

## Original Communication

# Associations Between Measures of Emotion and Familial Dynamics in Normative Families With Adolescents

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The *Family Life Scale* (FLS), which includes the dimensions of Cohesion, Adaptability, Communication and Satisfaction, and two measures of emotion were applied to a German-speaking sample of adolescents and their parents in Switzerland. The main goal of the study was to assess the associations between the measures in order to increase our understanding of the dynamics involving emotional and familial factors, particularly in adolescents. Analyses revealed different patterns of association to emerge according to gender in both samples. Indeed, in girls, optimal family functioning was associated with Empathy, while similar trends were found in mothers. In boys, optimal family functioning was associated with Self-esteem, while similar trends were found in fathers. Overall, our data suggest that Empathy and Self-esteem play a significant role in the perception of family dynamics which may, reciprocally, affect emotional experiences in family members.

**Keywords:** family functioning, emotions, empathy, self-esteem, parent-adolescent discrepancies, diary method

Growing up in a comforting home, experiencing warm, stable and secure relationships with parents and siblings is a valuable aspect of socialization which extends far beyond the boundaries of family life itself. Within the family system, the organization of family life is another aspect which may further the impact of well-being. Indeed, two important aspects of family life have been identified as familial Cohesion and Adaptability (Olson, Portner, & Lavee, 1985). Cohesion is defined as the emotional bonding that family members have towards one another and Adaptability as the ability of a marital or family system to change its role relationships or rules in response to situational and developmental stress (Olson et al., 1985). In a clinical setting, focusing on aspects of family functioning may have important relevance for improving family relations, especially those with adolescents. “Improving the sense of emotional security and optimal closeness in the families of at-risk youths would provide a more comfortable and stable base from which they could venture out into the academic or work environment” (Masselam, Marcus, & Stunkard, 1990, p. 737). Similarly, optimizing familial flexibility may allow for the enhancement of psychological processes consolidated dur-

ing adolescence, such as gender identity and the ability to socialize (Romig & Bakken, 1992).

Familial Communication has been thought to act as a facilitating dimension which allows the family to modulate its levels of Cohesion and Adaptability (Olson et al., 1985). Positive Communication includes providing Empathy, sending clear congruent messages, making supportive statements, and practicing effective problem-solving skills (Olson, Russell, & Sprenkle, 1983). However, as adolescents may minimize certain aspects of family life, such as positive Communication, in order to separate from and achieve independence from their parents (Hall, 1987), it is important to take into account other aspects such as the family’s stage in the life-cycle. Hence, including explicit measures of Satisfaction in questionnaires assessing family functioning could also provide therapists with useful information for better understanding individual and familial dynamics.

An important question for family therapists with respect to the link between emotional and familial factors concerns the manner in which the individual’s emotions may enhance and consolidate processes shared by family members. For example, could focusing on individual processes such as

Self-esteem help to ameliorate familial Cohesion in clinical settings? Alternatively, one could hypothesize that increasing familial Cohesion would have lasting effects on the development of Self-esteem. In this case, the question of whether familial dynamics have important consequences on the emotional development of children may become the central issue. The main goal of this study was to determine to what extent measures of familial factors and emotion are associated in families with adolescent children. In contrast to the majority of studies which have focused on pathological processes, we assessed these associations in families from the general population. Indeed, an alternative approach to increasing our understanding of what pathological processes entail is to define "normal" family processes first (Bodenmann-Kehl & Perrez, 1994). However, to the best of our knowledge, only a few studies to date have assessed the link between emotions in everyday life and family functioning in non clinical samples of adults and adolescents.

Overall, studies of normal adults suggest that positive emotions are linked to optimal family functioning (Hilbert, 1994) and particularly to positive familial Communication (Clark & Phares, 2004; McCarthy, Lambert, & Seraphine, 2004; Russell, Salazar, & Negrete, 2000). However, given the scant evidence for associations between familial factors other than Communication and emotional processes such as Self-esteem, such dynamics need to be further elucidated in adults. A growing body of evidence has also described associations between optimal family functioning and emotional processes, including positive Self-esteem, in youngsters (e.g., Ellerman & Strahan, 1995; Heaven, Searight, Chastain, & Skitka, 1996). Mandara and Murray (2000) also found optimal family functioning to be a strong predictor of Self-esteem in both boys and girls in a sample of fifteen year-old African American students. However, as both Self-esteem and perceptions of family functioning had been reported by the adolescents themselves in this study, adolescents with high Self-esteem may have perceived their family environments more positively (Mandara & Murray, 2000). In order to overcome this limitation, Mandara and Murray (2000) suggested using other family members' perceptions of family functioning as a point of comparison for adolescent measures of Self-esteem.

One method used to provide a different perspective on family functioning for comparison with adolescent data is discrepancy score analysis. Indeed, two studies found larger parent-adolescent discrepancy scores to reveal positive associations with reports of behavioral or emotional problems in the adolescents (Bagley, Bertrand, Bolitho, & Mallick, 2001; Ohannessian, Lerner, Lerner, & von Eye, 1995). Therefore, larger parent-adolescent discrepancies could reveal problem behaviors in adolescents. However, Carlson, Cooper, and Spradling (1991) had previously found that discrepancies between mother-son and father-son Cohesion scores were positively related to self-competence measures in boys. This finding suggests that having discrepant views from parents on familial aspects may be an adaptive factor for boys. In contrast, for the girls in this

study, low discrepancies (similarities) in mother-daughter and father-daughter perceptions of Cohesion were positively associated with measures of self-competence (Carlson et al., 1991). Therefore, different dynamics may be involved according to gender.

