AN ABSTRACT OF THE DISSERTATION OF

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Title: Family Communication Patterns and Adolescent Emotional Well-being: Cross Classification of Mother-child and Father-child Interactions.

Abstract approved:

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Alan C. Acock

The family as a social unit is the earliest and most fundamental socialization influence and is an important contributor to children's development. Studies of family communication patterns (FCP) have emphasized two particular dimensions—a family's conversation orientation and their conformity orientation. However, many studies of FCP and its related outcomes have relied on self-report measures and deductive methods to classify families. The current study uses an empirical, inductive approach in an attempt to identify FCP in a community-based sample of two-parent families with a target child ($N = 262$ families). Data from video recorded family interactions were coded using the Iowa Family Interaction Rating Scales (IFIRS) and analyzed using latent cross-classification, an extension of latent profile analysis. Four FCP groups were identified including two parent-matching groups and two parent-mismatched groups. FCP group was unrelated to adolescent depression, anxiety, and self-esteem. Implications for future FCP research as discussed.

Family Communication Patterns and Adolescent Emotional Well-being: Cross
Classification of Mother-child and Father-child Interactions

by
Adam M. Clark

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APPROVED:

Major Professor, representing Human Development and Family Studies

Co-Director of the School of Social and Behavioral Health Sciences

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Adam M. Clark, Author

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> *I sure hope that you're not bored to tears*
>
> *By this paper that took two whole years*
>
> *But we've had some great fun;*
>
> *Thanks for all you have done.*
>
> *Now it's finally finished so CHEERS!*

And finally I would like to thank my brother, Tyler Clark, for inspiring that little gem.

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Introduction

The study of family communication patterns (FCP) has become a useful means of describing patterns of family interactions between parents and children and predicting how consistent interaction styles impact children's psychosocial and emotional development. By its very nature, the family, as a social unit, is the context within which children and adolescents receive their earliest and most consistent socialization. How parents respond to their developing child's needs and how the child responds in turn are both equally important components of the developmental process as parent and child mutually influence one another and together shape the relationship that they engage in. Within the FCP literature, two primary dimensions of family communication—the family's conversation orientation and conformity orientation—have emerged as meaningful constructs for describing family communication behaviors and for examining the well-being of family members. Conversation orientation refers to the degree to which family communication patterns are characterized by an open and unrestrained exchange of ideas. In contrast, conformity orientation refers to the degree to which family interactions are characterized by an emphasis on homogeneity of attitudes, values, and beliefs (Koerner & Fitzpatrick, 2002). These two dimensions have been used to define four specific FCP types, often referred to as consensual, protective, pluralistic, and laissez-faire.

These conceptual dimensions have typically been studied using subjective, self-report measures in a conventional, deductive framework to examine how

operationalized definitions of family communication affect the well-being of family members. Although conventional hypothesis testing in this manner has its merits, imposing an operational definition of FCP onto families may miss some important features of family communication that do not fit within the theoretical model being applied. By applying inductive analytic methods, this study seeks to confirm (or disconfirm) the presence of the key family communication dimensions just described, namely, conversation orientation and conformity orientation and the typology structure based upon them. By using more objective assessments of family interactions this study will be able to examine the frequencies of specific FCP profiles as they exist naturally in families. Additionally, studies of gender differences in FCP have yielded mixed results and remain an unresolved question. In addition to considering the nature of family member's communication orientation, the current study will examine how mother-child and father-child interactions affect adolescent well-being.

Many studies have examined family communication processes in order to identify patterns or profiles that either promote or hinder optimal growth and development. A meta-analysis of studies utilizing FCP measures found that family communication styles consistently demonstrated small to moderate effects on family members' communication behaviors, emotional well-being, and mental health symptoms (Schrodt, Witt, & Messersmith, 2008). Schrodt, Ledbetter, and Ohrt (2007), for example, found that family communication styles characterized by openness and sharing were more likely to promote high self-esteem in young adults

than communications styles characterized by an emphasis on hierarchy and conformity. Other studies have similarly found that supportive parenting behaviors and communication styles promote greater ego development (Von der Lippe & Moller, 2000), self-esteem, and life satisfaction (Lanz, Iafrate, Rosnati, & Scabini, 1999; Milevsky, Schlechter, Netter, & Keehn, 2007). Not surprisingly, parents and children who have better communication skills generally are also better able to resolve conflicts effectively when they do arise (Jackson, Bijstra, Oostra, & Bosma, 1998). In contrast, family communication styles that are overly critical or controlling have been found to be associated with higher rates of adolescent depression (Auerbach & Ho, 2012; Milevsky et al., 2007), engagement in risky behaviors (Koesten & Anderson, 2004), aggression, and social withdrawal (Yeh, 2011).

Family communication research has also looked at how dynamics within a conversation and across conversations over time can influence family relationships. McGuigan, Vuchinich and Tang (2014), for example, found that the hierarchical position of the family member who nominated a conflict topic can have an impact on the communication behaviors that family members use. When adolescents feel less empowered in their families they tend to be more negative and aggressive in their communication strategies potentially as a way of forcing conversations that their parents would otherwise avoid. Similarly, adolescents' perceptions of the nature of communication with their parents have also been found to predict the frequency of family conflicts (Jackson et al., 1998). Family systems and FCP researchers would argue that this relationship between teens' sense of relational empowerment and their

perception of family relationships is tied to the relational schemas that have been developed between family members through repeated interactions over time (Koerner & Fitzpatrick, 2002; Whitchurch & Constantine, 1993). With the development of relationship schemas come predictable patterns of interaction which further serve to reinforce schemas.

While these findings have generally been consistent across studies, much of the research on FCP has relied on research participants' self-report of their own or family members' behavior. Though there are certainly benefits to this approach, it is important to be able to verify findings collected through retrospective self-report surveys with data collected in as natural a setting as possible. Research on family communication and parent-child dynamics has also tended to focus on dyads, most often the mother and a target child, often neglecting the roles of fathers in family communication. Furthermore, Fagan, Day, Lamb, and Cabrera (2014) point out that while mothers and fathers generally engage in very similar types of parenting behaviors, the gender of the parent and of the child may influence the meaning of these behaviors and therefore how they are perceived by adolescents and influence development. Thus, studies examining patterns of family communication need to be able to sufficiently take into account the simultaneous influence of multiple family members and their gender when considering outcomes of interest, especially child and adolescent outcomes. Recent methodological and analytic advancements in advanced mixture modeling—latent class and latent profile modeling in particular—have created new opportunities for including the simultaneous influence of multiple

family members in family studies research (e.g. Asparouhov & Muthén, 2014; Collins

& Lanza, 2010). The purpose of this study, therefore, is to explore the use of an

extension of latent profile analysis (LPA) to examine how communication patterns

with different types of parent-child dyads (i.e. mother-child and father-child) affect

adolescent emotional well-being.

Theoretical Background

Bioecological Theory

Interactions between parents and children constitute the earliest and most consistent forms of socialization across childhood and adolescence, and continue into adulthood contributing substantially to the social and emotional development of the individual. According to (Bronfenbrenner & Morris, 2006), the relative importance of any interaction, including those involving people, objects and symbols—what they describe as proximal processes—on the development of an individual can be described as a function of the personal characteristics of the individual, the ecological context within which the interaction takes place, and the time period across which the interaction occurs. These proximal processes are conceptualized as the main drivers of development. In order for such interactions to be developmentally relevant, these processes must occur with some degree of regularity over an extended period of time and, especially in the early stages of life, increase in complexity and reciprocity.

Patterns of family communication easily fit within this theoretical framework. It has been well documented that a child's early network of human relationships is profoundly influential on her cognitive and emotional development (National Scientific Council on the Developing Child, 2004). From birth, children and parents begin attempts at communication with one another. During early infancy child vocalizations, facial expressions, and cries signal to caregivers that some need is currently not being met and typically produces a response from caregivers to soothe and comfort the child in some way. Over time and as the child becomes increasingly

aware of her ability to elicit a response from her caregivers, these interactions become increasingly reciprocal with the child learning to use gestures and language to articulate with greater specificity what her needs are (Hoff, 2006). Within the symbolic interaction framework, these early gestures become significant symbols that lay the foundation for more sophisticated forms of interaction (Burr, Leigh, Day, & Constantine, 1979). These interactions, when viewed within the context of the family, serve to create consistent relational patterns between individual family members and across the family system (Whitchurch & Constantine, 1993).

Sociocultural Theory

Similar in focus to Bronfenbrenner's ecological model of human development is Vygotsky's sociocultural approach to human development. Rather than construing the individual and his cognitive processes as existing separate and distinct from his environment, Vygotsky theorized that the developing individual is an active participant in culture and that cognition and environment are inextricably connected (Miller, 2002). All behaviors are learned and all cognitive structures are formed within a social environment. Basic as well as complex cognitive tasks such as acquiring language or playing a game are inherently social activities that are heavily influenced by the specific culture in which they are embedded. According to sociocultural theory, the smallest reasonable unit of analysis is an individual participating in some cultural practice—that is, some activity that is common to or relevant for that particular social context—such as games, classroom activities or family gatherings; individual development does not occur in a vacuum. Conversations

and other interactions with family members are prime example of actions regularly engaged in by children and contextualized by the social systems in which they exist, both in terms of the micro-culture of the family itself as well as the broader sociocultural milieu. Similarly, Bandura (1977) argued that "behavior, personal factors, and environmental factors all operate as interlocking determinants of each other" (p. 10). The microculture of the family unit and the broader social environment, both proximal and distal, influence and inform the meaning and effect of FCP for the family collectively and for family members individually.

Family Communications Theory

Given the influential role of the family as a context within which children develop, it is important to understand how family members interact with one another and the influence that those interactions have on the well-being of individual family members. An important set of theoretical assumptions and constructs have been developed within the field of communication science that can further help us to understand how the nature of family interactions influences child development. In a historical review of communication theories, Fitzpatrick and Ritchie, (1993) describe how inferential models of communication have been applied to the family context. Inferential models of communication, rather than focusing solely on the proper "coding" and "decoding" of utterances, argue that communicative events occur as participants take into account "features of the context…including the beliefs, wants, and social relations of [those involved]" (p. 570). Furthermore, meaning is added to each successive communicative event and developed over time with repeated

interactions. This added meaning by the hearer can be based on any source from his own knowledge of the context, the speaker, and what has already transpired within the interaction, as well as more global sources of knowledge. Based on these principles of communicative inference, theorists have developed models of family communication that are able to take into account "(1) family member's expectations, (2) the structure of relevancies within a family (i.e. the hierarchy of information deemed most pertinent to a communicative event), and (3) how the family context itself shapes the inferences drawn by family members" (p. 571).

