Be(com)ing Social

Achterhof, Robin; Schneider, Maude; Kirtley, Olivia J.; Wampers, Martien; Decoster, Jeroen; Derom, Catherine; De Hert, Marc; Guloksuz, Sinan; Jacobs, Nele; Menne-Lothmann, Claudia

Published in:
Developmental Psychology

DOI:
10.1037/dev0001315

AMERICAN PSYCHOLOGICAL ASSOCIATION

Developmental Psychology

ISSN: 0012-1649

2022, Vol. 58, No. 4, 792–805
https://doi.org/10.1037/dev0001315

Be(com)ing Social: Daily-Life Social Interactions and Parental Bonding

Robin Achterhof[1], Maude Schneider[1, 2], Olivia J. Kirtley[1], Martien Wampers[1], Jeroen Decoster[3], Catherine Derom[4, 5], Marc De Hert[3, 6, 7], Sinan Guloksuz[8, 9], Nele Jacobs[8, 10], Claudia Menne-Lothmann[8], Bart P. F. Rutten[8], Evert Thiery[11], Jim van Os[8, 12, 13], Ruud van Winkel[3, 7], Marieke Wichers[14], and Inez Myin-Germeys[1]

[1] Department of Neurosciences, Research Group Psychiatry, Center for Contextual Psychiatry, KU Leuven
[2] Clinical Psychology Unit for Intellectual and Developmental Disabilities, Faculty of Psychology and Educational Sciences, University of Geneva
[3] Sint-Kamillus, University Psychiatric Center, KU Leuven
[4] Department of Human Genetics, University Hospital Gasthuisberg, KU Leuven
[5] Department of Obstetrics and Gynaecology, Ghent University Hospital
[6] Antwerp Health Law and Ethics Chair, AHLEC, University of Antwerp
[7] Department of Neurosciences, Research Group Psychiatry, Center for Clinical Psychiatry, KU Leuven
[8] School for Mental Health and Neuroscience MHeNS, South Limburg Mental Health and Teaching Network, EURON, Department of Psychiatry and Neuropsychology, Maastricht University
[9] Department of Psychiatry, Yale School of Medicine
[10] Faculty of Psychology and Educational Sciences, Open University of the Netherlands
[11] Department of Neurology, Ghent University Hospital
[12] Brain Center Rudolf Magnus, University Medical Centre Utrecht
[13] Department of Psychosis Studies, Institute of Psychiatry, King's Health Partners, King's College London
[14] University Medical Center Groningen, Interdisciplinary Center Psychopathology and Emotion Regulation, University of Groningen

Parents are known to provide a lasting basis for their children's social development. Understanding parent-driven socialization is particularly relevant in adolescence, as an increasing social independence is developed. However, the relationship between key parenting styles of care and control and the microlevel expression of daily-life social interactions has been insufficiently studied. Adolescent and young adult twins and their nontwin siblings (N = 635; mean age = 16.6; age range = 14.2–21.9; 58.6% female; 79.5% in or having completed higher secondary/tertiary education; 2.8% speaking language other than Dutch at home) completed the Parental Bonding Instrument (PBI) on parental care and control. Participants also completed a 6-day experience sampling period (10 daily beeps, mean compliance = 68.0%) to assess daily-life social interactions. Higher overall parental bonding quality (of both parents) related to more positive social experiences in daily life (e.g., belonging in company), but not to more social behaviors (e.g., being with others). Factor analysis indicated a three-factor structure of the PBI, with care, denial of psychological autonomy, and encouragement of behavioral freedom. Paternal care was uniquely predictive of better social experiences. These findings demonstrate how parenting styles

Robin Achterhof https://orcid.org/0000-0002-3269-2270
Maude Schneider https://orcid.org/0000-0001-7147-8915
Jeroen Decoster https://orcid.org/0000-0001-8614-7000
Marc De Hert https://orcid.org/0000-0003-4255-5920
Nele Jacobs https://orcid.org/0000-0003-4021-4014
Bart P. F. Rutten https://orcid.org/0000-0002-9834-6346

The research leading to these results has received funding from the European Community's Seventh Framework Program under Grant agreement HEALTH-F2-2009-241909 (Project EU-GEI). Robin Achterhof, Olivia J. Kirtley, and Inez Myin-Germeys are supported by an FWO Odysseus grant (Inez Myin-Germeys, FWO GOF8416N). Maude Schneider is supported by a personal Grant from the Swiss National Science Foundation (Grant: PZ00P1_174206). Ruud van Winkel is supported by an FWO Senior Clinical Fellowship (FWO 1803616N). We thank Wolfgang Viechtbauer and Ginette Lafit for additional guidance with data analysis.

The study was approved by the local ethics committee (Belgium, Commissie Medische Ethiek van Universitaire Ziekenhuizen KU Leuven, Project B32220107766, project title TwinssCan). Analyses for this study were not preregistered. Data are not publicly available. Materials, code, and analytic output have been made available on the OSF-page for this project (https://osf.io/xbfpe/). Jeroen Decoster, Catherine Derom, Marc De Hert, Nele Jacobs, Claudia Menne-Lothmann, Bart P. F. Rutten, Evert Thiery, Jim van Os, and Ruud van Winkel developed the overall study design for Twinsscan and were involved in data collection. Robin Achterhof, Inez Myin-Germeys, and Maude Schneider developed the concept for the current study. Robin Achterhof performed data analysis under the supervision of Martien Wampers and drafted the article. Olivia J. Kirtley, Inez Myin-Germeys, and Maude Schneider provided critical revisions of the draft. All authors approved the final version of the article for submission.

Correspondence concerning this article should be addressed to Robin Achterhof, Department of Neurosciences, Research Group Psychiatry, Center for Contextual Psychiatry, KU Leuven, ON V Herestraat 49 bus 1029, 3000 Leuven, Belgium. Email: robin.achterhof@kuleuven.be

may be uniquely associated with how adolescents experience their social world, with a potentially important role for fathers in particular. This complements the long-held idea of socialization through parenting by bringing it into the context of daily life and implies how both conceptualizations of social functioning and interventions aimed at alleviating social dysfunction might benefit from a stronger consideration of day-to-day social experiences.

Keywords: adolescence, experience sampling method, parenting style, social functioning, socialization

Within developmental psychology, the process of socialization has been defined as the acquisition of a wide range of skills necessary for successful functioning in the social community (Grusec & Davidov, 2010). Particularly during adolescence, socialization is a fundamental process, as adolescence represents a key period of developmental flux within individuals' social worlds. During this time, where sensitivity to the changing social environment is especially acute, adolescents become increasingly independent from parental influences and connect with nonfamily members on a deeper level (Arnett, 2001; Blakemore & Mills, 2014; DeVault et al., 1996). Although adolescents develop increasing independence, parents remain key influencers, shaping their children's social development (Collins & Laursen, 2013; Smetana & Rote, 2019).

Parental Care and Control

To understand which aspects of parenting are most important for children's socialization, it is worthwhile to focus on those types of parenting that are most predictive of maladaptive developmental outcomes. Early factor analytic work on different dimensions of parenting has identified two factors that are particularly impactful for psychosocial development and the development of psychopathology: one factor of affection, warmth, and *care,* and one factor on autonomy and *control* (Parker et al., 1979; Roe & Siegelman, 1963). This general distinction between supportive and controlling parenting has been directly translated, respectively, in the two subscales of parental "care" and "control" of the widely used Parental Bonding Instrument (PBI; Parker et al., 1979). While these subscales measure specific parenting styles, the authors of the PBI also suggest the computation of a global parental bonding quality score—defined by high care and low control scores.

Since its inception, however, the two-factor structure of the PBI has been questioned, as numerous subsequent studies have found support for a three-factor solution (Cox et al., 2000; Gómez-Beneyto et al., 1993; Kullberg et al., 2020; Murphy et al., 1997; Xu et al., 2018). In this three-factor solution, the original "control" subscale is split into two general subscales: One subscale on overly controlling, psychologically intrusive parenting (akin to the concept of "helicopter" parenting), and one subscale referring to parenting that refers more to the granting of behavioral freedom. The PBI is one of the most commonly used parenting measures[1] in psychiatric epidemiology (Enns et al., 2002; Eun et al., 2017; Neale et al., 1994; Raudino et al., 2013; Ravitz et al., 2010), and its (two or three) subscales have been linked to the development of a variety of psychopathology during adolescence, such as depression, (social) anxiety, phobias, substance abuse, externalizing disorders and eating disorders (Eun et al., 2017; Martin et al., 2004; Raudino et al., 2013; Young et al., 2011).

Assessing Social Interactions in Daily Life

The mechanism linking parenting styles to psychopathology is most likely social in nature. Ample developmental research has described how parenting socializes children, and prepares them for engaging with others (e.g., Bowlby, 1969; Grusec, 2011; Smetana et al., 2006). This process is especially relevant during adolescence, as this is the period where more connection with peers is sought out (Steinberg & Morris, 2001), but also when most psychopathology first arises (Kessler et al., 2007).

Leading developmental theories posit how, to better understand (social) development, the relationship between higher-order, more macrolevel factors (e.g., general parenting perceptions) and microlevel processes (e.g., daily social interactions) needs to be clarified (as in, e.g., the bioecological model, Bronfenbrenner et al., 2007; or the dynamic systems approach, Van Geert & Lichtwarck-Aschoff, 2005). Moreover, developmental contextual approaches (e.g., Lerner, 1991) contend that adolescent development cannot be understood apart from the different *naturalistic* contexts in which people find themselves—which means that more ecologically valid assessments of social processes might be needed. The interaction between person and day-to-day (social) environment is thus key for understanding how adolescents grow up. Yet, despite the acknowledged importance of both the interaction between micro- and macrolevel processes, and of ecological validity, these aspects are often considered only to a limited extent.

A stronger consideration of microlevel, naturalistic processes is particularly relevant for assessing social processes. Day-to-day social behavior is dynamic and involves all senses. It is embedded within physical, external, and internal contexts, comprising the history of previous interactions with different interaction partners (Zaki & Ochsner, 2009). Yet, this complexity is often neglected in traditional retrospective measures or laboratory tasks aiming to assess relevant social outcomes (Hermans et al., 2019). Questionnaires or laboratory assessments of social processes do not measure social interactions at the moment that they occur. Because we generally are more interested in adolescents' functioning in the real world than in the lab, this means that traditional measurements do not target social outcomes of parenting at arguably in the most relevant context.

