

Running Head: SIBLING RELATIONSHIPS IN BLENDED FAMILIES

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A growing number of children will experience the separation and remarriage of their parents during their childhood. Despite the growing interest in understanding the parent-child relationships among blended families, little research has focused on sibling relationships. Many children have siblings, who move through family transitions along side them, and might positively affect the child's outcome. Children also often gain new siblings as part of the change in family constellation. It is important to consider how these sibling relationships influence child adjustment.

There are several reasons to examine sibling relationships in blended families and what they might provide children through the family transition. Among intact families, siblings are agents of socialization, support, and stress (Cicirelli, 1996). Perhaps having a quality relationship with a brother or sister through a transitional time is especially advantageous to the child? Yet, sibling relationships also might be a source of stress, during an already difficult family change. Many questions remain regarding the importance of siblings in blended families. Thus, the purpose of this chapter is to provide a review of the research on siblings in blended families to date, and to present some new data that examines links between the quality of sibling relationships, parent-child relations, and child well-being among intact and blended families.

Defining various sibling and family types

Before we can fully discuss sibling relationships within blended families, we must clearly define our terminology. The literature has not always been specific when discussing these types of sibling relationships, making it difficult to get a complete picture of the nature of these relationships. There are two main aspects to the definition: defining the specific type of sibling

relationship and defining the type of family structure in which the siblings live. First we will discuss the definitions of sibling types and then we will discuss the terminology used to define the family structure.

There are three types of siblings: full-siblings, step-siblings, and half-siblings. A full sibling is a sibling of the target child who has the same biological parents as the target child. A step-sibling is a sibling of the target child who is not biologically related to the child, and has entered the family system via the child's step-parent. A half-sibling is a sibling of the target child who shares one biological parent with the child, but the sibling's other biological parent is not biologically related to the child. The half-sibling can be a result of the union between the target child's biological parent and the target child's step-parent, or could be the result of the target child's biological parent's union with a prior partner. When discussing type of siblings, it is important to emphasize that categorizing the type of sibling relationship focuses on a specific sibling dyad. That is to say, when we mention that siblings are step-siblings, we are referring to a specific pair of siblings. For children with more than one sibling, there may be more than one type of sibling. For example, a child may have both a full sibling and a step-sibling living with him.

There are several different family compositions, or types of families, that may exist when discussing siblings. For purposes of this discussion, we will focus on the primary household in which the child lives. The type of family composition is defined in terms of the biological relationship between the child and the parent(s) in the household. There are two main types of family compositions: intact families and blended families. An intact family is one that has remained together for the duration of the child's life, and typically the parents in an intact family are the biological parents of the children in the household (exceptions occurring when the parents

adopt children, and when one of the parents has a child from a previous relationship). A blended family is often referred to as a non-traditional family, and refers to family types that do not follow the intact family guidelines.

Blended families can include various combinations of step-parents or single parents. A step-parent family occurs when one parent is the biological parent of the child/children, and the other parent is not the biological parent of the child/children. A step-father family is one in which the children are biologically related to the mother, but not the father. A step-mother family is one in which the children are biologically related to the father, but not the mother. Finally, a family may have both a step-mother and a step-father. A step-mother and step-father family is one in which both mother and father have biological children from previous relationships living together (a Brady Bunch family). Some children are biologically related to the mother and unrelated to the father, and other children in the household are biologically related to the father and unrelated to the mother. A single-mother family is one in which the biological mother of the children is the only adult/parent living with the children, whereas a single-father family is one in which the biological father of the children is the only adult/parent living with the children.

The literature also distinguishes between simple and complex stepfamilies. A simple stepfamily is one in which there is only one step-parent, and all children are the biological children of the same parent. This type of family would occur, using the definitions above, with a step-mother family or a step-father family. A complex stepfamily is one in which both parents are step-parents to at least one child. This would occur with a step-mother and step-father family as described above. A complex stepfamily may also include the presence of a half-sibling: a child that is the result of a genetic union between both parents in the family, and would be a half-sibling to a child of the mother's or a child of the father's.

Deater-Deckard, Dunn, and Lussier (2002) use intact to refer to families ‘in which all children are biologically related to both parents’, stepmother to refer to families ‘in which at least one child was a stepchild of the mother’, complex to refer to families in which ‘both parents had children from previous relationships on the household’ and may also include children biologically related to both parents, and single-mother families refer to families ‘in which children live with a single mother who either was never married/cohabitated, or is separated/divorced’. Rende, Slomkowski, Lloyd-Richardson, & Niaura (2005) defined siblings in terms of the amount of genetic similarity: monozygotic twins, dizygotic twins, full siblings (share both biological parents), half siblings (share only one biological parent), and biologically unrelated siblings (have no biological parents in common). Reiss et al. (1994) defined siblings in much the same way that Rende et al. (2005) did, but also included family type in their definitions. Reiss et al. (1994) defined sibling relationships in terms of the amount of genetic similarity between siblings and the family composition in which the children lived: monozygotic twins, dizygotic twins, non-divorced/intact families with full siblings, step-families with full siblings (both children are from the mother’s first relationship), stepfamilies with half siblings (one child is from the mother’s previous relationship and the other child is a product of the remarriage), and blended stepfamilies with unrelated siblings (one from the mother’s previous relationship and one from the father’s previous relationship). Almost any type of sibling can reside in any type of family (step, half, and full can all live in step-parent family; full and half can be in a single parent family, and full (and half) can occur in an intact family). Now that we have clearly defined our terminology, we can discuss what is known about sibling relationships within blended families.

Theories of Sibling and Family Relationships

The literature on sibling relationships within blended families does not provide an adequate theoretical perspective that both explains the known relationships and suggests areas of future research. Moreover, there is a lack of a theoretical explanation for the developmental processes that may be involved in the various mechanisms producing changes in these relationships over time. Thus, it becomes necessary to search outside the realm of sibling relationships within blended families to gain theoretical insight into similar processes. Reviewing several main theories of sibling relationships and stepfamily relationships may inform us as to processes involved in the development of sibling relationships in blended family, and may help guide future research in this area. The theoretical views explored will include de-identification models, Patterson's deviance theory, Furman and Buhrmester's social needs theory, Brody's heuristic model, family systems theory, and nonshared environment.

Deidentification Theory: Explaining differences between siblings

Deidentification theory arose when researchers (e.g., Schachter, Shore, Feldman-Rotman, Marquis, & Campbell, 1976) became interested in learning why there was anecdotal support for differences between siblings whenever individuals were asked to describe their siblings or when parents were asked to describe their children. Individuals often would describe their siblings as being "nothing like me" and parents often described their children as being "very different". Thus, researchers developed the notion of de-identification, which is the experience of being dissimilar from one's sibling. Deidentification was originally thought of as the *perceptions* that two siblings are very different from each other (e.g., Schachter et al., 1976) and was hypothesized to be a potential defense mechanism, used to reduce sibling rivalry (Schachter,

1982; Schachter et al., 1976; Schachter, Gilutz, Shore, & Adler, 1978; Neaves & Crouch, 1990). Additionally, sibling deidentification is a way of appropriately dealing with feelings of sibling rivalry, to the extent that one is able to indirectly promote one's superiority over one's sibling by differentiated oneself from one's sibling (Schachter, 1982).

Researchers have consistently found that the majority of children rate themselves as different from their siblings indicating that they have deidentified from them (e.g., Schachter et al., 1976, Neaves & Crouch, 1990). Moreover, Schachter et al. (1976) found that more judgments of dissimilarity between siblings pairs were made for the first and second siblings (in families with 3 children) and more judgments of dissimilarity were made for same-sex first and second sibling pairs. These results were mirrored when mothers instead of siblings were asked to report on the differences and similarities of their children (Schachter et al., 1978).

Although initially thought of as the *perceptions* that two siblings are very different from each other, deidentification has come to include an active process in which children become increasingly dissimilar to their siblings as they develop (e.g., McHale, Updegraff, Helms-Erikson, & Crouter, 2001). De-identification can be thought of as one of a number processes that lead to within family differences (and thus nonshared environment) for the children (Schachter & Stone, 1985), and may help to explain one of the many ways in which the family environment encourages differences between children from the same family.