Two recent longitudinal studies examining the link between parent-adolescent discrepancy scores for family functioning and emotional factors in adolescents specifically included positive emotional variables which had not yet been much studied (Shek, 1998; Ohannessian, Lerner, Lerner, & von Eye, 2000). Indeed, Shek (1998) found that larger father-son discrepancy scores at time 1 predicted lower levels of psychiatric morbidity in boys at time 2, again suggesting that boys holding discrepant views on family functioning from their parents are better adjusted. However, in girls, larger parent-adolescent discrepancy scores at time 1 predicted lower levels of life Satisfaction and higher levels of hopelessness at time 2. Furthermore, Ohannessian et al. (2000) found larger parent-daughter Adaptability discrepancy scores to be positively associated with only academic achievement, whereas further parent-daughter differences were negatively associated with self-competence measures in girls as expected. In addition, larger mother-son discrepancy scores for Adaptability were inversely related to perceived self-competence variables in boys, whereas larger father-son discrepancies for familial adjustment were positively related to boys' self-competence measures, similar to the findings of Carlson et al. (1991) and Shek (1998).

Overall, the findings of larger parent-adolescent discrepancies for family functioning being inversely associated with positive emotional factors in girls appear to be quite consistent across studies. In contrast, research into whether mother-son and father-son discrepancies for measures of family functioning are associated with emotional factors in boys remains contradictory and requires further study.

With respect to inter-generational differences in perceptions of family functioning, in all the above mentioned studies the adolescents tended to report more negative perceptions of family life than their parents. This trend had also been observed in previous studies using the *Family Adaptability and Cohesion Evaluation Scales* (FACES; e.g., Friedman, Utada, & Morrissey, 1987; Noller & Callan, 1986). Furthermore, previous studies using the FACES instruments had generally shown lower correlations for familial dimensions between adolescents and their parents than within the marital dyad (Friedman et al., 1987; Olson et al., 1985; Prange et al., 1992).

As previous research has generally shown mean score differences and low correlations for dimensions of family functioning within familial dyads, our first aim was to investigate the degree of intra-familial agreement in our sample. Second, as discussed above, our main goal was to establish whether measures of individual emotional factors, such as Self-esteem or feelings of anger/happiness, were associated with familial functioning factors in both adults and adolescents. Third, we assessed the associations between parent-adolescent discrepancy scores for family function-

ing and for other emotional factors that have seldom been tested in adolescents, including Empathy and emotional states which were measured using a diary approach.

## Method

### Participants

This study on adolescents and their parents was conducted at the Psychology Department of the University of Fribourg as part of an extended project called "Demain, la Suisse" [Switzerland tomorrow], which also involved several other universities in Switzerland. The main aim of the project was to assess familial stress and resulting emotionality as well as cognitive coping strategies in naturalistic life conditions. The study population was recruited between November 1998 and April 2000 via schools, parental associations or the town registrar mainly in the areas of Fribourg, Bern, Vevey, and Lausanne. Approximately 2000 letters were sent to the families in these regions to which 118 volunteering families responded. The low participation rate (approximately 5%) was mainly due to the strict inclusion criteria and the commitment required from both parents and at least one adolescent to complete the whole one-week procedure of multiple self-observations and two lengthy questionnaire batteries of self-report instruments. Inclusion criteria consisted of: (a) speaking one of the survey languages (French or German) fluently, (b) both parents and the participating adolescent(s) being present in the home at some time for at least 5 days during one week, and (c) the study participation week being a normal week (no holidays, no moving, and no major life events experienced during the past 6 months or expected in the near future). A total of 102 families were eligible for participation from which 99 families finally agreed to participate.

Data for 96 families were complete (3 families did not deliver complete data due to technical problems). From these families, 113 adults and 74 adolescents completed the German versions of the scales. The remaining participants completed the French versions of the instruments (79 adults and 48 adolescents). Participants provided written consent prior to study participation. Analyses for this paper were conducted on the data of the German-speaking adults and adolescents for which adequate factor solutions were found for the Family Life Scale. In the adult subsample (50% male, mean age 46 years, *SD* 5.3 years), parents were mostly married (89%) and well-educated as many of the participants had completed professional specialty education (41%). The adolescent subsample (49% male) revealed a mean age of 15 years (*SD* 1.1 years).

### Instruments

A research assistant explained the study procedure to all participating family members in their homes prior to the

week of data completion. All participants were introduced to the diary procedure, and completed a trial self-observation with the assistant in preparation of the 7 days of data collection. The self-rating scales were distributed and completed 1 to 3 days prior to the start of the self-observation week. Participants were asked to complete several self-rating scales assessing psychopathology and aspects related to dyadic and familial adjustment as well as emotionality. These scales were mailed back to the research team on completion and the diary observations and equipment were collected at the end of the self-observation week. Table 1 provides an overview of the instruments assessed in this paper, the reliability coefficients found for each subscale in our samples as well as examples of items for each concept measured.

*The Family Life Scale (FLS)*. The FLS is based on the *Coping and Stress Profile (CSP)*; Olson & Stewart, 1991) which is a self-report instrument with similar familial dimensions to the FACES questionnaires. The main hypothesis for the coping resources measured by the CSP is that optimal levels of Cohesion, Adaptability and Communication make an individual or a family less vulnerable to the impact of stressful life events and more able to cope with stressors when they occur (Olson & Stewart, 1991). To our knowledge, only a handful of studies have used the CSP for the assessment of familial stress and coping resources. Three of these studies found stress to be inversely related to coping resources and reports of Satisfaction (Stewart, 1988; Piper, 1996; Woodiel, 1998).

The CSP was translated into German (Schneewind & Weiss, 1996) and the familial dimensions were compared to reports of familial stress and well-being in a sample of 618 non clinical adults of all ages (Weiss, 1999). This German translation of the CSP is called the Family Life Scale (FLS). Previous analyses of the FLS revealed satisfactory psychometric properties for the scale in both adult and adolescent samples (Vandeleur, 2003). And confirmatory factor analyses revealed both one-factor and oblique three-factor solutions that satisfactorily fitted the data in both samples. Thus, analyses can be conducted on the separate FLS dimensions as well as on the total score. However, given the lower reliability estimate of the Adaptability items (Table 1), results using this subscore should be interpreted with caution. Finally, the Satisfaction with Family Functioning subscale was added to the FLS in the current study in order to assess participants' Satisfaction on the Cohesion, Adaptability and Communication dimensions, respectively.