An apt solution to this issue is the Experience Sampling Method (ESM; Csikszentmihalyi & Larson, 1987; Myin-Germeys et al., 2018), which has been explicitly developed to capture *daily-life* processes. ESM is a type of intensive longitudinal method that usually prompts participants several times a day for several days, at (semi-)random times, to report thoughts, feelings, and current context as they go about their everyday lives. By sampling at

[1] Google Scholar produced 5,124 citations for this instrument on December 7, 2021. For reference, the widely used "gold standard" Adult Attachment Interview had a similar number at 5,087 citations.

random times throughout one's day, an ecologically valid representation of any participant's (social) life in different naturalistic contexts can be obtained. A key advantage of this direct reporting is that it severely reduces recall bias—a critical issue in the assessment of social behavior (e.g., Forgas et al., 1984; Verbeij et al., 2021). Because participants also complete these diaries when in social situations, ESM is suited for directly assessing characteristics of interpersonal interactions as they occur in a natural context (Bernstein et al., 2018). As such, this method allows for testing whether traditionally assumed associations—for example, between parenting and adolescent social outcomes—are present when that outcome is assessed in the moment, in people's day-to-day lives.

In addition, a benefit compared with, for example, observational methods, is that ESM allows for measuring participants' *experience* of situations, together with their reported behavior and context. A useful distinction that we make between the different measured characteristics of daily-life social interactions involve relatively *quantitative* or behavioral aspects (social behavior) versus relatively *qualitative* or experiential aspects (social experiences). The most direct way of assessing quantities of social experiences is to simply ask at every ESM prompt whether a participant is in the company of people, and if yes, what type of company they are in. At the same time, participants are asked how they feel about or experience their current company.

The relevance of targeting social processes with ESM in this twofold manner is highlighted by a study by Schneider and colleagues (2017), who compared scores on the widely used Social Functioning Scale (SFS; Birchwood et al., 1990) with social functioning indicators as assessed through ESM. They found the SFS to be significantly related to relatively objective social measures (such as % of time spent alone), but to a lesser extent with subjective social experiences. These findings imply that ESM allows for the measurement of relevant aspects of daily-life social interactions that are not fully captured by traditional scales. If we aim to better understand the fundamental relationship between parenting and daily-life social processes, it is therefore essential to target both the quantity and quality of day-to-day social experiences. Moreover, gaining more insight into this relationship requires a focus on parenting styles relating to care and control, as they can be expected to be strongly involved in socialization.

Parenting and Daily-Life Social Interactions

Some of the earliest seminal ESM work has already focused on the (changing) social behaviors of adolescents, finding, for example, how adolescents (dis)engage and (dis)connect with their parents at different stages throughout adolescence (Csikszentmihalyi et al., 1977; Larson et al., 1996). A limited number of ESM studies since then have provided additional insight into the relationship between general parenting perceptions and daily-life social interactions, for example, through the lens of parental attachment security (Sheinbaum et al., 2015; Torquati & Raffaelli, 2004). Although attachment style is conceptually distinct from parenting styles, they are related in the sense that attachment security is hypothesized to be largely shaped through parenting styles (Grusec & Davidov, 2010; Maccoby & Martin, 1983)—this hypothesis is supported by studies reporting associations between PBI styles and attachment (Berry et al., 2007; Manassis et al., 1999; Mulligan & Lavender, 2010; Tait et al., 2004). One of the key outcomes of successful socialization—social functioning—is defined in part by engagement in social behaviors (Birchwood et al., 1990; Cornblatt et al., 2007). Perhaps surprisingly, therefore, these ESM studies demonstrated no significant associations between secure attachment and any quantity of social behavior (i.e., being alone less, being with close others more). However, they did indicate that more securely attached young adults generally felt more positive emotions when with others and appraised their social contacts as more positive (Sheinbaum et al., 2015; Torquati & Raffaelli, 2004). This, in turn, is an indication that adaptive parenting styles—as correlates of attachment security—are also likely associated with positive experiences of daily-life social interactions.

Another one of the limited set of studies on parenting and daily-life social experiences has reported potential buffering effects of positive parenting behaviors on the emotional reactivity of (young) adolescents to negative, daily-life peer events (e.g., a disagreement with a friend; Oppenheimer et al., 2016). Although parenting style and parenting behaviors are different concepts (parenting style has been referred to as the "emotional climate in which the parent's behaviors are expressed"; Steinberg & Darling, 1993), these findings highlight the value of associating general parenting factors with momentary social processes. However, given the domain-specificity of parenting—where specific types of parenting foster specific developmental outcomes (Grusec & Davidov, 2010)—it is also worthwhile exploring whether there are differential effects of discrete parenting styles on social processes. Here, we thus focus on parental care and control. Moreover, previous work has reported how care and control as experienced by a mother versus father figure may have different developmental outcomes (Enns et al., 2002)—highlighting the relevance of investigating maternal versus paternal factors on daily- life social processes.

This study aims to investigate the general and differential associations between perceived maternal and paternal parenting styles and naturalistic social behavior and social experiences. As such, we aim to complement research on the socialization effects of parenting by assessing the underlying alterations in social interactions in the context of day-to-day life. Naturalistic social behavior is herein conceptualized as reports of, in principle, observable information (e.g., reports of being alone), whereas naturalistic social experiences are defined through items that ask for an evaluation of social situations (e.g., "How safe do you feel in this company?"). To assess the specificity of effects for social vs. solitary situations, similar evaluations are measured when people are alone (e.g., "How safe do you feel being alone?").

Hypotheses

Based on previous research, we expect that generally lower global parental bonding quality (i.e., low care and high control) is associated with less daily-life social behavior (e.g., less time spent with others/increased time spent alone) and more negative social experiences (e.g., feeling less at ease in the company of others). We will also explore the associations between global parental bonding quality and the experience of being alone. Potential differential effects of perceived parenting styles—both in terms of different styles and while considering maternal versus paternal bonding—on social behaviors and social experiences are explored. Because no consensus currently exists on the factor structure of the PBI, and because the between-person relationship between parental care/

control and social processes specifically at the level of daily life has not been investigated previously, all analyses in the current sample involving PBI subscales are considered exploratory.

Method

Participants

The current sample was recruited as part of the TwinssCan study, a longitudinal twin study that was developed to investigate gene-environment interactions in the development of psychopathology in adolescent twins and their siblings. All participants were recruited through the East Flanders Prospective Twin Study (Derom et al., 2013, 2019), a prospective and population based twin registry that started in 1964. Adolescent members of this registry (between 15 and 18 years old) were contacted via letters and invited to participate, along with their twin and nontwin siblings (between 15 and 34 years old). Adolescents could not participate if they had a pervasive mental disorder as indicated by a caregiver, and data were excluded if, during the test session, the test leader indicated that a participant was unable to complete the measures. The study comprised a number of questionnaires, interviews, and experimental tasks, all described in more detail elsewhere (Pries et al., 2019).

Before data were analyzed, $n = 52$ participants were removed because of insufficient compliance to the ESM protocol (i.e., a compliance <30%). Of the remaining $n = 778$ participants, 104 participants indicated that they did not live with their parents or family. This study specifically focuses on the association between parenting and social functioning in daily life, and that relationship is likely to differ among people living at home versus living elsewhere. Participants that still live with their parents will have relatively more structured social environments than participants who live independently. Therefore, we tried to make the sample as homogeneous as possible in terms of the social environment by removing these 104 participants from the dataset.

In addition, we were mainly interested in the (mid to late) adolescent population, because this represents a key period of social development. Although the upper age limit of adolescence is debated, most contemporary definitions place it somewhere between ages 20 and 25 (Sawyer et al., 2018). To still have a relatively homogenous sample, we decided to remove all remaining participants over 21 years of age ($n = 39$). This resulted in a total sample size of 635. With this sample size, and with the repeated measurements design, there are sufficient data points in this dataset for most practically significant effects to emerge as statistically significant.

The study was approved by the local ethics committee (Belgium, Commissie Medische Ethiek van de Universitaire Ziekenhuizen Leuven; No. B32220107766, project title "Twinsscan"), and all participants provided informed consent prior to commencing the study. Parents of participants under 18 also provided informed consent.

Available demographic information for study participants were on education level, subjective social status, and languages spoken at home. For educational level, participants were asked about their highest educational degree. One participant indicated having a primary education degree; $n = 37$ were in or had completed vocational secondary education (MAVO/VMBO in the Dutch secondary education system); most participants ($n = 411$) indicated being in or having completed higher-level secondary education (HAVO/VWO); one participant reported lower-level vocational education (LBO); $n = 71$ reported midlevel vocational education (MBO); $n = 65$ reported a bachelor's degree; and $n = 32$ reported a master's degree.

As a measure of subjective social status, participants were presented with an adapted and translated version of the MacArthur Scale of Subjective Social Status (Adler et al., 2000; Klippel et al., 2018). In this task, participants were presented with a drawing of a ladder with ten rungs and were informed how each rung on that "social ladder" represents the position that people have in their community. Participants were then asked to indicate their own position on this ladder for the community most important to them on a 0–100 visual analogue scale. Mean score on this scale was 36.7, the median was 50.0, and the standard deviation was 27.5.

Of the included sample, 18 indicated speaking another language at home besides Dutch. Of these 18, the specified languages were French ($n = 5$), English ($n = 4$), Spanish ($n = 2$), Chinese ($n = 2$), German ($n = 2$), and Algerian, Arabic, Berber, and "dialect" (all $n = 1$). No information on ethnicity or cultural/geographic background was available to us for this sample, but the relative lack of other languages spoken at home does imply a relatively homogeneous, Dutch-background sample.

Measures

Parenting Styles

The Parental Bonding Instrument (PBI) was originally developed to assess the perceived quality of the parent–child relationship along two main dimensions: Care and Control (Parker et al., 1979). It consists of 25 sets of two items (for both the maternal and for the paternal relationship) and asks about the quality of the relationship with each parent during the first 16 years of one's life. An example of a care item is "Frequently smiled at me," whereas an example of a control item is "Invaded my privacy." Answers range from 0 (*Very unlike*) to 3 (*Very like*). Global parental bonding quality scores were computed by summing both paternal and maternal care scores with both reversed paternal and maternal control scores (as per Parker et al., 1979).

