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Anticipating Social Pleasure with Family, Friends, and New People: Conceptualization,
Measurement, and Implications for Personality and Psychopathology

by

Ori Elis

A dissertation submitted in partial satisfaction of the

Requirements for the degree of

Doctor of Philosophy

in

Psychology

in the

Graduate Division

of the

University of California, Berkeley

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Abstract

Anticipating Social Pleasure with Family, Friends, and New People: Conceptualization, Measurement, and Implications for Personality and Psychopathology

by

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Doctor of Philosophy in Psychology

University of California, Berkeley

Professor Ann M. Kring, Chair

Individual differences in anticipatory pleasure have been studied primarily in physical or sensory domains, such as anticipating eating tasty food or the anticipating the excitement of riding a rollercoaster. The present studies were designed to extend this research to the social domain. We propose that, just as in nonsocial domains, people in social situations will orient and move toward those experiences they expect and predict will be pleasurable for them. Current self-report measures of social pleasure or its absence (i.e., anhedonia) tend to assess consummatory (in-the-moment) pleasure across one global, social domain. The current studies sought to define and assess individual differences that distinguish anticipatory pleasure in different kinds of social relationships. Conceptual, item-analytic, and factor-analytic work provided consistent evidence that self-reports of social pleasure anticipation can be distinguished across three relationship domains: Friends, Family, and New People. The Social Pleasure Anticipation (SPA) scales showed internal consistency and retest reliability, convergent and discriminant validity evidence when related to measures of social and nonsocial pleasure and to measures of personality and social functioning, as well as external validity based on peer reports. The SPA scales differentially predicted unique and replicated patterns of personality traits, psychological symptoms, and well-being. Discussion focuses on the implications of this tripartite taxonomy of the social domain for theories and measures of social functioning that so far have been conceptualized only at the global, undifferentiated level.

Dedication

For Nadav and Matan

מוקדש לגדב ומתן

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You know who you are and what you did.

To my wife, Megan, you are, and always will be, my dragon rock.

Anticipating Social Pleasure with Family, Friends, and New People: Conceptualization, Measurement, and Implications for Personality and Psychopathology

This paper examines the construct of anticipatory pleasure in a new domain, namely social relationships. One of the interesting psychological features of pleasure is that people can *anticipate* pleasures that are still in the future, and that this anticipation itself can be pleasurable (e.g., Baumgartner, Pieters, & Bagozzi, 2008; Wilson & Gilbert, 2003). Previous work has studied anticipatory pleasure mostly in physical or sensory domains, such as looking forward to riding a rollercoaster or eating a favorite food (Gard, Gard, Kring, & John, 2006). However, human beings are not only physical creatures but also an intensely social species and should thus experience anticipatory pleasure in the *social or interpersonal* domain as well.

In this paper, we focus on anticipatory social pleasure and distinguish different *sources* of such pleasure, like anticipated pleasure with friends, with family, or with new acquaintances. We propose that people differ consistently in how much or how little they anticipate pleasure from each of these social sources, and test the hypothesis that such context-specific individual differences may well be psychologically distinct. That is, there may not be a single, general dimension underlying all anticipatory social pleasures but instead several situation-specific dimensions. If so, we should be able to identify multiple distinct factors in peoples' reports of anticipated pleasure with different kinds of social interaction partners, and these factors should have differential implications for personality traits, for psychological symptoms, and for well-being.

Anticipatory Pleasure: Definition and Individual Differences

Anticipatory pleasure has been conceptualized as both currently experienced pleasure when considering future events, as well as the pleasure that people predict they will experience at the time of future events (e.g., Baumgartner, Pieters, & Bagozzi, 2008; Kring & Elis, 2013). One conceptualization of the role of anticipatory pleasure is reflected in a model of the temporal experience of pleasure (Kring & Caponigro, 2010). In this model, representations of pleasurable past experiences give rise to anticipating future pleasure, which support motivation and approach behaviors. These behaviors are antecedent to consummatory (in-the-moment experience of) pleasure, which is savored to be remembered again. In this way, anticipation may be an important antecedent to approach motivation.

This conceptual framework is supported by research using self-report, behavioral, and neuroscience approaches. For example, animal models dissociate “wanting” from “liking” (e.g., Berridge & Robinson 2003, 2009). *Wanting* refers to the desire to obtain a reward (or to engage in a rewarding activity) and thus corresponds to *anticipation* in humans. In contrast, “liking” refers to the satiety achieved by obtaining that reward and thus corresponds in humans to consummatory (or “in-the-moment”) enjoyment of that experience. fMRI studies have further supported this distinction, indicating activation patterns in striatal and prefrontal brain regions that differentiate anticipatory from consummatory periods (e.g., Knutson 2001a; 2001b; Kirsch 2003; Der-Avakian et al., 2012).

Do people systematically differ in the degree to which they experience anticipatory pleasure? With respect to pleasure for general future events (e.g., “I feel a joy of anticipation

when I think about upcoming good things”), the Savoring Beliefs Inventory, Anticipating subscale (Bryant, 2003) was associated with more optimism and less hopelessness, and also predicted how much people looked forward to, and felt happy about, a future event (Bryant, 2003). In the domain of physical (or sensory) pleasure, Gard, Gard, Kring, and John (2006) demonstrated consistent individual differences and developed a reliable self-report measure of anticipatory and consummatory pleasure, the Temporal Experience of Pleasure Scale (TEPS). People scoring high in anticipatory pleasure on the TEPS endorsed items such as, “When I think about eating my favorite food, I can almost taste how good it is” and “I look forward to a lot of things in my life”. Anticipatory pleasure on the TEPS was associated with greater reward responsiveness and fewer depression symptoms.

Although general future pleasure and sensory sources of pleasure are certainly important, human beings are an intensely social species and derive much pleasure from their interactions and relationships with others (e.g. Baumeister & Leary, 1995). In the *social* domain, however, we know much less about the role of anticipatory pleasure, and there are few individual-difference measures. The Anticipatory and Consummatory Interpersonal Pleasure Scale (ACIPS; Gooding & Pflum, 2014a) combines anticipatory and consummatory aspects of social pleasure into a single total score. Similarly, although researchers have examined individual differences from the perspective of *diminished* social pleasure, such as anhedonia, current measures include consummatory rather than anticipatory social pleasure, such as the Social Anhedonia Scale (Mishlove & Chapman, 1985) and the Motivation and Pleasure Scale – Self Report (MAP-SR; Llerena et al., 2013).

Importance of Individual Differences in Anticipatory Social Pleasure for Interpersonal Functioning and Well-being

It is important to study individual differences in anticipatory social pleasure for multiple reasons. First, Wilson and Gilbert (2003) suggested that the emotions people anticipate are associated with the kinds of social interactions they seek out. Simply stated, people approach things they think will be pleasurable, and avoid things that they think will not bring them pleasure (e.g., Higgins, 1997). If people anticipate that interactions with family members will provide them with a pleasurable experience, they may be more likely to pursue and prioritize family contacts over other kinds of interaction and relationships. Social relationships can be both physically and psychologically protective (e.g., Broadhead et al., 1983; Umberson & Montez, 2010). For example, people who have relationships that are emotionally supportive, close, and connected are better able to manage their own needs and emotions; these types of relationships are also associated with more resilience, higher self-esteem, and with less anxiety and depression (e.g., Capanna et al., 2013; Grav, Hellzén, Romild, & Stordal, 2012; Kohut, 1984; Lee & Robbins, 2001; Ottmann, Dickson, & Wright, 2006; Williams & Galliher, 2006). In contrast, people who have fewer social relationships or whose relationships have less closeness and support, are at increased risk for health issues, including susceptibility to the common cold (e.g., Cohen, 2004), heart disease (e.g., Cacioppo et al., 2002), impaired immune function (e.g., Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002), and even increased mortality (e.g., Brummett et al., 2001).

