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Factor structure of the *Friends and Family* interview

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The aim of this study was to specify the latent construct structure of the Friends and Family Interview (FFI: Steele & Steele, 2005) based on its dimensional scale coding protocol. The FFI is a semi-structured interview measuring attachment in middle childhood. We analyzed data from 341 FFI interviews with children aged 7–12 years, recruited in the Scandinavian Öresund Region. Exploratory Factor Analysis revealed a three-component model as best fitting the data. The first component, denoting attachment security, gathered all dimensional scales for evidence of secure base/safe haven regarding mother/father and coherence in the child's narrative style, along with scales regarding reflective functioning, self-perception, and social functioning. The second component comprised preoccupying feelings of anger, but also derogation. The third component gathered all scales coding idealization. Inter-relations among the components were consistent with attachment theory, and respondents' scores for all three components differed significantly across the four categorical attachment classifications. Affect regulation of negative emotion through anger and through derogation co-occurred, and was distinct from regulation through maintaining a belief that things are better than they appear (idealization). These two affect regulation strategies appeared commonly when reflective functioning, and an organized self-perception, and positive peer relations were less in evidence. The multi-dimensional FFI coding system appears to measure successfully these diverse features of the child's narrative provided in response to the interview. Overall, our findings support the construct validity of the FFI and provide further evidence of its usefulness for assessing attachment in middle childhood and early adolescence.

Key words: Attachment dimensions, Friends and Family Interview, exploratory factor analysis, reflective functioning, middle childhood.

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INTRODUCTION

Bowlby's attachment theory has provided the scientific community with a theoretical framework for understanding early and later socioemotional development as it evolves from the child's early attachment experiences with its caregivers (Bowlby, 1969, 1973, 1980), suggesting that different patterns of experiences are associated with distinct child-parent attachment patterns. During the toddler years, these patterns can be inferred from observing the child's behavior upon reunion with the caregiver following a separation (Ainsworth, Blehar, Waters & Wall, 1978). However, as the child becomes older, attachment evolves from one, or several, relationship-specific behavioral patterns to a more generalized set of thoughts, feelings and expectations – or mental representations – regarding the child's multiple close relationships to parent(s), siblings, friends, and also the child's self-perception in these relationships. Mental representations of attachment are thus derived from past interactions with primary caregivers and reflect the child's current deeply held thoughts and feelings about the way things are in the child's social and emotional life as a whole.

To follow this development, the study of attachment beyond early childhood shifts from observing and categorizing the child's attachment-related behavior with specific caregivers, to describing and assessing attachment-related thoughts and feelings, as they are derived from the child's subjective representations of attachment relationships to parent(s) (although several behavioral measures are also used, see below). This requires the close study of how children respond to questions regarding emotionally threatening situations and socioemotional challenges such as difficulties in friendships, and of their descriptions how they use or have used their caregivers in such situations. Indeed, Main, Kaplan and Cassidy (1985) showed that 6-year olds' verbal responses to attachment-related questions and probes were systematically linked to the quality of their attachment to mother during infancy, and that parents' ways of responding to the Adult Attachment Interview (AAI: George, Kaplan & Main, 1985) were predictive of their children's attachment. Inspired by this focus on the attachment representation, several interview-measures have been developed. These include both interviews conducted with parents, asking about thoughts and feelings regarding their child(ren), for example, the Parent Development Interview (Aber, Slade, Berger, Bresgi & Kaplan, 1985), the Working Model of the Child Interview (Zeanah & Benoit, 1995), or the Parental-Caregiving and Attachment Interview (Bengtsson & Psouni, 2008; Psouni, 2019), and interviews conducted with school-aged children and adolescents, e.g. the Child Attachment Interview (Target, Fonagy & Schmueli-Goetz, 2003) and the Friends and Family Interview (Steele & Steele, 2005). The range of interview-measures developed by attachment researchers has helped to establish attachment theory as a highly validated theory of continuity and change across the lifespan and across generations, yet the evidence base for these measures is ever in need of strengthening. The present paper aims to provide further validation of the Friends and Family Interview (FFI), by exploring the structure of its proposed multi-dimensional coding system (Steele, Steele & Kriss, 2009).

Attachment in middle childhood

While research in attachment in infancy and adulthood flourished during the past decades, attachment in middle childhood, and how

it relates to different developmental outcomes concurrently or longitudinally, is a fairly new but growing area of research (Kerns & Brumariu, 2017). Different methodological considerations arise when studying attachment in middle childhood, as it is likely to be influenced by several decisive developmental factors. Crucially, the child becomes more self-reliant and independent, and the goal of the attachment system changes from proximity seeking in the infant to gaining availability of the caregiver in the older child (Bowlby, 1988). At the same time, parents typically realize the need to engage in "goal-corrected" interactions (Bowlby, 1982), thereby considering the input from the child along with their own wishes. Importantly, the child's cognitive development results in greater ability to self-regulate emotions (Kerns & Brumariu, 2017).

Furthermore, the child's social world expands and transforms. While parents have previously been the child's primary social figures, the time spent with best friends, peers and teachers increases dramatically during middle childhood. Because of this development, it has been suggested that the evaluation of the attachment system in middle childhood ought to also include other important individuals besides the parents, for instance best friends (e.g., Psouni & Apetroaia, 2014; Verschueren & Koomen, 2012). At the same time, even though the independence and social world of children in middle childhood grow, parents are most often still the primary attachment figures (Brumariu, Giuseppone, Kerns *et al*., 2018; Kerns & Brumariu, 2014; Kerns, Tomich & Kim, 2006; Seibert & Kerns, 2009). Crucially, with the acquisition of language, which is well-established by the early school years, and the development of metacognitive skills in middle childhood, children can also begin to think and reflect about their experiences in attachment and other close relationships, making possible a remodeling of their early mental representations of attachment (Kriss, Steele & Steele, 2012). Thus, by middle childhood, the children's reflective functioning in the context of their experiences with caregivers and close friends may be particularly relevant for their attachment representations.