Because a number of previous studies have questioned the originally proposed two-factor structure of the PBI and have instead reported results indicating that a three-factor structure is more appropriate (Cox et al., 2000; Cubis et al., 1989; Gómez-Beneyto et al., 1993; Kendler, 1996; Murphy et al., 1997; Terra et al., 2009; Xu et al., 2018), we decided to perform a Factor Analysis (FA) on the PBI items for this sample to assess which factor structure best reflects the data, and subsequently, to decide how to construct the PBI subscales. The long-term stability (i.e., up to 20 years) of the PBI scores has been reported as being high, when the first assessment was either in adulthood or in childhood (Lizardi & Klein, 2005; Murphy et al., 2010; Wilhelm & Parker, 1990).

Experience Sampling Method

In the current study, participants were asked to complete a 57-item ESM questionnaire 10 times daily for 6 days. To maximize representativeness of the assessment period, the six-day assessment period always included both week and weekend days and did not include major life events or large alterations from one's ordinary, day-to-day life. Six days is similar to the assessment periods

used in other ESM youth studies, whereas 10 daily beeps is higher than the number of daily beeps in most other similar studies (van Roekel et al., 2019). The prompt design was signal continent with random intervals. This means that the questionnaire was presented at random moments within ten daily 90-minute intervals, between 7:30 a.m. and 10:30 p.m. each day. When the Psy-mate, a custom-made Personal Digital Assistant (PDA; Myin-Germeys et al., 2011), beeped, there was a 15-minute period to complete the questionnaire. All items that are used in the current analyses related to in-the-moment experiences of participants. All participants that were analyzed in the current study completed at least 30% of all beeps (as recommended in Delespaul, 1995). Owing to technical difficulties with the PDA in the regular ESM week, some participants completed the ESM for a few additional days. As such, six participants reported more than the normal maximum of 60 beeps, with a maximum of 76 beeps completed by one participant.

Quantity of Social Behavior

At each ESM prompt, participants had to report their current social company on the item "Who am I with?" with the following answer options: "No one," "Partner," "Relatives living in the same household," "Other relatives," "Friends," "Colleagues," "Acquaintances," "Strangers," and "Pets." It was possible to select multiple answer options. Based on this item, a series of variables reflecting the quantity of social behavior were constructed: (a) "being alone" (1 = *being alone*, 0 = *being with others*); (b) "being with familiar people" when in the company of others, (1 = *being with a partner, any relative, or friends*, 0 = *being with colleagues, acquaintances or strangers only*); (c) "being with less familiar people" when in the company of others (1 = *being with colleagues, acquaintances, or strangers*, 0 = *being only with a partner, any relative, or friends*). When participants indicated that they were both with familiar and less familiar people, they would score a "0" on the first variable, and a "1" on the second and third variable. This also means that overlap is possible between "being with familiar people" and "being with less familiar people." Being solely in the company of a pet was classified as being alone.

Most conceptualizations of social functioning also include aspects of being active, being involved in leisure activities, and being out of the house (as in, e.g., Birchwood et al., 1990; Cornblatt et al., 2007). These first two aspects were measured in ESM with the item "What am I doing? (right before the beep)." The variable "doing nothing" was defined as 1 = *doing nothing*, 0 = *doing something*. The variable "leisure activity" was coded "1" when either the answer option "Passive leisure" or "Active leisure" was selected for the activity item, and alternatively, "0." Finally, based on the item "Where am I," the dichotomous variable "at home" was scored as 1 = *at home*, 0 = *outside home*.

Social and Solitary Experiences

When people were in the company of at least one other person, they were presented with five items to assess their experience of the social situation: "I would prefer to be alone"; "I find this company pleasant," "In this company, I feel safe"; "In this company, I feel judged"; "In this company, I belong." When people indicated that they were alone, they were presented with three items that evaluated their experience of being alone: "I find being alone pleasant"; "I would like to be in the company of other people"; and "I feel safe." All of these items were rated on a Likert scale ranging from 1 (*Not at all*) to 7 (*Very*), and they were all directly and separately included in the analysis as dependent variables.

In ESM studies, Intraclass Correlation Coefficients (ICC) refer to the proportion of the total variance that is due to between-person differences. ICC values for the ESM items that we used were: preferring to be alone = .22; finding company pleasant = .26; feeling safe in company = .30; feeling judged = .38; feeling belonging = .29; pleasant being alone = .38; preferring company = .39; feeling safe alone = .40. These ICC values are similar to what is normally reported in intensive longitudinal studies (Bolger & Laurenceau, 2013).

We also computed both the between-person correlations between these items (by assessing correlations between the person means), and the within-person correlations (by assessing the correlations between the items after having been person-mean-centered). Between-person correlations ranged between .14 and .47 for the solitary experience items, and between .33 and .77 for the social experience items. The lower correlations for the solitary items indicate sufficient divergent between-person validity, whereas some of the higher correlations between the social items indicate that mean levels of some items are quite similar (the high correlation of .77 was between mean "finding company pleasant" and mean "feeling belonging in company"). Within-person correlations ranged between .08 and .33 for the solitary experience items, and between .17 and .39 for the social experience items. These low to moderate correlations support the within-person divergent validity of these items, as they do not appear to measure the same thing at any given time point.

At every beep, participants were also presented with a number of items relating to affect. Positive affect (PA) items consisted of: 'I feel cheerful/relaxed/satisfied/enthusiastic', and 'Generally speaking, I feel well'; negative affect (NA) items were: 'I feel insecure/lonely/anxious/annoyed/listless/down/guilty' (items were based on the Positive and Negative Affect Schedule; Watson et al., 1988). At each beep, a mean PA and a mean NA variable was created by averaging the scores on the respective PA and NA items. Cronbach's alpha values were calculated using the person-centered affect items, resulting in alpha values of .71 and .65 for the PA and NA scales, respectively—indicating adequate internal consistency of these items. The ICC for the PA variable was .36, and .41 for the NA variable. The between-person correlation and the within-person correlation between PA and NA were both −.41.

Statistical Analyses

For the analyses, we first investigated the effects of the total parental bonding score (across dimensions and across parents), before assessing the independent effects of more specific parenting styles per parent. Because the ESM data have a hierarchical, three-level structure, with beeps nested within participants and participants nested within families, multilevel mixed-effects models were used with random intercepts (as in e.g., Vaessen et al., 2017). Multilevel modeling is a suitable method both for analyzing ESM-level data (Bolger & Laurenceau, 2013), and for clustering individuals in twin pairs (Guo & Wang, 2002; Hunter, 2021; Tamimy et al., 2021). As such, we account for the fact that observations from the same person are more similar to each other than to observations from other people, and family members (both twin and nontwin siblings) are more similar to each other than to other participants.

To assess the extent to which the total parental bonding score is associated with daily-life social behaviors and experiences, separate multilevel (three-level) multiple regression analyses were performed with the parental bonding score as a predictor of all 18 social behavior and experience measures. For the dichotomous quantity of social behavior variables (e.g., "being alone"), multilevel logistic regressions were performed, and for the ordinal solitary/social variables (i.e., the evaluation and affect items on a scale from 1 to 7), multilevel linear regressions were performed.

To identify which underlying factor structure fits the parental bonding data best, an Exploratory FA (EFA) was performed on the first 60% of the dataset using the *psych* package in R. This obtained factor structure was subsequently tested with a Confirmatory FA (CFA) on the remaining 40% of the sample (using the *lavaan* package in R), and the latent factors were used to construct new PBI subscales. These EFA and CFA are described in more detail in the Appendix (available in https://osf.io/xbfpe/).

Then, the unique effects of each of the obtained parental bonding scores were explored. Separate analyses were performed with each of the parental bonding quality scores entered simultaneously as predictors of daily-life affect, and of the social and solitary items, to identify their unique contributions in explaining these experiences.

Also, because all analyses involve multiple significance tests, the conservative Bonferroni correction was applied (Bonferroni, 1950), resulting in an alpha value of .05/18 = .003 for the initial 18 comparisons, and of .05/12 = .004 for the additional analyses.

Because the range of the PBI is much larger than that of the social variables, the coefficients resulting from the analyses would be very small (i.e., in the .00–.02 range) and therefore not very informative. To enhance interpretability of the relative size of the effects, a simple transformation (division by 10) was applied to the global parenting bonding quality score and each PBI subscale score.

In all models, age and gender were included as covariates. To assess whether any associations are largely driven by the relatively older part of the sample, all analyses were also performed on the subsample that was 18 years of age or younger at the time of testing.

Open Science Practices

Within the reporting of our study, we aim to adhere as much as possible to the reporting guidelines for ESM studies with adolescents (van Roekel et al., 2019). Because the data that are used for this study originate from a preexisting dataset, this reporting is not possible for every item on that checklist. This study was not preregistered, but to maximize transparency of the current study, we have shared materials, code, and analytic output on the OSF-page for this project (https://osf.io/xbfpe/). Data are not publicly available.

Results

Descriptives and Covariates

Descriptive statistics of all included variables are presented in Table 1, correlations between the PBI subscales are presented in Table 2, and all analyses are presented in Tables 3 and 4. Being older was significantly associated with more reports of being alone, fewer reports of being with familiar persons, more reports of being with less familiar persons, and fewer reports of being at home. Female participants had fewer reports of being alone and doing nothing, less positive affect both when alone and when in company, fewer feelings of being judged when in company, and more reports of being with familiar people (see Table 3).