With regards to the development of dynamic patterns of family communication Fitzpatrick and Ritchie (1993) describe two key theoretical concepts: *intersubjectivity* and *interactivity*. Intersubjectivity refers to the symbolic meanings and cognitions that individuals share when participating in a communicative event. Intersubjectivity may be both a foundation for and a product of a communicative event inasmuch as a successful communication generates new shared meaning between individuals. Although it is not absolutely necessary for intersubjectivity to exist between individuals in order for them to engage in some form of interaction, it is often developed as a result of successful communication.

Interactivity refers to the degree to which symbol creation and interpretation are linked (Fitzpatrick & Ritchie, 1993). Within a social unit such as the family, interactivity exists to the extent that family members' communications develop predictable patterns of communication across time. Interactivity is high when (1) individuals rely on their understanding of other family members when creating

messages and (2) alter that understanding based on their observations of how family members subsequently respond. High interactivity will lead to patterns of communication which often serve, at least in part, to define the structure of the family and its hierarchy. While these patterns are generally stable, they are also subject to change over time as family members engage in novel exchanges. These changes in the use and interpretation of symbols over time contribute to the evolution of the family unit's communicative structure.

The constructs of intersubjectivity and interactivity form the basis of Koerner and Fitzpatrick's (2002) theory of family communication patterns. As individuals engage in repeated interactions over time with multiple different individuals, they gradually develop what are referred to as relationship schemas. These schemas are composed of information about the self, other, and the relationship and exist at multiple levels of specificity including general social schemas, relationship type schemas (e.g. family, friends, and colleagues), and relationship-specific schemas (e.g. self-father, self-mother, etc.; see Figure 1).

Typologies of Family Communication

While relationship schemas may reside cognitively within each individual family member, they are shaped and enacted within the relational context of the family system. Because the family unit as a whole has a tendency to regulate transactional patterns (i.e. recurring sequences of behavior), communication patterns within a given family unit are created and maintained by behavioral norms defined implicitly and explicitly by the family (Whitchurch & Constantine, 1993). A body of

family communication research has developed around the classification of families based on the communication behaviors that they typically exhibit and the attitudes about communication that family members prescribe to (e.g. Koerner & Fitzpatrick, 2002; Schrodt & Ledbetter, 2007).

Two commonly identified dimensions used to describe FCP are the family members' *conversation orientation*—or the degree of openness that is appropriate in relationships—and their *conformity orientation*—or the degree to which family members expect homogeneity of attitudes, values, and beliefs. When considered as two independent dimensions, these two characteristics of family communication create four theoretical FCP types: consensual (high conversation-high conformity); pluralistic (high conversation-low conformity); protective (low conversation-high conformity); and laissez-faire (low conversation-low conformity). Many studies have used these theoretical dimensions and FCP types to examine many of the adolescent outcomes described earlier (e.g. Jackson et al., 1998; Koesten & Anderson, 2004; Lanz et al., 1999; Sillars et al., 2014). In general, the dimension of conversation orientation overlaps conceptually with warmth and openness while the conformity dimension overlaps considerably with parental control and authority (see Schrodt et al., (2007).

The use of typological strategies to similarly categorize patterns of family behaviors is not new. Although such a theoretical strategy may make sense intuitively, the use of a hypothetico-deductive approach to describing and categorizing different types of families is potentially problematic. When attempting to

categorize families on the basis of two bisecting dimensions, researchers assume that these dimensions constitute discrete constructs that are entirely independent of one another. An assumption made in this type of deductive approach to categorizing families is that the groups formed by the combination of the two constructs actually exist in the manner theorized. In contrast, an inductive approach to identifying different types of family communication patterns would begin by making careful observations of a variety of behaviors of multiple family members and then looking for consistent clusters of behaviors that may be common across multiple families. Taking an inductive approach to identifying patterns of behaviors within families allows for groups to emerge naturally out of the data rather than having a hypothetical structure imposed onto it. Such inductive methods may be used in a confirmatory manner to validate theory provide evidence to justify further theoretical refinement.

As a result of the assumptions made by applying hypothetical conceptualizations of FCP to many samples, the validity of studies based on typological structures has suffered from some important methodological problems. A prime example of a four-part typology in family research is the parenting style typology developed by Baumrind (1965) and Maccoby and Martin (1983). This typology was based on two theoretical dimensions—parental control and parental responsiveness—the combination of which create four theoretical parenting styles (authoritative, authoritarian, permissive, and neglectful). Simons and Conger (2007) have identified a number of problems with how parenting styles have been measured. One major problem has been the difficulty of identifying the most appropriate middle

point on the scales being used to measure these constructs. Many studies have used the sample mean as the cut point for determining which participants are categorized as low vs. high on the theoretical dimensions of parental control and responsiveness. Although this ensures some even distribution of group sizes in each category, it may not categorize each participant appropriately according to theoretical definitions of the two parenting dimensions particularly if scores tend to congregate around either end of the scale. Furthermore, all individuals above or below the cut points are treated as though they were equal on that particular dimension. For example, a parent just above the mean on control would be categorized the same as a parent who scored very high on control even though he may be more similar in actual parenting behaviors to another parent just below the mean on control. Other studies have used the midpoint of the scale as the cut point. Although this may seem like a reasonable strategy, this still does not resolve the problem of categorizing parents just above or just below the mean into different groups despite similarities in reported or observed behaviors. Furthermore, if responses are highly skewed, the midpoint of the scale may not necessarily represent the meaningful turning point upon which the construct being measured actually hinges.

Another prominent example of a similarly organized model is the circumplex model of marital and family functioning and its corresponding Family Adaptability and Cohesion Evaluation Scales (FACES), a self-report questionnaire that has been used extensively in studies of family functioning (Olson, Sprenkle, & Russell, 1979). Based on the two bisecting dimensions of adaptability and cohesion, the FACES

survey identifies four intra-scale ranges along each conceptual dimension (low, mid-low, mid-high, and high) to categorize families into 16 groups rather than just four. Studies using the FACES measure have generally found that balanced family types (those near the middle on both scales) are more functional that those at the extremes (Olson, 1991). While the FACES survey does overcome some of the obstacles described earlier with regards to parenting styles research, it still suffers from a reliance on self-report assessments which can yield biased reports for a number of reasons such as memory inaccuracy, social desirability, mood states and other factors associated with self-reports (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). It has also been criticized for failing to accurately represent common issues in clinical populations.

One recent study of FCP (Sillars et al., 2014) addressed the problem of typological categorization by focusing on the independent effects of each continuous dimension being measured on the outcome of interest while screening for interaction effects. While this approach does address analysis issues related to the categorization of family conflict styles, the validity of the study was limited to some extent by the fact that family conflict patterns were assessed through participant self-reports, thus relying on retrospective recall of multiple family interactions, the recollection of which may easily be biased by item response patterns, mood states or other factors (Podsakoff et al., 2003).

An alternative to using retrospective self-reports to assess family communication behaviors is to measure the phenomenon directly. Systematic

observational systems have been used successfully to measure family interactions in a number of contexts. Doing so allows researchers to view family members' interactions in real time and often under realistic circumstances. By coding video or audio recorded interactions researchers are able to eliminate potential biases introduced by retrospective self-assessment. For example, an observational assessment based on the circumplex model—the Clinical Rating Scale (CRS)—has been found to successfully discriminate between problem and non-problem families in clinical and non-clinical settings (Thomas & Olson, 1993) effectively addressing one of the circumplex model's primary criticisms.

A major benefit to systematic observation is that in recording what people actually do and say researchers are able to eliminate response biases associated with social desirability and memory recall. To the extent that the measures are conceptually valid and conditions for data collection are appropriate, systematic observation is a desirable alternative to survey data.

Inductive Typology Construction

An analytic strategy that is particularly well suited to inductive research is latent profile analysis (LPA). This analytic technique is a type of mixture modeling and is used to identify naturally occurring patterns in data by using a number of observed indicators to define a latent categorical variable. This latent variable represents an unobserved theoretical construct of interest made up of multiple qualitatively different groups. Because group membership is unknown the latent

categorical variable is constructed in order to infer group membership from a set of observations. Many varied applications of this technique have been described previously (e.g. Collins & Lanza, 2010; Lanza, Flaherty, & Collins, 2003; Muthén, 2002). This technique may be applied inductively in order to identify patterns within the data without prior hypotheses regarding the nature of the groups being identified or it may be used in a confirmatory manner to validate theoretical constructs that have previously been hypothesized.

In the field of family communication, several studies have examined the similarities and differences in the effects of parental FCP on conflict behaviors and child outcomes (e.g. Jory, Rainbolt, Thibo Karns, Freeborn, & Greer, 1996; Schrodt et al., 2007; Sillars et al., 2014). However, these studies have typically used ANOVA models or some form of linear or hierarchical regression to examine differences in mother and father FCP. In one exception to this trend, Matsunaga and Imahori (2009) used LPA to compare FCP in Japanese and American families and examined the similarities and differences in communication standards between these two cultural contexts. Aside from this one study, however, little use has been made of LPA applications in family communication research.

Latent transition analysis (LTA), an extension of the LPA model, is another approach that could also be used in many ways to explore FCP and other factors related to family functioning in an inductive manner. LTA is used to examine similarities and differences in profile membership across profile structures. This is done by estimating separate latent profiles and then examining the probability of

individual observations remaining in the same class or moving to a different class across profile structures (Collins & Lanza, 2010; Muthén, 2002). LTA is most commonly used with longitudinal data in order to examine how individuals move between profile categories over time around some theoretically meaningful event (e.g. starting school, receiving therapy for a mental health disorder, etc.) or simply as a result of intraindividual change. An example of this in family studies research would be to examine shifts in patterns of depression in distressed couples over time. The effectiveness of different interventions could be evaluated by examining if and how individuals move across patterns of depressive symptoms. Similar analytic strategies using the LTA model have been used to look at rates of risky sexual behaviors among drug users (Lanza et al., 2003). Although the LTA model has conventionally been applied to examine patterns of intraindividual change across time, this is not the only possible application for this model. Because the analysis is designed to look at stability and instability across conceptually related profile structures, any set of two latent profile structures could potentially be compared with one another to show how one profile structure is related to another profile structure at the same point in time or at different time points.