Measuring attachment in middle childhood

Attachment measurement in infancy and early childhood builds on well-established measures. Examples are the Strange Situation Procedure (SSP: Ainsworth et al., 1978; Cassidy & Marvin, 1992) for infants and toddlers, with focus on the child's behaviors, and the Bretherton Story Completion Tasks (Bretherton, Ridgeway & Cassidy, 1990) and Manchester Child Attachment Story Task (Green, Stanley, Smith & Goldwyn, 2000) for preschool children, which defer common attachment-related behaviors from theme-guided, doll-assisted stories produced by the child. The assessment of the attachment system in adulthood has focused on evaluating the overall quality in the individual's attachment representation, or internal working model (IWM), through analysis of structured autobiographic narrative generated by the AAI (George *et al*., 1985), also well-established, reliable and extensively validated throughout the years (e.g., Bakermans-Kranenburg & van IJzendoorn, 2009; van IJzendoorn, 1995).

The issue of measurement of attachment in middle childhood remains more unsettled, as the upsurge of attention towards attachment in middle childhood from researchers and clinicians during the last decade has led to the development of several different measures, with varying focus and underlying assumptions, and few studies have scrutinized whether and how these different measures converge (e.g., Di Folco, Messina, Zavattini & Psouni, 2017; Psouni & Apetroaia, 2014). While attachment questionnaires elicit descriptions of behaviors with parents (e.g., the Security Scale: Kerns, Aspelmeier, Gentzler & Grabill, 2001), behavioral measures follow the paradigm used for attachment assessment in infancy and early childhood and observe the child's behavior towards a specific caregiver, in situations likely to activate the attachment system (see Boldt, Kochanska, Grekin & Brock, 2016; Brumariu *et al*., 2018; Bureau, Easterbrooks & Lyons-Ruth, 2009). Adopting a representational focus, narrative-based measures use carefully selected word-probes and attachment-related story themes to access children's (implicit) attachment scripts as components of their attachment representations (e.g., the Secure Base Script Test: Psouni & Apetroaia, 2014). Semi-structured interviews address the attachment representation in its entirety. One such method for use with children in middle-childhood and early adolescence is the Child Attachment Interview (CAI: Target *et al*., 2003), tailored to closely match the AAI, and proven reliable (Schmueli-Goetz, Target, Fonagy & Datta, 2008). Classifications as "secure" in the CAI are associated with higher mentalizing capacity (Humfress, O'Connor, Slaughter, Target & Fonagy, 2002) and capacity to regulate emotion (Borelli, David, Crowley & Mayes, 2010), while classifications as "disorganized" are associated with higher levels of self-reported depressive symptoms and shyness, and parental reports of social anxiety, inattention, and thought problems (Borelli *et al*., 2010), speaking to the validity of the CAI.

The Friends and Family Interview

The Friends and Family Interview (FFI: Steele & Steele, 2005) is another interview method for assessing the attachment working model in middle childhood. The FFI is theoretically guided by the AAI (George *et al*., 1985) but adapted to the developmental abilities of children and adolescents in the age range 8–16 years. The method combines a narrative interview approach as used with adults, together with developmentally appropriate questions and cues. It addresses representations of attachment, perceptions of parental availability, and strategies for dealing with difficult situations. Importantly, the FFI diverges from the AAI and CAI, by taking the child's reality and experiences into consideration, combining typical attachment-related dimensions (secure base, idealization, coherence) with dimensions concerning the child's quality of friendships, sibling relationships, self-perception, adaptive response and, not least, reflective functioning dimensions, making it rather unique and robust for measuring attachment in this particular age group. The interview does not explicitly tackle painful experiences such as illnesses. It focuses instead on conflicts and how they are negotiated, as well as on upsetting experiences and separations from parents, and how these are handled. It also addresses the child's way of thinking about relationships, giving rise to information about the ability to mentally take the perspective of other people. Attachment measures from infancy and adulthood understandably do not include information regarding these elements.

Although Steele and Steele first conceptualized the FFI in 2005, it is still a relatively new assessment method for use in middle childhood. Nevertheless, robust inter-rater reliability has been demonstrated in both community (Breinholst, Esbjørn & Steele, 2018a; Psouni & Apetroaia, 2014) and at-risk samples (Breinholst, Tolstrup & Esbjørn, 2018b; Esbjørn, Breinholst, Kriss, Hald & Steele, 2015; Escobar & Santelices, 2013; Pace, Di Folco & Guerriero, 2018), and construct validity in relation to concurrently assessed attachment scripts and self-reported security (Psouni & Apetroaia, 2014). Furthermore, classifications of children based on the FFI are concordant with classifications from the SSP (Kriss, *et al*., 2012; Steele & Steele, 2005), and, in adopted children, with the mothers' attachment IWM classifications based on the AAI (Pace, Di Folco, Guerriero & Muzi, 2019). In addition, one of the FFI measures, coherence, appears similar across different countries and cultures (Stievenart, Casonato, Muntean & Van den Schoot, 2012). Importantly, classifications of adolescents as secure and dismissive, respectively, based on the FFI, are associated with distinct patterns of behavior and brain activation when processing emotional stimuli (facial expressions) (Escobar, Rivera-Rei, Decety *et al*., 2013). The FFI has been extensively used in adoption samples (e.g., see Pace, 2014; Pace *et al*., 2018; 2019; Pace, Di Folco, Guerriero, Santona & Terrone, 2015), with secure responses among adopted children being less frequent early after placement, but more common over time.