Table 1
Means, Standard Deviations, and Medians of All Included Variables

Variable	*M* (*SD*)	*Mdn*	Range
Demographics			
Age	16.6 (1.5)	16.0	14.2–21.7
Gender (% females)	58.0	—	—
Number of completed beeps (of 60)	40.8 (10.0)	41.0	18.0–76.0
Parental bonding			
PBI—Paternal care	27.6 (4.7)	28.0	10.0–35.0
PBI—Paternal DPA	8.4 (4.6)	8.0	0.0–27.0
PBI—Paternal EBF	5.6 (2.0)	6.0	0.0–9.0
PBI—Maternal care	24.6 (5.6)	25.0	3.0–34.0
PBI—Maternal DPA	7.8 (4.3)	8.0	0.0.–27.0
PBI—Maternal EBF	5.7 (1.9)	6.0	0.0–9.0
PBI—Total score	109.3 (17.9)	109.0	42.0–149.0
Quantity of social behaviors (ESM)			
% time alone[a]	19.1 (16.4)	16.0	0.0–90.7
% time familiar persons[b]	95.5 (9.3)	100.0	31.8–100.0
% time less familiar persons[b]	23.0 (18.8)	20.0	0.0–77.3
% at home[a]	59.6 (19.0)	58.9	6.5–100.0
% doing nothing[a]	2.3 (5.5)	0.0	0.0–43.2
% in leisure activities[a]	48.0 (18.1)	48.9	0.0–97.6
Quality of solitude (ESM)			
Pleasant	4.5 (1.4)	4.5	1.0–7.0
Safe	5.7 (1.0)	5.8	1.0–7.0
Prefer to be in company	3.8 (1.4)	3.8	1.0–7.0
Solitary affect (ESM)			
PA when alone	4.9 (0.8)	4.9	1.5–7.0
NA when alone	1.9 (0.7)	1.8	1.0–5.3
Quality of social encounters (ESM)			
Pleasant	5.7 (0.7)	5.7	3.0–7.0
Safe	5.8 (0.8)	5.9	2.6–7.0
Judged	2.3 (1.0)	2.1	1.0–6.4
Belonging	5.9 (0.7)	6.0	3.1–7.0
Prefer to be alone	1.8 (0.7)	1.7	1.0–5.0
Social affect (ESM)			
PA when in company	5.1 (0.7)	5.2	2.6–6.7
NA when in company	1.7 (0.5)	1.6	1.0–4.3

Note. $N = 635$. ESM = experience sampling method; DPA = denial of psychological autonomy; EBF = encouragement of behavioral freedom; PBI = Parental Bonding Instrument; PA = positive affect; NA = negative affect.
[a] Percentage scores were computed as such: (number of reports/total number of valid reports) × 100. [b] Percentage scores were computed as such: (number of reports/total number of valid reports when in the company of any other) × 100.

Factor Analysis—PBI Subscales

The factor structure that was identified in the FA was generally similar to that found in previous studies, where one factor comprised most of the original Care items while the items of the original Control subscale generally loaded onto two factors (see the Appendix for full description of FA procedure and results). These two latter Control factors have been labeled somewhat differently across studies. Generally, one factor has referred more to an overprotective type of controlling parenting emphasized by the authors of the PBI (Parker, 1983; Parker et al., 1979). The other factor contains items that focus more on the granting of behavioral autonomy. Because, content-wise, the FA results of this study were most similar to those reported

Table 2
Correlations Between the Six Dimensions of the PBI

Measure	Paternal care	Maternal DPA	Paternal DPA	Maternal EBF	Paternal EBF
Maternal care	.40*	−.41*	−.21*	.44*	.20*
Paternal care		−.28*	−.46*	.28*	.47*
Maternal DPA			.63*	−.40*	−.14*
Paternal DPA				−.18*	−.33*
Maternal EBF					.54*

Note. PBI = Parental Bonding Instrument; DPA = denial of psychological autonomy; EBF = encouragement of behavioral freedom.
* $p < .001$.

by Murphy et al. (1997), we decided to also use their descriptors for labeling the factors, resulting in the three factors "care," "denial of psychological autonomy," and "encouragement of behavioral freedom." Denial of psychological autonomy here consists of six items that generally refer to parents' behaviors and attitudes that undermine their children's psychological autonomy and independence, and it consists of items such as "Invaded my privacy" and "Felt I could not look after myself unless he or she was around." Encouragement of behavioral freedom consists of three items, such as "Let me go out as often as I wanted" and "Let me decide things for myself"—in contrast to the "denial of psychological autonomy" subscale, these items refer more to parents' allowing children/adolescents some freedom in their actual behavior. All new subscale scores were calculated by summing the Likert-scale responses (0–3) for every item that had a factor loading >.3 on both a maternal and paternal factor.

Reliability estimates were calculated for each new parental bonding dimension, resulting in the following Cronbach's alpha values: α (Maternal care) = .92; α (Maternal denial of psychological autonomy) = .77; α (Maternal encouragement of behavioral freedom) = .72; α (Paternal care) = .91; α (Paternal denial of psychological autonomy) = .79; α (Paternal encouragement of behavioral freedom) = .77. Correlations between all subscales can be found in Table 2.

Global Parental Bonding Quality Effects

Global parental bonding quality was not significantly associated with any of the quantity of social behavior variables (see Table 3). Among the items assessing solitary experiences, only "feeling safe when alone" was predicted by the global parental bonding score. However, all items capturing social experiences were significantly associated with global parental bonding quality. When in company, higher global parental bonding quality was associated with a lower preference for being alone, finding the current company more pleasant, feeling safer, feeling less judged, and feeling more belonging (see Table 3). Global parental bonding quality was also positively associated with positive affect and negatively with negative affect, both when participants were alone and when in the company of others.

Table 3
Results of Multilevel Regression Analyses Wherein the Overall Parental Bonding Score Was Used as a Predictor, and in Which Age and Gender (Being Female) Were Included as Covariates

Measure	Total parental bonding score		Age		Gender (Ref = Male)	
	β (*SE*)	*p*	β (*SE*)	*p*	β (*SE*)	*p*
Quantity of social behaviors						
Alone	.00 (.03)	.89	.14 (.04)	**<.001***	−.25 (.10)	*.018*
Familiar persons	.04 (.05)	.37	−.44 (.06)	**<.001***	.16 (.18)	.38
Less familiar persons	−.02 (.03)	.45	.13 (.04)	**<.001***	−.07 (.10)	.51
At home	.03 (.02)	.09	−.05 (.03)	*.048*	.01 (.07)	.90
Do nothing	−.09 (.05)	.08	−.13 (.07)	.058	−.72 (.19)	**<.001***
In leisure activities	.03 (.02)	.09	−.03 (.02)	.23	−.07 (.07)	.30
Quality of solitude						
Pleasant being alone	.05 (.03)	.12	−.09 (.04)	*.015*	.05 (.11)	.68
Feel safe	.14 (.02)	**<.001***	−.00 (.03)	.86	−.12 (.08)	.17
Prefer company	−.08 (.03)	*.010*	.10 (.04)	*.012*	−.01 (.11)	.94
Solitary affect						
PA when alone	.07 (.02)	**<.001***	−.05 (.02)	*.011**	−.20 (.07)	**.002**
NA when alone	−.08 (.02)	**<.001***	.00 (.02)	.96	−.02 (.06)	.79
Quality of social encounters						
Prefer alone	−.09 (.02)	**<.001***	−.02 (.02)	.36	−.07 (.06)	.22
Pleasant company	.14 (.01)	**<.001***	−.01 (.02)	.52	.04 (.05)	.45
Feel safe	.11 (.02)	**<.001***	−.01 (.02)	.65	.15 (.06)	*.017*
Feel judged	−.10 (.02)	**<.001***	.02 (.03)	.43	−.27 (.08)	**.001***
Belong	.12 (.01)	**<.001***	−.04 (.02)	*.023*	.01 (.05)	.83
Social affect						
PA when in company	.08 (.01)	**<.001***	−.04 (.02)	*.024*	−.20 (.05)	**<.001***
NA when in company	−.07 (.01)	**<.001***	.01 (.01)	.48	−.06 (.04)	.15

Note. PA = average positive affect; NA = average negative affect.
* α (bold) = .003; α (italics) < .05

Table 4

Results of Multilevel Regression Analyses, in Which the Six Perceived Parental Bonding Dimensions, Age, and Gender Were Entered Simultaneously as Predictors of Each Experience and Affect Variable

Measure	Maternal care		Paternal care		Maternal DPA		Paternal DPA		Maternal EBF		Paternal EBF		Age		Gender (Ref = male)	
	β (*SE*)	*p*	β (*SE*)	*p*	β (*SE*)	*p*	β (*SE*)	*p*	β (*SE*)	*p*	β (*SE*)	*p*	β (*SE*)	*p*	β (*SE*)	*p*
Quality of solitude																
Pleasant being alone	.00 (.01)	.81	−.00 (.02)	.98	−.02 (.02)	.43	−.00 (.02)	.79	−.00 (.04)	.96	−.00 (.04)	.98	−.09 (.04)	*.017*	.03 (.12)	.76
Feel safe	.00 (.01)	.72	.03 (.01)	*.020*	−.04 (.01)	*.016*	−.00 (.01)	.91	.01 (.03)	.69	.02 (.03)	.56	−.01 (.03)	.73	−.12 (.09)	.15
Prefer company	.00 (.01)	.70	.01 (.02)	.36	.02 (.02)	.22	.03 (.02)	.08	−.07 (.04)	.11	.04 (.04)	.27	.11 (.04)	*.006*	.05 (.12)	.70
Solitary affect																
PA when alone	.01 (.01)	.09	.00 (.01)	.76	−.00 (.01)	.68	−.01 (.01)	.53	.00 (.02)	.99	.03 (.02)	.21	−.05 (.02)	*.016*	−.20 (.07)	*.004*
NA when alone	−.01 (.01)	*.047*	−.01 (.01)	.46	.02 (.01)	.07	.00 (.01)	.755	.04 (.02)	.08	−.04 (.02)	*.035*	−.00 (.02)	.97	−.01 (.06)	.86
Quality of social encounters																
Prefer alone	−.00 (.01)	.61	−.02 (.01)	**.002**	.03 (.01)	*.028*	.00 (.01)	.76	.03 (.02)	.18	−.02 (.02)	.25	−.02 (.02)	.40	−.06 (.06)	.32
Pleasant company	.01 (.01)	.08	.03 (.01)	**<.001**	−.02 (.01)	*.043*	−.01 (.01)	.10	−.03 (.02)	.066	.03 (.02)	.10	−.01 (.02)	.55	.03 (.05)	.57
Feel safe	.02 (.01)	*.013*	.02 (.01)	*.041*	−.01 (.01)	.26	−.01 (.01)	.16	−.02 (.02)	.31	.02 (.02)	.46	−.01 (.02)	.81	.14 (.06)	*.027*
Feel judged	.00 (.01)	.82	−.02 (.01)	.16	.02 (.01)	.20	.03 (.01)	*.011*	.04 (.03)	.14	−.02 (.03)	.38	.03 (.03)	.29	−22 (.09)	*.010*
Belong	.01 (.01)	*.038*	.02 (.01)	**.002**	−.01 (.01)	.27	−.02 (.01)	*.037*	−.03 (.02)	.10	.02 (.02)	.25	−.04 (.02)	*.030*	−.00 (.05)	.98
Social affect																
PA when in company	.01 (.01)	.054	.01 (.01)	.44	−.01 (.01)	.17	−.01 (.01)	.23	.01 (.02)	.57	−.01 (.02)	.59	−.04 (.02)	*.035*	−.21 (.05)	**<.001**
NA when in company	−.00 (.00)	.47	−.01 (.01)	.06	.03 (.01)	**<.001**	−.00 (.01)	.59	.03 (.02)	.10	−.03 (.01)	*.018*	.01 (.01)	.38	−.05 (.04)	.22

Note. PA = average positive affect; NA = average negative affect; EBF = encouragement of behavioral freedom; DPA = denial of psychological autonomy. α (bold) < .004; α (italics) < .05.