*The Emotionality and Reactivity Scale (ERS)*. The ERS was compiled in Fribourg using items from three other scales related to emotionality (Table 1). The first series of items tap the ability to imaginatively project oneself into the feelings and actions of others, that is, the tendency to spontaneously adopt the psychological point of view of others which is also known as Empathy (Davis, 1980; Davis, 1983; German translation by Enzmann, 1996). The second series of items measure Self-worth or Self-esteem (Deusinger, 1987). And the last series of items measure

Table 1  
Description of the Instruments Used in this Study

Dimensions assessed	No. of items	Reliability coefficients*		Examples of items
		Adults	Adoles.	
Family Life Scale (FLS; Olson & Stewart, 1991; Schneewind & Weiss, 1996)				
1. Cohesion,	6	0.87	0.85	1. In our family, we feel very close to each other;
2. Adaptability,	7	0.47	0.54	2. The parent(s) and child(ren) make decisions together in our family;
3. Communication,	6	0.80	0.83	3. Generally, we are able to listen to each other well;
4. Satisfaction with family functioning,	6	0.87	0.87	4. Cohesion: How satisfied are you personally with the atmosphere in your family in general? Adaptability: How satisfied are you with the way in which your family manages stressful situations? Communication: How satisfied are you personally with the way in which your family resolves conflicts?
5. Total score	19	0.87	0.90	
Emotionality and Reactivity Scale (ERS; Davis, 1980; Deusinger, 1987; Roger & Najarian, 1989)				
1. Perspective taking	7	0.72	0.73	1. Before I criticize someone, I try to imagine how I would feel in his / her position;
2. Self-esteem,	7	0.79	0.86	2. I feel quite satisfied with myself (positive item) / Sometimes I think that I am good for nothing (negative item);
3. Emotional inhibition	11	0.77	0.80	3. I manage to appear calm from the outside even when I feel tense within.
Family Self-Monitoring System – revised version (FASEM – C; Perrez, Schoebi & Wilhelm, 2000)				
A. “In the actual state” emotions	6	0.94	0.89	A. unsatisfied vs. satisfied, sad / depressed vs. happy, concerned / anxious vs. confident, angry vs. peaceful, tense vs. relaxed, stressed vs. at ease.

Note. \* Cronbach Alpha Reliability Coefficients of the German translations in our samples.

Emotional inhibition which is described as the tendency to inhibit emotional responses (Tausch, 1996). This dimension has been shown to be negatively correlated with extroversion but positively related to subscales tapping sociability (Roger & Najarian, 1989).

*The Family Self-Monitoring System – revised version (FASEM-C)*. A more recent and comprehensive approach for studying familial behaviors in naturalistic conditions is the use of diary methods. This method of studying familial characteristics enables recording of stress-related behaviors in real life circumstances. The diary method records all micro-episodes of behaviors, experienced in an ongoing sequence of actions and reactions, using either an event or a time sampling base (Perrez & Reicherts, 1996). Similar to other diary approaches, the method developed in Fribourg for this study used small palmtop Hewlett Packard HP 360 XL pocket computers with a touch screen sensitive to a pointing device which could be carried around during everyday activities. The computers gave an acoustic signal six times per day within certain time slots, although the exact time of data recording varied throughout the week which prevented the participants from predicting the next time of recording.

Prior analyses of the FASEM-C (Perrez, Schoebi, & Wilhelm, 2000) revealed sufficient psychometric properties for the Emotional subscale which is rated according to six series of adjectives on a likert scale (Table 1). As the participants had completed the questions on emotions at each data collection time (6 times a day over one week), a total of 42 observations were theoretically available for each participant. Practically, we computed a mean score for these data and each participant therefore had one aggregate score which represented an Emotional state for each person over the week.

## Hypotheses

1. Based on the results of previous studies, we expected to find mean score differences and low intra-familial correlations across informants for all the FLS dimensions. Specifically, we expected to find larger differences and lower agreement for the parent-adolescent dyads than within the marital dyad.
2. We expected correlations independently established between the FLS dimensions as well as the scores of the ERS and the FASEM-C to reveal in both samples: a negative correlation between the FLS and (a) the Emotional inhibition subscore (ERS); and positive associations between the FLS and (b) the Perspective taking and (c) Self-esteem subscores of the ERS, respectively, as well as (d) the Emotional state subscore (FASEM-C).
3. Using overall regression models to further test the associations simultaneously, we hypothesized that the subscores of the ERS as well as of the FASEM-C would explain a significant proportion of the variance in the models predicting each FLS dimension and the Total score, respectively.
4. Finally, according to the results of previous studies in adolescents, we expected (a) Perspective taking, (b) Self-esteem (ERS), and (c) the Emotional state (FASEM-C) variables in girls to be negatively associated with the parent-daughter FLS discrepancy scores. In contrast, we expected the (d) Emotional inhibition subscore (ERS) to be positively associated with the FLS discrepancy scores. However, as findings are still contradictory regarding the mother-son and father-son discrepancy scores and their association with emotions in boys, no a-priori hypotheses were made for these analyses.

## Statistical Analyses

First, correlations were established for all the FLS dimensions between mothers, fathers, boys and girls separately in order to assess intra-familial agreement. The resulting correlations for each familial dyad were compared to test for possible differences. In parallel, we computed  $z$ -score analyses to test for differences in mean scores within the familial dyads.