The studies above ascertain the high interrater consistency in classifications with the FFI and further support the construct validity of these categorical classifications and of central FFI dimensional scales such as coherence and evidence of secure-base/safe haven interactions with caregivers. On the other hand, because it considers broadly the child's developmentally relevant relational domains and experiences, the FFI results in a multitude of subscales and it is unclear how these scales relate to each other. Previous conceptualizations of attachment in terms of dimensions, rather than categorical classifications, have suggested both a single dimension of security (Cummings, 1990), and bi-dimensional structures of security to insecurity and avoidance/deactivation to preoccupation/hyperactivation (Ainsworth *et al*., 1978; Kobak, Cole, Ferenzgillies, Fleming & Gamble, 1993), the latter empirically supported in adults (Roisman, Fraley & Belsky, 2007). In children, however, the empirical evidence – using data generated with the CAI – has been more inconsistent, supporting both the unidimensional and bidimensional structures (Zachrisson, Røysamb, Oppedal & Hauser, 2011). Furthermore, the dimensional structure of the FFI is unexplored to date, and it is unclear how dimensional scales that capture experiences beyond what is typically considered to be in the core of the attachment representation are related to the main subscales, and the FFI categorical classifications. Thus, the aim of the present study was thus to examine the latent construct structure of the FFI, with the aim of establishing the number and quality of discrete dimensions arising from the FFI multiple subscale coding system.

METHOD

Participants

The sample consisted of 341 children (184 girls, 54%) aged 8 to 12 years, from the Öresund Region of Scandinavia, a homogenous region across the South of Sweden and East of Denmark. The inclusion criteria were that the child: (1) had Danish or Swedish, respectively, as its primary language; (2) was developing normally, not fulfilling criteria for a psychiatric diagnosis; and (3) was between 8 and 12 years of age. The mean age of the children was 10.3 years (SD = 1.36). All children had Danish/Swedish as their primary language but 42 (12.3%) also spoke another language at home. All children attended regular school, at classes corresponding their age. None had ongoing contacts with child mental health services. A total of 316 children had one or more siblings. Seventy children (20.5 %) had separated/divorced parents but lived equally with each parent under arrangements of shared custody, while 12 (3.4%) lived in single-parent families. Annual family incomes were 21,500–107,000 euro (US$26,000–US$133,500) after taxes, with a mean of 80,380 euro, very similar to the 81,400 euro median for disposable income for families with two or three children (Statistics Sweden, www.scb.se).

Measure

The FFI (Kriss *et al*., 2012; Steele & Steele, 2005) comprises an interview protocol and a standardized manual for coding the interview (Steele *et al*., 2009; Steele, Steele & Kriss, 2015).

The interview begins by affirming that our strongest feelings and wishes arise in the context of our closest relationships, and that there is a vast range of such feelings, more positive or more negative. Following some basic background questions regarding whom the child lives with, the interviewer asks questions regarding the child's hobbies, and examples of experiences during these hobby activities, in order to establish rapport with the child but also introduce the interview format which often enquires the interviewee to support general descriptions with specific examples from her/his experiences. The interview proceeds with a question regarding what the child likes most and least about himself/herself (with examples), thereby activating reflection. Next, the child is asked what he/she does when he/she is upset – which generates a first instance where the child may spontaneously provide information regarding the availability and use of parents and other close relations for support and soothing. The child is then asked about most and least favorite characteristics regarding his/her relationships with teachers, friends, parents, and siblings. Furthermore, the child is asked what he/she thinks these persons may think of the child. The child also reports on the first remembered separation from caregivers and his/her own and the caregivers' thoughts, behavior, and feelings regarding this separation. The child is also asked of his/her impression of the parents' relationship to each other, including potential conflicts and how the child reacts to such conflicts, emotionally and in action. Finally, the child is asked to describe his/her perceptions of whether his/her relation to the parents has changed or is likely to change as time passes. The interview is concluded with a couple of questions about how the child experienced the interview itself, allowing for the communication of any distressing feelings or thoughts, if such exist (Kriss *et al*., 2012).

Interviews are recorded, transcribed, and scored according to the FFI scoring manual, where operationalization of all dimensional scales, and details about the precise scoring of each scale, can be found (Steele *et al*., 2009). The dimensional scale scores range from 1 (indicating no evidence) to 4 (indicating marked evidence). First, based on the entire interview, scales are scored to capture coherence in the child's account. This involves whether the child presents relevant (*Relation*) and convincing examples (*Truth*), appropriate amounts of elaboration (*Quantity*) to support her/his appraisals, as well as an age appropriate level of attention and interest to the questions and politeness toward the interviewer (*Manner*). Furthermore, based on a detailed analysis of the contents of the interview, dimensional scores are given across domains, which include: (1) evidence of secure base availability of mother and father, respectively; (2) an evaluation of the child's self-esteem, comprising self-regard, social and school competence; (3) relationships to friends; (4) relationship to siblings; as well as (5) characteristic affect regulation strategies in the context of close relationships, with special focus on relationships to parents. These strategies comprise idealization of self and/or the parents, role reversal, anger and derogation (of attachment figures) present in the child's

narrative, as well as evidence of adaptive responses. Importantly, capacity to reflect upon what other people, to whom the child has a relationship, think and feel about the child, capacity to experience and acknowledge a variety of feelings towards these people, and awareness of how relationships change over time, are also rated, as components of the child's reflective functioning. Four-point continuous scores are also assigned for each of the four patterns of attachment quality: secure, insecure-dismissing, insecure-preoccupied, and insecure-disorganized.