Associations With Parenting Styles

To further investigate the effects of specific parenting styles on daily-life social experiences and affect, multilevel univariate regression analyses were performed with the six parenting styles (maternal/paternal care, denial of psychological autonomy, and encouragement of behavioral freedom) entered separately as predictors, in addition to age and gender (see Table 4).

There were a few unique significant associations between parenting styles and social experiences at the Bonferroni-corrected α = .004. Higher levels of paternal care were associated a lower preference to be alone, more pleasantness of company, and with feeling more belonging when in company. More maternal denial of psychological autonomy was uniquely associated with more negative affect when in company (but not with negative affect when alone).

It has to be noted that we applied a relatively strict multiple comparison correction here, and that this has likely inflated the type II error for these analyses. Under a more liberal α = .05, there are more significant positive associations: between maternal care and both feeling safe in company and feeling belonging. This is also the case for the relationships between maternal denial of psychological autonomy and preferring to be alone, paternal denial of psychological autonomy and feeling judged, and paternal care and feeling safe in company. Using an α level of .05, there were also significant negative associations between maternal denial of psychological autonomy and finding current company pleasant, and between paternal denial of psychological autonomy and feeling belonging.

Sensitivity Analyses

To assess the effect of certain analytic decisions, we conducted a number of sensitivity analyses. The same analyses as outlined above were conducted on samples with (a) all n = 778 participants available in the original dataset (i.e., no age or living situation restriction); (b) n = 674 participants in the original dataset that were under 21 years of age, but without the restriction of living at home; (c) n = 676 participants of all ages in the original dataset who lived with their parents at the time of testing; (d) n = 323 participants under 16 years of age (all living at home); (e) n = 312 participants between 16 and 21 years of age (all living at home. In addition, all analyses were reconducted with the twin-level removed as an additional third level in the multilevel analyses.

Although some of the marginally significant associations between specific parenting styles and social experiences (per Table 4) became nonsignificant in some sensitivity analyses, none of the sensitivity analyses led to a substantially different interpretation of results. Code and output of all sensitivity analyses are available on the OSF page of this study (https://osf.io/xbfpe/).

Discussion

In the current study, we uniquely assessed how parenting styles are associated with social behaviors and solitary/social experiences as they occur in the context of day-to-day life. Interestingly, global parental bonding scores were consistently associated with daily-life social experiences, but not with the number of social behaviors (e.g., amount of time spent alone vs. in company). When participants were alone, global parental bonding quality was also associated with feeling safe, indicating a more general parenting effect on feelings of safety. FA implied a three-factor structure in the parental bonding scale, generally loading onto factors of care, denial of psychological autonomy, and encouragement of behavioral freedom for both parents. Only perceived paternal care was uniquely and significantly associated with social experiences, namely with whether participants preferred to be alone when in company, how pleasant participants rated their daily company, and how much belonging they felt when in company. Neither denial of psychological autonomy nor encouragement of behavioral freedom was associated with any daily solitary or social experience.

These findings provide a greater understanding of how parenting relates to specific aspects of real-world social interactions as

they occur in naturalistic contexts. In sum, we see that parenting is more closely related to how adolescents experience social situations, rather than to how much they interact.

Daily-Life Social Behaviors

One possible explanation for the lack of association between global parental bonding quality and social behavior relates to the extent of control over one's social environment. In the current study, all participants still lived at home with their parents and were 21 years of age or younger. Generally, adolescents/young adults living at home spend most of their time at home and school (in our sample; also, in Csikszentmihalyi & Larson, 1984), where they might have limited control over the presence of social company. Alternatively, it might be that participants with lower global parental bonding quality spent less time with their parents but that this was compensated by increased time spent with, for example, friends or siblings. In the current study, we were unable to assess this hypothesis, as the ESM questionnaire did not assess whether participants were with their mothers and fathers specifically at each moment. For future research, it would be valuable to more specifically investigate the relationships between parenting styles and momentary experiences of parent versus Nonparent social interactions.

Daily-Life Social and Solitary Experience

Although global parental bonding quality did not relate much to the quantity of social behavior in daily life, we did observe multiple significant associations between global parental bonding and the *experience* of everyday social situations. Higher-quality global parental bonding was associated with a lower preference for being alone when with others, but interestingly, not inversely related to an increased preference for being with others when alone. In addition, global parental bonding related to a generally greater likelihood of viewing the current company in a positive light, but not much to generally feeling better about being alone. These findings indicate the specificity of perceived global parental bonding on day-to- day *social* experiences, as opposed to *solitary* experiences.

Positive and negative affect when alone or in company were also associated with global parental bonding. Also, feeling safe when alone was the only solitary experience that was associated with global parental bonding, and this was the only solitary experience without a reference to being alone in the phrasing of the item (i.e., "I feel safe," rather than "I feel safe *being alone*"). These results suggest that early parenting experiences shape both how young people experience the everyday social interactions they engage in, and the overall feelings that they have in their everyday life. At the same time, however, global parental bonding quality does not seem to relate to specific appraisals of being alone, leaving the question open which factors do shape this momentary "solitary satisfaction."

Parental Control

We did not find evidence for an association between parental denial of psychological autonomy and any aspect of social experience. This finding is inconsistent with reports of associations between the related concept of parental psychological control and decreased well-being and distinct types of psychopathology (Barber & Harmon, 2004; Enns et al., 2002; Huppert et al., 2010; Martin et al., 2004; Weitkamp & Seiffge-Krenke, 2019). The process behind these associations has previously been hypothesized as psychological control involving an undermining of the sense of relatedness to parents and peers, which in turn would be expected to have a negative effect on (social) development (Soenens & Vansteenkiste, 2010). However, we report no evidence for such a process here.

We also did not find evidence for associations between parental encouragement of behavioral freedom and social experiences (when controlling for the other parenting styles). This is consistent with other studies that also did not report any association between this parenting style and psychopathology (Kendler et al., 2000; Khalid et al., 2018; Otowa et al., 2013). Interestingly, however, a recent study by Kullberg and colleagues investigating the factor structure of a brief version of the PBI in a sample of adults with and without a lifetime affective disorder, found that those participants with any disorder reported lower levels of encouragement of behavioral freedom (Kullberg et al., 2020). Other studies on the related concept of autonomy support have also reported significant, unique associations between this parenting style and, for example, increased social competence (Soenens & Vansteenkiste, 2005), daily well-being (Van Der Kaap-Deeder et al., 2016), and both internalizing and externalizing psychopathology (Lansford et al., 2014).

One key difference between these previous studies and the studies employing the PBI is that these previous studies have generally used more extensive, validated measures of parental autonomy support or psychological control (Lansford et al., 2014; Soenens & Vansteenkiste, 2005; Van Der Kaap-Deeder et al., 2016). Therefore, to further investigate the potentially unique role of controlling parenting styles in shaping both children's and adolescents' socialization at the level of daily life and the development of psychopathology, it is worthwhile using measures that capture these distinct parenting styles more accurately.

Paternal Care

Perceived paternal care was the only parenting style with unique associations with a positive experience of day-to-day social interactions. This is in line with the idea that care aspects of parenting most directly fulfill the basic need for relatedness that people possess (Baumeister & Leary, 1995; Soenens et al., 2017). Earlier studies have identified factors relating to care (e.g., warmth, responsiveness) as highly impactful in several aspects of well-being. Studies investigating the link between parental care and psychopathology generally find associations between a lack of parental care and all types of internalizing and externalizing psychopathology (Enns et al., 2002; Ong et al., 2018). Other studies have identified further associations between care aspects of parenting and emotion regulation, social competence, peer acceptance in both children and adolescents (Barber et al., 2005; Davidov & Grusec, 2006; Rispoli et al., 2013).

In this study, we observed that if people perceive their general paternal care to be lower, they also tend to report lower belonging to the company that they are in in everyday life, and they rate this company as less pleasant. This might be an indication that the broad range of positive developmental outcomes that parental care is associated with, extends to more positively experienced naturalistic social interactions as well. Again, although exploratory, these associations between a (theoretically) invariable perception of

parental care and variable, context-dependent social experiences confirm that such general parenting measures hold meaning at the level of everyday life.

The Potentially Unique Role of Fathers

Additionally, and in contrast to earlier studies, there were more (significant) unique associations between daily-life social experiences and *paternal* care than between such experiences and *maternal* care. This is discordant with earlier ESM studies, where the maternal relationship was generally perceived as more influential in adolescents' day-to-day lives (DeVault et al., 1996). It is also in contrast with previous similar studies that exclusively focused on the mother–child relationship (e.g., Vanwoerden et al., 2015) or that primarily found unique effects of perceived maternal bonding on children's outcomes (Enns et al., 2002). Whereas historically, much parenting research has focused solely on mothers, the unique role of fathers has become increasingly recognized (Stolz et al., 2005). For example, emerging evidence suggests a potentially unique role of fathers' "autonomy-relevant" parenting in predicting later psychopathology (Lansford et al., 2014)—although other work has also emphasized the unique role of fathers' support (a similar concept to care) in predicting children's social initiative (Stolz et al., 2005) and of fathers' affection in predicting self-esteem (Marshall et al., 2021). Although these and the differential associations reported here all suggest a unique importance of the contemporary father's role for their children's development, the specific associations are different across samples. To better understand the unique contributions of mothers/fathers for children's socialization, a more idiosyncratic approach may be warranted, investigating specific social processes within individual families (cf., e.g., Boele et al., 2019; Keijsers et al., 2016).

Limitations and Future Directions

The results of the current study must be interpreted within the context of its limitations. First, although age was included as a covariate, the age range of the current sample was quite broad. Also, the items of the PBI refer to the parent–child relationship during the first 16 years of one's life. In the current sample, this means that for some participants their current situation is assessed, but for participants over 16, the instrument is retrospective. Although the PBI has primarily been used in studies with adult samples, it has also been used and validated in adolescent samples with age ranges similar to the sample in the current study (e.g., Cubis et al., 1989; Eun et al., 2017; Gullone & Robinson, 2005; Manassis et al., 1999; Martin et al., 2004). Evidence exists for measurement invariance of the PBI across age groups (i.e., children vs. adults, Tsaousis et al., 2012), indicating that the measure can be reliably used in younger age groups.