Next, the data were analyzed using the SAS CORR and REG statements (SAS Institute Inc., 1990) in two steps. First, correlation (Pearson) coefficients were calculated for the FLS dimensions and each subscore of the emotional scales separately. As the parental data showed significant correlations between the corresponding subscores (i.e., the data were non independent), analyses were conducted separately by gender. Similarly, analyses were conducted separately for girls and boys. The resulting correlations were compared to test for gender differences. Second, the scores from the emotional subscales were assessed simultaneously to predict the Cohesion, Adaptability, Communication and Satisfaction subscores as well as the Total score using multiple regression models. Indeed, the fit of the overall regression models (adjusted  $R^2$ ), the standardized beta parameter estimates as well as the partial  $R^2$ s were considered. In addition, the tolerance measures were considered as they provide an estimation of the degree of redundancy between the independent variables (collinearity). The models were also adjusted for age in both adults and adolescents. Moreover, as five separate models were computed for each sample, we applied the Bonferroni adjustment for the  $p$ -values ( $0.05/5 = 0.01$ ).

Finally, for the FLS discrepancy score analysis, the parent-adolescent differences were calculated by subtracting the parental scores from the adolescent scores by family for each dimension. As we had no hypotheses regarding the direction of the discrepancies between adolescents and their parents, these difference scores were converted to absolute values (Ohannessian et al., 2000). Next, as suggested by Aiken and West (1991), we computed  $z$ -scores for each difference score as well as for the adolescent emotional variables. As simple difference score correlations are problematic with respect to information validity of the results, multiple regression models were computed (for a discus-

sion, see Griffin, Murray, & Gonzalez, 1999). The models used the discrepancy  $z$ -scores as the dependent variables and the emotional  $z$ -scores as the independent variables. A positive association would mean that the greater the parent-adolescent differences were, the higher the emotional subscores rated by the adolescents. Conversely, a negative association would mean that the larger the parent-adolescent differences were, the lower the emotional subscores rated by the adolescents. In order to adjust for confounding due to non-independence between FLS discrepancy scores and response levels, we entered the original parental FLS scores for each dimension (also with  $z$ -transformations) as additional predictors. Moreover, the interaction terms for each emotional score in adolescents and the respective FLS dimensions in parents were included to further adjust for original response levels (Griffin et al., 1999). The models were again adjusted for age of both the adolescents and adults. Finally, as ten separate models were computed for each adolescent sample we again applied the Bonferroni adjustment for the  $p$ -values ( $0.05/10 = 0.005$ ).

## Results

### Intra-Familial Agreement for the FLS Subscales

First, our analyses revealed similar mean scores between spouses for all the FLS dimensions. Analyses also showed the adolescents' FLS mean scores to be almost identical or

only slightly lower than those of their parents. Indeed, none of the  $z$ -scores were significant for any of the FLS subscores within familial dyads. Furthermore, the intra-familial agreement for spouses revealed moderate to high correlations for all the FLS dimensions (Table 2). For the comparisons between the parent and parent-adolescent dyads, correlations were similar and did not differ statistically. Furthermore, correlations were slightly higher for the mother-adolescent than for the father-adolescent dyads (Table 2), although these differences also did not reach statistical significance.

### Intra-Individual Correlations of the FLS and Validating Scales

According to Table 3, there were several significant associations between the subscores for parents as hypothesized. Indeed, in females, both the Perspective taking and Self-esteem subscores were significantly associated with Adaptability, Communication, the Total score and Satisfaction, Perspective taking was also associated with Cohesion. Self-esteem was associated with all the FLS dimensions in males. Furthermore, the Emotional inhibition and Emotional state scores were associated with Communication, the Total FLS score and Satisfaction in males, whereas Emotional state was further associated with the Total FLS and Satisfaction scores in females (Table 3). Testing for differences between these correlations according to gender revealed that none of the differences reached statistical significance.

Table 2  
Intra-Familial Agreement <sup>a</sup>for the FLS Subscores

Mothers ( $N = 56$ )	Fathers ( $N = 57$ )		Girls ( $N = 38$ )		
	Cohesion	Adaptability	Communication	Total score	Satisfaction
Cohesion	0.49***				
Adaptability		0.30*			
Communication			0.71***		
Total score				0.60***	
Satisfaction					0.61***
Mothers/Fathers	Girls ( $N = 38$ )		Boys ( $N = 36$ )		
	Cohesion	Adaptability	Communication	Total score	Satisfaction
Cohesion	0.47**/0.38*				
Adaptability		0.45**/0.40*			
Communication			0.46**/0.43**		
Total score				0.51**/0.45**	
Satisfaction					0.42**/0.39*
Mothers/Fathers	Boys ( $N = 36$ )		Girls ( $N = 38$ )		
	Cohesion	Adaptability	Communication	Total score	Satisfaction
Cohesion	0.62***/0.46**				
Adaptability		0.24/0.15			
Communication			0.63***/0.47**		
Total score				0.71***/0.47**	
Satisfaction					0.45**/0.28

Note. <sup>a</sup> Agreement scores are Pearson Correlation Coefficients; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

In adolescent girls, only Perspective taking was significantly associated with all the FLS dimensions (Table 3). Indeed, none of the other emotional subscores showed significant associations with the FLS dimensions, with the exception of Emotional state and Satisfaction with family functioning. In boys, there were significant associations between Perspective taking and Adaptability, Self esteem and all the FLS dimensions, similar associations were observed between Emotional inhibition and all the FLS dimensions (except Cohesion), as well as between Emotional state and Satisfaction with family functioning. However, none of the comparisons between these correlations revealed statistical differences according to gender.

### Multiple Regression Analyses Predicting the FLS Dimensions From the Validating Scales

Based on the preceding correlational analysis which showed associations between most of the dimensions, all the subscores were maintained in the multiple regression models. This enabled comparisons of the models across samples. First, in mothers, the model predicting Cohesion revealed the subscores to account for only 5% of the total variance (adjusted R<sup>2</sup>, Table 4). Indeed, none of the subscores were significantly associated with Cohesion. However, the mod-

el for Adaptability was significant and explained approximately 27% of the total variance. In this model, Perspective taking and Self-esteem were positively associated with Adaptability and accounted for between 10 and 17% of the variance respectively (partial R<sup>2</sup>, not shown in the table). Next, the model predicting Communication revealed Perspective taking to positively predict the Communication subscore and to account for almost 9% of the variance. In the model predicting the Total FLS score in females, Perspective taking again predicted the Total score and accounted for almost 12% of the overall variance. Finally, the model predicting Satisfaction was significant and accounted for 28% of the total variance with Emotional state positively predicting Satisfaction and accounting for 11% of the variance.