Another important reason to study individual differences in anticipatory social pleasure is because diminished social pleasure is a putative risk factor for clinical and subclinical

psychopathology. For example, the presence of social anhedonia has been found to predict lifetime mood disorders (e.g. depression, dysthymia; Blanchard, Collins, Aghevli, & Cohen, 2011). Indeed, social anhedonia (i.e., diminished pleasure from social interactions and relationships) is a characteristic feature in depression (American Psychiatric Association, 2013; Beck & Steer, 1987; Radloff, 1977). Further, social anhedonia has also been shown to be a risk factor for developing psychosis, with 24% of a college student sample with social anhedonia developing a schizophrenia-spectrum disorder over 10 years compared to 1% of students without social anhedonia (Kwapil, 1998). In both depression and schizophrenia, higher rates of social anhedonia are associated with more negative, and less positive, affect (Blanchard et al., 1998) more depression symptoms (e.g., Kollias et al., 2008; Penk, Carpenter, & Rylee, 1979), and less overall life satisfaction (Newsom & Schulz, 1996).

However, social anhedonia can have a different presentation depending on the context. For example, for people with schizophrenia, social anhedonia is associated with a preference for being alone, remaining alone and, indeed, spending more time alone (e.g., Blanchard et al., 1998; Brown, Silvia, Myin-Germeys, & Kwapil, 2007). In contrast, for people who are lonely, diminished social pleasure can be experienced even in the context of social interactions and sustained social contact (Heinrich & Gullone, 2006). As with depression and schizophrenia, the phenomenon of loneliness has generated a large and extensive literature that suggests both physical and mental health consequences (see Hawkey & Cacioppo, 2010, for a review).

Nearly all the literature on social pleasure and psychopathology has focused on consummatory pleasure, not anticipatory pleasure. However, research in the nonsocial domain suggests that people with schizophrenia who score low on the anticipatory scale of the TEPS are less likely to pursue pleasurable experiences and have social functioning difficulties (e.g., Buck & Lysaker, 2013; Gard, Kring, Germans-Gard, Horan, & Green, 2007) In short, diminished anticipatory pleasure for sensory experiences as well as consummatory pleasure from social interactions is associated with negative outcomes in aspects of adjustment, consistent with the general idea that anticipating and pursuing pleasure from social relationships may proffer protective benefits for overall health and well-being.

Implications of Anticipatory Social Pleasure for Constructs in Personality and Motivation

Anticipatory social pleasure should also play an important role in understanding individual differences in personality traits and related constructs. For example, research on the Behavioral Activation System (BAS; Carver & White, 1994) has a conceptual link to anticipatory pleasure, as approach motivation is associated with anticipation. For example, anticipatory pleasure on the TEPS is correlated with the BAS scales (Gard et al., 2006). However, we do not know whether this relationship also holds for anticipatory *social* pleasure.

In the Big Five personality literature, two dimensions are important for the social domain (John, Naumann, & Soto, 2008; Wiggins, 1979). One is Extraversion, which is defined as “an *energetic approach* toward the social and material world and includes traits such as sociability, activity, assertiveness and positive emotionality” (John et al., 2008, p. 138). The core trait of sociability includes social initiative and deriving pleasure from social contact in general (Ashton, Lee, & Paunonen, 2002) and is associated with approach motivation as measured by the BAS scales. In other words, extraverted people stand out not only because they enjoy social

interactions more, but also because they *initiate* social contact with others, perhaps suggesting they anticipate more social pleasure than introverted people. Indeed, findings in the nonsocial domains show that Extraversion is related to anticipatory and consummatory sensory pleasure, as measured by the TEPS (Gard et al., 2006).

The second dimension in the Big Five taxonomy relevant for the social domain is Agreeableness, which is defined as “*a prosocial and communal orientation toward others*” (John et al., p. 138), and is associated with valuing and investing in relationships through cooperation, altruism, or care-giving. For example, within family systems, partner congruency in Agreeableness increases with duration of marriage (Rammstedt & Schupp, 2008); higher Agreeableness is associated with greater marital satisfaction (Gattis, Berns, Simpson, & Christensen, 2004), and with greater parental warmth (Prinz, Stams, Deković, Reijntjes, & Belsky, 2009), both pointing to the importance of long-term relations, such as with family or close friends. In addition, Agreeableness is also associated with greater friendship satisfaction (Wilson, Harris, & Vazire, 1996). In other words, data suggest that people who are high on Agreeableness are more likely to invest in and foster continued good-quality relationships. Interestingly, Agreeableness is not significantly related to either anticipatory or consummatory sensory pleasure (Gard et al., 2006). However, given that Agreeableness is an intensely prosocial personality dimension, we would expect that it would be related to anticipatory *social* pleasure.

The Social Domain: One Unitary Domain or Multiple Distinct Factors Representing Different Kinds of Relationships?

Studies of individual difference constructs related to social pleasure, such as Extraversion, social anhedonia, or loneliness, do not typically differentiate between different kinds of relationships, instead assuming a relatively general, unitary construct of sociality. Conceptually, however, the social domain consists of many kinds of relationships in which people interact and might therefore anticipate different levels of pleasure. For example, socio-emotional selectivity theory (e.g., Carstensen, 1993) considers social preferences throughout early and later adulthood and differentiates relationships by their relative novelty versus emotional closeness. Older adults tend to prefer spending time with close friends and family over meeting new people, whereas younger adults tend to prefer the opposite pattern. Research on stereotyping and ingroup-outgroup differences (e.g., Leyens, Rodriguez-Perez, Rodriguez-Torres, Gaunt, Paladino, et al., 2001; Robbins & Krueger, 2005; Stephan, 1977) has shown attitudinal and behavioral differences in people’s approach to close and familiar others, such as family and long-term friends, as compared with “new people,” such as unfamiliar others (like strangers) and outgroup members (like immigrants). Indeed, social relationships vary in both structure and patterns, ranging from intimate connections to extended community ties (e.g., the “social network”) and by level of emotional closeness within these relationships (Ertel et al., 2009; Smith & Christakis, 2008; Wasserman & Faust, 1994; Wrzus, Hanel, Wagner, & Neyer, 2013). As such, since people have different types of social relationships – each of which encompasses distinct attitudes and behaviors – we should not expect that the experience of these relationships can be encompassed by a single, unitary construct.

Evidence that these distinctions relate to individual differences can be found in personality research that has examined the self-concept in different kinds of interpersonal contexts. For example, Donahue, Robins, Roberts, and John (1993) studied self-conceptions in

different relationships, such as with friends, with parents, and with a romantic partner and found that participants perceived themselves as having different personality traits depending on the nature of the relationship. More recent studies by Roberts and colleagues (e.g., Lodi-Smith & Roberts, 2007) have borne out and extended the conclusion that in the social domain, we need to differentiate among various kinds of relationships.