In an independent round of evaluation of the interview, a major classification of the child's protocol into one of four categories (secure-autonomous, insecure-dismissing, insecure-preoccupied, insecure-disorganized) is made, based on important features in the child's account overall. A secure-autonomous classification is typically made where the narrative is coherent and the child shows relatedness through expressing missing, needing and depending on close others and a balanced sense of self, and others, with positive and negative sides. An insecure-dismissing classification is made where the self is portrayed as strong, independent and untouchable, and negative experiences are minimized, and relationship descriptions are often based on material things. The narrative may be incoherent (e.g., low Relation, low Truth). Insecure-preoccupied classifications are typically assigned where the narrative reflects overdependence on (preoccupation with) the parents or persistent expression of feelings towards the parents, for instance anger or excessive blaming. The narrative is characterized by low coherence (e.g., low Quantity, low Manner). Finally, a disoriented-disorganized classification is typically assigned where the child engages in contradictory or incompatible affect regulation strategies. References to frightening or traumatic experiences that seem unprocessed or unresolved may be part of the narrative, which is also characterized by low coherence (e.g., low Manner, low Relation, low Truth; Steele, Steele & Kriss, 2015).

The FFI was translated into Danish and Swedish by permission from the method developers, using a translation/back-translation procedure (Brislin, 1970). Bilingual staff members translated the original interview to Danish and Swedish, respectively, and fresh staff members, who had not read the original interview protocol, performed the back-translation, which was then approved by the method developers.

Procedure

The Danish children (n = 122) were randomly selected by the Danish Central Office of Civil Registration. Invitation letters were sent to a large number of potentially eligible mothers ($N_{0,\ D}$ = 1 601) living within driving distance of the university clinic. Mothers contacted the clinic for enrollment and written informed consent was obtained. The Swedish children (n = 219) were recruited by invitation ($N_{0,\ S}$ = 456) distributed at midsize schools within driving distance from the university. Parents contacted the research groups for enrollment and written informed consent from the children and both parents (where applicable) was obtained. Children received a token of appreciation for participating in the study.

FFI interviews were administered at the children's schools (in Sweden) and at the university clinic (in Denmark). All interviews were conducted by clinical psychologists or clinically trained students during their final study semester, under continuous supervision by the first three authors, all clinical psychologists and certified reliable FFI coders. The coders were trained and certified as reliable by the third author.

Interviews lasted between 30 and 60 minutes and were audio recorded and transcribed verbatim for coding. At transcription, all personal information or contextual information that could lead to identification of the interviewed children was removed. Approximately 20% of the interviews were coded by two independent raters to assess interrater reliability. Inter-rater reliability was excellent, with a single-measure average intra-class coefficient of 0.86 for the Danish sample, and 0.87 for the Swedish sample. Aggregating the double-coded material, interrater-correlations on the FFI-subscales ranged between 0.73 and 0.88.

The study complied with all ethical standards regarding research conducted on children. Approval of the study was acquired by the Institutional Ethical Review Board at Copenhagen University, and the Swedish Ethical Review Authority.

Statistical analysis

All statistical analysis was performed with SPSS 25 (IBM, Armonk, NY). Besides interview placement into the classification categories (Secure, Insecure/Dismissive, Insecure/Preoccupied and Insecure/Disorganized), continuous subscale scores were compared.

Missing data on the continuous FFI subscales can emerge during the coding procedure, as a result of too little information in the interview. The five subscales concerning siblings (Theory of Mind/Sibling, Diversity of Feeling/Sibling, Warmth, Hostility, and Rivalry) could not be rated for participants without siblings (approximately 7.5% missing data). There were also missing data (8.2%) on a subscale capturing frequency of contact with best friend. As it was not deemed appropriate to impute this missing data, these variables were excluded from further analysis. Another 102 missing values, corresponding to 0.085% of the total data, were detected on the remaining 36 FFI variables spread across 54 FFI protocols. These were imputed relying on maximum likelihood imputation procedure, in order to secure the inclusion of these 54 protocols (16% of participants) in the factor analysis.

Including valid data from 341 participants on 36 FFI variables in an Exploratory Factor Analysis (EFA) returned a ratio of 9.5 cases per variable, rendering the sample-size adequate. All variables included in the EFA were continuous and roughly normally distributed, and no outliers were detected. To determine data suitability for EFA, the variable correlation matrix was inspected and numerous coefficients of around 0.3 were found. The Bartlett's test of sphericity supported the suitability of the database for data reduction ($p < 0.0001$). The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.90, further supporting the factorability of the correlation matrix. As there was no theoretical ground for an assumption of orthogonality (independence) among latent factors summarizing the FFI sub-scales, the EFA was carried out allowing Oblimin rotation.

RESULTS

Descriptive statistics

Coding of FFI protocols resulted in 192 children (56.3%) classified as Secure, 125 (36.7%) as Insecure/Dismissive, 17 (5%) as Insecure/Preoccupied and 7 (2.1%) as Insecure/Disorganized. FFI classifications were independent of children's gender (χ^2 = 6.75, p = 0.08) and age ($F_{(3,\ 340)}$ = 1.88, p = 0.13), independent of origin (Swedish or Danish data, χ^2 = 5.39, p = 0.15) and independent of parents' education levels ($F_{(3,\ 340)}$ = 0.90, p = 0.44) and family income ($F_{(3,\ 340)}$ = 0.05, p = 0.98). Table 1 presents mean scores on all FFI dimensional scales, for the four FFI classifications (Secure, Insecure/Dismissing, Insecure/Preoccupied, and Insecure/Disorganized).