In fathers, the model predicting Cohesion revealed a non significant *p*-value with only 7% of the total variance explained (Table 4). Moreover, the model for Adaptability explained only 3% of the variance. However, the model predicting Communication was significant and revealed the subscores to account for 33% of the total variance. As predicted, Self-esteem was positively associated and Emotional inhibition was negatively associated with Communication, accounting for almost 9 and 16% of the total variance respectively. In the model predicting the Total FLS score in males, Self-esteem and Emotional inhibition were again

Table 3  
Correlation Coefficients <sup>a</sup>between all the subscores of the FLS, ERS, and FASEM-C

Mothers (above the diagonal); Fathers (below the diagonal)									
	Coh <sup>1</sup>	Adapt <sup>1</sup>	Comm <sup>1</sup>	FS total <sup>1</sup>	Satisf <sup>1</sup>	Persp <sup>2</sup>	Self-Est <sup>2</sup>	Em Inh <sup>2</sup>	Em St <sup>3</sup>
Coh <sup>1</sup>		0.49***	0.67***	0.90***	0.69***	0.31*	0.15	-0.16	0.21
Adapt <sup>1</sup>	0.52***		0.49***	0.71***	0.63***	0.42**	0.47***	-0.17	0.21
Comm <sup>1</sup>	0.63***	0.48***		0.88***	0.83***	0.37**	0.35**	-0.25	0.24
FS total <sup>1</sup>	0.88***	0.77***	0.85***		0.85***	0.42**	0.35**	-0.23	0.26*
Satisf <sup>1</sup>	0.70***	0.55***	0.79***	0.82***		0.37**	0.44**	-0.22	0.42**
Persp <sup>2</sup>	0.07	0.21	0.22	0.20	0.15		0.20	-0.08	0.14
Self - Est <sup>2</sup>	0.32*	0.33*	0.48***	0.47***	0.47***	0.46***		-0.25	0.36**
Em Inh <sup>2</sup>	-0.26	-0.06	-0.46***	-0.38**	-0.31*	0.01	-0.24		0.09
Em St <sup>3</sup>	0.26	0.20	0.39**	0.36**	0.50***	0.13	0.42**	-0.26	
Girls (above the diagonal); Boys (below the diagonal)									
	Coh <sup>1</sup>	Adapt <sup>1</sup>	Comm <sup>1</sup>	FS total <sup>1</sup>	Satisf <sup>1</sup>	Persp <sup>2</sup>	Self-Est <sup>2</sup>	Em Inh <sup>2</sup>	Em St <sup>3</sup>
Coh <sup>1</sup>		0.72***	0.83***	0.93***	0.78***	0.52**	0.28	-0.16	0.28
Adapt <sup>1</sup>	0.51**		0.76***	0.89***	0.81***	0.65***	0.21	-0.16	0.09
Comm <sup>1</sup>	0.72***	0.40*		0.94***	0.89***	0.71***	0.14	-0.24	0.31
FS total <sup>1</sup>	0.92***	0.71***	0.87***		0.90***	0.68***	0.22	-0.20	0.25
Satisf <sup>1</sup>	0.71***	0.58***	0.72***	0.80***		0.69***	0.16	-0.22	0.33*
Persp <sup>2</sup>	-0.03	0.54***	0.15	0.24	0.20		0.16	-0.24	0.46**
Self - Est <sup>2</sup>	0.53**	0.37*	0.54**	0.57***	0.60***	0.01		-0.17	0.30
Em Inh <sup>2</sup>	-0.26	-0.39*	-0.40*	-0.40*	-0.39*	-0.09	-0.38*		0.03
Em St <sup>3</sup>	0.15	0.26	0.16	0.20	0.44**	0.23	0.31	-0.30	

Note. <sup>1</sup> FLS: Coh = Cohesion, Adapt = Adaptability, Comm = Communication, FS total = FLS total score, Satisf = Satisfaction,

<sup>2</sup> ERS: Persp = Perspective taking, Self-Est = Self Esteem, Em Inh = Emotional Inhibition

<sup>3</sup> FASEM - C: Em St = Emotional State

<sup>a</sup> Pearson Correlation Coefficients

\* *p* < .05; \*\* *p* < .01; \*\*\* *p* < .001

Table 4  
Multiple Regression Analyses Predicting FLS Scores from Concurrent Subscales