Interestingly, existing self-report measures of social pleasure rarely include social interactions with *novel or unfamiliar others*, even though meeting and interacting with new people is a ubiquitous type of social interaction in modern societies and is also a prerequisite for integrating new people into one's social network. Indeed, approaching unfamiliar others and establishing an initial social connection is a core task when people transition into new environments, such as from high school to college (e.g., Srivastava, Tamir, McGonigal, John, & Gross, 2009), from college to the workplace, and so on. One goal of the present research is to determine how many factors are needed to account for individual differences in anticipatory social pleasure.

The Present Research: Overview

Although the anticipation of social pleasure is an important theoretical and measurement interest in personality, social, and clinical psychology, existing measures do not separate the impact of anticipatory from consummatory social pleasure, and current conceptualizations of differences in social pleasure do not differentiate among kinds of social relationships. The main goals of the present research were to address these gaps in the literature. Specifically, in Study 1 we set out to develop a self-report measure of individual differences in social pleasure anticipation, and to examine whether such a measure ought to distinguish among *different types* of social relationships. In Study 2, we examined the temporal stability of our new measure of anticipatory social pleasure and its external validation with peer ratings of the same constructs. In Study 3, we examined how the measure relates to a broad array of individual-difference constructs relevant to pleasure, personality, social functioning, and well-being. In Study 4 we refined the initial measure, replicated core findings from Study 3, and provided additional validation for the final measure.

Study 1: Measuring Individual Differences in Anticipatory Social Pleasure and Establishing Their Factor Structure

In Study 1 we set out to develop an individual difference measure and elucidate the underlying dimensions of anticipatory social pleasure. Given that current self-report measures of social pleasure do not distinguish between different types of relationships, it is possible that individual differences are best captured by a broad and undifferentiated social domain, that is, a single-factor model with one general dimensions. Alternatively, in line with theory and research suggesting that relationships differ in important ways, we expected that several distinct factors would emerge. Specifically, we expected at least two factors, in line with the distinction between intimate, emotionally close relationships on the one hand, and new, unfamiliar, or at least less-close relationships on the other hand, as proposed by such theorists as Carstensen (1993) and others. In addition, the studies of self-concept and personality differences in relationships with family versus friends (e.g., Donahue et al., 1993) suggested another possible source for factor

differentiation. Finally, dyadic interactions with a single other may be psychologically distinct from interaction with larger collections of others, such as social groups.

Even though we expected more than a single broad factor, the resulting underlying dimensions should share a common core of social pleasure anticipation and thus are unlikely to be strictly orthogonal. Therefore, if we find multiple distinct individual-difference factors in anticipatory social pleasure, we expect them to be empirically correlated (or oblique), like the facets that constitute each of the Big Five factors (Soto & John, 2016). Thus, as described below, we conducted principal components (PC) analyses followed by oblique rotation using OBLIMIN, allowing us to discover how distinct (or independent) the observed factors actually are.

Method

Participants: Derivation and replication samples. The data analyzed in Study 1 came from Sample A, which comprised 989 undergraduate students from a large public university on the West coast of the United States who volunteered to participate in exchange for partial course credit. Because we wanted to ensure that participants had carefully attended to the task and followed instructions, we used conservative inclusion criteria. Specifically, we excluded those participants that had either missed more than 10% of the items or showed zero variance in their responses (e.g., gave the same response to all items). After applying those two criteria, the total number of participants in Sample A was reduced from 989 to 803. Demographic information for Sample A is summarized in Table 1, which also provides information for the other two samples studied in this report.

Given present-day concerns about statistical power and replication (e.g., Funder, Levine, Mackie, Morf, Vazire, & West, 2013), we used a cross-validation design in which we divided our sample into a *derivation sample* of 500 participants and a *replication sample* of 303 participants, thus ensuring that any effects would withstand a basic test of generalizability.

All participants provided consent electronically prior to completing questionnaires online and received partial course credit for their participation.

Item generation. We used a deductive approach to define the conceptual space of individual differences in anticipatory social pleasure (e.g., Burisch, 1984). Specifically, we defined various facets of social pleasure across different types of relationships and people and then used combinations of these facets to generate an initial item pool. Although our primary interest is in anticipatory social pleasure, we initially generated items to capture consummatory or “in-the-moment” social pleasure as well, in part because both kinds of items are included in existing measures of *nonsocial* pleasure, such as the TEPS, and in measures of *general social* pleasure, such as the ACIPS.

We initially generated 180 candidate anticipatory and consummatory social pleasure items that spanned different *types* of relationship (friends, family, new people), *size* of relationship (dyadic or group), and *situation* (general or specified), and as well as items that represented combinations of these 3 facets. We then reviewed these candidate items and excluded about half of them for conceptual reasons, including: (a) some items were judged too specific to particular ethnic, cultural, socioeconomic, or interest groups (e.g., “I look forward to

meeting my friends at the yacht club”); (b) some items seemed more characteristic of constructs other than social pleasure (e.g., extraversion, social anxiety); (c) some items were vague, unclear, or awkwardly phrased; and (d) some items were too difficult to read and understand by individuals with lower reading levels. We verified that all items were at or below a 6th grade reading level (as determined via <http://www.read-able.com> and <http://www.readability-score.com>.)

In the next step, four independent judges rated each item on several formal and meaning characteristics, including whether the item focused clearly on either anticipatory or consummatory pleasure and to what type of social relationship the item referred. Initially, 68 items were judged with 100% agreement on these characteristics. Of the items that did not reach 100% agreement in the first round of ratings, we revised eight items that subsequently achieved 100% agreement by the judges. We retained the initial 68 and the additional 8 items, resulting in a candidate item pool of 76 items; here we focus on the 26 items that were clear examples of anticipatory social pleasure items. These items are shown in Table 2, along with their classifications by the three *a priori* facets: type of relationships, size of relationships, and situation (general or specific).

The items were administered with instructions to answer each item using a 6-step rating scale, ranging from 1 (labeled as “Never”) to 6 (labeled as “Always”).

Results and Discussion

Factor analysis: How many dimensions comprise anticipatory social pleasure? We conducted principal components analyses, separately in the derivation sample ($N=500$) and the replication sample ($N=303$). We did not find evidence for a single, general factor. Instead, the scree test suggested three major components, and this was true in both samples. Specifically, the eigenvalues of first six components in the derivation sample were **11.69**, **3.62**, **1.39**, and then .86, .76, .72; that is, only the first three components had eigenvalues indicating a major factor. In the replication sample, the first 6 eigenvalues were very similar and again showed the break after the third component: **11.76**, **3.83**, **1.34**, and then .92, .82, and .72, again indicating three major factors. Together, these three factors accounted for a substantial proportion of the total variance (45%) in both the derivation and replication samples.

The factor loadings are summarized in Table 2, which list the items by their initial conceptual facet classifications, such as Close Friends items, General (or unspecified) items, Groups of Others, and so on. In the columns to the right, we report the OBLIMIN-rotated loadings on each of the three factors; for each factor, there are two columns of loadings, one for the results from the derivation sample and the other for the replication sample.

In both samples, the first factor was defined by high loadings from items about anticipating pleasure with friends—people with whom the participant had a pre-existing relationship other than family. We labeled this factor *Friends* because the items either explicitly or implicitly refer to friends, acquaintances, or other people with whom the participant shared some degree of prior familiarity (other than family members). The highest loading items included such key items as “I get excited when making plans to visit a friend I have not seen in a long time” and “I look forward to meeting up with close friends.” Note that the items from the

Friends factor all had substantial loadings in both the derivation sample and the independent replication sample.