Social Interactional Perspective on the Development of Deviance and Coercive Families

This perspective views deviant behavior (delinquency, antisocial behavior, aggression) as being a product of operant conditioning, in which parents and children 'train' each other to act in a coercive manner, which produces a coercive pattern of behavioral interactions. Coercive child

behaviors include “noncompliance, temper tantrums, yelling, whining, arguing, and hitting” (Bank, Patterson, & Reid, 1996, p. 201) as well as teasing. Children act in ‘coercive’ ways that then, due to ineffective/unskilled parenting practices, results in the child getting his/her way, and being reinforced, either positively or negatively, for his behavior, which results in the undesirable coercive behavior continuing with greater frequency in the future (e.g., Bank, Patterson, & Reid, 1996). For example, imagine a parent requests that a child clean his room. The child engages in a low-level behavior intended to avoid the work by ignoring the parent. Then the parent may yell at the child to go clean his room. The child may yell back or throw a temper tantrum, and then the parent gives up and allows the issue to “drop”. This has trained the child that if he doesn’t want to clean his room, he should just yell at his parent and throw a temper tantrum. Thus, the child has learned that a negative behavior (yelling) allows him to avoid doing the undesired task (cleaning his room). The next time the parent requests something of the child, the child is much more likely to engage in a coercive behavior, and that behavior is likely to be more intense than it was initially (Eddy, Leve, & Fagot, 2001). These parenting practices include the notions that parents of coercive children are more likely to punish their children and are harsher in the actual discipline (Patterson, Dishion, & Bank, 1984).

Unlike other theorists, this perspective views behavior as an interaction between social agents, specifically between children and parents. Given that families develop a pattern of undesirable behavior in response to the child, coercive families are characterized by interactions that typically involve aggressive, maladaptive behaviors, and thus the entire family, including parents and siblings, shares the coercive environment (Patterson, Dishion, & Bank, 1984). Rather than thinking that there is very little shared environment between siblings, this approach considers that there is a high amount of shared environment between siblings from coercive

families. This approach considers that after the initial sibling acts in a coercive manner, the other sibling is very likely to *reciprocate* that behavior. Thus, the first sibling influences the second in an undesirable way, and then the second sibling in turn reacts accordingly, and impacts the first sibling in a similar undesirable way. Thus, the siblings' negative interactions lead to the development of a negative interaction pattern, which perpetuates the undesirable coercive behavior. Additionally, it is thought that one of the main ways in which children are trained in a coercive pattern of behavior is through their interactions with their siblings, in part because siblings are very likely to be aggressive back towards the child, which further escalates the intensity and frequency of coercive behaviors. Other work has shown that negative sibling interactions (characterized by coercive behaviors being responded to by coercive behaviors from the sibling) mediates the relationship between ineffective parenting and physical fighting, such that ineffective parenting has its effect on physical fighting through the negative sibling interaction pattern (Patterson, Dishion, & Bank, 1984). The sequence of behavioral events between siblings results in the following pattern. First, the child engages in aggressive act towards the sibling (e.g., taking away a toy, fighting for an object, etc.). In response to the aggressive act, the sibling either gives up, converts to child's will, or leaves. Any of these responses negatively reinforces the child's coercive behavior. Additionally, siblings may positively reinforce coercive behavior by giving the coercive child praise, attention, laughs, etc. for his coercive acts.

The overall coercive process is started initially when the child acts in a coercive manner, and the unskilled parent then responds in a way that reinforces that behavior and encourages it to continue (by allowing the child to get his/her way), rather than the child's behavior being due solely to the parent's ability to parent. The intensity of the reactions (of parents, siblings, and

child himself) increases over time. Additionally, this model suggests coercive *families* (this is somewhat of a family model) that lead to antisocial behavior, rather than just the particular child being solely responsible for his behavior. In coercive families, in addition to learning coercive behavior patterns, children are not positively reinforced for the prosocial behavior in which they engage. Thus children in these families are trained to be both antisocial and to lack proper social skills (Patterson, DeBaryshe, & Ramsey, 1989).

Learning this aggressive way of dealing with people leads the child to be rejected by his peers once he enters school and to experience academic failure (Patterson, DeBaryshe, & Ramsey, 1989), which in turn leads to an increased likelihood for participating in a deviant peer group, in which his aggressive behavior will be positively reinforced. These deviant peer groups are also thought to “train” antisocial behavior through the same processes that the family trains these behaviors (Dishion, McCord, & Poulin, 1999). Negative and aggressive child behaviors lead to consistent responses from the child’s social environment, including his parents, siblings, and peers, which then leads to more negative child behaviors and further responses from the social environment.

The developmental process occurs with poor parenting skills leading to children’s coercive behaviors in early childhood, the child’s antisocial behaviors lead simultaneously to peer rejection and academic problems in middle childhood, and peer rejection and academic problems both lead to participation in a deviant peer group and delinquency in late childhood and adolescence (Patterson, DeBaryshe, & Ramsey, 1989).

Moderators/family constellation variables are thought to impact the child’s coercive behaviors through the inadequate parenting skills of the parents. Low SES and marital conflict and divorce are thought to negatively impact that parent’s ability to raise the child with

appropriate feedback for positive and negative behaviors, which results in the child being trained in coercive behaviors (Patterson, DeBaryshe, & Ramsey, 1989).

In their research, Bank, Patterson, and Reid (1996) found that siblings' synchronous (responding to a negative behavior with a negative behavior) negative behaviors in middle childhood were a significant predictor of adults arrests ten years later for both aggressive (Referred Group) and non-aggressive (Nonreferred Comparison) boys. Additionally, juvenile arrests were significantly predicted by "startup" with their mothers for both groups – boys who responded to neutral or positive behaviors from their mothers with a negative (coercive) behavior were significantly more likely to be arrested as a juvenile, regardless of whether they were clinically referred as aggressive or not. (Bank, Patterson, & Reid, 1996). Clinically referred aggressive boys who responded to their siblings' positive, neutral, and negative behaviors with further negative behaviors were significantly more likely to experience a later "sense of inadequacy, incompetence, and hostility" (p. 222) and to later engage in violence against women. Finally, clinically referred aggressive boys used coercive tactics to resolve conflicts in late adolescence and early adulthood significantly more than non-clinically referred boys. Especially important in predicting use of coercive tactics to resolve conflicts by clinically referred aggressive boys was negative interactions with siblings (negative behaviors being responded to with other negative behaviors).

Furman & Buhrmester's theory of the quality of sibling relationships

Furman and Buhrmester's (1985) work on sibling relationships focused on creating a "systematic framework for portraying the qualities of sibling relationships" (p.449) that would establish several basic dimensions of sibling relationships. They hypothesized three general

dimensions of sibling relationships: relative status/power, warmth/closeness, and conflict. In order to establish if these dimensions did exist, they asked children to describe their relationship with a particular sibling. Next, they used the qualities that emerged and developed a self-report questionnaire to assess these qualities. Four 'factors', or macro, aspects of siblings relationships emerged during the validation of this questionnaire: warmth, relative power, conflict, and rivalry. Warmth and conflict were uncorrelated with each other, suggesting two distinct dimensions. Additionally, warmth and conflict were both unrelated to relative power. Conflict and rivalry had a moderate (.35) positive correlation. Additionally, fifteen 'features' specific, or micro, aspects of sibling relationships were observed: Intimacy, prosocial behavior, companionship, similarity, nurturance of/by sibling, admiration of/by sibling, and affection are all aspects of the warmth factor. Nurturance by sibling (negatively related), nurturance of sibling, admiration by sibling, admiration of sibling (negatively related), dominance by sibling (negatively related), and dominance of sibling are all aspects of the relative power factor. Admiration by sibling (negatively related), affection (negatively related), dominance by sibling, dominance of sibling, quarreling, antagonism, and competition are all aspects of the conflict factor. Finally, competition and parental partiality are both aspects of the rivalry factor.

Older siblings were perceived as having greater status and power than younger siblings, as older siblings were more likely to have dominance over, be nurturing of, and be admired by the younger sibling. Additionally, same-sex sibling dyads reported higher levels of warmth than did opposite-sex dyads. Furthermore, the highest levels of warmth were expressed by same-sex, similar-aged, siblings. Despite often expressing high levels of warmth, siblings closest in age reported the most conflict.