To assess whether the current results differed for the younger versus older adolescents, sensitivity analyses were conducted on the $n = 323$ subsample of participants aged younger than 16, and on the $n = 312$ subsample of participants 16 and over. The main results of interest (associations between global parenting quality and five daily-life social experiences) were replicated in the younger subsample; in the older subsample, two out of five of these associations became nonsignificant (full results of these sensitivity analyses are included on the OSF page of this project: https://osf.io/xbfpe/). These differences across subsamples may reflect how older adolescents are less dependent on their parents and may therefore be less affected by perceptions of parenting in their day-to-day social interactions—additional research is necessary to further examine these potential age differences. Still, the main conclusion based on these analyses did not change: In both subsamples, high parental bonding quality was generally associated with more positive social experiences, but not with more social behaviors.

The current study focused on cross-sectional associations between parenting and social experiences, and not on predictive relationships. Therefore, causal claims cannot be made. In line with the continuous interaction between micro- and macrolevel developmental processes that is referred to in dynamical systems theory (Van Geert & Lichtwarck-Aschoff, 2005) and the bioecological model (Bronfenbrenner et al., 2007), it is likely that perceptions of past parenting are colored by the current situation and that the momentary experience of social interactions is influenced by these past parenting perceptions. To assess both the potential direction of causality and the roles of person- and moment-level covariates, longitudinal and comprehensive ESM studies are valuable, because they allow for a better disentangling of the short- and long-term nature of socialization processes.

In addition, the ESM questionnaire used in the current study did not give participants the option to indicate whether they were in the presence of their parents at any given point. This made it impossible to assess the specificity of the reported effects. A recent daily-diary study suggests that general parent support positively affects day-to-day interactions with peers as well (Schacter & Margolin, 2019). For future work, it would be highly relevant to assess more specifically what parenting effects are manifested in different types of company.

Furthermore, by virtue of being young and living at home, participants in this sample had relatively more structured social activity. It would be worthwhile to investigate whether the current findings replicate in older adolescent/young adult samples (e.g., up to 25 years of age, as per definitions of the "new adolescence" [Sawyer et al., 2018]), where individuals are more likely to have control over the amount of social activity that they engage in. Finally, our measure of parental bonding was not explicitly designed to assess the parenting factors that we extracted from its items. As such, research is needed that uses psychometrically sound measures, particularly of controlling/autonomy-supporting parenting, to confirm the associations that we find here.

One unique added benefit of daily assessments in the study of parent-adolescent relationships is that it allows for the investigation of within-family processes—and these processes may be opposite from between-family processes (Hamaker, 2012). For example, the authors of one recent study found how, generally, adolescents experienced greater negative mood on days when they experienced low parental support (Janssen et al., 2020).

Surprisingly, however, this association was *reversed* in that same study for a small number of investigated families, for whom low parental support actually related to *less* negative mood. Findings such as these highlight the need for further investigating individual variability in daily diary studies. In the current study, we only investigated between-person differences, giving insight into the link between theoretically stable parenting dimensions of care and control (Steinberg & Darling, 1993) and social behaviors and

experiences in daily life. However, it is also highly relevant to further elucidate what is happening at a microlevel time scale between specific controlling and caring parenting practices and social interactions on the day that those parenting practices are exhibited (for a recent review of such studies, see Boele et al., 2019).

Implications and Conclusion

The distinction between social behavior and social experience identified in this study may be relevant for understanding more about the potential mechanisms that underlie the link between parental bonding factors and psychopathology. Different types of psychopathology have been linked to parental bonding (Enns et al., 2002), and most psychopathology is partially defined by disturbances in both the quantity (e.g., social isolation) and quality (e.g., social anxiety) of interpersonal interactions. This suggests that alterations in daily-life social interactions may help explain how parental bonding can lead to psychopathology outcomes. To this end, future research might first shed more light on the relative importance of objective versus subjective aspects of daily social interactions in the actual manifestation and development of psychopathology.

Additionally, the finding that parenting has more of an effect on offspring's quality of social experiences rather than the number of social behaviors has potential implications for assessment of and intervention for social dysfunction. It indicates that traditional assessment tools of social functioning that largely focus on the amount of social behavior may need to increase the emphasis on one's personal social experience, specifically in the context of parenting. Many social functioning measures focus mainly on quantifiable and observable information, yet this does not capture all relevant aspects of one's social world. In this way, adolescents who have experienced maladaptive parenting may appear to have intact social lives, although this may not be the case on a subjective level. The effectiveness of parenting interventions aimed at improving children's social functioning should therefore be judged not only based on changes in the amount of social behavior but also on whether they relate to a more positive social experience.

References

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology*, *19*(6), 586–592. https://doi.org/10.1037/0278-6133.19.6.586

Arnett, J. J. (2001). Conceptions of the transition to adulthood: Perspective from adolescence through midlife. *Journal of Adult Development*, *8*(2), 133–143. https://doi.org/10.1023/A:1026450103225

Barber, B. K., & Harmon, E. L. (2004). Violating the self: Parental psychological control of children and adolescents. *Intrusive parenting: How psychological control affects children and adolescents* (pp. 15–52). American Psychological Association. https://doi.org/10.1037/10422-002

Barber, B. K., Stolz, H. E., Olsen, J. A., Collins, W. A., & Burchinal, M. (2005). Parental support, psychological control, and behavioral control: Assessing relevance across time, culture, and method. *Monographs of the Society for Research in Child Development*, *70*(4), 1–137. https://doi.org/10.1111/j.1540-5834.2005.00365.x

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529. https://doi.org/10.1037/0033-2909.117.3.497

Bernstein, M. J., Zawadzki, M. J., Juth, V., Benfield, J. A., & Smyth, J. M. (2018). Social interactions in daily life. *Journal of Social and Personal Relationships*, *35*(3), 372–394. https://doi.org/10.1177/0265407517691366

Berry, K., Barrowclough, C., & Wearden, A. (2007). A review of the role of adult attachment style in psychosis: Unexplored issues and questions for further research. *Clinical Psychology Review*, *27*(4), 458–475. https://doi.org/10.1016/j.cpr.2006.09.006

Birchwood, M., Smith, J., Cochrane, R., Wetton, S., & Copestake, S. (1990). The Social Functioning Scale: The development and validation of a new scale of social adjustment for use in family intervention programmes with schizophrenic patients. *The British Journal of Psychiatry*, *157*, 853–859. https://doi.org/10.1192/bjp.157.6.853

Blakemore, S.-J., & Mills, K. L. (2014). Is adolescence a sensitive period for sociocultural processing? *Annual Review of Psychology*, *65*(1), 187–207. https://doi.org/10.1146/annurev-psych-010213-115202

Boele, S., Denissen, J., Moopen, N., & Keijsers, L. (2019). Over-time fluctuations in parenting and adolescent adaptation within families: A systematic review. *Adolescent Research Review*, *5*, 317–339. https://doi.org/10.1007/s40894-019-00127-9

Bolger, N., & Laurenceau, J.-P. (2013). *Intensive longitudinal methods: An introduction to diary and experience sampling research*. Guilford Press.

Bonferroni, C. (1950). Sulle medie multiple di potenze. *Bollettino Dell'Unione Matematica Italiana*, *5*(3–4), 267–270.

Bowlby, J. (1969). Attachment and loss: Attachment. *Attachment* (Vol. 1). Penguin.

Bronfenbrenner, U., Morris, P. A., Bronfenbrenner, U., & Morris, P. A. (2007). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (Vol. 1, pp. 793–828). Wiley. https://doi.org/10.1002/9780470147658.chpsy0114

Collins, W. A., & Laursen, B. (2013). Parent-adolescent relationships and influences. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 331–361). Wiley. https://doi.org/10.1002/9780471726746.ch11

Cornblatt, B. A., Auther, A. M., Niendam, T., Smith, C. W., Zinberg, J., Bearden, C. E., & Cannon, T. D. (2007). Preliminary findings for two new measures of social and role functioning in the prodromal phase of schizophrenia. *Schizophrenia Bulletin*, *33*(3), 688–702. https://doi.org/10.1093/schbul/sbm029

Cox, B. J., Enns, M. W., & Clara, I. P. (2000). The Parental Bonding Instrument: Confirmatory evidence for a three-factor model in a psychiatric clinical sample and in the National Comorbidity Survey. *Social Psychiatry and Psychiatric Epidemiology*, *35*(8), 353–357. https://doi.org/10.1007/s001270050250

Csikszentmihalyi, M., & Larson, R. (1984). *Being adolescent: Growth and conflict in the teenage years*. Basic Books. https://books.google.be/books/about/Being_adolescent.html?id=J7FoAAAAIAAJ&redir_esc=y

Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the Experience-Sampling Method. *Journal of Nervous and Mental Disease*, *175*(9), 526–536. https://doi.org/10.1097/00005053-198709000-00004

Csikszentmihalyi, M., Larson, R., & Prescott, S. (1977). The ecology of adolescent activity and experience. *Journal of Youth and Adolescence*, *6*(3), 281–294. https://doi.org/10.1007/BF02138940

Cubis, J., Lewin, T., & Dawes, F. (1989). Australian adolescents' perceptions of their parents. *The Australian and New Zealand Journal of Psychiatry*, *23*(1), 35–47. https://doi.org/10.3109/00048678909062590

Davidov, M., & Grusec, J. E. (2006). Untangling the links of parental responsiveness to distress and warmth to child outcomes. *Child Development*, *77*(1), 44–58. https://doi.org/10.1111/j.1467-8624.2006.00855.x

Delespaul, P. A. E. G. (1995). *Assessing schizophrenia in daily life: The experience sampling method*. UPM, Universitaire Pers Maastricht.

