.15)	0.08 (0.13)	0.08 (0.15)
Extended family	0.25 (0.25)	0.02 (0.16)	0.05 (0.13)	-0.23 (0.19)
Individual F.E.	X	X	X	X
Within R ²	0.12	0.13	0.05	0.18

Note. Robust standard errors reported in parentheses below estimates. Time alone is base comparison category. Controls for activity type and timing. +*p* < 0.1 **p* < .05. ***p* < .01. ****p* < .001.

Table 5

Adolescent Well-Being—Impact of Companions on Emotional Reporting, One Biological/Adoptive Parent + One Step Parent (N = 434 activities, 147 adolescents)

	Meaning	Happiness	Sadness	Stress
One biological parent	-0.35 (0.40)	-0.32 (0.27)	0.21 (0.27)	-0.35 (0.22)
One stepparent	0.55 (0.58)	0.26 (0.50)	-0.38 (0.33)	0.17 (0.44)
Both parents	0.41+ (0.24)	-0.64 (0.42)	-0.06 (0.19)	0.36 (0.28)
Nonresident parent	-0.07 (0.44)	1.74** (0.56)	-0.38 (0.24)	-1.54+ (0.82)
Younger sibling	0.44 (0.43)	0.28 (0.35)	-0.23 (0.21)	-0.15 (0.23)
Older sibling	0.54 (0.61)	1.69*** (0.29)	-0.05 (0.27)	-0.76* (0.37)
Extended family	0.73* (0.35)	1.08* (0.53)	-0.44+ (0.25)	-0.01 (0.52)
Individual F.E.	X	X	X	X
Within R ²	0.35	0.22	0.14	0.20

Note. Robust standard errors reported in parentheses below estimates. Time alone is base comparison category. Controls for activity type and timing. +*p* < 0.1 **p* < .05. ***p* < .01. ****p* < .001.

Table 6

Adolescent Well-Being—Impact of Companions on Emotional Reporting, One-Parent Households (N = 1,579 activities, 541 adolescents)

	Meaning	Happiness	Sadness	Stress
One parent	0.28 ⁺ (0.16)	0.18 (0.16)	0.11 (0.12)	-0.13 (0.11)
Nonresident parent	0.34 (0.65)	-0.48 (0.83)	0.06 (0.65)	0.33 (0.72)
Younger sibling	-0.18 (0.26)	-0.26 (0.17)	-0.24 ⁺ (0.12)	-0.21 (0.15)
Older sibling	0.55* (0.23)	0.95*** (0.24)	0.12 (0.18)	-0.31 (0.19)
Extended family	-0.17 (0.27)	-0.14 (0.19)	-0.43 (0.32)	0.06 (0.20)
Individual F.E.	X	X	X	X
Within R ²	0.13	0.12	0.05	0.15

Note. Robust standard errors reported in parentheses below estimates. Time alone is base comparison category. Controls for activity type and timing. ⁺*p* < 0.1 **p* < .05. ***p* < .01. ****p* < .001.