In addition to establishing a way of measuring important aspects of the sibling relationship, Furman and Buhrmester also suggested a model that describes the hypothesized influences of the quality of the sibling relationships (see Figure 1). This model describes family constellation variables, such as family size, birth order, and age discrepancies as having a direct impact on both the parent-child relationships and the sibling relationship (relative age refers to if the child is the older or younger sibling). Furthermore, the connection between the parent-child relationship, which is characterized both by the qualities of that relationship and the ways in which the parents manage sibling conflicts, and the sibling relationship, which is characterized by the four relationship factors, is bi-directional in nature. This bi-directionality allows the parent-child relationships to impact the sibling relationship, and the sibling relationship to in turn impact the parent-child relationships. Individual aspects of each child (e.g., personality characteristics) have a reciprocal association with both the sibling relationship and the parent-child relationships such that they mutually influence one other.

Furman and Lanthier (1996) focused on the role of personality as relates to sibling relationships, using the same model as described by Furman and Buhrmester (1985). Furman and Lanthier found that personality characteristics (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) were more often associated with the conflict dimension of sibling relationships than with the warmth dimension. Additionally, more of the older siblings' personality characteristics were related to the relative power/status dimension of the sibling relationship than were the characteristics of the younger child, such that the older siblings' extraversion, agreeableness, conscientiousness, and neuroticism were significantly related to the relative power in the dyadic relationship, but only the younger sibling's agreeableness was related to the relative power of the relationship. Interestingly, although

similarities in personality traits between siblings did not predict the sibling relationship, similarities in stress levels (either low or high) were related to relationships high in warmth/closeness and low in conflict. Conversely, dissimilarities in stress levels between siblings were related to low warmth, high conflict relationships.

Buhrmester (1992) has a similar, related outlook on sibling relationships which focuses on the structural aspects of sibling relationships, specifically examining biosocial structure, social role structure, systemic structure, and socioemotional structure. Biosocial structure, often described as constellation variables or family constellation, refers to characteristics of children that are biologically connected, such as family size, birth order, age discrepancy, and gender. Social role structure refers to the various roles that a sibling may fill, including those of friend, companion, rival, caregiver, and teacher. These roles have various social norms associated with them that dictate appropriate behaviors, and children might encompass several different roles and will change roles intermittently depending on the context and other features of the environment of the relationship. Systemic structure refers to the structure of the larger system in which the sibling relationship belongs, most often the family and sibling systems. Siblings in households with more than two children may be the oldest, the youngest, or both older and younger (the middle sibling) than other children in their family. Additionally, the presence of one or more parents may impact the sibling relationship (e.g., dominance hierarchies). Finally, socioemotional structure refers to “the behavioral and affective interdependencies in children’s personal relationships” (Buhrmester, 1992, p. 22) and includes both the ways in which relationships fulfill social needs and the relative power of the relationship, in which sibling relationships fall in between peer relationships and parent-child relationships in terms of the dominance of one member over the other.

Buhrmester (1992) uses the social provisions theory of Weiss (1974) and the social needs theory of Sullivan (1953) to explain the function of children's sibling relationships and friendships and what children gain from these relationships. Both Weiss and Sullivan describe the importance affection/emotional security, companionship, enhancement of worth, and intimacy in close relationships, and Weiss suggests that reliable alliance (a lasting bond), advice and support, and the opportunity for nurturing another person are also critical aspects of human relationships.

Buhrmester (1992) also describes how individuals' social needs are met through the entirety of their social network, not just from a single relationship. For example, parents typically fill the need of affection, whereas siblings and friends may fill the need for companionship. The implication of the diversity of need fulfillment is that to understand relationships, we must understand how each relationship is embedded in a complex structure containing many relationships.

Research (Buhrmester, 1992) shows that sibling relationships provide an important opportunity to experience intimacy (disclosure), affection, and companionship in preadolescence. Additionally, throughout development, the various relationships children use to fulfill their needs change such that, for example, in preadolescence, children report the highest levels of intimate disclosure with their parents, but as children develop into early and middle adolescence, friends become the most important confidant. Furthermore, aspects of the biosocial structure, such as dyad gender and relative age, are related to the socioemotional aspects of the relationship, such that same-sex sibling pairs report higher levels of companionship, affection, and intimacy, and that children report higher levels of intimacy for older siblings as opposed to younger siblings. Likewise, siblings close in age report higher levels of conflict than siblings who are far apart in

age, and children report more frequent conflict with younger as opposed to older siblings. Moreover, older siblings have more status and power in the relationship than do younger siblings.

As children enter adolescence, sibling relationships become more balanced, such that older siblings lose the power they had over their younger siblings. With the approach into adolescence, older siblings nurture their younger siblings less, and younger siblings nurture their older siblings more. Likewise, older siblings dominate their younger siblings less and younger siblings dominate their older siblings more as the children develop. Moreover, as siblings age, their relationships become less emotionally charged such that ratings on all major dimensions of sibling relationship (warmth, conflict, rivalry, and power) and this decrease postulated to be due in part to the diminished frequency of interaction as children mature. However, although report levels of warmth decreased with age, this was mostly due to decreased levels of companionship, whereas levels of affection remained fairly strong.

Brody's Heuristic Model

Brody (1998) summarized and amalgamated the literature on sibling (full siblings from intact families) relationship quality and created a heuristic model that would both synopsise the research to date and guide future research. Brody focused on the influence of child temperament, marital processes, parental depression, parent-child relationships, parental differential treatment, and parental conflict management strategies on sibling relationship quality (see Figure 2).

Several contributions of child temperament to sibling relationship quality were observed. Older siblings' difficult temperaments (characterized by high activity levels and emotional intensity) related to less positivity in the sibling relationship, and younger siblings' difficult

temperaments related to more negativity in the sibling relationship. The most harmonious sibling relationships were observed between siblings who both had low activity levels, and siblings who both had high activity levels had the most conflictual relationships.

Additionally, stress in the marital relationship is related to sibling relationship quality in that children respond to their parent's stress by experience negative emotions such as distress and anger, and these negative emotions are often directed towards others, especially siblings.

Furthermore, parent-child relationships affect sibling relationship quality in that they teach the child how to interact with others (either positively or negatively), and also through changes in the parent-child relationship affecting other relationships. Differential treatment is also thought to impact the quality of the sibling relationship. It is thought that the interaction between the fit of the child's temperament and the family processes involved will impact precisely which factors have the most influence on the quality to the sibling relationship.

Family processes, such as parent-child relationship, differential parental treatment, and management of sibling conflict are thought to influence sibling relationship quality through the mediators children's behavior patterns (prosocial or aggressive), the child's ability to regulate his emotions, the attributions the child uses to explain various behavioral events, and the norms relating to appropriate interaction between siblings. Family processes, like the parent-child relationship, are thought to influence the child's attributional style, ability to regulate his emotions, and his typical behavior patterns. Then, these aspects of the child influence how the child responds to his sibling, and the sibling relationship that is formed. The sibling relationship then feeds back by influencing the family processes such as parent-child relationship and differential treatment.

The great advantage of this model is that it provides hypotheses regarding the specific processes that are involved in mediating the link between family variables and qualities of the sibling relationship. Other models of sibling relationship have not focused as much on the processes through which parent-child relationships, for instance, impacts sibling relationship quality. The processes delineated in this model provide researchers with the necessary momentum to scientifically advance the field of sibling relationship quality.

Family Systems Theory

Family systems theory (e.g., Bowen, 1971; 1972) examines the family in terms of various subsystems, each of which can impact other subsystems and the overall family system. The family is seen as being comprised of several smaller sections, or subsystems (Minuchin, 1974). For example, a family may have a sibling subsystem, a marital subsystem, and a parent-child subsystem. The family system may even include extended family members as well (Papero, 1990). A change in one aspect or part of the family system (e.g., within the sibling subsystem), will impact and likely produce change in other parts of the family system (e.g, the marital system and the parent-child systems). An implication of this view is that a psychological issue with an individual is nested within the larger context of the family, such that if one person in the family is depressed, there may be other influences of that depression beyond the depressed individual. Thus, therapies should include the entire family in order to ascertain the various aspects of the family system that are promoting that behavior.