Derom, C., Thiery, E., Peeters, H., Vlietinck, R., Defoort, P., & Frijns, J.-P. (2013). The East Flanders Prospective Twin Survey (EFPTS): An

actual perception. *Twin Research and Human Genetics*, *16*(1), 58–63. https://doi.org/10.1017/thg.2012.75

Derom, C., Thiery, E., Rutten, B. P. F., Peeters, H., Gielen, M., Bijnens, E., Vlietinck, R., & Weyers, S. (2019). The East Flanders Prospective Twin Survey (EFPTS): 55 Years Later. *Twin Research and Human Genetics*, *22*(6), 454–459. https://doi.org/10.1017/thg.2019.64

DeVault, M. L., Larson, R., & Richards, M. H. (1996). Divergent realities: The emotional lives of mothers, fathers, and adolescents. *Contemporary Sociology*, *25*(6), 783. https://doi.org/10.2307/2077291

Enns, M. W., Cox, B. J., & Clara, I. (2002). Parental bonding and adult psychopathology: Results from the U.S. National Comorbidity Survey. *Psychological Medicine*, *32*(6), 997–1008. https://doi.org/10.1017/S0033291702005937

Eun, J. D., Paksarian, D., He, J.-P., & Merikangas, K. R. (2017). Parenting style and mental disorders in a nationally representative sample of U.S. adolescents. *Social Psychiatry and Psychiatric Epidemiolog*. Advance online publication. https://doi.org/10.1007/s00127-017-1435-4

Forgas, J. P., Bower, G. H., & Krantz, S. E. (1984). The influence of mood on perceptions of social interactions. *Journal of Experimental Social Psychology*, *20*(6), 497–513. https://doi.org/10.1016/0022-1031(84)90040-4

Gómez-Beneyto, M., Pedrós, A., Tomás, A., Aguilar, K., & Leal, C. (1993). Psychometric properties of the parental bonding instrument in a Spanish sample. *Social Psychiatry and Psychiatric Epidemiology*, *28*(5), 252–255. https://doi.org/10.1007/BF00788745

Grusec, J. E. (2011). Socialization processes in the family: Social and emotional development. *Annual Review of Psychology*, *62*(1), 243–269. https://doi.org/10.1146/annurev.psych.121208.131650

Grusec, J. E., & Davidov, M. (2010). Integrating different perspectives on socialization theory and research: A domain-specific approach. *Child Development*, *81*(3), 687–709. https://doi.org/10.1111/j.1467-8624.2010.01426.x

Gullone, E., & Robinson, K. (2005). The Inventory of Parent and Peer Attachment - Revised (IPPA-R) for children: A psychometric investigation. *Clinical Psychology and Psychotherapy*, *12*(1), 67–79. https://doi.org/10.1002/cpp.433

Guo, G., & Wang, J. (2002). The mixed or multilevel model for behavior genetic analysis. *Behavior Genetics*, *32*, 37–49. https://doi.org/10.1023/A:1014455812027

Hamaker, E. L. (2012). Why researchers should think within-person: A paradigmatic rationale. In M. R. Mehl & T. S. Conner (Eds.), *Handbook of research methods for studying daily life* (pp. 43–61). Guilford Press.

Hermans, K., Achterhof, R., Myin-Germeys, I., Kasanova, Z., Kirtley, O. J., & Schneider, M. (2019). Improving ecological validity in research on social cognition. In K. E. Lewandowski & A. A. Moustafa (Eds.), *Social cognition in psychosis* (pp. 249–268). Academic Press. https://doi.org/10.1016/B978-0-12-815315-4.00010-0

Hunter, M. D. (2021). Multilevel modeling in classical twin and modern molecular behavior genetics. *Behavior Genetics*, *51*, 301–318. https://doi.org/10.1007/s10519-021-10045-z

Huppert, F. A., Abbott, R. A., Ploubidis, G. B., Richards, M., & Kuh, D. (2010). Parental practices predict psychological well-being in midlife: Life-course associations among women in the 1946 British birth cohort. *Psychological Medicine*, *40*(9), 1507–1518. https://doi.org/10.1017/S0033291709991978

Janssen, L. H. C., Elzinga, B. M., Verkuil, B., Hillegers, M. H. J., & Keijsers, L. (2020). The link between parental support and adolescent negative mood in daily life: Between-person heterogeneity in within-person processes. *Journal of Youth and Adolescence*. Advance online publication. https://doi.org/10.1007/s10964-020-01323-w

Keijsers, L., Voelkle, M. C., Maciejewski, D., Branje, S., Koot, H., Hiemstra, M., & Meeus, W. (2016). What drives developmental change in adolescent disclosure and maternal knowledge? Heterogeneity in within-family processes. *Developmental Psychology*, *52*(12), 2057–2070. https://doi.org/10.1037/dev0000220

Kendler, K. S. (1996). Parenting: A genetic-epidemiologic perspective. *The American Journal of Psychiatry*, *153*(1), 11–20. https://doi.org/10.1176/ajp.153.1.11

Kendler, K. S., Myers, J., & Prescott, C. A. (2000). Parenting and adult mood, anxiety and substance use disorders in female twins: An epidemiological, multi-informant, retrospective study. *Psychological Medicine*, *30*(2), 281–294. https://doi.org/10.1017/S0033291799001889

Kessler, R. C., Angermeyer, M., Anthony, J. C., DE Graaf, R., Demyttenaere, K., Gasquet, I., DE Girolamo, G., Gluzman, S., Gureje, O., Haro, J. M., Kawakami, N., Karam, A., Levinson, D., Medina Mora, M. E., Oakley Browne, M. A., Posada-Villa, J., Stein, D. J., Adley Tsang, C. H., Aguilar-Gaxiola, S., . . . Ustün, T. B. (2007). Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental Health Survey Initiative. *World Psychiatry*, *6*(3), 168–176.

Khalid, A., Qadir, F., Chan, S. W. Y., & Schwannauer, M. (2018). Parental bonding and adolescents' depressive and anxious symptoms in Pakistan. *Journal of Affective Disorders*, *228*, 60–67. https://doi.org/10.1016/j.jad.2017.11.050

Klippel, A., Reininghaus, U., Viechtbauer, W., Decoster, J., Delespaul, P., Derom, C., de Hert, M., Jacobs, N., Menne-Lothmann, C., Rutten, B., Thiery, E., van Os, J., van Winkel, R., Myin-Germeys, I., & Wichers, M. (2018). Sensitivity to peer evaluation and its genetic and environmental determinants: Findings from a population-based twin Study. *Child Psychiatry and Human Development*, *49*(5), 766–778. https://doi.org/10.1007/s10578-018-0792-x

Kullberg, M.-L., Maciejewski, D., van Schie, C. C., Penninx, B. W. J. H., & Elzinga, B. M. (2020). Parental bonding: Psychometric properties and association with lifetime depression and anxiety disorders. *Psychological Assessment*, *32*(8), 780–795. https://doi.org/10.1037/pas0000864

Lansford, J. E., Laird, R. D., Pettit, G. S., Bates, J. E., & Dodge, K. A. (2014). Mothers' and fathers' autonomy-relevant parenting: Longitudinal links with adolescents' externalizing and internalizing behavior. *Journal of Youth and Adolescence*, *43*(11), 1877–1889. https://doi.org/10.1007/s10964-013-0079-2

Larson, R. W., Richards, M. H., Moneta, G., Holmbeck, G., & Duckett, E. (1996). Changes in adolescents' daily interactions with their families from ages 10 to 18: Disengagement and transformation. *Developmental Psychology*, *32*(4), 744–754. https://doi.org/10.1037/0012-1649.32.4.744

Lerner, R. M. (1991). Changing organism-context relations as the basic process of development: A developmental contextual perspective. *Developmental Psychology*, *27*(1), 27–32. https://doi.org/10.1037/0012-1649.27.1.27

Lizardi, H., & Klein, D. N. (2005). Long-term stability of parental representations in depressed outpatients utilizing the Parental Bonding Instrument. *Journal of Nervous and Mental Disease*, *193*(3), 183–188. https://doi.org/10.1097/01.nmd.0000154838.16100.36

Maccoby, E. E., & Martin, J. (1983). Socialisation in the context of the family: Parent-child interaction. In P. H. Mussen, & E. M. Hetherington (Eds.), *Handbook of child psychology: Vol. 4. Socialization, personality and social development* (pp. 1–101). Wiley.

Manassis, K., Owens, M., Adam, K. S., West, M., & Sheldon-Keller, A. E. (1999). Assessing attachment: Convergent validity of the adult attachment interview and the parental bonding instrument. *The Australian and New Zealand Journal of Psychiatry*, *33*(4), 559–567. https://doi.org/10.1080/j.1440-1614.1999.00560.x

Marshall, R. L., Harbke, C. R., & DiLalla, L. F. (2021). The role of remembered parenting on adult self-esteem: A monozygotic twin difference study. *Behavior Genetics*, *51*(2), 125–136. https://doi.org/10.1007/s10519-020-10034-8

Martin, G., Bergen, H. A., Roeger, L., & Allison, S. (2004). Depression in young adolescents: Investigations using 2 and 3 factor versions of the Parental Bonding Instrument. *Journal of Nervous and Mental Disease*, *192*(10), 650–657. https://doi.org/10.1097/01.nmd.0000142028.10056.c6

Mulligan, A., & Lavender, T. (2010). An investigation into the relationship between attachment, gender and recovery from psychosis in a stable community-based sample. *Clinical Psychology & Psychotherapy*, *17*(4), 269–284. https://doi.org/10.1002/cpp.655

Murphy, E., Brewin, C. R., & Silka, L. (1997). The assessment of parenting using the parental bonding instrument: Two or three factors? *Psychological Medicine*, *27*(2), 333–341. https://doi.org/10.1017/S0033291796004606

Murphy, E., Wickramaratne, P., & Weissman, M. (2010). The stability of parental bonding reports: A 20-year follow-up. *Journal of Affective Disorders*, *125*(1-3), 307–315. https://doi.org/10.1016/j.jad.2010.01.003

Myin-Germeys, I., Birchwood, M., & Kwapil, T. (2011). From environment to therapy in psychosis: A real-world momentary assessment approach. *Schizophrenia Bulletin*, *37*(2), 244–247. https://doi.org/10.1093/schbul/sbq164

Myin-Germeys, I., Kasanova, Z., Vaessen, T., Vachon, H., Kirtley, O. J., Viechtbauer, W., & Reininghaus, U. (2018). Experience sampling methodology in mental health research: New insights and technical developments. *World Psychiatry*, *17*(2), 123–132. https://doi.org/10.1002/wps.20513

Neale, M. C., Walters, E., Health, A. C., Kessler, R. C., Pérusse, D., Eaves, L. J., & Kendler, K. S. (1994). Depression and parental bonding: Cause, consequence, or genetic covariance? *Genetic Epidemiology*, *11*(6), 503–522. https://doi.org/10.1002/gepi.1370110607

Ong, M. Y., Eilander, J., Saw, S. M., Xie, Y., Meaney, M. J., & Broekman, B. F. P. (2018). The influence of perceived parenting styles on socio-emotional development from pre-puberty into puberty. *European Child & Adolescent Psychiatry*, *27*(1), 37–46. https://doi.org/10.1007/s00787-017-1016-9

Oppenheimer, C. W., Ladouceur, C. D., Waller, J. M., Ryan, N. D., Allen, K. B., Sheeber, L., Forbes, E. E., Dahl, R. E., & Silk, J. S. (2016). Emotion socialization in anxious youth: Parenting buffers emotional reactivity to peer negative events. *Journal of Abnormal Child Psychology*, *44*(7), 1267–1278. https://doi.org/10.1007/s10802-015-0125-5

Otowa, T., Gardner, C. O., Kendler, K. S., & Hettema, J. M. (2013). Parenting and risk for mood, anxiety and substance use disorders: A study in population-based male twins. *Social Psychiatry and Psychiatric Epidemiology*, *48*(11), 1841–1849. https://doi.org/10.1007/s00127-013-0656-4

Parker, G. (1983). *Parental overprotection: A risk factor in psychosocial development*. Grune & Stratton, Inc.