Such an approach could be used to examine the effect of parent-specific communication patterns on children. Two latent profiles, one representing mother-child and another father-child communication patterns, could be examined together to represent the complete parent-child context of family communication. Such a method, rather than examining a shift in profile membership over time, would be examining

the consistency of FCP across parents within a family unit. Doing so would allow researchers to examine the communication patterns of multiple family members within the context of relationships with other family members rather than having to run separate sets of analyses for each dyadic relationship. Because there is no meaningful transition occurring in this approach, this method may be more appropriately referred to as latent cross-classification (LCC). To my knowledge, such an approach has not been used to analyze FCP or any other family process and would constitute a meaningful step forward in the application of mixture modeling in studying families.

Influence of Family Communication Patterns on Adolescent Well-Being

Much of the recent research on family communication has focused on parent and child communication behaviors, the impact of these behaviors on child and adolescent outcomes, and the ways in which these behaviors develop into salient communication patterns. Parenting behaviors and styles more broadly have been linked to a multitude of positive and negative outcomes for children and youth. Emotional responsiveness has long been established as a fundamental dimension of parent-child interactions (e.g. Baumrind, 1965; Schrodt et al., 2007) and research has consistently found that warm, supportive parenting promotes child and adolescent health and well-being in many ways. Parenting styles and behaviors characterized by warmth and acceptance have been shown to promote positive outcomes such as kindness, helpfulness, and empathy in children and adolescents (Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007; Eberly & Montemayor, 1999). Family

communication strategies that emphasize supportiveness and openness have similarly been found to promote higher levels of adolescent self-esteem (Jackson et al., 1998; Lanz et al., 1999) and ego strength (Von der Lippe & Moller, 2000). Similarly, having a supportive home environment and family communication patterns that encourage conversation and dialogue about family problems helps young adults maintain higher levels of emotional well-being and autonomy as they transition to adulthood and life outside of the family home (Koesten & Anderson, 2004; Marta, 1997). In contrast, families that emphasize conformity and obedience to authority parents tend to be more demanding and confrontational when dealing with family conflicts (Sillars et al., 2014), patterns that have generally been associated with lower adolescent life satisfaction (Jackson et al., 1998) and higher rates of stress and depression (Milevsky et al., 2007; Schrodt et al., 2007), lower self-esteem (Bulanda & Majumdar, 2009) and poorer dietary choices (Parletta, Peters, Owens, Tsiros, & Brennan, 2012). In general, FCP has been found to have a consistent effect on child and adolescent social and emotional outcomes (Schrodt et al., 2008). While significant effects have also been found for the influence of FCP on behavioral outcomes, these effects have tended to be much smaller than for social and emotional outcomes.

Another concern relative to many FCP and much of the family studies literature studies involving child emotional outcomes in general, is that many of the samples being used are drawn from populations that at a higher risk of some set of negative outcomes. Sampling methods for the Fragile Families Study, for example,

were explicitly designed to recruit young, single mothers whom the primary investigators deemed as being at-risk for a host of individual and social ills. Similarly, much of the research on couple communication is based on samples recruited through counseling clinics and other family services organizations. While there is not anything conceptually wrong with targeting specific populations for recruitment, much of the research that gets reported about families is often based on these high-risk, distressed families. The experiences and patterns evident in these samples may not be representative of many of the families in the broader community and who do not come into contact with researcher through interfacing with intervention resources. It is possible that the typologies developed through previous research may not be represented fully represented in non-clinical samples. Sampling from this broader community population, therefore, is an important step towards developing a more complete understanding of dynamics among American families.

With this background of research in mind, the current study seeks to extend our understanding of the influence of FCP on adolescent emotional well-being by examining how the LCC model described above may be used to predict adolescent anxiety, depression, and self-esteem, in a community-based (i.e. non-clinical) sample.

Effects of Parent Gender on Family Communication

In addition to the general effect of parenting on child behavior and emotional development, there has also been considerable interest regarding if and how mothers and fathers influence their children differently. Results of research examining whether or not effects of mothers' and fathers' parenting differ have, however, been

mixed. For example, Milevsky et al. (2007) found that permissive fathering was less negative in its consequences for child emotional outcomes than permissive mothering. The authors of this study argued that this may be due to the general nature of father-child interactions in the United States being more playful, on average, than mother-child interactions. Day and Padilla-Walker (2009) also found that mother and father involvement and connectedness differed in terms of their effect on child outcomes with father involvement and connectedness being more impactful on internalizing problems and mother involvement and connectedness being more impactful on children's positive behaviors. In research on family conflict negotiation, von der Lippe and Moller (2000) similarly found that particular negotiation strategies, such as being unilaterally controlling, resulted in slightly different outcomes when enacted by mothers as opposed to fathers.

In contrast, other findings have suggested that parenting behaviors are quite similar between mothers and fathers. Finley, Mira, and Schwartz (2008) found that though parents differed in terms of frequency of specific parenting behaviors, basic constructs of parental involvement and nurturance were fundamentally the same. Marta (1997) similarly found that the perception of being able to rely on a parent regardless of gender was beneficial to the success of adolescent school transitions and young adult launching. With more mothers entering the paid labor force, fathers are also contributing more to direct child care resulting in even greater similarity between mothering and fathering roles and behaviors (Raley, Bianchi, & Wang, 2012). Regarding research on family communication patterns specifically, the question of

mother-child communication vs. father-child communication is an important one.

Even if mothers and fathers do engage in similar parenting behaviors and have similar

attitudes about their parental roles and responsibilities, socialized gender differences

in communication may result in different interpretations of those same behaviors by

children. Parent gender, therefore, is a factor in family communication research that

needs further attention and study.

Research Questions and Hypotheses

There are three primary research questions for the current study. First, what

are the most commonly occurring family communication patterns in a community-

based (as opposed to a clinically-based) population (Q1)? As discussed earlier, many

participants for family process and communication studies are recruited through

clinical programs and other social services that provide counseling and education for

couples and families that may be in some form of distress. While these samples are

useful in helping us understand how couples and families in clinical services settings

function, it is also important to understand how family members in the general

population relate to one another and what communication patterns are most common.

I expect that while distinct FCP groups will exist, there will not be as many groups as

theorized by Koerner and Fitzpatrick (2002) (e.g. consensual, pluralistic, protective

and laissez-faire). Specifically, I hypothesize that there will be evidence of a high

conversation-low conformity group and a low conformity-high conversation group

within both mothers-child and father-child dyads (H1).

Assuming H1 is confirmed, my second question is how do different combinations of mother-child and father-child FCP affect adolescent emotional well-being (Q2)? I hypothesize that having at least one parent categorized as having a dominant conversation orientation will be associated with lower rates of adolescent depression and anxiety, and higher self-esteem (H2).

Lastly, how does parent gender affect the influence of FCP on adolescent emotional well-being (Q3)? I hypothesize that mother-child communication patterns and father-child communication patterns will differ in their effect on adolescent depression, anxiety, and self-esteem (H3). Given the differing findings regarding gender differences in family processes described above, I do not have sufficient basis for hypothesizing the direction of the possible differences.