Table 2 shows that items from other *a priori* facet clusters loaded on the Friends factor as well. Consider the items in the General (or unspecified) facet cluster. The item “After I make plans to see someone, I enjoy thinking about what we will do together” does not state explicitly that this person is indeed a friend but the empirical loadings show that participants clearly interpreted the item that way. Similarly, some items from Groups of Others facet cluster loaded on the Friends factor, such as “When I have plans to see a group of friends, I look forward to it.” The overall pattern of loadings for the Friends factor suggests that this content factor is consistent and generalizable across all *a priori* conceptual facets and thus strengthens the interpretation.

The second factor, which we labeled *Family*, was defined by the items in the Family facet cluster, such as the key item “I look forward to spending time with my family.” Again, there are other items that strengthen the interpretation of this factor. For example, the item “I look forward to spending time with loved ones” does not specify a single type of relationship; instead, the phrase “loved ones” can refer to either family or close friends. Indeed, this item had substantial loadings on both the Friend factor (.51 and .50) and the Family factor (.46 and .47), and this pattern replicated across the derivation and replication samples, respectively.

The third factor was defined by anticipatory social pleasure related to new people, including such key items as “I look forward to meeting new people when I’m out and about.” We labeled this factor *New People*, and again, mixed items from other *a priori* item facets support this factor interpretation. For example, the Groups of Others facet item “I enjoy making plans to meet with a group of people” had substantial loadings on both the New People and the Friends factors, as an unspecified “group of people” will likely include individuals from both types of relationships.

Finally, as expected, the intercorrelations among these three OBLIMIN factors were all positive. The Friends factor correlated with the Family factor .47 in the derivation sample and .42 in the replication sample. The Friends factor correlated with the New People factor .45 in the derivation sample and .46 in the replication sample. And the Family factor correlated with the New People factor .10 in the derivation sample and .09 in replication sample. In other words, the factor intercorrelations generalized well across the two samples and suggest that the Friends factor was more similar to the Family and New People factors than the latter two were to each other¹. These results suggest a measure with three scales, that together we have named the Social Pleasure Anticipation (SPA) scales, which covers social pleasure anticipation with friends, family, and new people.

Constructing preliminary SPA scales: Internal consistency reliability and inter-correlations. The factor-analytic results in Table 2 show that we identified three clearly delineated factors. However, the factor analyses included numerous items (see Table 2) that are not needed to measure these factors efficiently with three questionnaire scales. As described above, several items mix the content of two of the factors and thus lack discriminant validity. For example, the Groups of Others facet item “I enjoy making plans to meet with a group of people” is indeterminate (or mixed) regarding the specific type of relationship; including it in either the

Friends scale or the New People scale would serve to inflate the correlation between the two resulting scales. Similarly, most items from the General (or unspecified) facet cluster, and from the Groups of Others cluster, had loadings on multiple factors and lower loadings overall, compared to other items that uniquely defined just one of the three factors. Thus, we used the factor loadings from the derivation sample to choose items that loaded on only one of the three factors and included them in our preliminary scales. Whenever we had more than one similarly worded candidate item available, we chose the item with the most unique content. For example, from several similar Family items all including the idea “I look forward to being with my family...,” we chose the item “I look forward to holidays because I get to spend time with my family” because this item provides a clear and specific context for the anticipation of pleasure with family members.

Table 2 shows the final 14 items selected for the preliminary scales, each marked with an asterisk and set in bold font. Also shown are the alpha reliability estimates for each scale. The alphas were uniformly high and replicated closely in the replication sample, ranging from .88 to .91 across scales and samples; in fact, the alphas in the derivation and replication samples were always within .01 from each other. We also tested whether the scales represented the underlying empirical factors well; indeed, the correlations between the empirical factor scores and the scores on the much shorter scales were all substantial, averaging .96 in both the derivation and in the replication samples. Overall, then, these findings show that the preliminary scales provide reliable measurement of the three factors discovered and replicated in Study 1.

The means and standard deviations for the three scales also differed in meaningful ways, as shown in Table 3. Overall, people reported more anticipatory pleasure from friends and family than from new people, and this was true in both derivation and replication samples. Specifically, paired-sample t tests in both derivation and replication samples indicated that anticipatory pleasure on the Friends and Family scales did not differ, with $t(487) = .61, p = .545$, in the derivation sample, and $t(295) = .51, p = .609$, in the replication sample. In contrast, scale scores for Family were higher than for New People in both samples, $t(493) = 12.22, p < 0.01, d = .66$, and $t(297) = 10.19, p < 0.01, d = .71$, in the derivation and replication samples, respectively. Similarly, scales scores for Friends were higher than for New People in both samples, $t(493) = 17.83, p < 0.01, d = .75$ in the derivation, and $t(298) = 13.91, p < 0.01, d = .73$ in the replication sample. In other words, participants consistently reported experiencing greater anticipatory pleasure from friends and family compared to new people.

Table 4 shows the intercorrelations among the three scales. Again, these correlations were very similar in the two samples, ranging from .28 to .58 in the derivation sample and from .28 to .62 in the replication sample. As we found for the original OBLIMIN factors, the Friends scale was most substantially related to the New People scale (mean $r = .60$) and then to the Family scale (mean $r = .45$); the latter two were least strongly related (mean $r = .28$). That the pleasure people anticipate from future interactions with friends and with new people is similar may reflect the general progression in the development of friendship (e.g., Moreland & Levine, 1994): people first seek out novel group members (i.e., the New People factor here) and eventually assimilate into friendship groups (i.e., the Friends factor here). In other words, people who are more likely to anticipate pleasure from future interactions with new people may be more likely to pursue and then maintain these relationships. On the other hand, the fact that these two scales are correlated suggests that instances where the two show *differences* may be particularly

informative; we will examine differences between anticipating pleasure from new people, friends, and family in Study 3. Overall, the pattern of findings in Study 1 suggests that the three scales are tapping into related yet distinct aspects of anticipatory social pleasure in different kinds of social relationships: Friends, Family, and New People.

Study 2: Further Psychometric Evidence for the SPA Scales: Retest Reliability and Peer Validation

Study 1 identified three distinct dimensions that comprise social pleasure anticipation and showed that these dimensions can be measured reliably with three short, yet internally consistent, scales. Study 2 was designed to add further psychometric evidence, examining internal consistency in both self and peer reports, temporal stability, and peer validity.

Method

Participants. We recruited 195 participants from a large public university in the Western United States (Sample B; see Table 1 for demographics). All participants provided consent electronically prior to commencing and received course credit for their participation.

Procedure: Test-retest and peer reports. The 195 “target” participants completed the SPA scales². They were then invited to complete the SPA scales again 7 to 14 days later (M days between administrations = 10) for course credit. A total of 68 participants agreed to do so.

Participants were also invited to provide contact information for up to 3 peers who knew them well and might be willing to provide a short assessment of their personality; 93 of the target participants agreed and provided the email address of at least one peer participants. Peers were directly contacted by the experimenter via email. Peers had the option of being entered into a lottery for a chance to win a \$25 Amazon gift card or, if eligible, to receive course credit. All measures were completed online.

For four target participants, no peers provided complete data; we therefore analyzed data for the 89 target participants with at least one peer respondent. The peer participants were 65% female and on average 21.9 years old ($SD = 5.8$). If a participant had more than one peer respond, we averaged responses across peers.