Parker, G., Tupling, H., & Brown, L. B. (1979). A parental bonding instrument. *The British Journal of Medical Psychology*, *52*(1), 1–10. https://doi.org/10.1111/j.2044-8341.1979.tb02487.x

Pries, L.-K., Snijders, C., Menne-Lothmann, C., Decoster, J., van Winkel, R., Collip, D., Delespaul, P., De Hert, M., Derom, C., Thiery, E., Jacobs, N., Wichers, M., Guloksuz, S., van Os, J., & Rutten, B. P. F. (2019). TwinssCan - Gene-environment interaction in psychotic and depressive intermediate phenotypes: Risk and protective factors in a general population twin sample. *Twin Research and Human Genetics*, *22*(6), 460–466. https://doi.org/10.1017/thg.2019.96

Raudino, A., Fergusson, D. M., & Horwood, L. J. (2013). The quality of parent/child relationships in adolescence is associated with poor adult psychosocial adjustment. *Journal of Adolescence*, *36*(2), 331–340. https://doi.org/10.1016/j.adolescence.2012.12.002

Ravitz, P., Maunder, R., Hunter, J., Sthankiya, B., & Lancee, W. (2010). Adult attachment measures: A 25-year review. *Journal of Psychosomatic Research*, *69*(4), 419–432. https://doi.org/10.1016/j.jpsychores.2009.08.006

Rispoli, K. M., McGoey, K. E., Koziol, N. A., & Schreiber, J. B. (2013). The relation of parenting, child temperament, and attachment security in early childhood to social competence at school entry. *Journal of School Psychology*, *51*(5), 643–658. https://doi.org/10.1016/j.jsp.2013.05.007

Roe, A., & Siegelman, M. (1963). A parent-child relations questionnaire. *Child Development*, *34*, 355–369. https://doi.org/10.2307/1126732

Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *The Lancet Child and Adolescent Health*, *2*(3), 223–228. https://doi.org/10.1016/S2352-4642(18)30022-1

Schacter, H. L., & Margolin, G. (2019). The interplay of friends and parents in adolescents' daily lives: Towards a dynamic view of social support. *Social Development*, *28*(3), 708–724. https://doi.org/10.1111/sode.12363

Schneider, M., Reininghaus, U., van Nierop, M., Janssens, M., & Myin-Germeys, I., & the GROUP Investigators. (2017). Does the Social Functioning Scale reflect real-life social functioning? An experience sampling study in patients with a non-affective psychotic disorder and healthy control individuals. *Psychological Medicine*, *47*(16), 2777–2786. https://doi.org/10.1017/S0033291717001295

Sheinbaum, T., Kwapil, T. R., Ballespí, S., Mitjavila, M., Chun, C. A., Silvia, P. J., & Barrantes-Vidal, N. (2015). Attachment style predicts affect, cognitive appraisals, and social functioning in daily life. *Frontiers in Psychology*, *6*, 296. https://doi.org/10.3389/fpsyg.2015.00296

Smetana, J. G., & Rote, W. M. (2019). Adolescent–parent relationships: Progress, processes, and prospects. *Annual Review of Developmental Psychology*, *1*(1), 41–68. https://doi.org/10.1146/annurev-devpsych-121318-084903

Smetana, J. G., Campione-Barr, N., & Metzger, A. (2006). Adolescent development in interpersonal and societal contexts. *Annual Review of Psychology*, *57*(1), 255–284. https://doi.org/10.1146/annurev.psych.57.102904.190124

Soenens, B., & Vansteenkiste, M. (2005). Antecedents and outcomes of self-determination in 3 life domains: The role of parents' and teachers' autonomy support. *Journal of Youth and Adolescence*, *34*(6), 589–604. https://doi.org/10.1007/s10964-005-8948-y

Soenens, B., & Vansteenkiste, M. (2010). A theoretical upgrade of the concept of parental psychological control: Proposing new insights on the basis of self-determination theory. *Developmental Review*, *30*(1), 74–99. https://doi.org/10.1016/j.dr.2009.11.001

Soenens, B., Deci, E. L., & Vansteenkiste, M. (2017). How parents contribute to children's psychological health: The critical role of psychological need support. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 171–187). Springer. https://doi.org/10.1007/978-94-024-1042-6_13

Steinberg, L., & Darling, N. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, *113*(3), 487–496. https://doi.org/10.1037/0033-2909.113.3.487

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology*, *52*(1), 83–110. https://doi.org/10.1146/annurev.psych.52.1.83

Stolz, H. E., Barber, B. K., & Olsen, J. A. (2005). Toward disentangling fathering and mothering: An assessment of relative importance. *Journal of Marriage and Family*, *67*(4), 1076–1092. https://doi.org/10.1111/j.1741-3737.2005.00195.x

Tait, L., Birchwood, M., & Trower, P. (2004). Adapting to the challenge of psychosis: Personal resilience and the use of sealing-over (avoidant) coping strategies. *The British Journal of Psychiatry*, *185*, 410–415. https://doi.org/10.1192/bjp.185.5.410

Tamimy, Z., Kevenaar, S. T., Hottenga, J. J., Hunter, M. D., de Zeeuw, E. L., Neale, M. C., van Beijsterveldt, C. E. M., Dolan, C. V., van Bergen, E., & Boomsma, D. I. (2021). Multilevel twin models: Geographical region as a third level variable. *Behavior Genetics*, *51*, 319–330. https://doi.org/10.1007/s10519-021-10047-x

Terra, L., Hauck, S., Schestatsky, S., Fillipon, A. P., Sanchez, P., Hirakata, V., & Ceitlin, L. H. (2009). Confirmatory factor analysis of the Parental Bonding Instrument in a Brazilian female population. *The Australian and New Zealand Journal of Psychiatry*, *43*(4), 348–354. https://doi.org/10.1080/00048670902721053

Torquati, J. C., & Raffaelli, M. (2004). Daily experiences of emotions and social contexts of securely and insecurely attached young adults.

Journal of Adolescent Research, *19*(6), 740–758. https://doi.org/10.1177/0743558403260023

Tsaousis, I., Mascha, K., & Giovazolias, T. (2012). Can parental bonding be assessed in children? Factor structure and factorial invariance of the Parental Bonding Instrument (PBI) between adults and children. *Child Psychiatry and Human Development*, *43*(2), 238–253. https://doi.org/10.1007/s10578-011-0260-3

Vaessen, T., van Nierop, M., Decoster, J., Delespaul, P., Derom, C., de Hert, M., Jacobs, N., Menne-Lothmann, C., Rutten, B., Thiery, E., van Os, J., van Winkel, R., Wichers, M., & Myin-Germeys, I. (2017). Is sensitivity to daily stress predictive of onset or persistence of psychopathology? *European Psychiatry*, *45*, 167–173. https://doi.org/10.1016/j.eurpsy.2017.07.002

Van Der Kaap-Deeder, J., Vansteenkiste, M., Soenens, B., & Mabbe, E. (2016). Children's daily well-being: The role of mothers', teachers', and siblings' autonomy support and psychological control. https://doi.org/10.1037/dev0000218

Van Geert, P. L. C., & Lichtwarck-Aschoff, A. (2005). A dynamic systems approach to family assessment. *European Journal of Psychological Assessment*, *21*(4), 240–248. https://doi.org/10.1027/1015-5759.21.4.240

van Roekel, E., Keijsers, L., & Chung, J. M. (2019). A review of current ambulatory assessment studies in adolescent samples and practical recommendations. *Journal of Research on Adolescence*, *29*(3), 560–577. https://doi.org/10.1111/jora.12471

Vanwoerden, S., Kalpakci, A. H., & Sharp, C. (2015). Experiential avoidance mediates the link between maternal attachment style and theory of mind. *Comprehensive Psychiatry*, *57*, 117–124. https://doi.org/10.1016/j.comppsych.2014.11.015

Verbeij, T., Pouwels, J. L., Beyens, I., & Valkenburg, P. M. (2021). The accuracy and validity of self-reported social media use measures among adolescents. *Computers in Human Behavior Reports*, *3*, 100090. https://doi.org/10.1016/j.chbr.2021.100090

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Weitkamp, K., & Seiffge-Krenke, I. (2019). The association between parental rearing dimensions and adolescent psychopathology: A cross-cultural study. *Journal of Youth and Adolescence*, *48*(3), 469–483. https://doi.org/10.1007/s10964-018-0928-0

Wilhelm, K., & Parker, G. (1990). Reliability of the parental bonding instrument and intimate bond measure scales. *The Australian and New Zealand Journal of Psychiatry*, *24*(2), 199–202. https://doi.org/10.3109/00048679009077683

Xu, M. K., Morin, A. J. S., Marsh, H. W., Richards, M., & Jones, P. B. (2018). Psychometric validation of the parental bonding instrument in a U.K. population-based sample: Role of gender and association with mental health in mid-late life. *Assessment*, *25*(6), 716–728. https://doi.org/10.1177/1073191116660813

Young, R., Lennie, S., & Minnis, H. (2011). Children's perceptions of parental emotional neglect and control and psychopathology. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *52*(8), 889–897. https://doi.org/10.1111/j.1469-7610.2011.02390.x

Zaki, J., & Ochsner, K. (2009). The need for a cognitive neuroscience of naturalistic social cognition. *Annals of the New York Academy of Sciences*, *1167*, 16–30. https://doi.org/10.1111/j.1749-6632.2009.04601.x

Received January 7, 2021
Revision received October 21, 2021
Accepted October 26, 2021 ■