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│              General Social Schemas                     │
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│            Relationship Type Schemas                    │
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│  │Mother│ │Father│  │ Tom  │ │Sarah │  │ Boss │ │ Jean │ │
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│  ┌──────┐ ┌──────┐  ┌──────┐ ┌──────┐  ┌──────┐ ┌──────┐ │
│  │Self- │ │Self- │  │Self- │ │Self- │  │Self- │ │Self- │ │
│  │Brothr│ │Sister│  │ Amy  │ │Andy  │  │Kristy│ │David │ │
│  └──────┘ └──────┘  └──────┘ └──────┘  └──────┘ └──────┘ │
│            Relationship Specific Schemas                │
└─────────────────────────────────────────────────────────┘
```
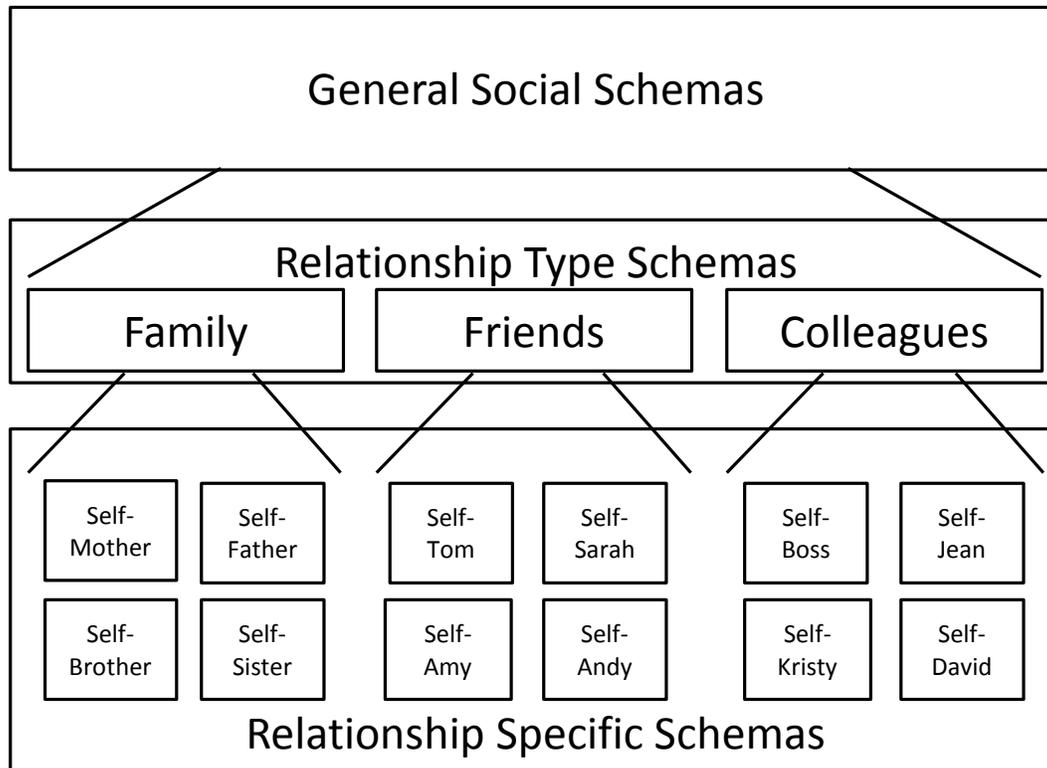
Figure 1. The hierarchical organization of relationship schemas (Koerner & Fitzpatrick, 2002).

Methods

Recruitment

Participant families for the current study were recruited through the

Flourishing Families Project (FFP) and were initially recruited and interviewed

during the first eight months of 2007 in a large Northwestern city. Families were

primarily recruited using a purchased national telephone survey database (Polk

Directories/InfoUSA). This database contains 82 million households across the

United States and has detailed information about each household, including presence

and age of children. Families identified using the Polk Directory that had at least one

child who was age 10-14 were randomly selected from targeted census tracts that

mirrored the socioeconomic and racial stratification of reports of local school

districts. All families with a child between the ages of 10 and 14 living within target

census tracts were deemed eligible to participate in the FFP. Of the 692 eligible

families contacted, 423 agreed to participate, resulting in a 61% response rate.

The Polk Directory national database was generated using telephone,

magazine, and internet subscription reports; therefore, families of lower socio-

economic status, particularly families of color, were under-represented in the database

to the extent that such families were underrepresented by these selection criteria at the

time of data collection. In an attempt to more closely mirror the demographics of the

local area, a limited number of families were recruited into the study through referrals

($n = 62$, 12.4%) and flyers ($n = 15$, 3%). By broadening the recruitment approach, the

social-economic and ethnic diversity of the sample was increased. Of those families

sampled through referrals and flyers, 27 (35.1%) were all White, 35 (45.5%) were all

African American, one (1.3%) was Latino , and eight (10.4%) were multi-ethnic. The

overall sample, however, is generally comprised of middle-class, married, White

families (see participant demographics reported below).

All families were contacted directly using a multi-stage recruitment protocol.

First, a letter of introduction was sent to potentially eligible families. Second,

interviewers made home visits and phone calls to confirm eligibility and willingness

to participate in the study. Once eligibility and consent were established, interviewers

made an appointment to come to the family's home to conduct an assessment

interview that included video-taped interactions, as well as questionnaires that were

completed in the home. The most frequent reasons cited by families for not wanting

to participate in the study were lack of time and concerns about privacy. It is

important to note that there were very little missing data. As interviewers collected

each segment of the in-home interview, questionnaires were screened for missing

answers and double-marking. Information regarding recruitment strategies was

obtained from the FFP codebook (Day et al., n.d.).

Participants

Participants for this study were taken from wave five of the FFP. The overall

sample for the FFP consists of 500 families (337 two-parent families and 163 single-

parent families). The first wave of data collection occurred during the spring and

summer of 2007. The total sample for the current study consists of the 463 families

(324 two-parent and 141 single-parent families) who participated in the fifth wave of

data collection in the summer of 2011 (92.6% retention from Wave 1). Only two-parent families with complete observational data were included in the current study reducing the possible pool to 262 families. The current study was conducted with IRB approval. Because data being used had previously been de-identified it was determined that this study was exempt from institutional oversight.

It should be noted that although longitudinal data is available for the variables being examined, a cross-sectional design was chosen for this study due to the exploratory nature of the LCC method being applied. Should this technique prove feasible and useful in examining FCP in this study, applications using longitudinal data should be explored in future studies.

The mean age of children in the current study was 15.22 years ($SD =1.06$), mothers 47.47 years ($SD = 5.38$), and fathers 49.16 years ($SD = 6.16$). Of the families in the current sample, 252 mothers (96.2%) and 241 fathers (92.0%) indicated that they are the biological parent of the target child. Additionally, the sample included two stepmothers (0.8%), 6 stepfathers (2.3%), 5 adoptive mothers (1.9%), and 8 adoptive fathers (3.1%). The families in the sample were predominantly White with 195 families identifying as all European American, 10 identifying as all African American, and two identifying as all Asian. Additionally, 55 families are considered multi-ethnic. This categorization of family ethnicity is based on a self-identification by either parents or the child of two or more ethnic categories among family members. Parents in the sample are fairly well educated: 70.6% of fathers and 68.7% of mothers had at least a bachelor's degree. About 8.1% of families reported making

less than $50,000 per year, 30% reported annual income from $50,000 to $99,500, 31.9% reported income from $100,000 to $149,000 per year, 16.2% reported income from $150,000 to $199,000 per year, and 13.9% reported family incomes over $200,000 annually.

Measures

  Communication patterns. Dyadic interactions between parents and children were video recorded as family members engaged in a five-minute problem solving task. This task included the target child and parent(s). Prior to participating in the problem solving task, family members had rated the frequency of conflict over a list of 28 potential conflict topics. Response options ranged from one (never an issue) to five (always an issue). Sample conflict topics include curfew, homework, alcohol use, and fighting with family members. Both parents (when present) and the child rated each of the 28 conflict topics. While family members were completing other questionnaires, interviewers scored the conflict topics scale. The topic that was rated as the most frequent problem by the combined family members was selected as the topic of the five-minute family problem solving task. In this manner, a topic was selected that was highly salient to recent family experiences and problems. Video recordings of parent-child discussions were later coded by trained research assistants using the Iowa Family Interaction Rating Scale (IFIRS; Melby et al., 1998). For parent-child interactions, coders assigned scores on each of eight individual characteristic codes and 22 dyadic interaction codes for each family member present.

Because of the diversity of codes represented in the full IFIRS system, it was necessary for the purposes of this study to select codes that map well onto the theoretical constructs of conversation orientation and conformity orientation. A previous study found that parents who endorse attitudes consistent with a conformity orientation tend to be more confrontational, less conciliatory, and more likely to try to exert control over conversations whereas parents who endorse conversation orientation attitudes were more conciliator, analytic, and less likely to criticize (Sillars et al., 2014). Based on these findings and theoretical descriptions of these constructs given by Koerner and Fitzpatrick (2002; see discussion of FCP constructs above), the following codes were selected to be used as indicators of mother and father FCP profiles: hostility, verbal attack, contempt, lecture/moralize, dominance, interrogation, warmth, assertiveness, listener responsiveness, positive communication, and general prosocial behavior.

Hostility. Hostile interactions are defined as the extent to which hostile, angry, critical, disapproving, rejecting, or contemptuous behavior is directed toward another interactor's actions, appearance or personal characteristics. Characteristic actions include nonverbal communication such as angry or contemptuous facial expressions and menacing or threatening body posture, emotional expressions, such as irritability, sarcasm, or curt tones, and the content of statements themselves, such as complaints about the other or critical or degrading remarks.

Verbal attack. This scale assesses personalized and unqualified disapproval of another family member. Verbal attacks include the presence of unkind statements that

seem to be intended to demean, insult, hurt or embarrass the other person. These statements must be global in nature and attribute ongoing or pervasive negative characteristics to the recipient of the attack. For example, "That was a stupid question," would be considered hostility whereas "Why do you always ask stupid questions?" would be a verbal attack.

Contempt. Interactions characterized by contempt include behaviors that convey disgust, disdain, derision, and scorn toward another family member. These actions may include personally derogatory or mocking statements, criticisms of the other person, and sarcasm directed toward the other person as a whole. The emotional tone of contemptuous behaviors is one of superiority, condescension, and cold distance.

Lecture/moralize. Individuals engaging in lecturing or moralizing behaviors present information in a manner that may be pushy, intrusive, preachy or self-righteous. Rather than discussing an issue, the individual may simply lecture other family members, telling them how things should be. The focal individual may also interrupt others to correct them without allowing them an opportunity to respond or think independently.

Dominance. This scale assesses the degree to which the focal family members attempts to influence or control others and/or the situation and is successful in these attempts. High dominance is indicated when the individual attempts to and is successful in influencing others to conform to the behaviors, opinions, or points of

view that he or she desires. These interactions may be either positive or negative in nature.

  Interrogation. This scale assesses the extent to which the focal family member asks pointed questions that are intended to solicit specific information or to make a point rather than to raise questions that communication interest in the other person or to learn more. At higher levels, interrogating behavior may be systematic an ongoing. At lower levels such inquiries may occur less frequently but still convey and questioning style. Affective quality may be positive, negative or neutral but is always insistent rather than inviting.