Exploratory Factor Analysis (EFA)

Because of low factorability based on the Inverse and Anti-Image correlation matrices, two dimensional scales (differentiation of parents and disorganized/disoriented) were excluded from the analysis. The initial EFA returned seven components, which together captured 64.7% of variance in the data. Based on the scree-plot (Fig. 1) and with a strict cut-off of eigenvalue >2, a three-component solution was calculated, capturing 49.4% of total variance in the data. The first factor comprised the FFI subscales for Coherence, Secure Base/Safe Haven availability, and Adaptive Response. The subscales coding Self-regard, School Competence, Social Competence and Quality of Friendship also loaded in this factor, along with subscales coding everyday use of reflective

Table 1. *FFI sub-scale scores for the children classified as Secure, Dismissive, Preoccupied and Disorganized, respectively (N = 341)*

	Secure (n = 192)		Dismissive (n = 125)		Preoccupied (n = 17)		Insecure-Other (n = 7)		
	M	SD	M	SD	M	SD	M	SD	F (3, 340)
CO -truth	3.03	0.59	2.03	0.48	2.44	0.50	1.79	0.70	27.07***
CO -economy	2.94	0.70	1.87	0.63	2.41	0.69	1.71	0.49	68.68***
CO -relation	2.91	0.62	1.73	0.53	2.32	0.58	1.57	0.53	109.24***
CO -manner	3.68	0.55	2.80	0.75	2.85	1.03	2.00	1.00	55.86***
CO -overall	3.04	0.52	1.96	0.42	2.29	0.61	1.50	0.50	135.90***
DP	2.37	0.90	1.52	0.61	2.24	0.75	1.93	0.45	28.59***
ToM mo	2.66	0.86	1.84	0.77	2.29	0.92	1.79	0.57	25.50***
ToM fa	2.56	0.91	1.81	0.74	1.91	0.66	1.71	0.49	22.01***
ToM friend	2.73	0.88	1.83	0.83	2.82	0.88	1.79	0.57	30.41***
ToM sibling	2.90	0.97	1.90	0.81	2.50	0.66	2.25	0.50	19.59***
ToM teacher	2.46	0.95	1.75	0.90	2.38	0.89	2.00	0.82	15.22***
DoF self	2.30	0.99	1.45	0.71	2.21	0.91	1.29	0.76	24.16***
DoF mo	2.18	0.87	1.29	0.57	1.75	0.68	1.43	0.53	35.34***
DoF fa	2.11	0.81	1.30	0.52	1.75	0.68	1.67	0.52	31.05***
DoF friend	2.33	0.97	1.54	0.68	2.29	0.92	1.71	0.49	20.64***
DoF sibling	2.44	0.80	1.61	0.66	2.29	0.91	2.33	0.52	27.81***
Secure Base mo	3.00	0.83	1.78	0.67	1.50	0.50	1.43	0.53	80.31***
Secure Base fa	2.30	0.93	1.56	0.65	1.38	0.63	1.64	0.63	24.02***
Social comp	3.13	0.68	2.46	0.72	2.12	0.88	2.00	0.58	31.70***
School comp	2.94	0.70	2.22	0.68	2.29	0.61	2.00	0.82	30.35***
Self regard	3.03	0.56	2.63	0.68	2.59	0.96	2.14	0.69	13.69***
Friend frequ	3.05	1.12	2.70	1.32	2.47	1.23	2.67	1.50	2.85*
Friend quality	2.72	0.82	1.93	0.70	2.47	0.78	1.71	0.75	27.74***
Sibling warmth	2.78	0.94	2.00	0.82	2.06	0.77	2.17	0.98	19.86***
Sibling hostility	1.32	0.62	1.50	0.80	1.94	1.12	1.50	0.84	4.41**
Sibling rivalry	1.11	0.51	1.03	0.36	1.25	0.58	1.00		1.41
Idealizing self	1.23	0.52	1.56	0.71	1.18	0.39	1.29	0.76	7.95***
Idealizing mo	1.47	0.64	2.06	0.93	1.29	0.47	2.07	1.02	17.65***
Idealizing fa	1.48	0.70	2.03	0.91	1.35	0.61	1.71	0.76	14.07***
RR mo	1.11	0.33	1.03	0.29	1.38	0.82	1.64	1.18	8.78***
RR fa	1.06	0.37	1.03	0.24	1.32	0.85	1.00		3.31*
Anger mo	1.12	0.33	1.09	0.37	2.26	1.09	1.57	0.79	42.06***
Anger fa	1.16	0.53	1.08	0.25	2.56	1.14	1.14	0.38	45.15***
Derogation self	1.03	0.24	1.04	0.20	1.00	0	1.36	0.63	4.59**
Derogation mo	1.00	0.04	1.11	0.34	1.32	0.47	1.07	0.19	13.16***
Derogation fa	1.00	0.22	1.11	0.32	1.38	0.49	1.07	0.19	12.12***
AR	2.90	0.74	1.83	0.63	1.59	0.78	1.29	0.49	74.86***
DPR	2.37	0.88	1.69	0.61	2.26	0.89	2.14	0.38	18.67***
Secure	3.27	0.55	1.41	0.50	1.50	0.56	1.14	0.38	346.23***
Dismissive	1.49	0.55	3.64	2.53	1.44	0.50	1.93	0.73	47.63***
Preoccupied	1.15	0.37	1.08	0.27	3.23	0.56	1.93	0.73	198.46***
Disoriented	1.01	0.16	1.13	0.36	1.06	0.24	2.64	0.94	75.94***

Notes: CO = Coherence; ToM = Theory of Mind; DP = Developmental Perspective; DoF = Diversity of Feeling; Social comp = Social competence; School comp = school competence; Friend frequ = Frequency of contact/interaction with best friend; Friend quality = Quality of relationship with best friend; RR = Role Reversal; AR = Adaptive Response; DPR = Differentiation of Parental Representations; co = competence; mo = mother; fa = father.
*$p < 0.01$; **$p < 0.001$; ***$p < 0.0001$.

functioning: Theory of Mind scales, Diversity of Feeling scales and Developmental Perspective. This first factor captured 33.6% of variance in the data. The second factor comprised the Insecure/Preoccupied sub-score and the dimensional scales indicating Anger and Role-reversal (both regarding the mother and regarding the father), but also the two scales coding Derogation, regarding mother and father, respectively. This factor captured 9.7% of variance in FFI data. The three scales coding Idealization (self, mother and father, respectively), comprised the third factor, which captured 6.1% of variance. See Table 2 for the structure matrix.