The peer versions of the SPA scales were identical to the target participant’s self-report version, except that the wording was changed to the 3rd person form, with the name of the target participant replacing the “I” of the self-report form. For example, the self-report item: “I get excited when I think about spending time with my family” was changed to the peer report item: “Alison gets excited when she thinks about spending time with her family”).

Results and Discussion

Internal consistency and test-retest reliability. As in Study 1, internal consistency was good for all three self-report scales, with alphas ranging from 0.77 to 0.89. As shown in Table 5, internal consistency of the peer report scales was also good and similar in size to the target participant reports, with peer alphas ranging from 0.74 to 0.87². Most important, Table 5 shows

the test-retest reliability correlations for the SPA scales. They were all substantial, and quite similar, ranging from .80 to .81.

External validation: Correlations with peer reports. Correlations between the target participants' self-reports and the peer reports (shown in Table 5) all reached .50 or above, surpassing the .30 barrier sometimes referred to as a limit to validity coefficients (McCrae, 1982). Thus, these substantial validity correlations show that participant self-reports of their anticipated social pleasure in different relationships converged quite well with an independent data source.

In sum, Study 2 showed that the individual differences assessed with the preliminary SPA scales were quite stable over a 10-day retest interval. Future research can ascertain if they are also stable over longer periods of time. Additionally, participant's self-reports of anticipated social pleasure in different relationships converged well with peer reports (with correlations of .50 and above), thus providing evidence for external validity.

Study 3: Linking the Three Dimensions of Social Pleasure Anticipation to Measures of Affective Processes, Personality, and Well-being Outcomes

Study 3 was designed to examine the nomological network of the three dimensions underlying social pleasure anticipation, as measured by the preliminary SPA scales developed in Studies 1 and 2. First, we asked whether the SPA scales show gender and ethnic differences. Second, we tested whether the three scales related in coherent ways to conceptually related measures, namely individual differences in the experience of social and non-social pleasure and lack of pleasure (i.e., anhedonia), as well as to existing measures of anticipatory sensory pleasure. Third, we addressed the implications of the three SPA scales with respect to individual differences in personality (e.g., extraversion, agreeableness, behavioral approach), clinical symptoms and well-being (e.g., social anxiety and satisfaction with life), and social functioning (shyness, loneliness).

Gender and Ethnic Group Differences

Studies 1 and 2 showed that there are general individual differences in social pleasure anticipation with friends, family, and new people. However, there may also be gender differences regarding anticipating social pleasure as well, particularly in the family domain. Some evidence suggests that women are more connected to their family of origin than are men throughout the lifespan (Feiring & Coates, 1987). Indeed, not only are women more frequently the primary caregiver for their children, they also tend to become their parents' caregivers more frequently than men (e.g. Horowitz, 1985). Women are theorized to be socialized in more "other-oriented" and nurturing ways, especially to close family members (Eagly & Steffen, 1984; Fiske, Cuddy, Glick, & Xu, 2002). Additionally, both men and women perceive women to be motivated by ideals (rather than obligation), suggesting that possibility that women are not only motivated to maintain familial relationships out of a sense of duty or obligation (e.g., Johnston & Diekman, 2015) but because these relationships are also a source of pleasure. In short, women may anticipate more pleasure from familial relationships than do men. We were thus interested in whether such gender differences would be found with the SPA scales.

There may also be differences among ethnic groups. For example, Asians and Asian Americans (who tend to value interdependence and collectivism) may experience greater anticipatory social pleasure with family, compared to individuals with more independent European-American backgrounds. However, if the greater family commitment among East Asians reflects sense of duty and obligation, rather than pleasure, then we would not expect to find any differences in anticipatory pleasure with family. The finding that Asians that have long lived in the U.S. consistently score lower on Extraversion than those from more individualistic cultures (e.g., European-Americans; see Eap, DeGarmo, Kawakami, Hara, Hall & Teten, 2008; Konstabel, Realo, & Kallasmaa, 2002; Yang, 1986) suggests we might find Asians score lower on the New People scale.

Implications for Personality, Social Functioning, and Adjustment

Anticipatory social pleasure should also play an important role in understanding individual differences with regards to personality traits and related constructs. As described in the Introduction, social pleasure should be relevant to the two interpersonal dimensions in the Big Five taxonomy, namely Extraversion and Agreeableness. Extraversion includes traits such as sociability, positive emotionality, and assertiveness and is associated with approach motivation and anticipatory pleasure on the TEPS, suggesting that people high on Extraversion anticipate pleasure from potentially *novel* social stimuli and seek out such stimuli (Ashton, Lee, & Paunonen, 2002). We would therefore expect that people high in Extraversion would also derive more anticipatory pleasure from social interactions with new people.

Agreeableness is the other inherently interpersonal trait in the Big Five taxonomy but in contrast to the assertive and energetic approach characteristic of Extraversion, the kind of social pleasure that agreeable individuals anticipate is more closely related to investment in close relationships (e.g. John et al., 2008; Gattis et al., 2004; Prinzie et al., 2009), suggesting greater anticipatory pleasure in long-term relationships, such as family and friends. In sum, although both Extraversion and Agreeableness are interpersonal traits, they may reflect inherent differences in the type of social pleasure people anticipate. That is, people who are high on Extraversion should be characterized by anticipating social pleasure with new people, whereas Agreeableness should be characterized by anticipating social pleasure with family or friends.

We also expected to see differential relationships between anticipatory social pleasure and aspects of social functioning, including the constructs of loneliness and shyness, which can be conceptualized as indicators of diminished social functioning or belonging. Studies have shown a robust correlation between shyness and loneliness (e.g. Jackson, Fritch, Nagasaka, & Gunderson, 2002); however, it is unknown whether there are differences in the way that people who are shy or lonely experience anticipatory social pleasure with family, friends, or new people.

Loneliness has been conceptualized as a painful experience of emotional or social isolation, which can be experienced even in the context of social interactions and sustained social contact (Weiss, 1973; Heinrich & Gullone, 2006). Further, dissatisfaction with the quality of relationships with friends and family has been found to be a predictor of loneliness (Cutrona, 1981), and we therefore tested whether diminished anticipatory pleasure with friends and family, as measured by the SPA scales, would also be related to loneliness. In contrast, shyness has been

conceptualized as a personality trait that is separable from sociability (Cheek & Buss, 1981; Bruch, Gorsky, Collines, & Berger, 1989). Shyness involves a fear of being negatively evaluated by people one doesn't know and by discomfort in novel social situations, as well as avoidance of these kinds of contexts and situations (e.g. Cheek & Buss, 1981; Cheek & Melchior, 1990). In line with these cognitive-affective and behavioral components, we reasoned that people who are shy should be characterized by diminished anticipatory social pleasure specifically with new people. In sum, loneliness should relate to diminished anticipatory pleasure across all relationship types, whereas shyness should be related primarily to the domain of new people.

Finally, we were interested in assessing whether the SPA scales were related to clinical symptoms and well-being such as social anxiety, and satisfaction with life. For example, cognitive models of social anxiety suggest that when anticipating a social situation, people with social anxiety engage in cognitive processes that increase anticipatory anxiety (Clark & Wells, 1995). The relationship with social anxiety and anticipatory social pleasure is less well understood. We know that social anxiety is associated with less positive affect (i.e., pleasure) as well as with smaller social networks (i.e., fewer new people being added) (see Kashdan, 2007, for a meta-analysis). Thus, we expected that social anxiety would be somewhat related to diminished anticipatory pleasure across all three relationship types, but most strongly with new people.