  Warmth. Displays of warmth from one family member to another are assessed by the degree to which the focal individual expresses liking, appreciation, praise, care or concern. Expressions of warmth include nonverbal communication such as affectionate touching, kissing, and loving smiles, supportiveness, such as showing concern for the well-being of others, and explicit statements of love, appreciation, care and concern.

  Assertiveness. This scale assesses the degree to which the focal family member displays confidence through clear, appropriate and neutral or positive avenues. Assertiveness also includes behaviors that suggest persistence and patience with the responses of others. Body language displaying confidence includes maintaining direct eye contact and body oriented toward the other interactor. Assertive behaviors are open, straightforward, nonthreatening, and nondefensive rather than passive or hostile.

Listener responsiveness. This scale assesses the behavior of the focal family member as a listener. Responsive listening behaviors include the degree to which the focal family member attends to, shows interest in, acknowledges, and validates the other person through the use of verbal and nonverbal cues. A responsive listener conveys to the speaker that he/she is interested in what the speaker has to say.

Positive communication. The positive communication scale measures the behavior of the focal family member as an effective communicator including their verbal expressive skills and the content of their statements. Effective communication includes the use of clear explanations and clarifications, the use of reason, soliciting others' views or in some way demonstrating consideration for others' viewpoints, encouraging the other to explain and clarify his or her point, and responding reasonably and appropriately to the ongoing conversation.

Prosocial behavior. The prosocial behavior scale measures the extent to which the focal family member relates competently and effectively with others. In includes demonstrations of cooperation, sensitivity, helpfulness, willingness to change their own behavior for others, and a willingness to comply with the needs and wishes of others.

Scores for each code ranged from 1 (not at all characteristic) to 9 (mainly characteristic). The degree to which a given code was deemed characteristic of the focal family member was based on both the frequency and intensity of their behavior. For example, a score of two on the hostility scale would indicate hostile, angry, critical, disapproving, rejecting or contemptuous behavior directed toward another

family member with low intensity occurring rarely or infrequently during the period of observation whereas a nine on the hostility scale would indicate frequent hostile behavior of low to moderate intensity or infrequent hostile behavior of high intensity.

In order to code the observed family interactions, research assistants were trained over a six week period to code the recorded interactions using the IFIRS manual. At the end of the training period, trainees were required to code a criterion task with 80% accuracy. The criterion tasks included a set of recordings from two separate families. These recordings had previously been sent to the Iowa State Institute for Social and Behavioral Research (IISBR). Independent coders and the IISBR coding lab scored these recordings and sent them back to the FFP coding lab for training purposes. The IISBR coding personnel are highly trained in observational methods and in the IFIRS system specifically. This was done to maintain integrity with the original conceptualization and application of the IFIRS system.

A primary coder was randomly assigned to each video recorded conversation. The coder watched the assigned segment once through to get a feel for the family members and the interaction as a whole. The coder then randomly selected a family member to determine which family member would be the focus of the next viewing. The coder then watched the task a second time focusing on the identified family member or "focal" and recorded places in the task where behaviors related to each code occurred. Coders did not watch a task focusing on a specific family member more than twice. This process was repeated until all family members present in the assigned video segment had received a score for all observational codes.

A second reliability coder was assigned to 25% of the video recordings (blind to both the primary and reliability coder) to check for inter-rater reliability. If any ratings for a given family member differed between coders by two or more points on the rating scale (e.g. the primary coder rated the mother a 2 on hostility but the reliability coder rated her a 5), then a meeting was held between the primary and reliability coders without the primary or reliability scores to discuss the specific codes they differed on and come to a consensus about how to code the family member's behavior. In order to prevent coder drift, consensus meetings were occasionally held publicly; all coders were encouraged to attend and to discuss their observations and ask questions about various codes and behaviors exhibited by participants.

Child depression. Adolescents' depression was assessed using the 20-item self-report CES-DC (Center for Epidemiological Studies Depression Scale for Children; Weissman, Orvaschel, & Padian, 1980). Participants responded by rating the degree to which they have experienced each item in the past week using a Likert-type response scale ranging from 1 (not at all) to 4 (a lot). Higher scores indicate greater depressive symptoms. Sample items included, "I was bothered by things that usually don't bother me," and "I felt lonely, like I didn't have any friends." For the current sample, the Cronbach's Alpha reliability coefficient was found to be .93.

Child anxiety. Adolescents' anxiety was assessed using the six-item generalized anxiety disorder subscale from the Spence Child Anxiety Inventory (Spence, 1998). Participants responded using a 4-point Likert scale ranging from 0 (never) to 3 (always) with higher scores reflecting greater levels of anxiety. Sample

items include, "I worry a lot about things," and "When I have a problem my heart beats really fast." Reliability for the scale was good ($\alpha = .82$).

Child self-esteem. Adolescents' self-esteem was assessed using the Rosenberg Self-Esteem Scale (Hagborg, 1996; Rosenberg, 1965). Adolescents responded to 10 items on a 5-point Likert-type scale ranging from 1 (strongly agree) to 5 (strongly disagree). Sample items include, "I certainly feel useless at times" and "on the whole, I am satisfied with myself." Negative items were reverse coded such that higher scores on the overall scale represent higher self-esteem. Reliability of the scale with the current sample was good ($\alpha = .91$).

Analytic Strategy

The first hypothesis of this study is that there will be evidence of a high conversation-low conformity group and a low conversation-high conformity group within both the mother (H1a) and father groups (H1b). These hypotheses will be tested using separate LPA models. The latent profile model is a procedure similar to latent class analysis which utilizes a number of observed indicators to classify cases according to a response set that is generally consistent across a subset of cases (Collins & Lanza, 2010; Lanza et al., 2003). Observed variables are used as indicators of the underlying profile structure of the data. Theoretically, membership in a given profile predicts the participant's score on a given indicator. In the current study, data from the observed family conflict interactions will be used as indicators of the latent profile structure. This inductive approach will be used to either confirm or disconfirm

the profile structure described by Koerner and Fitzpatrick (2002). See Figure 2 for a representation of the hypothesized latent profile models for mothers and fathers.

The second and third hypotheses will be tested using a variation of latent transition analysis (LTA) referred to in this study as latent cross-classification (LCC). Conventionally, LTA has been used to assess stability and change across time, particularly around theoretically and developmentally important transitions (Lanza et al., 2003; Muthen, 2002). In the current study, however, LCC will be utilized to assess the consistency or inconsistency of communication profiles between parents with reference to a target child.

A common concern when estimating conventional latent profile and latent class models as well as latent transition models is the estimation of covariates including predictors and distal outcomes. The standard approach has been to estimate the latent transition model with any covariates simultaneously. This one-step approach has a number of drawbacks. As Vermunt (2010) describes:

> [The] one-step approach has certain disadvantages. The first is that it may sometimes be impractical, especially when the number of potential covariates is large, as will typically be the case in a more exploratory study. Each time that a covariate is added or removed not only the prediction model but also the measurement model needs to be reestimated. A second disadvantage is that it introduces additional model building problems, such as whether one should decide about the number of classes in a model with or without covariates. Third, the simultaneous approach does not fit with the logic of most applied researchers, who view introducing covariates as a step that comes after the classification model has been built. Fourth, it assumes that the classification model is built in the same stage of a study as the model used to predict the class membership, which is not necessarily the case (p. 451).

These concerns have led to the development of various three-step approaches in which the latent profile or latent class solutions are estimated independently of one another and are thus based purely on the latent indicators at that particular point in time. In the first step, the measurement model is created using the observed indicators and each latent profile, including the most likely class variables, is estimated. The second step includes determining the measurement error for the estimated latent class variables from the separate latent profile structures. Finally, the full model is estimated including the most likely class variables and covariates together (see Asparouhov & Muthén, 2014 and Nylund-Gibson, Grimm, Quirk, & Michael, 2014). As described above, this may be done for either theoretical or model-building reasons.

One difference between the LCC model presented in the current study and conventional LTA models is that whereas many LTA models assume that the two profile structures being included in the analysis are independent of one another, the model presented in the current study assumes that the two parental latent profile structures are not independent. This makes this step of the analysis simpler as the estimation of the combined mother-father communication patterns can be performed using a one-step approach. See Figure 3 for a representation of the full LCC model.