More specifically, family systems theory has several major components. First, family systems theory proposes that a triangular relationship (relationships involving three individuals) is a more stable unit than a two-person relationship, and thus is the smallest stable relationship

unit. Through this triangular system, individuals engage in predictable patterns of behavior, and stress in one dyadic relationship of the triangle is likely to be passed on to the third person in the triangle through role-switching, as one member of the stressed dyad is replaced by the outsider (Bowen, 1972). One of the implications of this view is that relational interactions are circular in nature, as opposed to linear (Minuchin, 1988). Thus, individuals and relationships are consistently interacting and mutually influencing one another, as opposed to a unidirectional influence of one person or relationship to another. Another core concept is that both stability and change in families is expected over time (Minuchin, 1988, 1985). Families will engage in typical reaction patterns to one another, and these reaction patterns are relatively stable over time. However, these patterns may change as new challenges for the family emerge to which the family must adapt.

Family systems theory has been used both by sibling relationships researchers and stepfamily researchers. Sibling relationship researchers use family systems theory as a way of explaining how changes in the sibling relationship may influence the other aspects of family life, and how the parent-child relationship and the marital relationship might influence the quality of the sibling relationship. Stepfamily researchers have used family systems theory to explain the ways in which the forming of a new family system, through remarriage, may have influences on other aspects of the family. For example, a newly married couple have a new marital relationship, and changes in that marital relationship or simply focusing on that relationship can impact the relationship between the mother and her child. Thus, the couple subsystem is affecting the parent-child subsystem.

Nonshared Environment

Behavioral genetics researchers have been focused on the extent to which both genetic and environmental influences impact development. Genetic influences are those passed down through the biological mother's and biological father's DNA (Reiss et al., 1994). It was initially assumed that siblings from the same household had the same (or shared) environment. However, researchers have noticed that siblings residing in the same household have very different experiences, both due in part to the different environments they choose (peers, activities, etc.), but also how a similar event (e.g., a divorce) may impact two siblings in very different ways. These environmental factors that are different between siblings growing up in the same household are referred to as the *nonshared environment* (Plomin & Daniels, 1987; Turkheimer & Waldron, 2000). Explaining the various factors that influence nonshared environment has become a goal of many researchers. As an example, one such explanation is that differential parenting may contribute to nonshared environment (Feinberg & Hetherington, 2001). Researchers found that differences in parenting between one sibling and another have in fact contributed to the nonshared environment and differences in sibling outcomes (Feinberg & Hetherington, 2001).

Research findings regarding sibling relationships in blended families

The various theories of sibling relationships and family relationships can inform our thinking of the various types of sibling relationships in blended families. Siblings in blended families have the commonality of having experienced the loss of a former family system, and have gained a new family system. Thus, thinking of theories that inform stepfamily research would be helpful in our context. Additionally, siblings in blended families must adjust to their

new family members, including new siblings, just as an older child must adjust to the idea of a new baby. Although there are noteworthy differences in step-sibling relationships and other sibling relationships, it is useful to keep in mind the theoretical perspectives of sibling research as we review the findings on sibling research in blended families. Several of the major research endeavors are reviewed in detail here because of their vast impact on the field of sibling relationships in blended families. Since most of what we know comes from several large research projects, including Hetherington's longitudinal research (e.g., Hetherington, 1993; Hetherington & Clingempeel, 1992; Hetherington, Henderson, & Reiss, 1999), the Avon Longitudinal Study of Pregnancy and Children (and the Avon Brothers and Sisters Study; e.g., Deater-Deckard, Dunn, & Lussier, 2002; Dunn et al. 1998), and the Nonshared Environment and Adolescent Development project (e.g., Mekos, Hetherington, & Reiss, 1996; Reiss et al., 1994), findings from those research projects are reviewed thoroughly.

E. M. Hetherington's Virginia Longitudinal Study of Divorce and Remarriage

Anderson (1999) studied sibling relationship quality between full siblings, half siblings, and stepsiblings in blended families. The study was limited to same-sex sibling pairs, the average age of which was approximately 15 years old for the older sibling and 13 years old for the younger siblings. The average age difference between the older and younger sibling was 1.8 years, which was significantly smaller than the age differences between half and full siblings. Anderson (1999) measured sibling relationship quality among six dimensions: rivalry, aggression, avoidance, teaching, empathy, and companionships. These dimensions were then organized into positive and negative factors, which were then combined with observational measures of positivity and negativity in the step-sibling relationship. Thus, Anderson (1999)

obtained a measure of overall positivity and negativity in step-sibling relationships that was based on both observational measures and self-report questionnaires. The number of other siblings in the family, the personality characteristics of the two children, and then amount of time spent in the sibling dyad is unknown.

Anderson (1999) required for inclusion in the study that parents be married (cohabitating couples were not allowed to participate), that siblings be no more than 4 years apart and be between the ages of 10 and 18, that siblings reside in the same household at least 50% of the time, stepfamilies were required to be married for at least 5 years prior to participation in the study (the average marriage was 9 years at the time of participation), and families were predominantly European-American (95%), with 4% being African American and 1% representing Hispanic families.

Anderson (1999) found that girls were more likely than boys to have more observed positivity in their sibling interactions (regardless of if they were full, half, or step siblings). Additionally, girls had higher levels of empathy in their relationships than did boys, but there were no significant differences between boys and girls in the amount of companionship exhibited in the sibling relationship. Step-siblings were found to exhibit significantly less negativity, both reported and observed, in their relationships than half and full siblings, even after controlling for the age of the siblings and the age difference. Furthermore, step-siblings engaged in the lowest levels of rivalry, aggression, and avoidance. Step-siblings also had more positive interactions than did half siblings. Moreover, step-siblings engaged in less teaching than did full and half siblings, and girls engaged in more teaching than did boys. These findings concur with what Ihinger-Tallman (1987) has labeled 'satellite relationships', which are relationships that involve moderately high levels of support and companionship but relatively low levels of negativity.

Anderson (1999) also investigated the connections between the age of the siblings and aspects of the sibling relationships. For these analyses, full, half, and step-siblings are combined to gain a perspective of the general association between sibling relationships and age of siblings. Older adolescents had relationships characterized by less negativity (including rivalry, aggression, and avoidance) and more empathy (but not companionship) than did younger adolescents. Additionally, the greater the difference in ages between the two siblings (which ranged from 0 – 5 years difference), the more aggression and avoidance characterized the relationship, and less companionship was observed in the relationship, which Anderson noted supported the theory that the greater the age difference between siblings, the more the relationship becomes hierarchical.

Anderson (1999) also examined the associations between sibling relationship quality and adolescent adjustment. Adolescent adjustment was measured by a variety of factors, including externalizing behavior problems and ‘social responsibility’ (characterized by how well they get along with others, how dependable, honest, understanding, obedient, and modest they are, and how closely they comply with adult norms and values). Findings indicate that for all sibling types combined, both negativity and positivity in the sibling relationship was predictive of externalizing problems, whereas only positivity was significantly related to social responsibility. The interaction between gender and positivity was significant in predicting externalizing outcomes such that there was a stronger relationship between positivity and externalizing problems for boy sibling pairs as compared to girl sibling pairs, regardless of sibling type. Furthermore, a weaker relationship was noted between negativity and social responsibility for both younger and older stepsiblings compared to other sibling types.

Longitudinally, results indicated that positivity in the sibling relationship was related to externalizing behavior problems several years later. Additionally, greater positivity in the sibling relationship was related to higher levels of social responsibility several years later, and those levels of social responsibility predicted future positivity in the sibling relationship (this indicates a bidirectional flow of influence between positivity and social responsibility). This connection held for all sibling types, suggesting that even for step-siblings, greater positivity in the step-sibling relationship has important positive outcomes for each individual. However, Anderson (1999) found less similarity in externalizing behavior problems between step-siblings than between full and half siblings, indicating that full and half siblings are more similar in the amounts of externalizing behavior problems they exhibit than are stepsiblings.