The third factor was weakly negatively correlated to the first factor (F1-F3 $r = -0.27$, $p < 0.001$), otherwise factors were unrelated to each other (F1-F2 $r = -0.07$, *ns;* F2–F3 $r = 0.01$, *ns*). In fact, a Varimax rotation of the initial solution resulted in the exact same factor structure, suggesting factor independence. Internal consistency was high for all factors (see Table 3). Reflecting their composition, the three factors were labeled Security (1st factor), Preoccupation (2nd factor), and Idealization (3rd factor).

To assess the relationship between the latent dimensions of the FFI as derived by the EFA, and the categorical attachment classifications of the FFI protocols, multivariate analysis of

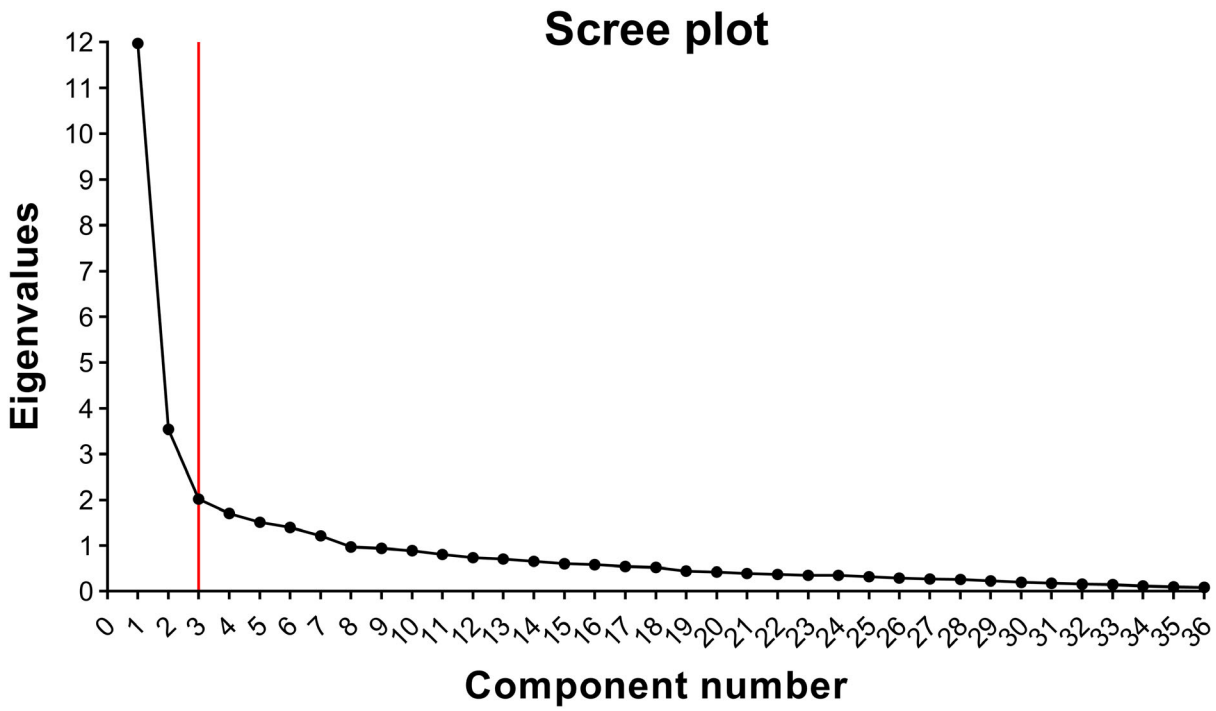

Fig. 1. Scree Plot for the FA factors, based on 36 FFI sub-scales and valid data from the 316 participants. The slope diminishes drastically after the third factor.

variance (MANOVA) was carried out, with FFI Attachment Classification (4-way: Secure *vs* Insecure/Dismissive *vs* Insecure/Preoccupied vs Insecure/Disorganized) as grouping variable and the three factor sub-scores (Security, Preoccupation, and Idealization) derived from the multiple regression equations for each factor, as dependent variables. The multivariate effect of Attachment Classification on the three factor sub-scores considered together was significant (*Wilk's* $\lambda_{(9,\ 803)} = 88.18$, $p < 0.0001$). Univariate main effects of Attachment Classification were significant for all factors (denoting dimensions of Security, Preoccupation, and Idealization, respectively, see Table 4 for statistics). Significant differences in each factor score, comparing pairwise (Bonferroni) the groups of children classified as Secure, Dismissive, Preoccupied and Disorganized, respectively, are also presented in Table 4. As can be seen, the mean score on factor 1 "Security" was higher for the group of children classified as Secure compared to all other classifications (Dismissive, Preoccupied, or Disorganized), while the mean score for the group "Preoccupied" was higher than for children classified as Dismissive or Disorganized. The mean score on factor 2 "Preoccupation" was higher for the group of children classified as Preoccupied compared to all other classifications, and higher for the group classified as Disorganized compared to Secure and Dismissive. Finally, the mean score on factor 3 "Idealization" was higher for children classified as Dismissive, compared to the Secure and Preoccupied classifications.

DISCUSSION

The aim of the current study was to examine and specify the latent structure of the FFI coding and classification system (Steele *et al*., 2009, 2015). Three factors captured half of the total variance in FFI subscale continuous scores. Subscale loadings suggest that the first factor captures attachment security and reflective functioning, but also the child's self-regard and social adjustment. The second factor comprises preoccupied attachment, encompassing anger, role reversal, but also derogation. The third factor represents dismissive affect regulation through idealization. Although exploratory and still in need for confirmation, this is the first complete depiction of the latent structure of the FFI.