The final step in the analytic process was to estimate the effect of the conjoint or cross-classified FCP grouping on adolescent emotional well-being. This step in the analysis required a three-step process similar to that described by Nylund-Gibson et al., (2014). First, the LCC model is estimated alone without the distal outcomes. This

will result in a number of conjoint mother-father FCP group. In Mplus, this is represented by the most likely conjoint (i.e. cross-classified) class membership variable generated as part of the output data file. After having estimated the most likely cross-classification variable, the second step was to determine the measurement errors for each cross-classification profile. These values were provided in the Mplus output as the logits for the classification probabilities for the most likely class membership. These values were entered into the final model as parameter constraints on the LCC groups. The purpose of this step was to preserve the profile structures identified earlier. Finally, the model was estimated with the distal outcome variables.

As described above, the second hypothesis of this study is that having at least one parent categorized as having a dominant conversation orientation will be associated with lower rates of adolescent depression and anxiety, and higher self-esteem. To test the this hypothesis, chi-square tests were be used to examine the differences in means for each distal outcome between the cross-classified parent communication groups containing one or two parents with a high conformity orientation with the group containing only low conformity orientation parents. Confirmation of the second hypothesis would see higher rates of depression and anxiety, and lower self-esteem in families with two parents with a high conformity orientation compared with families with at least one parent with a high conversation orientation.

Finally, to test the third hypothesis—that mother and father communication patterns will differ in their effects on adolescent anxiety, depression and self-

esteem—chi-square tests were used to examine the differences in the means for each distal outcome between the two groups that have one high conversation orientation parent. Confirmation of the third hypothesis would be evidenced by some difference in the outcome variables between families in which either only the mothers or only the fathers have a high conversation orientation.
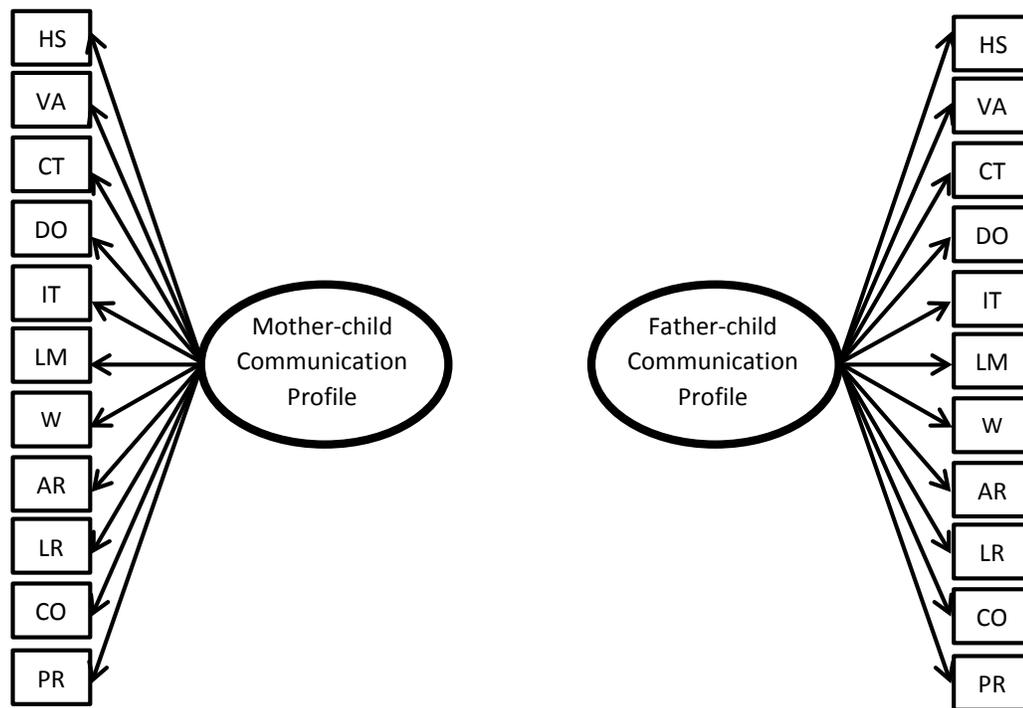
Figure 2. Conceptual model showing indicators of mother FCP and father FCP. Note: Variable names of behavioral codes used for communication indicators are abbreviated as follows: HS for hostility, VA for verbal attack, CT for contempt, DO for dominance, IT for interrogate, LM for lecture/moralize, W for warmth, AR for assertiveness, LR for listener responsiveness, CO for communication, PR for prosocial. See Appendix A for a brief description of all behavioral codes.
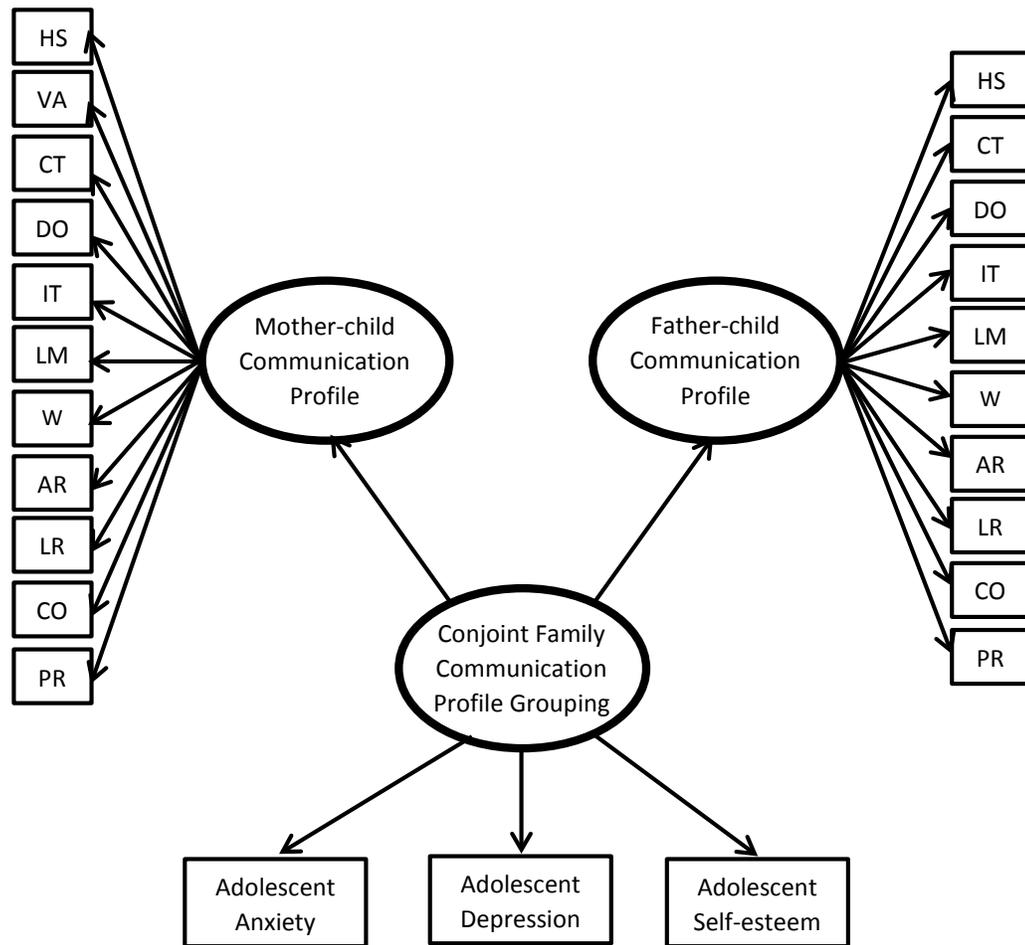
Figure 3. Full latent cross-classification model with combined mother and father communication patterns and distal outcomes.

Results

The LPA and LCC models which are the basis of this study are complex

mixture models involving multiple steps and careful consideration in order to identify

the most appropriate profile structure for the analysis. Nylund (2007), in describing

the LTA model, recommends first, exploring the most basic levels of the model (i.e.

each latent profile structure separately) and gradually building onto the model

sequentially to include the latent transition model—cross-classification in the current

study—and finally including predictors of the latent profiles, distal outcomes and

other advanced modeling extensions. These recommendations were followed in the

current study and will be reported on in connection with each appropriate hypothesis

as follows: exploration and estimation of the mother FCP profile structure;

exploration and estimation of the father FCP profile structure; estimation of the LCC

model; estimation of the LCC model with distal outcomes.

Latent Profile Analysis

To test my first hypothesis, two separate LPA models were estimated, one

using the mother-to-child observational codes and a second using the father-to-child

observational codes. As indicated in the methods section above, the ten observational

codes for the mother and for the father were included because of their conceptual

similarity with the FCP constructs of conversation and conformity orientations.

Means and standard deviations for all observed variables can be found in Table 1.

Due to a lack of variability in father-to-child verbal attack code score, that variable

was dropped from subsequent analyses resulting in 11 mother-child communication indicators and 10 father-child communication indicators.

In order to determine the best-fitting profile solutions for parent-child interactions, several profile solutions were estimated with varying numbers of profiles (i.e. one profile, two profiles, etc.) for each model. The final set of profile solutions for mother-child interactions included the following measured indicators: hostility, contempt, verbal attack, lecture/moralize, interrogate, warmth, assertiveness, listener responsiveness, communication, and prosocial. To identify the best-fitting latent profile solution for mother-child interactions, a number of different criteria were considered. First, the maximum log-likelihood functions for each profile solution were compared across all profile solutions. If a model with G latent profiles fits the data better than a model with G - 1 latent profiles, then there should be a substantial increase in the maximum log-likelihood function for the model. If the model with G latent profiles does not substantially improve on the $G - 1$ model then the maximum log-likelihood value will increase only slightly or may even decrease. The maximum log-likelihood function for a given model does not have an inherently interpretable meaning. However, when log-likelihood values are compared across profile solutions a maximizing trend should be seen. When solutions with one more profile than the previous solution do not yield a substantially higher log-likelihood value, the best-fitting profile solution is likely to have been reached. Second, the information criteria values for each profile solution were also compared with one another. In a simulation study comparing multiple different information criteria including the Bayesian

Information Criteria (BIC), Akaike Information Criteria (AIC) and the sample-size

adjusted BID (aBIC), Nylund, Asparouhov and Muthén (2007) recommended using

the BIC for determining the appropriate number of classes in an LCA. Similar to the

maximum log-likelihood functions, comparing BIC values should show a trend —in

this case toward smaller values—as the number of profiles in the model increases.

Comparison of the BIC and maximum log-likelihood values should show similar

trends toward identifying the best-fitting latent profile solution. Finally, the Lo-

Mendel-Rubin (LMR) likelihood ratio test provides a comparison for each profile

solution to a model with $G - 1$ profiles (Lo, Mendell, & Rubin, 2001). Although this

statistic does yield a p-value, a statistically significant test does not necessarily mean

that a best-fitting model has been identified, simply that the current model fits the

data better than a more parsimonious model, i.e., a solution that had g-1 groups.

Results of the LMR likelihood ratio test should be considered in conjunction with the

other available criteria.

For the mother FCP solutions the maximum log-likelihood function for the

two-class solution was higher than for the one-profile solution. Similarly, the BIC for

the two-profile solution was lower than for the one-profile solution. The LMR

likelihood ratio test for the difference between the one-profile and two-profile

solution was also significant (3226.20, $p < .001$). Models for three-, four-, and five-

profile solutions would not converge. Examination of the LMR likelihood ratio test,

likelihood function, and BIC values indicated that a two-profile solution for the

mother communication patterns fit the data better than a one-profile solution.

For the father FCP solutions, the maximum log-likelihood function for the two-class solution was substantially higher than for the one-profile solution. Similarly, the BIC for the two-profile solution was substantially lower than that for the one-profile solution. The LMR likelihood ratio test was also significant (54,497.47, $p < .001$). The three-profile solution yielded minimal increases in the log-likelihood function and the BIC; the LMR likelihood ratio test was also not significant (1033.70, $p = 0.08$). The class separation was also better for the two-profile solution compared to the three-profile solution (entropy = 1.0 and 0.89 respectively). In the two-profile solution, profiles one and two had subsamples of 248 and 14, respectively. In comparison, the subsample sizes in the three-profile solutions were $N_1 = 246$, $N_2 = 13$, and $N_3 = 3$. Moreover, models for four-, and five-profile solutions would not converge. The model fit results for both the mother and father FCP LPAs support hypothesis one; two-profile mother and father FCP solutions were, therefore, selected for subsequent analyses. All model fit criteria for the mother-child and father-child LPAs are shown in Table 2.

Both the mother-child FCP profiles and father-child FCP profiles showed the presence of one larger group ($N = 243$ and $N = 247$, respectively) that was relatively low on most of the conformity orientation indicators (i.e. hostility, contempt, verbal attack, lecture/moralize, and dominance) and relatively high on the conversation orientation indicators (i.e. warmth, assertiveness, listener responsiveness, communication, and prosocial behavior). The second profile for both mother and father FCP solutions ($N = 19$ and $N = 15$, respectively) were both comprised of

individuals who were higher on the conformity orientation items than those in profile one. For mothers, profile two included individuals who were lower on all the conversation orientation indicators. For fathers, however, the only conversation orientation indicator that showed much separation between profile groups was prosocial behavior, with profile two having a lower mean score than profile one (see Table 3 for a complete list of the means and variances for the mother and father FCP profile solutions). It is important to note that for both mother FCP profile one and father FCP profile one, there was a complete absence of contempt displayed from parent to child.

Cross-Classification

In order to test the second and third hypotheses, the full LCC model with the distal adolescent well-being outcomes was estimated. This model was run assuming non-independence between the mother and father profiles. The two-by-two LCC model created four parent groups: two groups in which parent FCP grouping was matched and two groups in which parent FCP is mismatched. Approximately 84% of families (221) were categorized into the parent-matching, high-conversation, low conformity orientation group (group 1). Twelve families (4.6%) were categorized into the mother high/father low conversation orientation group (group 2). Twenty-five families (9.5%) were categorized into the mother low/father high conversation orientation group (group 3). Four families (1.5%) were categorized into the matching low-conversation, high conformity orientation group (group 4). Mean estimates of the