	Standardized Parameter ( $\beta$ ) Estimates				
	Cohesion	Adaptability	Communication	Total Score	Satisfaction
<i>Mothers</i>					
Perspective taking (ERS)	0.26	0.28*	0.28*	0.32*	0.20
Self-esteem (ERS)	-0.03	0.41**	0.16	0.17	0.26
Emotional inhibition (ERS)	-0.15	-0.04	-0.22	-0.18	-0.20
Emotional state (FASEM-C)	0.18	0.07	0.12	0.16	0.31*
Overall Models <sup>a</sup>	Adj. R <sup>2</sup> = 0.05	Adj. R <sup>2</sup> = 0.27**	Adj. R <sup>2</sup> = 0.15*	Adj. R <sup>2</sup> = 0.19*	Adj. R <sup>2</sup> = 0.28**
<i>Fathers</i>					
Perspective taking (ERS)	-0.07	0.08	0.07	0.03	-0.04
Self-esteem (ERS)	0.28	0.26	0.30*	0.34*	0.33*
Emotional inhibition (ERS)	-0.16	0.01	-0.36**	-0.27*	-0.15
Emotional state (FASEM-C)	0.11	0.08	0.17	0.15	0.33*
Overall Models <sup>a</sup>	Adj. R <sup>2</sup> = 0.07	Adj. R <sup>2</sup> = 0.03	Adj. R <sup>2</sup> = 0.33***	Adj. R <sup>2</sup> = 0.25**	Adj. R <sup>2</sup> = 0.30***
<i>Girls</i>					
Perspective taking (ERS)	0.43*	0.77***	0.70***	0.68***	0.67***
Self-esteem (ERS)	0.13	0.21	0.04	0.13	0.09
Emotional inhibition (ERS)	-0.01	0.08	-0.06	-0.00	-0.06
Emotional state (FASEM-C)	0.08	-0.35*	-0.04	-0.10	-0.05
Overall Models <sup>a</sup>	Adj. R <sup>2</sup> = 0.21*	Adj. R <sup>2</sup> = 0.48***	Adj. R <sup>2</sup> = 0.44***	Adj. R <sup>2</sup> = 0.42***	Adj. R <sup>2</sup> = 0.40**
<i>Boys</i>					
Perspective taking (ERS)	-0.05	0.51**	0.08	0.17	0.10
Self-esteem (ERS)	0.46*	0.25	0.47*	0.47**	0.43**
Emotional inhibition (ERS)	-0.11	-0.26	-0.24	-0.22	-0.16
Emotional state (FASEM-C)	0.03	0.02	-0.04	-0.01	0.26
Overall Models <sup>a</sup>	Adj. R <sup>2</sup> = 0.21*	Adj. R <sup>2</sup> = 0.39**	Adj. R <sup>2</sup> = 0.23*	Adj. R <sup>2</sup> = 0.30*	Adj. R <sup>2</sup> = 0.38**

Note. <sup>a</sup> Models adjusted for age \*  $p < .05$ ; Bonferroni adjustment: \*\*  $p < .01$ ; \*\*\*  $p < .001$

predictors and accounted for almost 10 and 9% of the variance, respectively. The model predicting Satisfaction with family functioning revealed the Self-esteem and Emotional state subscores to account for approximately 10 and 12% of the overall variance, respectively.

The multiple regression models also revealed different results for girls and boys (Table 4). In girls, the model predicting Cohesion revealed Perspective taking to explain 17% of the variance. Furthermore, the model for Adaptability was significant and explained 48% of the total variance, with Perspective taking being positively associated and the Emotional state subscore being negatively associated with Adaptability. These two dimensions accounted for almost 50 and 15% of the variance, respectively. Next, the models predicting Communication, the Total FLS score and the Satisfaction with family functioning subscore accounted for 40% or more of the variance in each model. Here, Perspective taking was a highly significant predictor and accounted for approximately 40% of the variance in each model. In boys, the model predicting Cohesion revealed Self-esteem to explain 19% of the total variance. Furthermore, the model for Adaptability revealed Perspective taking to account for over 31% of the variance alone. The models predicting Communication, the Total FLS score and Satisfaction with family functioning in boys revealed Self-esteem to be a predictor and account for over 20% of the variance in each model.

## Parent-Adolescent FLS Discrepancy Scores and the Validating Scales in Adolescents

First, the models predicting mother-daughter Cohesion, Communication and Satisfaction discrepancy scores from the emotional subscores in girls did not reach statistical significance (Table 5). Next, the model predicting mother-daughter Adaptability discrepancy score showed a trend and 34% of the total variance was explained by the subscores. The interaction terms for Self-esteem and Emotional states in girls and the FLS Adaptability scores in mothers indicated that the association between Self-esteem and the discrepancy scores was larger for higher Adaptability scores in mothers and the association between Emotional states and the discrepancy scores was smaller for higher Adaptability scores in mothers. However, as stated above, introducing the interaction terms in the models mainly served the purpose of correcting the associations between the emotional variables in adolescents and the discrepancy scores between parents and adolescents. For the model predicting the mother-daughter Total FLS discrepancy scores which accounted for 33% of the variance, Perspective taking in girls revealed a negative association in the model and accounted for 16% (partial R<sup>2</sup>) of the total variance. In boys, only the model predicting the mother-son Satisfaction discrepancy score showed a significant trend (Table 5). Indeed, Self-esteem and Emotional inhibition were both negative



Table 5  
Analyses of Mother-Adolescent FLS discrepancy scores and Emotions in Adolescents

	Standardized Parameter ( $\beta$ ) Estimates				
	Mother-adolescent discrepancy FLS scores (dependent variables)				
	Cohesion	Adaptability	Communication	Total Score	Satisfaction
<i>Girls</i>					
FLS scale mothers <sup>a</sup>	0.15	-0.42*	0.07	-0.08	-0.08
Perspective taking (ERS)	-0.31	0.12	-0.46*	-0.45*	-0.31
Persp.*FLS mothers <sup>b</sup>	0.06	0.26	-0.05	0.01	-0.41
Self-esteem (ERS)	-0.52*	0.46	-0.09	-0.21	-0.14
Self-est.*FLS mothers <sup>b</sup>	-0.25	0.40*	-0.10	-0.05	0.04
Emotional inhibition (ERS)	-0.25	0.05	-0.28	-0.23	0.04
Em. Inh.*FLS mothers <sup>b</sup>	-0.33	-0.14	-0.21	-0.29	-0.16
Emotional state (FASEM-C)	-0.05	0.15	0.15	0.20	0.03
Emot. St.*FLS mothers <sup>b</sup>	-0.15	-0.43*	-0.16	-0.19	-0.07
Overall Models <sup>c</sup>	Adj. R <sup>2</sup> = 0.24	Adj. R <sup>2</sup> = 0.34*	Adj. R <sup>2</sup> = 0.25	Adj. R <sup>2</sup> = 0.33*	Adj. R <sup>2</sup> = 0.12
<i>Boys</i>					
FLS scale mothers <sup>a</sup>	0.04	0.10	0.19	0.44	0.36
Perspective taking (ERS)	-0.02	-0.33	-0.02	-0.26	-0.22
Persp.*FLS mothers <sup>b</sup>	0.16	-0.27	-0.18	-0.05	0.30
Self-esteem (ERS)	-0.08	-0.08	-0.40	-0.45*	-0.44*
Self-est.*FLS mothers <sup>b</sup>	0.03	-0.08	-0.47	-0.35	-0.41
Emotional inhibition (ERS)	0.07	0.07	-0.24	-0.04	-0.36*
Em. Inh.*FLS mothers <sup>b</sup>	-0.07	0.04	0.37	0.06	-0.41*
Emotional state (FASEM-C)	0.31	0.17	0.09	0.15	-0.22
Emot. St.*FLS mothers <sup>b</sup>	0.07	0.47	0.85*	0.50	-0.09
Overall Models <sup>c</sup>	Adj. R <sup>2</sup> = -0.23	Adj. R <sup>2</sup> = 0.05	Adj. R <sup>2</sup> = 0.13	Adj. R <sup>2</sup> = 0.13	Adj. R <sup>2</sup> = 0.30*