Convergent and Discriminant Validation: Links to Measures of Social and Nonsocial Pleasure and Anticipation

Importantly, we tested basic predictions about the uniquely social (versus nonsocial) and anticipatory (vs. consummatory) aspects of the SPA scales. If the scales are indeed measuring *social pleasure anticipation*, they should be related more highly (uniquely) with existing measures of social pleasure (e.g., the Social Anhedonia scale) than nonsocial pleasure (e.g., the Physical Anhedonia scale). Similarly, they should be related more highly with existing measures of nonsocial anticipatory pleasure (e.g., TEPS anticipatory scale) than with nonsocial consummatory pleasure (TEPS consummatory scale).

We also tested two implications of social pleasure anticipation, namely for social (vs. nonsocial) motivation and for experiences of actual pleasure, both measured during the previous week. Everything else being equal, individuals *anticipating* high levels of social pleasure on our SPA scales should be more motivated to seek out social activities that bring them joy (i.e., social motivation) than nonsocial activities.

Collinearity among the existing measures will play a substantial role in examining the implications of social vs. nonsocial pleasure and anticipatory vs. consummatory pleasure. That is, social and nonsocial anhedonia are substantially correlated, with correlations of at least .60 (e.g., Chapman, Chapman, & Raulin, 1976; Bailey, West, Widiger, & Freiman, 1993), as they share the lack of pleasure; similarly, anticipatory and consummatory pleasure in the nonsocial domain are correlated, with correlations of .41 (Gard et al., 2006), because they both involve pleasure. To control for this inherent correlation in the existing measures, we conducted regression analyses; for example, we tested whether social (rather than nonsocial) anhedonia is uniquely related to the SPA scales.

Finally, note that so far we have considered global predictions about pleasure and anticipation, without addressing differences between the SPA Friends, Family, and New People scales. In part, our lack of precision is due to the lack of relationship differentiation in the existing measures of social pleasure. However, we expected that many of the existing measures would not represent all three kinds of relationship equally. Just inspecting the items on existing measures reveals that family relationships are especially underrepresented, despite the primary importance of family in many people's life. Empirically, such underrepresentation would be apparent in lower correlations and regression coefficients when linking the existing measures to the SPA Family scale, as compared with the Friends or even the New People scale. One of the important contributions of Study 3, then, is to help explicate and clarify the mix of relationship content included in the measures currently in use.

One broad measure of motivation and pleasure (the MAP-SR; Llerena et al., 2013) assesses motivation to engage in social and nonsocial sources of pleasure and includes two separate items about specific relationships: the importance of family relationships and the importance of relationships with friends. We reasoned that individuals who anticipate more pleasure from family interactions (i.e., high scores on the SPA Family scale) should, in general, have come to value these relationships more; and vice versa for individuals who anticipate more pleasure in interactions with friends (i.e., high scores on the SPA Friends scale). To test these ideas, we conducted a test of the differential (or discriminant) validity of two of our SPA scales.

Method

Participants. The participants in Sample A, also used in Study 1, completed measures to assess the convergent, discriminant, and predictive validity of the SPA scales. Demographic information for Sample A is summarized in Table 1. We again used the derivation and replication design to provide a basic test of generalizability of our findings.

Procedure. Participants completed 12 measures that were presented in random order, following the SPA scales. All participants provided consent electronically prior to completing questionnaires online and received partial course credit for their participation.

Measures. The measures included in Study 3 are described below. The first section, entitled *Pleasure and anhedonia*, focuses on individual-difference constructs that are conceptually similar (or opposite) to anticipatory social pleasure, and thus allowed us to test predictions about the theoretical interpretation of the constructs measured by the SPA scales. The next section, *Personality and motivation*, includes different conceptual frameworks that have originated in other literatures and thus allowed us to elaborate the broader nomological network of the SPA constructs; moreover, these links may provide a novel lens on some of the most-studied concepts in personality psychology, such as Extraversion and how it differs from Agreeableness. The *social functioning* measures allowed us to assess shyness and how it differs from other indicators of diminished social functioning like loneliness. Finally, the fourth section, *Psychological symptoms and well-being*, includes measures that capture the broader implications of the SPA constructs for important adjustment outcomes, such as life satisfaction.

Pleasure and anhedonia. We assessed the convergent validity of the SPA scales in multiple ways. The first is through a simple correlation: do measures of pleasure (or anhedonia)

and anticipation correlate with social pleasure anticipation? However, we also wanted to show not only that the SPA scales were correlated with these measures, but also that measures of anticipatory pleasure predicted the SPA scales more than measures of consummatory pleasure and that social pleasure measures predicted the SPA scales more so than measures of nonsocial pleasure. As such, we grouped the constructs into conceptually important contrast pairs that would allow us to test specific hypotheses about the SPA scales (see also Table 6 for a simple listing).

We assessed anticipatory and consummatory non-social pleasure using the **Temporal Experience of Pleasure Scale** (TEPS; Gard et al., 2006). The TEPS is an 18-item measure, and the items ask about physical or sensory pleasure. There are 10 anticipatory pleasure items (TEPS-Ant), such as “When I’m on my way to an amusement park, I can hardly wait to ride the roller coasters”, and 8 consummatory pleasure items (TEPS-Con), such as “I love it when people play with my hair.” We expected that the SPA scales would be positively correlated with both scales as they both assess pleasure. However, because both the SPA scales and TEPS-Ant were designed to assess *anticipated* pleasure, we expected that regression analyses would show that the TEPS-Ant scale would predict the SPA scales more strongly than would TEPS-Con.

To measure social versus nonsocial anticipatory pleasure, we again used two scales. The first was the **Anticipatory and Consummatory Interpersonal Pleasure Scale** (ACIPS; Gooding & Pflum, 2014a). The ACIPS is a 17-item scale to assess interpersonal pleasure and includes both anticipatory and consummatory social pleasure items such as, “I enjoy looking at photographs of my friends and family.” Participants respond using a Likert scale from 1 (very false for me) to 6 (very true for me). Higher scores reflect greater social pleasure. Despite the name, the ACIPS does not distinguish between anticipatory and consummatory social pleasure and is scored as a total score (Gooding & Pflum, 2014a, 2014b). We expected that the SPA scales would be positively correlated with the ACIPS total score. The second scale in this comparison pair was the **Savoring Beliefs Inventory – Anticipating Scale** (SBI-Ant; Bryant, 2003). The SBI-Ant scale is an 8-item scale that assesses an individual’s ability to anticipate pleasure in the future. The items are neither social nor specific; instead they are more abstract in nature, such as “Before a good thing happens, I look forward to it in ways that give me pleasure in the present.” Participants rate each item on a Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). We expected that the SPA scales would be positively correlated with the SBI-Ant Scale. More important, we also expected that because the ACIPS is a measure of social pleasure, in a joint regression analysis it would predict the SPA scales better than the SBI-Ant which is a measure of nonsocial anticipatory social pleasure.

To test the contrast between physical versus social anhedonia, we used two existing anhedonia scales. The **Physical Anhedonia Scale – Revised** (Chapman, Chapman, & Raulin, 1976) includes 61 True/False items that assess the diminished ability to experience pleasure from typically enjoyable physical stimuli, such as the item “Beautiful scenery has been a great delight to me.” The other scale was the brief version of the **Social Anhedonia Scale** (Mishlove & Chapman, 1985), which is comprised of 24 true/false items that assess diminished pleasure in the social domain. We expected that the SPA scales would be correlated negatively with both anhedonia scales but that in a joint regression the Social Anhedonia Scale would predict SPA scales better than the Physical Anhedonia Scale.