latent profile indicators for the LCC model were virtually unchanged when compared to the LPA results reported above (see Table 4).

Finally, the distal outcomes—adolescent anxiety, depression, and self-esteem—were included in the model to examine the effect of parent FCP grouping on adolescent well-being. This step was executed in Mplus using the (DU3STEP) command (Muthen & Muthen, 2013). This command estimates the relationship between the LCC model and each of the distal outcomes separately. The output generated includes the means for each distal outcome by LCC group. Comparisons are made between groups within for each distal outcome using a chi-square difference test. Equality tests found no statistically significant differences between FCP groups on any of the distal outcomes. See Table 5 for full results. Although these results are generated automatically, they may be of limited utility in the current study due to the extremely uneven distribution of families across LCC groups.

Post Hoc Analyses

In order to verify these results, additional tests were conducted. Because one of the strongest predictors of profile membership was the presence of hostility during the family conflict conversation, a series of ANOVAs was run for each parent to examine the effect of the hostility variables on each of the distal outcomes. Mother and father hostility were first recoded as a dichotomous variable to represent the presence or absence of hostility (0 = no hostility observed, 1 = hostility observed). ANOVAs were then run to compare the differences in mean adolescent anxiety, depression and self-esteem by parent hostility. For mothers, hostility had no effect on

adolescent anxiety, depression or self-esteem [$F(1, 260) = 0.84$, $p = .36$; $F(1, 260) = 1.04$, $p = .31$; and $F(1, 260) = 0.01$, $p = .92$, respectively]. Similarly, father hostility was not found to have an effect on adolescent anxiety, depression or self-esteem [$F(1, 260) = 0.09$, $p = .76$; $F(1, 260) = 0.04$, $p = .53$; and $F(1, 260) = 0.13$, $p = .72$, respectively]. A series of linear regressions were also run in which each distal outcome was regressed on the mother and father hostility variables. Standardized coefficients for the effects of mother hostility on adolescent anxiety, depression, and self-esteem were 0.06, 0.11, and -0.01 respectively. Similarly, the standardized coefficients for the effects of father hostility on adolescent anxiety, depression, and self-esteem were 0.03, -0.04, and -0.01 respectively. All effects were non-significant.

Table 1

Descriptive Statistics for Observed Variables

	Mean		**Standard deviation**		**Range**	
Variable	Mother	Father	Mother	Father	Mother	Father
Hostility	1.34	1.15	0.96	0.56	1-7	1-5
Contempt	1.14	1.08	0.55	0.40	1-4	1-4
Dominance	5.21	4.82	1.34	1.36	1-9	1-9
Lecture/Moralize	1.96	1.89	1.42	1.46	1-7	1-8
Interrogate	1.51	1.41	1.16	1.03	1-9	1-9
Warmth	2.00	1.73	1.41	1.26	1-8	1-7
Assertiveness	5.14	4.50	1.60	1.69	1-8	1-8
Listener Responsiveness	4.87	4.18	1.54	1.59	1-9	1-8
Communication	5.60	5.14	1.24	1.30	1-9	1-8
Prosocial	4.44	3.85	1.39	1.28	1-8	1-7
Adolescent Outcomes						
Anxiety	1.00		0.61		0.0 – 3.0	
Depression	1.68		0.55		1.0 – 3.7	
Self-esteem	4.06		0.71		1.6 – 5.0	

Table 2

Model Fit Criteria for Mother and Father Communication Pattern LPA Solutions

Mothers			
	1-profile	2-profile[†]	3-profile
Max. Log-likelihood	-4146.42	-2704.76	!
BIC	8409.79	5582.14	!
Entropy	NA	0.99	!
LMR LRT	NA	3226.20*	!
Fathers			
	1-profile	2-profile[††]	3-profile[†††]
Max. log-likelihood	-3968.54	-2987.02	-2811.14
BIC	8048.44	6135.52	5861.72
Entropy	NA	1	0.89
LMR LRT	NA	54,497.47*	1033.7

Notes. *p < .001
! Solution failed to converge.
[†]$N_1 = 243$, $N_2 = 19$; [††]$N_1 = 248$, $N_2 = 14$; [†††]$N_1 = 246$, $N_2 = 13$, $N_3 = 3$.

Table 3

Means and Standard Deviations of Latent Profile Indicators by Profile

Mothers

	Latent Profile 1 (N = 243)		Latent Profile 2 (N = 19)		
Variable	Mean	SD	Mean	SD	t
Hostility	1.15	0.40	3.86	1.26	-23.64***
Contempt	1.00	0.00	2.90	1.12	-21.67***
Lecture/moralize	1.87	1.32	3.09	1.78	-3.48***
Interrogate	1.48	1.15	1.81	1.37	-1.57
Dominance	5.18	1.33	5.67	1.57	-1.81
Warmth	2.00	1.40	2.00	1.11	0.95
Assertiveness	5.18	1.61	4.67	1.83	2.03*
Listener responsiveness	4.92	1.55	4.34	1.26	1.96*
Communication	5.65	1.20	4.86	1.61	3.44***
Prosocial	4.49	1.37	3.76	1.31	3.07**

Fathers

	Latent Profile 1 (N = 248)		Latent Profile 2 (N = 14)		
Variable	Mean	SD	Mean	SD	t
Hostility	1.01	0.21	3.25	0.61	-33.49***
Contempt	1.00	0.00	2.31	1.02	-23.96***
Lecture/moralize	1.33	1.40	2.56	2.07	-2.59**
Interrogate	4.77	0.94	5.63	1.91	-4.15***
Dominance	1.82	1.32	3.06	1.60	-2.40*
Warmth	1.75	1.28	1.31	0.00	2.23*
Assertiveness	4.50	1.70	4.63	1.58	-0.69
Listener responsiveness	4.20	1.60	3.94	1.30	0.40
Communication	5.14	1.29	5.13	1.47	0.34
Prosocial	3.90	1.28	3.13	1.04	2.55**

*Note. *p < .05, ** p < .01, ***p < .001*

Table 4

Means and Standard Errors of LCC Indicators by Group ($N = 262$)

	FCP Group 1	FCP Group 2	FCP Group 3	FCP Group 4
Mother Indicators	Mean (S.E.)	Mean (S.E.)	Mean (S.E.)	Mean (S.E.)
Hostility	1.00 (0.04)	1.00 (0.04)	3.62 (0.28)	3.62 (0.28)
Contempt	1.00 (0.00)	1.00 (0.00)	2.00 (0.27)	2.00 (0.27)
Lecture/moralize	1.77 (0.09)	1.77 (0.09)	2.93 (0.33)	2.93 (0.33)
Interrogate	1.42 (0.07)	1.42 (0.07)	2.11 (0.26)	2.11 (0.26)
Dominance	5.07 (0.08)	5.07 (0.08)	5.76 (0.29)	5.76 (0.29)
Warmth	1.96 (0.09)	1.96 (0.09)	2.07 (0.26)	2.07 (0.26)
Assertiveness	5.21 (0.10)	5.21 (0.10)	4.90 (0.34)	4.90 (0.34)
Listener responsiveness	4.88 (0.10)	4.88 (0.10)	4.28 (0.23)	4.28 (0.23)
Communication	5.65 (0.07)	5.65 (0.07)	4.93 (0.28)	4.93 (0.28)
Prosocial	4.46 (0.08)	4.46 (0.08)	3.96 (0.25)	3.96 (0.25)
Father Indicators				
Hostility	1.01 (0.01)	3.25 (0.14)	1.01 (0.01)	3.25 (0.14)
Contempt	1.00 (0.00)	2.31 (0.26)	1.00 (0.00)	2.31 (0.26)
Lecture/moralize	1.81 (0.09)	3.06 (0.49)	1.81 (0.09)	3.06 (0.49)
Interrogate	1.34 (0.06)	2.56 (0.43)	1.34 (0.06)	2.56 (0.43)
Dominance	4.75 (0.08)	5.63 (0.36)	4.75 (0.08)	5.63 (0.36)
Warmth	1.75 (0.08)	1.31 (0.21)	1.75 (0.08)	1.31 (0.21)
Assertiveness	4.48 (0.11)	4.63 (0.37)	4.48 (0.11)	4.63 (0.37)
Listener responsiveness	4.18 (0.10)	3.94 (0.30)	4.18 (0.10)	3.94 (0.30)
Communication	5.11 (0.08)	5.13 (0.35)	5.11 (0.08)	5.13 (0.35)
Prosocial	3.89 (0.08)	3.13 (0.26)	3.89 (0.08)	3.13 (0.26)
N (% of sample)	221 (84.35%)	12 (4.58%)	25 (9.54%)	4 (1.53%)

Note. Group 1 is the matched high-conversation orientation group; group 2 is the mother high-conversation, father high-conformity group; group 3 is the mother high-conformity, father high-conversation group; group 4 is the matched high conformity orientation group.

Table 5

Results of Equality of Means Tests Between LCC Groups for Adolescent Well-being Outcomes

	Anxiety Mean (S.D.)	Depression Mean (S.D.)	Self-esteem Mean (S.D.)
FCP 1 ($N = 221$)	0.99 (0.58)	1.66 (0.54)	4.06 (0.70)
FCP 2 ($N = 12$)	1.00 (0.86)	1.75 (0.66)	3.90 (0.66)
FCP 3 ($N = 25$)	1.18 (0.71)	1.79 (0.58)	4.02 (0.84)
FCP 4 ($N = 4$)	0.71 (0.70)	1.58 (0.47)	4.35 (0.46)
	χ^2	χ^2	χ^2
Overall test	2.65	1.93	2.86
FCP 1 vs. 2	0.00	0.24	0.74
FCP 1 vs. 3	1.70	1.27	0.06
FCP 1 vs. 4	0.87	0.35	1.91
FCP 2 vs. 3	0.43	0.04	0.25
FCP 2 vs. 4	0.58	0.58	2.71
FCP 3 vs. 4	2.01	1.49	1.57

Notes. FCP 1 is the matched high-conversation orientation group; FCP 2 is the mother high-conversation, father high- conformity group; FCP 3 is the mother high-conformity, father high-conversation group; FCP 4 is the matched high conformity orientation group.

Discussion

The hypotheses of this study were only partially supported. Using a series a LPA models, I was able to identify two latent profiles within each parent group that represented FCP groups with either a high conversation orientation (i.e. high on warmth, assertiveness, listener responsiveness, communication and prosocial behavior) or a high conformity orientation (i.e. high on hostility, contempt, verbal attack, dominance, and lecturing). The application of the LCC model to identify the various mother-father FCP pairings is a step forward in the use of mixture models to describe family processes. Many analytic techniques including those in the general linear model assume some form of independence of observation making it difficult to adequately capture family processes characterized by interdependence. The analytical strategy put forward in this study does not assume independence of observations and is therefore highly applicable to family science research involving multiple family members.

Although this study does lend some credibility to the conceptualization of the two FCP dimensions—conversation orientation and conformity orientation—these findings failed to support Koerner and Fitzpatrick's (2002) conceptualization that FCP is characterized by four qualitatively different types. Indeed, there was one predominant communication pattern with the vast majority of parents demonstrating generally positive behaviors and consistency of behaviors between parents. Although the remaining hypotheses relating to the effect of FCP on adolescent well-being were not confirmed, it is nevertheless notable that parents in such a large portion of the

sample were able to develop fairly similar patterns of behavior when discussing conflict topics with their children and that by and large, these patterns are characterized by positivity, openness, and responsiveness to their children.

Another important difference between the findings of this study and previous research is the fact that the families in this study were so unevenly distributed across the different parent profile categories. Although not entirely expected, this finding is not surprising. This study was conducted using a community-based sample of relatively privileged families. A large proportion of these families were all white— although there was a sizable number of multi-racial families—middle- to upper-middle class, well-educated, and married. These families, generally speaking, were not at any great risk for developing major problems and the rates of depression, anxiety, and self-esteem reported by the adolescent children are similar to national estimates. Although all families experience some degree of stress and conflict, the privilege that these families experience as a result of their demographic makeup likely serves as a buffer to many of the stressors that may promote more negative patterns of interaction.

The fact that the majority of parents interacted with their children in positive ways is encouraging. Family science research has often focused heavily, for good or for ill, on problematic outcomes such as mental health disorders, abuse, adolescent delinquency, and risky sexual behaviors, and the dysfunctional patterns that lead to them. While these problems certainly deserve our attention, focusing solely on problematic patterns and youth outcomes can draw our focus away from an equally