To summarize, step-sibling relationships are markedly different from half sibling relationships, full sibling relationships in step-families, and full sibling relationships in intact families. Step-sibling relationships tend to have lower levels of negative qualities, and similar levels of positive qualities, to other types of sibling relationships. Moreover, there were very few differences between the other types of sibling relationships (half, full in step-families, and full in intact families). Thus, step-sibling relationships differ from other types of sibling relationships, and should therefore be studied in their own right. Moreover, because the qualities of step-sibling relationships predict behavioral outcomes for adolescents, the processes through which these effects occur should be investigated further.

Anderson (1999) did not report on the amount of time the family spends together, how the parent-child relationships (including biological-residential parent, step-parent, and biological-nonresidential parent – child relationships) impact the step-sibling relationship and adolescent

outcomes, nor did he investigate how marital satisfaction, parental conflict, and differential treatment between siblings impacts the step-sibling relationship and adolescent outcomes.

Additional research has found that mothers have more positive relationships with their own (biological) children than with their step-children, that mothers monitor their biological children more than their step-children, and that mothers experienced more conflict with their biological children than with their step-children (Henderson & Taylor, 1999). Thus, the mother-child relationship was both more negative and more positive when the child was the mother's biological offspring. Similar to mother, fathers had more positive relationships with their biological children than with their step-children and fathers from intact families monitored their biological children more than fathers in stepfamilies monitored their step-children. However, this research did not investigate the impact of the differences in these parent-child relationships on the step-sibling relationship.

Avon Longitudinal Study of Pregnancy and Children (ALSPAC)

Deater-Deckard, Dunn, and Lussier (2002) investigated the impact of family type and sibling type on sibling relationship quality, and the connections between sibling relationship quality and internalizing and externalizing behavior problems. Children in this study were approximately 5 years old, and their step-siblings were on average approximately 9.5 years old. The researchers also included a third sibling, when applicable, who was approximately 12.5 years old. The average age difference between siblings was not mentioned. Time since the family transition was not noted by the researchers other than to describe that many of the families participating in the study had been through transitions 'recently'. Additionally, the overall size of the family was also not mentioned. However, Deater-Deckard, Dunn, and Lussier (2002) allowed

for the inclusion of non-married, cohabitating couples to be included as “step-families” in this research.

Positivity and negativity in the sibling relationship was measured through several different means. Mothers rated the children’s relationships in terms of how close they were, how much emotional support they gave each other, how much they revealed to each other, and how often they engaged in warm and nurturing behavior. In addition, mothers rated the intensity and frequency of disagreements between the children, the amount of physical fighting, and the frequency of reckless behavior between the children. Children rated similar items, and the responses from mothers and children were combined to form two estimates: one of the positivity in the sibling relationship and one of the negativity in the sibling relationship.

Researchers (Deater-Deckard, Dunn, & Lussier, 2002) found that step-siblings (youngest child and middle child) had significantly less negativity in the relationships than did half siblings or full siblings (who did not differ from each other), even after controlling for the child’s age, gender, gender composition (same or opposite sex), and family income. Additionally, analyses of the relationship between the youngest and the oldest children indicated that step-siblings and half-siblings had significantly lower amounts of negativity than did full siblings, and similar results were found for the relationships between the middle child and the oldest child. For all three sibling pairs (youngest–middle, youngest–oldest, and middle–oldest) there were no significant differences in positivity in the sibling relationship. Thus, step-siblings exhibited similar levels of positivity and lower levels of negativity in their relationships when compared to full siblings. Furthermore, positivity in the youngest-middle child sibling relationship was significantly related to fewer externalizing problems for the younger child, and negativity in this relationship was related to more externalizing problems for the middle child. Negativity in the

youngest-oldest child sibling relationship was associated with higher levels of internalizing behavior problems for the oldest child and higher levels of externalizing problems for the youngest child. Finally, negativity in the middle-oldest child sibling relationship indicated more externalizing behavior problems for the oldest child. These significant relationships did not differ as a function of sibling type (step, half, or full), which suggests that step-sibling relationships impact child outcomes in a similar way to full sibling relationships.

Jenkins, Dunn, O'Connor, Rasbash, and Behnke (2005) examined change in negativity in sibling relationships as related to within-family and between-family factors. Children in this study were 5 years old and had siblings who ranged from 6–17 years old at the first data collection point, and the second data collection point took place 2 years later. Jenkins et al. took advantage of a multilevel approach to model if differences in dyad negativity could be attributed to shared family experience (experiences shared by all sibling dyads in the family, representing a family variable), unshared family experience (dyad-specific experiences), or both. Researchers examined the extent to which sibling type, differential treatment, age of the oldest child in the sibling pair and the age difference between the children could explain changes in sibling relationship negativity. Results indicate that full siblings do not significantly differ from step-siblings in the amount of change in negativity over time, nor do differential treatment and age difference predict change in negativity. However, full siblings do have significantly higher levels of negativity over time when compared to half-siblings, and relationships were less negative the older the oldest child. Additionally, being a single parent resulted in higher levels of sibling negativity when there were high amounts of differential treatment between the children. Furthermore, there was a moderate amount of similarity in dyad negativity between dyads within

the same family, which suggests that family processes may be involved in the development and maintenance of sibling negativity.

Nonshared Environment and Adolescent Development Project

Mekos, Hetherington, and Reiss (1996) were interested in investigating the impact that different family types and sibling types might have on the relationship between parental differential treatment and adolescent problem behaviors. Siblings ranged in age from 10 to 18 years and were no more than 4 years apart in age. Additionally, families must have been legally married for at least 5 years in order to be eligible to participate, and step-siblings needed to have lived together at least 50% of the time over the last 6 months. Mekos et al. (1996) had several classifications of siblings: full siblings in intact families, full siblings in stepfather families, half siblings in stepfamilies (with mother as common biological parent), and step-siblings in stepfamilies. Mekos et al. measured problem behaviors, including alcohol and marijuana use, delinquency (e.g., cheating, stealing), and sexual behaviors. Additionally, Mekos et al. measured the amount of warmth, negativity, and monitoring in parenting practices. Finally, adolescents' exposure to marital conflict was also measured. Preliminary results indicated that the age difference between siblings was unrelated to differential treatment, but sibling age differences were related to differences in problem behavior (the larger the age difference, the more noticeable differences in problem behaviors between siblings). Results indicated that parents did treat their biological and step children differently, specifically such that parents provided their biological children with more warmth, monitoring, and negativity than they did their step-children. Mother's differential monitoring when the mother had both a biological and a step child in the family was more solidly related to differences between siblings' problem behaviors than in

intact families, such that mothers monitored the antisocial child less than the better behaved child. Regardless of family and sibling type, differential experience of marital conflict was also related to differences in problem behaviors. For fathers, differences in negativity exhibited toward one child versus another were related to differences in problem behaviors such that higher levels of negativity related to greater antisocial behavior. Similar to mother's treatment, father's differential monitoring when the father had both a biological and a step child in the family was more strongly related to differences between siblings' problem behaviors than in intact families, such that fathers monitored the antisocial child less than the better behaved child. Stepchildren were more likely to receive less monitoring and less supportive attention than were biological children, and biological children of mothers were more likely to receive higher levels of differential negativity. Findings indicate that differential treatment of children may be enhanced in stepfamilies consisting of step-siblings as compared to families in which the children share both biological parents.

Additional research on sibling relationships in blended families

Ganong and Coleman (1993) focused on investigating particular aspects of the step-sibling relationship, and what, if any, influence the step-sibling relationship might have on the step-family dynamics, including relationships between the parents and the children. The stepfamilies included in their research had been together between one and sixteen years (with an average of four years) and the adolescents interviewed ranged from 7 to 20 years old, with the average age of 13, whereas their step-siblings had an average age of 15. No information was provided as to the average difference in ages between the step-siblings.

On the whole, the majority (78%) of parents felt that their children had good or excellent relationships with their step-siblings, and approximately a third of parents reported typical sibling rivalry between step-siblings (Ganong & Coleman, 1993). According to children, step-siblings fought less, taught each other less, and helped each other less than did full siblings, and step-siblings played with each other less, helped each other less, and taught each other less than did half-siblings. Step-siblings reported similar levels of overall relationship quality to those reported by full siblings. Additionally, cross-sex pairs of step-siblings taught each other less than any other type of sibling pair (cross-sex half or full sibling pairs, and same-sex step, half, or full sibling pairs). These findings suggest that step-sibling relationships are less polarized than the relationships of full siblings, given that step-siblings engage less frequently in both positive and negative behaviors than do full-siblings.