The different indicators of coherence of mind rated by the FFI, as well as the subscales summarizing evidence of secure base, are theoretically and empirically confirmed pointers of secure attachment (Escobar & Santelices, 2013; Kriss *et al*., 2012; Psouni & Apetroaia, 2014; Steele & Steele, 2005; Steele *et al*., 2009; 2009). Indeed, these were gathered together in the first latent factor of the FFI, along with continuous overall ratings ("Dismissive" loading negatively, "Secure" loading positively). This is in line with the purpose of the FFI and consistent with the latent structures of other interview-based techniques for assessing attachment (e.g., regarding the CAI, see Haltigan, Roisman & Haydon, 2014; Zachrisson *et al*., 2011). It is also in line with previous findings indicating construct validity for the FFI dimensional scales of coherence and secure base/safe haven with respect to mother and father (Psouni & Apetroaia, 2014; Stievenart *et al*., 2012). Notably, the variables of self-regard and social competence had also clear placement in the first latent factor, in line with previous evidence that positive self-perceptions are closely linked to attachment security in middle childhood (Booth-LaForce, Oh, Kim, Rubin, Rose-Krasnor & Burgess, 2006; Clark & Symons, 2009; Diener, Isabella, Behunin & Wong, 2008; Isabella & Diener, 2010; Psouni, Di Folco & Zavattini, 2015). Finally, quality of close friendships also positioned clearly in the construct of attachment security, consistent with previous

evidence to this end (e.g., Kerns, 2008; Schneider, Atkinson & Tardif, 2001; Seibert & Kerns, 2009). Reflective functioning dimensions such as developmental perspective, diversity of feeling and everyday perspective taking, also loaded on the first factor of the FFI. Concerning diversity of feeling, this finding is not surprising. Children with an attachment history of frequent, consistent experiences of secure base support have well consolidated attachment scripts (Psouni & Apetroaia, 2014), and one characteristic of well consolidated attachment scripts is the awareness of a range of emotional states that occur in situations activating the attachment system, as well as the anticipation that these emotions will be attended to and, if needed, soothed (Psouni & Apetroaia, 2014; Waters, Rodrigues & Ridgeway, 1998). Thus, children with frequent experiences of secure-base/safe haven interactions with caregivers will likely also be able to describe their relationships with their caregivers including a wider, more nuanced range of emotions.

Table 2. *Exploratory Factor Analysis, Oblimin rotation, structure matrix (N = 316)*

	Factor		
Sub-scale	1	2	3
CO - overall	**0.882**	−0.168	−0.402
CO - economy	**0.846**	−0.110	−0.291
CO - relation	**0.830**	−0.118	−0.381
Secure	**0.788**	−0.327	−0.465
CO - truth	**0.755**		−0.457
Dismissing	**−0.740**	−0.128	0.521
ToM mother	**0.685**		
ToM father	**0.677**		
Secure base mother	**0.675**	−0.353	−0.362
ToM friend	**0.666**	0.103	
School competence	**0.663**	−0.199	−0.122
DoF friend	**0.655**	0.145	−0.141
DoF mother	**0.653**	0.121	−0.419
Friend, quality	**0.652**		−0.120
Coherence, manner	**0.650**	−0.250	−0.357
Social competence	**0.650**	−0.337	−0.172
ToM teacher	**0.649**	0.115	
AR	**0.648**	−0.388	−0.323
DoF self	**0.637**	0.192	−0.225
DoF father	**0.618**	0.134	−0.364
DPR	**0.616**		−0.252
Secure base father	**0.590**	−0.316	−0.205
Self regard	**0.433**	−0.344	
Preoccupied		**0.774**	−0.152
Anger mother		**0.700**	−0.162
Anger father		**0.700**	−0.183
Derogation father	−0.174	**0.593**	0.309
Derogation mother	−0.209	**0.469**	0.371
RR mother		**0.411**	
RR father	0.105	**0.306**	
Derogation self		0.182	
Idealizing mother	−0.226		**0.820**
Idealizing father	−0.202		**0.781**
Idealizing self	−0.161		**0.557**

Notes: Bold print indicates the loadings that define which component the sub-score belongs to. Factor loadings < 0.1 have been suppressed.
CO = Coherence; ToM = Theory of Mind; DP = Developmental Perspective; DoF = Diversity of Feeling; RR = Role Reversal; AR = Adaptive Response; DPR = Differentiation of Parental Representations; co = competence; mo = mother; fa = father.

However, reflecting functioning comprises more than diversity of feeling. Both the knowledge that thoughts, feelings and relationships change with time (Developmental Perspective) and the ability to describe oneself from another person's perspective (everyday Theory of Mind) were gathered in the first factor. Evidently, in the present sample children with secure attachments to their caregivers find it easier to take these caregivers' perspective in seeing and describing themselves (Kriss *et al.*, 2012). Experiences of jointly engaging, with their caregivers, in social and other perspective taking situations may indeed enhance the children's perspective taking skills in the moment (e.g., Moll, Carpenter & Tomasello, 2007; Psouni *et al.*, 2019), and in development (e.g., Nelson, Adamson & Bakeman, 2008; Trautman & Rollins, 2006). It is also possible that the child's and the parents' views of the child are rarely very different when children are securely attached to the parent, rendering the task of describing oneself from the point of view of someone else easier for these children.

Reflective functioning could also arise against the background of adverse experiences in insecure relationships but typically, this self-righting development occurs after early adolescence. Considering the low-risk nature of our sample, and the low frequency of attachment disorganization present, it is justified to assume that the reflective functioning reflected in participants' FFI narratives has developed out of secure attachment relationships, as suggested above. In any case, contrary to adulthood where attachment security and reflective functioning are regarded as two distinct constructs (Fonagy, Steele, Steele, Moran & Higgit, 1991; Gergely, Fonagy, Jurist & Target, 2002), with secure attachment enhancing, over time, a well-developed reflective functioning (Gergely *et al.*, 2002), our results suggest that the two constructs may not be separated in middle childhood. The trajectory of separation of these two constructs ought to be sought later in adolescence, or adulthood.