We derived several indicators of social versus nonsocial pleasure and motivation, as well as the importance of two kinds of relationships, from the **Motivation and Pleasure Scale – Self Report** (MAP-SR; Llerena et al., 2013). The MAP-SR is a 15-item self-report measure that assesses diminished motivation and pleasure (anhedonia) across several domains, such as social and work (or educational) contexts. The MAP-SR was derived from an empirically developed structured clinical interview (Kring et al., 2013), which assesses deficits in motivation and pleasure. Although the MAP-SR is usually scored as one total score, it includes items assessing multiple facets of social and nonsocial motivation and pleasure that are of interest here. Specifically, we used items from the MAP-SR to compare *social and nonsocial motivation*, as well as *social and nonsocial pleasure*, both experienced in the past week, as well two items assessing the importance of family and of friends. We used these pairs of measures (e.g., social vs. nonsocial pleasure in the past week) as predictors of scores on each of the SPA scales.

Personality and motivation. The **Big Five Inventory** (BFI; John, Donahue, & Kentle, 1991; see also John & Srivastava, 1999) is a 44-item questionnaire that assesses the five broad domains that define the major personality traits. Participants indicate how much they agree with each item on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree). We were specifically interested in the relationship of the SPA scales with Extraversion and Agreeableness. Extraversion is defined as "an energetic approach toward the material and social world and includes traits such as sociability" (John et al., 2008, p.120). Agreeableness "contrasts a prosocial and communal orientation with antagonism" (John et al., 2008, p.120) and thus we expected that scores on Agreeableness would be predicted by those SPA scales that reflect more intimate relationships, specifically the Friends and Family scales, rather than the New People scale.

The **Behavioral Inhibition/Behavioral Activation Scales** (Carver & White, 1994) assess two putative motivational systems. The behavioral inhibition system (BIS) regulates aversive motives (e.g., avoidance) and includes items such as "Criticism or scolding hurts me quite a bit." The behavioral approach system (BAS) regulates appetitive motives (e.g., approach) and includes items such as "If I see a chance to get something I want I move on it right away." We expected that the SPA New People scale would be the strongest (and positive) predictor of BAS scores (i.e., the more individuals look forward to interactions with new people, the more behavioral approach they should show), and the strongest (and negative) predictor of BIS scores (i.e. the less individuals look forward to interactions with new people, the more avoidance behaviors they should show).

Social functioning. To examine the interpersonal implications of the SPA scales, we also measured three important aspects of social functioning. The **Social Closeness Scale** from the Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982) comprises 22 true/false items that assess social connection, defined as the extent to which someone is "sociable, values close relationships, is warm and affectionate, welcomes support, and turns to others for comfort and help" (Tellegen & Waller, 2008). An example is the reverse-keyed item "I tend to keep my problems to myself."

Shyness was measured with the 20-item scale developed by Cheek and Melchior (1990), which assesses individual differences in feelings and behaviors related to shyness. Individuals rate the extent to which each item is characteristic of them on a scale from 1 (very

uncharacteristic or untrue, strongly disagree) to 5 (very characteristic or true, strongly agree). An example item is, “I am socially somewhat awkward.” In Study 4, we report data from a 6-item short version of this shyness scale. Here we examined both the full and the short version; alpha reliability of the short scale was still an impressive .87, as compared to .97 for full scale, and the correlation between short and full scale was $r = .97, p < .001$, indicating the short scale can stand in very well for the full scale. Nonetheless, we ran the identical regression once for the short version and once for the long version of the shyness scale; the results were essentially the same. Thus, we report here the results using the full shyness scale.

The **UCLA Loneliness Scale** (UCLA; Russell, 1996) is a self-report measure of interpersonal isolation. We here administered the full original scale which consists of 20 items; for each item, participants indicate how often they feel this way on a Likert scale from 1 (Never) to 4 (Always). In Study 4, we used a 3-item short version of the scale. Here, we compared both the full and the short scale version and found them to be very similar (i.e., alpha reliability of short scale = .83 compared to .94 for full scale; correlation between short and long scales $r = .86$). Additionally, regressions using either scale were very similar, and thus we focus here on the results for the original loneliness scale.

Psychological symptoms and well-being. Finally, we assessed the convergent and discriminant validity of the SPA scales using measures of psychological symptoms and well-being, including social anxiety (Interaction Anxiousness Scale) and general life satisfaction. The **Satisfaction with Life Scale** (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item self-report measure of general life satisfaction. Participants rate how much they agree or disagree with each statement from one of seven descriptors ranging very strongly disagree to very strongly agree. We expected that the SPA scales would be positively correlated with the SWLS such that the more anticipatory social pleasure one has, the more they will be satisfied with life.

The **Interaction Anxiousness Scale** (IAS; Leary, 1983) is a 15-item self-report measure focused on the affective components of social anxiety. Participants rate each item on a scale from 1 (Not at all characteristic of me) to 5 (Extremely characteristic of me). We expected that the Friends and Family SPA scales would correlate modestly and negatively with the IAS. However, to the extent that anticipating interacting with new people is more anxiety-provoking than interacting with familiar others (like family and friends), we expected a stronger relationship between the SPA New People scale and the IAS.

Data Analytic Approach

We expected that measures of pleasure and anhedonia would be moderately or highly correlated with the SPA scales. Because we selected these measures to provide evidence of convergent validity for all three SPA scales, and because we expected that all three SPA scales assess anticipatory social pleasure, albeit in different social relationships, we computed zero order correlations between the SPA scales and other measures of pleasure and anhedonia.

In contrast, we expected that the three SPA scales might be differentially related to other measures, thereby providing evidence of convergent *or* discriminant validity depending on the SPA scale. For example, we expected that a measure of social anxiety might provide evidence of convergent validity with the New People SPA scale, but discriminant validity with the SPA

Friends and Family scales. We therefore conducted multiple regression analyses to look at the predictive validity of the SPA scales for measures pleasure and anticipation. In addition, the three social pleasure anticipation scales were entered as predictor variables in measures of personality, motivation, social functioning, and psychological symptoms and subjective well-being. Thus, once accounting for shared variance, we could assess whether the SPA scales were differentially associated with other measures. That is, these analyses demonstrate associations between the SPA scales and other measures once accounting for shared variance.

We conducted all analyses in both the derivation and replication sample. Results are presented in Tables 6 and 7. We used the guidelines for interpreting the magnitude of correlational effect sizes outlined by Cohen (1988, 1992): Correlation coefficients < 0.30 were considered modest, $0.30 - 0.49$ were considered moderate, and >0.50 , strong. We set the significance levels on all tests to $p < 0.01$ (two-tailed) in both derivation and replication sample analyses to adopt a conservative approach to interpretation.

Results and Discussion

Group differences: Gender and ethnicity. We examined demographic differences in the responses to the SPA scales. Here we predicted that women would report more anticipatory social pleasure from family. Indeed, women scored higher than men on the SPA Family scale, and this was true in both the derivation and replication samples. As shown in Table 3, independent-samples *t* tests showed these differences were significant, with effect size estimates of about a quarter to a third of a standard deviation (i.e., Cohen's *d* was about .30 in both samples). In contrast, men and women did not differ in social pleasure anticipation on either the Friends or the New People scale (see Table 3), and the effect sizes for these gender differences were uniformly small, ranging from Cohen's *d* of .02 to .12. Thus, women anticipated more pleasure from social interactions than men but only in the domain of family.