As for parent-child relationships, parents reported greater feelings of closeness to their biological children when the family also included step-children. That is, when parents had both biological and step children, they reported feeling closer to their biological children than parents who only had biological children (Ganong & Coleman, 1993).

White and Riedmann (1992) investigated full and step-sibling relationships in adulthood, specifically focusing on the amount of contact adults had with their siblings. White and Riedmann (1992) used a national data set to examine the amount of time that adults had with their full and half/step siblings. Due to the nature of the data available to them, White and Riedmann were unable to distinguish between half siblings and step-siblings in their analyses. It was thought that the closer siblings lived to one another, the unmarried status of the siblings, the siblings being African-American, the siblings being female, the siblings being of working-class,

the siblings being younger, and the siblings being Catholic would predict more frequent contact between siblings.

White and Riedmann (1992) also investigated if the length of time spent in the stepfamily while growing up, whether the family was a stepmother or stepfather family, the presence of full siblings in addition to half/step siblings, and the stability of the stepfamily would relate to the amount of contact between stepsiblings in adulthood. Findings indicate that overall, adults have greater contact with their full siblings than they do with their half/step siblings. However, adults report remaining in contact with their half/step siblings approximately several times a year (on average). Moreover, adults tend to live further away from their half/step siblings than they live from their full siblings. Additionally, proximity to siblings remains the primary predictor of the frequency of contact with one's sibling, regardless of whether the sibling is a full sibling or a half/step sibling. Furthermore, African-American adults report more frequent contact with both full and half/step siblings, and females report more frequent contact with both types of siblings than do males.

White and Riedmann (1992) also examined the impact of age, and found that the older the adult, the less contact he had with his siblings, although there was a significant quadratic effect such that the older the adult, although contact is still becoming less frequent, it becomes weaker with age. Having full siblings reduces the amount of contact with half/step siblings, and having half/step siblings reduces the amount of contact with full siblings. The longer an adult lived in the stepfamily before the age of 18, the greater the frequency of contact with step/half siblings.

Richmond, Stocker, and Rienks (2005) were interested in investigating the longitudinal links between sibling relationship quality, parental differential treatment, and child outcomes.

Richmond et al. used changes in sibling relationship quality and changes in parental differential treatment to predict changes in child outcomes. Richmond et al. gathered information about sibling relationship quality, parental differential treatment, and child outcomes from 133 non-divorced families over the course of six years. There were three waves of data collection: the initial wave and then data collection occurred two and six years after the initial wave. During the six year period of the study, approximately 10% of the families separated or divorced. Those families were included in the analyses but the researchers controlled for marriage status. The sample consisted of primarily Caucasian, middle class families in and around a large Western U.S. city. Children were approximately 10 and 8 years old at the time of the initial assessment (older and younger siblings, respectively), and were 16 and 14 year old at the time of the final assessment. Child outcomes were measured using the CBCL (Achenbach, 1991; externalizing behavior problems, parent report) and the CDI (Kovacs, 1981; depression, child report). Sibling relationship quality was measured using the Sibling Relationship Questionnaire (Furman & Buhrmester, 1985) which consists of two subscales: warmth and conflict. Finally, the Sibling Inventory of Differential Experience (Daniels & Plomin, 1985; differential treatment, child report) was used to measure the amount of differential treatment of children exhibited by the parents, as reported by the children. Differential treatment reported about mothers and fathers was averaged to create an overall measure of *parental* differential treatment.

In order to investigate the verity of their hypotheses that changes in sibling relationship quality and changes in parental differential treatment would predict changes in child outcomes, Richmond et al. (2005) took advantage of a relatively new technique specifically designed for this task: hierarchical (or multilevel) linear modeling (HLM). HLM allows the researcher to correctly examine non-independent observations, such are inherent in work with families, as well

as allows the researcher to easily include predictors in the analyses that change over time (in this case, sibling relationship quality and parental differential treatment) as well as predictors that are static (e.g., gender). For a complete discussion of their data analytic strategy, see Richmond et al. (2005). Richmond et al. ran two models: one in which externalizing behavior problems were considered the outcome of interest, and another in which depression was investigated as the outcome. On average, younger siblings experienced a decrease in externalizing behavior problems whereas older siblings showed no change in externalizing problems, and older siblings showed an increase in depression over time whereas younger siblings showed no change in depression over time. For both older and younger siblings, the average amount of parental differential treatment predicted the average amount of externalizing problems such that the more the older child was favored, the fewer externalizing problems the older child experienced and the more externalizing problems the younger child experienced. However, neither the average sibling relationship quality nor the child's gender predicted externalizing problems. The average sibling relationship quality predicted the average amount of depression, such that the better the quality of the sibling relationship, the lower the feelings of depression for both older and younger siblings. Additionally, younger sibling gender predicted older sibling depression, such that older siblings with younger sisters experienced greater depression than older siblings with younger brothers. Also, younger girl siblings had steeper increases in depression than did younger boys. Overall, this study indicated that changes in the quality of the sibling relationship, as well as changes in the level of parental differential treatment, are important predictors of depression and externalizing behavior problems (respectively). The focus here is on the dynamic aspect of these relationships, not merely on their existence.

Sibling Relationships in Mexican American Families

Although research to date has focused on sibling relationships in blended families, none of these studies have examined the role of cultural factors. Further, none of the studies to date have examined sibling relationships in *minority* blended families – the entirety of the research has been conducted on samples in which the vast majority of participants are European American. However, there is evidence that cultural factors also are important in sibling relationships. It might be especially important to include Mexican-American families in studies of sibling relationships because of cultural beliefs that particularly promote close family relationships. Familism, an emphasis on family support, loyalty and attachment to family members, is important for many Mexican Americans (Sabogal et al., 1987). Additionally, Mexican-American families often include more siblings and have more clearly defined siblings' roles. (Updegraff, McHale, Whiteman, Thayer, & Delgado, 2005). How do sibling relationships among Mexican-American families compare to the sibling relationships we have discussed previously? Updegraff et al. (2005) report that like many other siblings, Mexican-American sibling relationships are both intimate and conflictual, and siblings participate in many shared activities. Mexican-American siblings have closer relationships with sisters and siblings closer in age, and spend more time with same-sex than opposite-sex siblings. However, particular to the Mexican American culture, familism was associated with more reports of feelings of intimacy and closeness with siblings and increased time spent together. Reported time spent together was greater than has been reported by European American siblings, but differences in methodology make comparisons difficult. Thus, sibling relationships among Mexican-Americans may be especially important, at least among intact families. Further research with Mexican-American families should include siblings in blended families.

A Model of Sibling Relationships in Blended Families

After discussing the theoretical models pertaining to full sibling relationships in intact families, and after reviewing the research conducted to date regarding sibling relationships in blended families, we propose a model that organizes the current knowledge and provides hypotheses to guide future research. It becomes difficult when reading the literature to summarize the findings of the research thus far, much less gain a clear understanding of the mechanisms that are involved in step sibling relationships. In order to address these issues, we propose a model of step-sibling relationships, based on the findings of the literature, as a way of synthesizing, organizing, and discussing the findings as well as suggesting avenues for further research (see Figure 3).

In this model, the new marital relationship is expected to impact the quality of the relationships between each parent and each child. Additionally, the parent-child dyads (both step and biological parent with target child and sibling) are expected to impact each child, as are the availability of resources (both emotional and physical), the impact of the new family formation on changes in lifestyle (changes in schools, friends, geographical locations, family roles, etc.), and the relationship with any other siblings. Furthermore, each child's gender, age, and temperament need to be accounted for when examining these relationships. These aspects of the children, as well as the other factors previously mentioned, are expected to change the quality of the sibling relationship, specifically the psychosocial outcomes of the relationship, which include the emotional attachment to the sibling, the amount of conflict in the relationship, and the extent to which the sibling aids in identity formation, protection (e.g., from marital/familial conflict and from conflict with other adolescents), regulation of behavior, socialization, and the extent to

which the sibling provides support and direct gains (rides, money, etc.). Moreover, there are expected to be interactions of child age, gender, and temperament, such that the nature of the relationship between parent-child relations and the children, and the relationship to the quality of sibling relationship, might be altered depending on each child's age, gender, and temperament, and the amount of similarity between the children. This model should serve as a catalyst for future research, both in helping generate ideas that warrant additional investigation, and in delineating potential processes involved in the sibling relationships. We would expect this model to change and be revised according to further research in the field of sibling relationships in blended families.