Note. <sup>a</sup> Models adjusted for each respective FLS dimension in mothers

<sup>b</sup> Interaction terms for the emotional scales in adolescents and respective FLS dimensions in mothers

<sup>c</sup> Models adjusted for age of parents and children

\*  $p < .05$ ; Bonferroni adjustment; \*\*  $p < .01$

predictors and explained 21 and 16% of the variance of the model, respectively.

With respect to the father-daughter FLS discrepancy scores and the emotional variables in girls, only the model predicting the Cohesion discrepancy score revealed a significant trend and accounted for 28% of the total variance (Table 6). However, aside from the Perspective taking and father-Cohesion interaction term which showed a significant trend, none of the other individual predictors explained any significant proportion of the variance of the model. The models predicting the father-son Cohesion and Satisfaction discrepancy scores did not reach statistical significance (Table 6). However, the models predicting the father-son Adaptability and Communication discrepancy scores accounted for 42 and 43% of the variance respectively, although none of the emotional subscores in boys accounted for any significant proportion of the variance of the models. Finally, for the model predicting the father-son FLS total discrepancy score which was significant and accounted for 46% of the variance, Self-esteem in boys was a negative predictor, accounting for 21% of the variance alone.

## Discussion

In this paper, analyses on the German version of the Family Life Scale were conducted in a sample of school-children and their parents from the general population. First, we compared the mean scores and correlations between family members. In all dyads, agreement was moderate to high and none of the differences were statistically significant, unlike previous studies which revealed the parent-adolescent correlations to be lower than those within the parental dyad (Bagley et al., 2001; Friedman et al., 1987; Ohannessian et al., 1995; Ohannessian et al., 2000; Olson et al., 1985; Prange et al., 1992). However, previous research has also shown that adolescent perceptions of family functioning may resemble those of their parents more in middle than in late adolescence (Noller & Callan, 1986; Ohannessian et al., 1995). Given the mean age of our adolescent sample (15 years,  $SD$  1.1), it is possible that our participants, mostly in the middle stages of adolescence, have not yet reached the stage of systematically diverging from their parents' perceptions of familial factors.

Next, we tested the associations between the FLS dimensions and simultaneously collected data assessing emotional phenomena. The goal of these analyses was to determine the extent of these associations in order to better

Table 6  
Analyses of Father-Adolescent FLS discrepancy scores and Emotions in Adolescents

	Standardized Parameter ( $\beta$ ) Estimates				
	Father-adolescent discrepancy FLS scores (dependent variables)				
	Cohesion	Adaptability	Communication	Total Score	Satisfaction
<i>Girls</i>					
FLS scale fathers <sup>a</sup>	0.03	-0.32*	-0.12	-0.18	-0.47*
Perspective taking (ERS)	-0.00	-0.12	0.09	-0.12	-0.06
Persp.*FLS fathers <sup>b</sup>	0.53*	-0.39	-0.24	-0.15	-0.40
Self-esteem (ERS)	0.30	-0.08	0.28	0.24	0.22
Self-est.*FLS fathers <sup>b</sup>	-0.02	-0.01	0.13	0.06	0.16
Emotional inhibition (ERS)	-0.12	0.30	-0.06	0.03	-0.00
Em. Inh.*FLS fathers <sup>b</sup>	0.24	-0.37	-0.41	-0.22	-0.39
Emotional state (FASEM-C)	-0.29	0.24	-0.32	-0.18	-0.03
Emot. St.*FLS fathers <sup>b</sup>	-0.36	-0.10	-0.33	-0.30	-0.18
Overall Models <sup>c</sup>	Adj. R <sup>2</sup> = 0.28*	Adj. R <sup>2</sup> = 0.12	Adj. R <sup>2</sup> = 0.17	Adj. R <sup>2</sup> = 0.17	Adj. R <sup>2</sup> = 0.24
<i>Boys</i>					
FLS scale fathers <sup>a</sup>	-0.03	0.09	-0.44*	-0.09	-0.03
Perspective taking (ERS)	-0.22	-0.16	0.02	-0.18	-0.04
Persp.*FLS fathers <sup>b</sup>	-0.32	-0.65**	-0.00	-0.18	0.04
Self-esteem (ERS)	-0.25	-0.18	-0.01	-0.42*	-0.35
Self-est.*FLS fathers <sup>b</sup>	-0.50*	-0.01	-0.33	-0.51**	-0.51*
Emotional inhibition (ERS)	0.05	-0.13	0.03	0.13	-0.41*
Em. Inh.*FLS fathers <sup>b</sup>	-0.24	0.36	-0.65**	-0.55*	-0.39
Emotional state (FASEM-C)	0.10	-0.01	-0.02	0.02	-0.19
Emot. St.*FLS fathers <sup>b</sup>	0.18	0.18	-0.25	-0.15	-0.19
Overall Models <sup>c</sup>	Adj. R <sup>2</sup> = -0.27	Adj. R <sup>2</sup> = 0.42*	Adj. R <sup>2</sup> = 0.43*	Adj. R <sup>2</sup> = 0.46**	Adj. R <sup>2</sup> = 0.19