important component in the process of crafting effective interventions, namely, building an understanding of the nature and development of salutogenic family patterns and processes that promote positive development and optimal functioning (Benson, Scales, Hamilton, & Sesma, A., Jr., 2006). Many well-intentioned social policies and programs are instituted with the stated purpose of addressing some outcome that is perceived to be undesirable. But eliminating a negative is not the same as promoting a positive. The fact that so many families were categorized in what was conceptualized as the more positive of the two categories should attract our attention. The identification of such processes as being commonplace in the general population may be a starting point for further developing theories of family processes and communication.

Although the results were not statistically significant, it may nevertheless be useful to examine the trends in the data by comparing the means for the distal outcomes across the four LCC categories. In the current sample, adolescents whose parents were categorized in the two mismatched parent FCP groups showed slightly higher rates of anxiety and depression and slightly lower rates of self-esteem than adolescents whose parents were matched for FCP. This trend is contrary to my hypothesis and to previous research which showed that having at least one supportive parental relationship was protective against negative outcomes (Marta, 1997). If this trend were supported statistically it would suggest that having parents with differing communication styles—particularly when it comes to the degree of hostile or

dominating behaviors—may be more problematic than having two parents with consistent communication styles.

The hierarchical structure of relationship schemas may shed some light on this potential trend. According to the relationship schema theory as described by Koerner and Fitzpatrick (2002), different relationship-specific schemas are created for individuals with whom one interacts on a regular basis. These include relationship-specific schemas for family members, friends, coworkers, and others that one might interact with frequently enough to establish an understanding of their personality and expectations for their behavior. When engaging with parents in a one-on-one interaction it may be easy for adolescents to readily access their cognitive schema for that specific relationship. If, however, interactions involve both parents simultaneously and if those parents have widely differing communication styles, it may be difficult to switch back and forth rapidly between the two cognitive schemas. If behavioral prescriptions between the two schemas for mother and father are in conflict with one another, it may be stressful for adolescents to engage in open conversations with parents especially regarding sensitive or inflammatory topics. Further studies are needed to clarify if the trend seen in this study exists in larger, more diverse samples.

It is somewhat surprising that there were no statistically significant effects found for the influence of FCP on any of the adolescent emotional well-being outcomes included in this study. This finding runs contrary to the body of existing FCP literature which has generally found consistent moderate effects for social and

emotional outcomes (Schrodt et al., 2008). It must be acknowledged from the outset that any interpretation of these findings is hampered by the extremely uneven distribution of families across groups. It is impossible to make any reasonable inferences between groups with the matched high-conformity orientation group being comprised of only four families. Given the non-significant findings of this study and the uneven distribution of groups, all explication in this discussion is speculative only; further research is needed in order to understand these processes.

One interpretation of the results of this study may be that the effect of FCP on adolescent outcomes is something that is accumulated over time. Assessing interactions between family members at one brief point in time may not be sufficient to capture the full intra-family variability in communication patterns that may exist over an extended period of time. Koerner and Fitzpatrick (2002) theorize that relationship-specific schemas are developed and refined over the space of many years. Family systems theorists similarly argue that both positive and negative feedback loops within families serve to develop and regulate patterns of interaction across the lifetime of a relationship (Whitchurch & Constantine, 1993). If FCP is indeed related to adolescent social and emotional well-being as previous research has suggested, it may be necessary to assess developmental trends in family communication over longer periods of time or with greater frequency.

The application of intensive repeated measures in naturalistic settings (IRM-NS) may be well suited to addressing this problem. Examples of IRM-NS designs in family science include recording daily diaries of parenting behaviors such as playing

with or disciplining children and either actively or passively recording physiological data in conjunction with self-reports of stress. Two of the main purposes of IRM-NS designs are to (1) assess intraindividual variability over time and (2) to assess the influence of contextual factors, both of which are relevant questions for FCP research (see Moskowitz, Russell, Sadikaj, & Sutton, 2009). It is possible that some form of IRM-NS could be adapted to examine how family members communicate with one another regarding different topics and how variability in communication patterns influence the emotional well-being of family members.

It may also be that these findings are simply a result of the very uneven distribution of families in the cross-class groupings. The matched high conversation, low conformity orientation group in the final LCC model contained nearly 85% of the sample while the matched high conformity group was only 1.5% of the sample. The simple fact that there were not sufficient numbers within each LCC category has hampered my ability to find a statistically significant result. A close look at the means and standard deviations for the latent profile indicators (Table 3) shows that the standard deviations for the high conversation orientation profiles—latent profile 1 for both mothers and fathers—were low, ranging from 0.01 to 0.11, in comparison to the standard errors for the high conformity orientation profiles in which the standard errors ranged from 0.14 to 0.49. With so many more parents in the high conversation profiles and so few in the low conversation profiles, part of the counter-intuitive findings could be an artifact of unequal variances between the two groups. The study

should be replicated with a larger, more diverse sample in order to capture a broader

range of family types and dynamics.

To some extent, the predominantly positive nature of parental communication

patterns may also be an artifact of the nature of the data collection process. The topic

of conversation was collectively voted as the biggest problem by the combined family

members and was, therefore, a salient topic of conversation. However, the video

recorded family conflict topic sessions were only five minutes in length and were

done in the presence of a tripod-mounted video camera with research assistants

waiting in the next room. These conditions may have acted to suppress some negative

interaction patterns that may have taken place if the physical presence of observers

were not so obvious and if the conversation had extended over a longer period of

time. Although systematic observations are not subject to some of the limitations of

subjective self-report assessments such as memory recall inaccuracies or mood state

biases, there is still some degree of social desirability bias that may be present,

particularly in the recording of home-based family interactions. Being "on display"

parents may wish to present the best versions of themselves. Although it is unlikely

that they will present themselves as interacting in ways that are highly unnatural or

uncommon for them in family interactions, they may be on their best behavior in the

presence of researchers studying families. Despite the researchers' efforts to provide

families with as natural a conversation setting as possible, the high frequency of

positive communicative behaviors and the relatively low level of negative

communicative behaviors may be atributable, in part, to an implicit performance bias.

There are a number of possible practices that could help minimize the effect of a performance bias introduced by the presence of researchers. One method is to minimize the visible presence of researchers during the data collection process. In a laboratory setting this may be accomplished through the use of hidden cameras or audio recording devices. Being in a laboratory setting, however, is not very natural and may elicit some behaviors that may not be typical or could suppress normal patterns of interaction. John Gottman's Family Research Institute, now the Relationship Research Institute, went to very extreme lengths to create as natural an environment as possible for couples to spend time together in their research apartment laboratory. However, such elaborate measures are expensive and difficult to replicate on a large scale which may potentially introduce external validity concerns. Another approach would be to extending the length of video recorded tasks. If family members are allowed to discuss the topic for 10-15 minutes they may be more likely to become acclimated to the presence of any recording devices and revert into more natural communication patterns. A third way to deal with this potential source of bias would be to use an IRM-NS design of some sort as suggested above. Although such an approach would most likely need to rely on self-report measures, the intensive design would potentially reduce memory biases as long as the survey items were carefully targeted to the research questions and behaviorally specific.

Conclusion

This study attempted to use an application of mixture modeling to examine the influence of FCP on adolescent emotional well-being. While some of the main hypotheses of the study were not supported, including the hypotheses regarding the relationship between FCP and adolescent outcomes, the application of the LCC model as a means of classifying families is a novel approach to studying families that deserves further attention and exploration. Further cross-sectional and longitudinal studies are needed to identify the strengths and weaknesses of this approach and to clarify how the model can be most effectively applied. Although the direction of significant findings is surprising, this result should encourage future research to examine the contextual conditions that may affect the relationship between FCP and outcomes of interest for children as well as parents. The current study included only two-parent families who were generally well-educated and financially stable. Future studies should examine FCP across various family forms and in diverse social contexts in order to elucidate how patterns develop across different family types.

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