Data from the Parents and Youth Study (PAYS)

The Parents and Youth Study is a longitudinal project focusing on the meanings of fathers and fatherhood in European-American (EA) and Mexican-American (MA) intact and step families. Specifically, the goal of the project is to investigate the impact that fathers and the father-adolescent relationship have on child outcomes, to examine the contextual factors that may lead to differences in father behaviors, to understand how children socially construct the meaning of fathers, and how these child perceptions of fathers may impact their development. Also of primary interest was how father-child relationships, father behaviors, and the impact they have on child outcomes might be moderated by ethnicity (EA or MA) and family type (intact or step families).

Adolescents were in the 7th grade at the time of initial participation, and families were recruited from two sites: one in Arizona and the other in southern California. Participants were recruited via the school systems for eligibility in the study. Families needed to be of one

ethnicity (either EA or MA), and for step families, children needed to have lived with the ‘step-father’ for at least one year prior to participation, although the child’s biological mother and step-father need not be married (cohabitating couples were allowed to participate). After verification of eligibility, families were invited to participate in the study, which involved either interviewing the family at their home or at the research laboratory. Each member of the family (mother, father/step-father, and target adolescent) was interviewed separately in the language of their choice (Spanish or English). For more information on the sample and the recruitment method, please refer to the PAYS website, http://devpsych.sfsu.edu/PAYS/PAYS_sample.htm.

Participants consisted of 393 adolescents (205 girls, 188 boys) in the 7th grade at the time of the interview, and ranged in age from 11 to 14 years old ($M = 12.46$ years). Slightly more than half of the participants came from intact families (218), whereas the other 175 adolescents came from families with a stepfather (note that adolescents in the latter group had lived an average of 6 years with the stepfather, with a range from 1 to 14 years). The median income of the families was \$55,000, with a mean income of \$63,762, and with a range of \$4,200 to \$430,000. Each family was compensated \$120 for participation.

Of the 175 adolescents from stepfamilies, 94 had at least one full sibling, 86 had at least one half sibling, and 34 had at least one step-sibling. In the instance that an adolescent had more than one sibling, the adolescent was asked to think about the sibling closest to him/her in age. Adolescents were asked to report on the kind of relationship they had with their siblings, and how often their mom and dad/step-dad treated their sibling better than the parent treats the child for each type of sibling the adolescent had. Additionally, adolescents reported on the overall relationship (how well they get along and what kind of relationship they had) with both their mother and their father/step-father, as well as how much the adolescent feels he matters to, or is

cared about by, his mother and his father. Adolescents also reported on their internalizing (depression and anxiety) and externalizing behavior problems. Mothers and fathers also reported on the internalizing and externalizing behavior problems of the child, as well as the overall relationship they had with the adolescent. Finally, the adolescents' teachers reported on the levels of internalizing and externalizing behavior problems exhibited by the adolescent.

Table 1 illustrates the associations between the adolescent's relationship with his sibling(s) and the parent-child relationships and child outcome measures. Overall sibling relationship quality between full biological siblings was significantly related to mother's, step-father's, and adolescent's reports of externalizing behavior problems, such that the better the relationship quality, the fewer behaviors problems exhibited. Additionally, the relationships between the child and his full sibling was related to child's report of internalizing problems (the better the relationship, the fewer symptoms of depression and anxiety), and to the child's report of how much he matters to his father and the child's and mother's reports of the mother-child relationship. Thus, sibling relationship quality was related to measure of family relationships and to psychosocial outcomes (behavior problems). Mother's preferential treatment in favor of the child's biological sibling was related to teacher and mother reports of externalizing problems and child reports of internalizing problems, as well as child's report of mattering to mom and the overall mother-child relationship. Step-father's preferential treatment of the child's full sibling (and thus the step-father's stepchild) was related to mother's, step-father's, and teachers report of externalizing behavior problems and child's report of internalizing problems and to the child's report of his relationship with his stepfather. Thus, perceived differential treatment of a sibling was related to relationship outcomes with that parent, as well as behavioral outcomes, such that

the more the child perceives preferential treatment, the less he feels he matters to his parent and the more behavior problems he exhibits.

As for half sibling relationships, the quality of the relationship with the step sibling was related to the child's report of how much he matters to his stepfather and to the child's overall relationship with both his mother and his stepfather. Differential treatment of the child and his half-sibling by the child's mother had a negative association with both the mother-child and the stepfather-child relationships, as well as increasing the likelihood of internalizing problems. Differential treatment of the child and his half-sibling by the child's stepfather was related to higher levels of internalizing and externalizing behavior problems as reported by the teacher and the child, as well as negatively impacted the overall relationship the child had with both his parents and the extent to which he felt he mattered to them.

Fewer significant correlations were observed for stepsibling relationships, however, this is most likely due to the small sample size. Step-sibling relationship quality was related to both mother and step-father reports of internalizing behaviors, and differential treatment of a step sibling seemed to have more of an impact when the child's biological mother (and the stepsiblings' stepmother) was favoring the stepsibling than when the child's stepfather (and the stepsiblings' biological father) was favoring the stepsibling. It could be that this difference is simply due to low power, or it may be that this indicates that children feel more threatened when their mother favors an unrelated child than when their stepfather favors his own children.

Conclusions

We have reviewed the relevant theories and empirical research regarding sibling relationships in blended families, and we have suggested our own model, useful for guiding

future research, and have introduced some of our own data regarding these types of sibling relationships. Despite the paucity of research in the field of sibling relationships in blended families, there are some important aspects to highlight. First, sibling relationships in blended families are most likely impacted by the changing family formation, and these changes in the relationship may impact the child's development. Second, relationships with step-siblings differ in important ways from those of full and half siblings. Most researchers who have examined this issue find that stepsibling relationships are characterized by less negativity, but similar amounts of positivity when compared to full and half sibling relationships. It is unknown what impact these differences might have on children's behavioral and social outcomes, and it is also unknown precisely which mechanisms produce these changes. We do know that step-sibling relationships have important implications for children's outcomes, specifically externalizing and internalizing behavior problems, but the extent to which these implications differ depending on other factors is still unclear. Finally, researchers have only just begun to study step-sibling relationships, and as interest in this area increases, we are sure to discover more about the interplay among the various family systems, and both the factors that impact the type of sibling relationship that develops and the implications that relationship has for future success.

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Table 1. Correlations between sibling relationships, differential treatment, family relationships, and adolescent outcomes.