Table 3. *Eigenvalues, variance explained and factor internal consistency (N = 316)*

Factor	Eigenvalue	% variance	Cummulative % variance	Factor name	α	*N* of items
1	11.44	33.64	33.64	Security	0.95	23
2	3.32	9.77	43.41	Preoccupation	0.72	7
3	2.07	6.08	49.49	Idealization	0.71	3
4	1.60	4.72	54.21			
5	1.40	4.15	58.33			
6	1.16	3.41	61.74			
7	1.01	2.97	64.70			

Table 4. *Factor scores and multiple (Bonferroni) contrasts for the Secure, Dismissive, Preoccupied and Disorganized classifications, respectively (N = 316)*

Factor	Secure*n* = 192 *M (SD)*	Dismissive*n* = 125 *M (SD)*	Preoccupied*n* = 17 *M (SD)*	Disorganized*n* = 7 *M (SD)*	$F_{(3, 336)}$	*Bonferroni*
Security	2.80 (0.41)	1.84 (0.32)	2.22 (0.40)	1.77 (0.27)	171.57**	S-D* S-P* S-Di*P-D* P-Di*
Preoccupation	1.10 (0.17)	1.08 (0.15)	1.92 (0.43)	1.35 (0.37)	105.18**	S-P* S-Di*D-P* D-Di* P-Di*
Idealization	1.41 (0.42)	1.91 (0.67)	1.27 (0.43)	1.69 (0.71)	25.05**	S-D* D-P*

Notes: S = Secure; D = Dismissive; P = Preoccupied; Di = Disorganized.
*$p < 0.01$; **$p < 0.0001$;

Preoccupied strategies (preoccupying anger and accounts of preoccupying role reversal) gathered in the second latent factor, accounting for 10% of the total variance. Interestingly, the variables coding evidence of derogation in the child's interview were also gathered in this factor, while variables coding evidence of reliance on idealization gathered in the third factor. Importantly, while typically regarded as a strategy for distancing oneself from any negative experience and feelings in close relationships, rather than preoccupying oneself with such experiences, derogation appears here to co-occur with preoccupying anger. In our interviews, derogation of the relationship to the mother and/or father was indeed most frequently encountered together with persistent anger towards the parents, in children who were consequently classified as Insecure-Preoccupied, while self-derogation was only frequent among children for whom there was suspicion of disorganization (classified as Insecure-Disorganized). Thus, in its early developmental phase, derogation of the relationship to the parent(s) seems to be a particularly effortful and enmeshing strategy, since children are still critically dependent on their parents. Derogation as strategy for regulation of affect that involves a callous, cold diminishing of the importance of close relationships (to the parents), or diminishing of the parent him/herself, does not appear to be yet established among children when discussing attachment-related experiences and relationships.

Furthermore, idealization of the attachment figures, and of oneself, emerged as a separate component in the latent structure of the FFI. This affect regulation strategy of distancing oneself from negative emotions and experiences in close relationships through maintaining beliefs that things are better than they appear was negatively correlated to the dimension of attachment security, as would be predicted by attachment theory. Notably however, contrary to what would be expected based on data with adult samples, Idealization did not correlate negatively with the Preoccupation dimension. That Idealization and Derogation seem to belong to two different underlying constructs is in line with the attachment classification model of the AAI that distinguishes between Dismissive-Idealizing (Ds2) and Dismissive-Derogating (Ds1) subtypes (Main, Goldwyn & Hesse, 2002). From a developmental point of view, our results indicate that during middle childhood and adolescence, these two dismissive strategies, both denoting affect regulation via distancing, trivializing or diminishing negative emotions and experiences in close relationships, are entirely independent from each other. Thus, longitudinal studies that follow the development of different affect regulation strategies are warranted.

Seen together, the FFI-structure retrieved by the EFA in the present study suggests that the child's reflective functioning, self-perception including quality of friendships, social and school (cognitive) competence, are structurally related to the child's attachment security. It also reveals associations between the different affect regulation strategies such that would be predicted from similar data in adults (e.g., Haltigan *et al*., 2014) or other attachment based interviews for children (Shmueli-Goetz, Target, Fonagy. & Datta, 2008).

LIMITATIONS AND IMPLICATIONS

Some important limitations to the present study ought to be noted. First, while the sample size allowed for a powerful EFA, the present findings ought to nevertheless be regarded as preliminary since no Confirmatory Factor Analysis was carried out. Second, future research should examine whether the proposed latent structure of the FFI can be confirmed also in different clinical samples, given that the present study focused on a community sample. Future studies should also examine whether the present proposed latent structure of the FFI can be confirmed for participants at different developmental stages, given that the focus here was specifically on middle childhood and preadolescence. Third, as children were not specifically assessed for verbal fluency, it cannot be excluded that the sample represented a verbally fluent group. The extent to which coherence in attachment interviews with children may be subject to verbal fluency influences is still not fully understood. Finally, our findings are limited to a homogenous Scandinavian sample, highlighting the need of addressing different culture and multi-cultural samples in the future, as direct transmission from one culture to another may prove problematic. For all these reasons, further studies are required before the latent structure of the FFI can be firmly established.

The retrieved latent structure for the FFI attests to a measure that primary addresses attachment security and coherence, providing further evidence of the usefulness of the FFI for the assessment of attachment in middle childhood and early adolescence. Since certain defense mechanisms may not be clearly established among children and adolescents, the fact that the FFI includes scales capturing the child's reflective functioning (regarding parents, teachers and friends), self-perception, and social domains of the child's life are unique strengths of the interview and interview-coding system.

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