Note. <sup>a</sup> Models adjusted for each respective FLS dimension in fathers

<sup>b</sup> Interaction terms for the emotional scales in adolescents and respective FLS dimensions in fathers

<sup>c</sup> Models adjusted for age of parents and children

\*  $p < .05$ ; Bonferroni adjustment: \*\*  $p < .01$

comprehend how emotions and family factors interact. Our analyses revealed the measures of emotions to be predictors of the FLS that explained a significant proportion of the variance of reports on family functioning. Hence, emotional factors may play an important role in the perception of several aspects of family life in the sense that more positive emotions enhance perceptions of better family functioning. As the established associations are bidirectional, the perception of familial processes may also reciprocally influence the experience of emotions in individual family members. For example, Self-esteem was associated with Adaptability in mothers in the sense that the higher Adaptability was rated, the more flexible the families were reported to be. This raises the question of whether mothers with high Self-esteem encourage their families to be more flexible, or whether flexible family functioning itself enhances Self-esteem in mothers. Similarly, the Emotional state variable from the diary method was associated with Satisfaction with family functioning in mothers as well as in fathers. Therefore, similar to Hilbert's study, the more positive the emotions were rated, the higher Satisfaction with family functioning was rated to be, and vice versa (Hilbert, 1994).

In adolescent girls, Perspective taking was strongly and positively associated with all the family functioning dimensions. Therefore, in girls, being empathetic appears to

play an important role in creating optimal familial environments, and/or vice versa. Interestingly, a similar trend was found in mothers. In boys, important associations were revealed between Self-esteem and all the familial dimensions, with the exception of Adaptability. Indeed, the higher the reports of Self-esteem were according to the boys, the higher the family functioning dimensions were rated to be. This is in line with the findings of Heaven et al. (1996) who found high Self-esteem to be associated with optimal family functioning in adolescents. This finding also partially coincides with that of Mandara and Murray (2000) who found optimal family functioning to be a strong predictor of Self-esteem in a sample of 15-year old African American boys and girls. Interestingly, Self-esteem also revealed associations with family functioning for the fathers in our sample. This result also coincides with that of Russell et al. (2000) who found Self-esteem in adults to be associated with positive affect and Communication within the family system. In the same sense as for Perspective taking in girls and mothers, one could hypothesize that the associations between the family functioning dimensions and Self-esteem in boys and fathers is a gender-specific pattern, starting in early life and persisting into adulthood. These findings would need to be confirmed in longitudinal studies which could further elucidate whether these gender-spe-

cific patterns are truly maintained throughout the life-span.

With respect to the parent-adolescent discrepancy scores for family functioning and their association with the emotional subscores in adolescents, the associations were negative in both girls and boys. Indeed, a negative association was found for mother-daughter Total FLS discrepancy scores and Perspective taking in girls as hypothesized. This result is in line with the findings of previous studies on parent-daughter discrepancy scores and emotional variables in girls in the sense that similarities in parent-daughter perceptions of family functioning were associated with higher levels of social competence (Bagley et al., 2001; Carlson et al., 1991; Ohannessian et al., 2000; Shek, 1998). In boys, Self-esteem was also negatively associated with the mother-son Satisfaction discrepancy scores in the sense that the larger the discrepancies were, the lower the reports of Self-esteem were. Similarly, the father-son Total FLS discrepancy scores were negatively associated with Self-esteem in boys. These results coincide with those of Shek (1998) and Bagley et al. (2001) who found negative associations between parent-adolescent discrepant scores of family functioning and adolescents' reports of Self-esteem.

However, we also found a negative association for the mother-son Satisfaction discrepancy scores and Emotional inhibition in boys. If lower levels of inhibition favor more divergent perceptions of Satisfaction with the family system between mothers and sons, the intra-individual analyses have also shown that lower levels of Emotional inhibition were correlated with better family functioning. This finding could be understood as an adaptive factor: boys who hold divergent views on family life from their mothers may be more adapted than those who hold more similar views to their mothers. This result coincides with those of Carlson et al. (1991) and Shek (1998). However, our results do not entirely coincide with those of Ohannessian et al. (1995) or Bagley et al. (2001) and it is possible that these differences were again attributable to age. Indeed, our participants were mostly in the middle stages of adolescence (15 years), whereas Ohannessian et al. (1995) assessed younger adolescents in the age range of 12 to 13 years and Bagley et al. (2001) sampled from all stages of adolescence (range 12 to 19 years). We also cannot exclude possible cultural differences between the adolescents in these studies who were American (Ohannessian et al., 1995), Canadian and British (Bagley et al., 2001) and German-speaking Swiss (the present study). Adolescents from different cultures may follow different patterns of autonomous development from their parents at different ages.

This study has several limitations. Indeed, our small sample sizes may hinder the generalizability of our results. Furthermore, our low participation rate suggests that our sample was highly selective. Indeed, parents' educational level was above-average and it is likely that participating families were for the most part well-functioning families that showed an increased interest in understanding familial relations. These sample characteristics may have had a significant impact on the results in the sense that limited vari-

ability (i.e., due to the homogenous nature of the sample) lead to a conservative bias. Indeed, the effects attributable to the lower end of the dimensions (i.e., low empathy, low family functioning or negative emotional experiences, etc.) might underestimate the true population effects. Moreover, as mentioned, our data were cross-sectional and only studies using longitudinal data could enable further interpretation of the direction of the associations found.

Nevertheless, our study used measures of emotion that have rarely been investigated. If our findings were confirmed in similar studies, they could ultimately be applied to preventive measures involving families with adolescent children. Indeed, as stated by Schneewind, "[...] preventive efforts aimed at families do not focus on treating clinical dysfunctions but rather on enhancing individual and family competences in coping with stressful life events" (1999, p. 163). Future studies should include measures of empathy, Self-esteem and emotional inhibition in a longitudinal study design to further elucidate the nature of the associations between emotional and familial factors in both clinical and non clinical samples.

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