		What kind of relationship do you have with (full sibling name)?	How often does your mom treat (full sibling name) better than you?	How often does your (dad/step-dad) treat (full sibling name) better than you?	What kind of relationship do you have with (half-sibling name)?	How often does your mom treat (half-sibling name) better than you?	How often does your (dad/step-dad) treat (half-sibling name) better than you?	What kind of relationship do you have with (stepsibling name)?	How often does your mom treat (stepsibling name) better than you?	How often does your (dad/step-dad) treat (stepsibling name) better than you?
Mom's report of child's internalizing behavior	r	-.120	-.101	-.129	-.039	-.077	-.123	-.346(*)	-.173	-.208
	N	94	94	94	86	86	86	34	34	34
Mom's report of child's externalizing behavior	r	-.265(**)	-.204(*)	-.238(*)	-.125	-.096	-.145	-.264	-.194	-.149
	N	94	94	94	86	86	86	34	34	34
Dad's report of child's internalizing behavior	r	-.134	-.082	-.093	-.061	-.110	-.134	-.347(*)	-.268	-.185
	N	93	93	93	86	86	86	34	34	34
Dad's report of child's externalizing behavior	r	-.294(**)	-.178	-.236(*)	-.081	-.102	-.086	-.091	-.179	-.147
	N	93	93	93	86	86	86	34	34	34
Mean teacher's report of child internalizing behavior	r	-.151	-.111	-.148	.040	-.102	-.241(*)	-.169	-.388(*)	-.146
	N	86	86	86	77	77	77	32	32	32
Mean teacher's report of child externalizing behavior	r	-.164	-.216(*)	-.262(*)	.119	-.098	-.268(*)	-.010	-.439(*)	-.160
	N	86	86	86	77	77	77	32	32	32
Child's report of externalizing behavior	r	-.236(*)	-.192	-.146	-.082	-.143	-.343(**)	-.111	-.268	-.028
	N	94	94	94	86	86	86	34	34	34
Child's report of internalizing behavior	r	-.242(*)	-.306(**)	-.275(**)	-.098	-.232(*)	-.389(**)	-.188	-.404(*)	-.265
	N	94	94	94	86	86	86	34	34	34
Child's report of mattering to dad	r	.209(*)	.174	.163	.274(*)	.241(*)	.513(**)	.122	.326 ⁺	.447(**)
	N	94	94	94	86	86	86	34	34	34
Child's report of mattering to mom	r	.102	.379(**)	.157	-.034	.285(**)	.246(*)	.030	.508(**)	.305 ⁺
	N	94	94	94	86	86	86	34	34	34
Child's report of overall relationship with dad	r	.139	.137	.248(*)	.283(**)	.275(*)	.441(**)	.112	.142	.293 ⁺
	N	94	94	94	86	86	86	34	34	34
Child's report of overall relationship with mom	r	.329(**)	.345(**)	.105	.339(**)	.351(**)	.249(*)	.014	.150	.192
	N	94	94	94	85	85	85	34	34	34
Mom's report of overall relationship with child	r	.216(*)	.134	.036	.152	.039	.136	.079	.072	-.070
	N	94	94	94	86	86	86	34	34	34
Dad's report of overall relationship with child	r	.108	-.041	-.048	.208	.294(**)	.522(**)	.030	-.046	.203
	N	94	94	94	86	86	86	34	34	34

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed). ⁺ p < .10.

Figure 1. Furman & Buhrmester's (1985) model of the influences of sibling relationship quality.

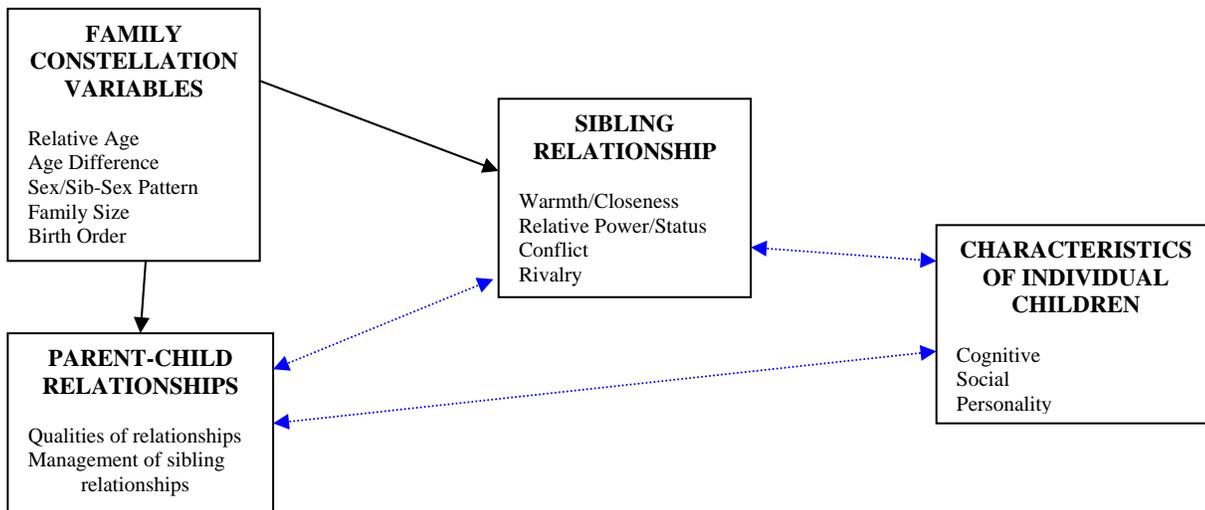


Figure 2. Brody's Model of the Causes of Sibling Relationship Quality

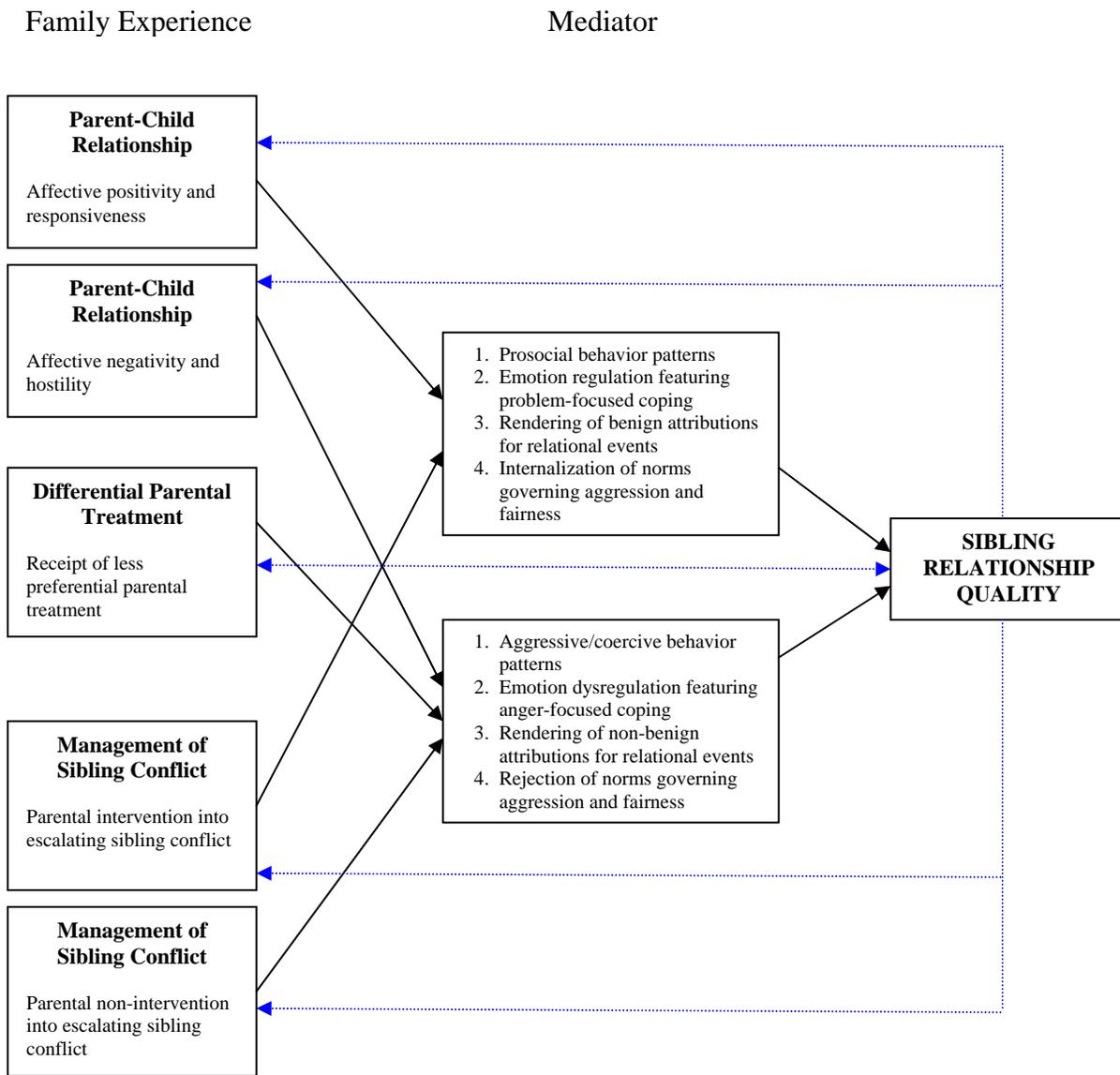


Figure 3. Proposed Model of Sibling Relationships in Blended Families