Even our large derivation sample with $N=500$ participants did not include enough members from several ethnic backgrounds to conduct analyses separately in the derivation and replication samples. Thus, we report the ethnicity findings for the total sample; the results are summarized in the bottom part of Table 3. We conducted one-way between-subject ANOVAs comparing the three largest ethnic groups in Sample A (European-Americans, Asian-Americans, and Latino/a) on each of the three SPA scales; none of the ANOVAs indicated any significant differences, as reported in Table 3. Even more informative than the statistical tests are the effect size estimates in Table 3, namely Cohen's *ds* comparing each of the larger ethnic groups, Asian-Americans and Latino, to European-Americans. For the Friends and the New People SPA scales, the *ds* were all between .00 and .05, indicating there were no large differences, and even for the Family scale, the largest Cohen's *d* was .13. In short, in these student samples, ethnicity did not seem to play a major role in determining participants' responses to the three SPA scales.

Anticipation, pleasure, and anhedonia. The correlations between the three SPA scales and the other measures of anticipation, pleasure, and anhedonia are shown on the left-hand side in Table 6. Overall, all but one of the correlations were significant and, as expected, correlations with measures of pleasure were all positive whereas correlations with measures of anhedonia (absence of pleasure) were all negative. However, of greater interest is the pattern of correlations with scales that are represented as matched pairs in Table 6. Consider the first pair in Table 6,

which contrasts anticipatory with consummatory nonsocial (physical or sensory) pleasure. The prediction is that the SPA scales with their focus on anticipation should relate *more* strongly to another anticipatory (rather than to a consummatory) scale, even if the nature of the pleasure (social for SPA scales, nonsocial for the other scales) does not match. Table 6 shows that the TEPS – Anticipatory scale correlated .53 with the SPA Friends scale in both the derivation and the replication samples. That is, these two scales shared 28% of their variance in common. In contrast, the TEPS – Consummatory scale correlated .42 and .41 with that SPA scale--these two scales shared only 18% of their variance in common.

However, as mentioned before, the TEPS Anticipatory and Consummatory scales tend to be highly correlated ($r=.67$ in the derivation sample and $r=.68$ in the replication sample here), and this overlap needs to be considered when evaluating the links between these two TEPS scales and the SPA scales. The regression analyses summarized on the right-hand side of Table 6 achieve that goal. The results were very clear: When both TEPS scales were entered into a regression to predict the SPA Friends scale, the TEPS Anticipatory scale still had significant and substantial beta weights of .46 and .44 in the derivation and replication samples, respectively, whereas the TEPS Consummatory scale had nonsignificant betas of .10 and .11, respectively. In short, only the TEPS Anticipatory scale uniquely predicted the anticipation of social pleasure as measured on the SPA Friends scale. This pattern of *differential* prediction was also found for the other two SPA scales, in each case linking the SPA scale clearly with anticipatory but not with consummatory nonsocial pleasure. This pattern held for each of the 6 pairs of relevant regression coefficients in Table 6; that is, across the three SPA scales and across the two (derivation and replication) samples. This pattern can be summarized by the mean betas shown in the right-most column of Table 6: the mean effect sizes were .37 versus .10.

The next pair of scales contrasted the ACIPS, a measure of social anticipation, with the SBI, a measure of nonsocial anticipation, thus allowing us to test whether the SPA scales were linked more strongly with a measure of social than nonsocial anticipatory pleasure. Again, the regression analyses showed a clear and replicated pattern of differential predictions, in the expected direction. Again, this differential pattern replicated in the derivation and replication samples; the overall effect sizes were means betas of .52 versus .13.

The same general pattern was obtained for the third pair of contrasting scales as well, namely for social versus nonsocial anhedonia. However, the expected pattern was clear only for the SPA Friends scale (betas averaging $-.45$ vs $-.24$ across the two samples) and the SPA New People scale (betas averaging $-.35$ vs $-.09$). In contrast, the betas for the SPA Family scale were all lower (ranging only from $-.22$ to $-.30$) and about the same for social and nonsocial anhedonia. This is likely due to the item representation on the anhedonia scales—as the Social Anhedonia scale does not include any family-related item content, it could not correlate more highly with the SPA Family scale.

How were the SPA scales related to social vs. nonsocial pleasure and motivation as assessed during the past week? The regression analyses for the next pair of measures (pleasure) showed that individuals who scored high on the SPA scales reported more pleasure in their social interactions during the past week but not more nonsocial pleasure, such as in work or leisure activities, with mean betas of .44 vs .06. Similarly, in terms of motivation, the SPA scales were uniquely related to social but not to nonsocial (work or leisure) motivation (with mean betas of

.37 vs .16); here, the differential predictions held again for the Friends and New People scales but not for the Family scale, where the uniformly low betas (ranging from .15 to .20) are consistent with the observation that the social motivation measure scored from the MAP-SR does not represent any social activities with family members.

Finally, the last contrast pair in Table 6 allowed us to test whether either the importance of friends or the importance of family (as scored from the MAP-SR) were uniquely related to the corresponding SPA scales. The regression results were clear. When predicting the SPA Family scale from the two importance scores, only the importance of family predicted, with betas of .70 and .71, in the two samples. In contrast, when predicting the SPA Friends and SPA New People scales, only the importance of friends predicted, with substantial betas averaging .48 across these two SPA scales and the two samples.

Overall, then, Table 6 provides strong and replicated evidence for the expected differential associations between the SPA scales and numerous existing measures of pleasure and anticipation. Specifically, the SPA scales were related (a) more strongly to scales measuring anticipatory (rather than consummatory) pleasure, (b) more strongly to social (than nonsocial) anticipation, anhedonia, pleasure, and motivation, and (c) more strongly to the importance of family (for the SPA Family scale) and, conversely, to the importance of friends (for the SPA Friends and New People scales). In short, these differential associations provide substantial evidence for the convergent and the discriminant validity of the SPA scales.

Personality and motivation. The correlations between the three SPA scales and measures of personality and motivation are shown on the left-hand side of Table 7. As expected, the 12 correlations with Extraversion and Agreeableness were all positive and significant, for all three SPA scales and in both the derivation and replication samples. However, the correlations ranged in size from .24 to .66, consistent with the differential relationships we expected.

Thus, the results of the regression analyses, shown on the right-hand side of Table 7, are more informative. Here, the three SPA scales (in the columns) were entered to predict the personality and motivation variable in each row. For example, consider the first personality variable in the table, Extraversion. We expected that all three SPA scales would be positively correlated with Extraversion (which we tested in the correlational analysis). In addition, we hypothesized that, in a joint regression that controls for the overlap among the SPA scales, Extraversion would be most uniquely related to the SPA New People scale. Indeed, the regression indicated that only the SPA New People Scale uniquely predicted Extraversion, and this pattern was closely replicated, with substantial betas of .56 in the derivation sample and .57 in the replication sample. In contrast, the betas for the SPA Friends and Family scales were uniformly small and none of them reached .15. These findings suggest that a core part of Extraversion is not only whether a person is generally socially affiliative, but specifically how they feel about future interactions with new people. In other words, a major difference between more extraverted and more introverted individuals was that the “extraverts” believe that meeting and interacting with individuals they have yet to meet is going to be much more pleasurable for them than do “introverts.”

In contrast, the regression analyses for Agreeableness yielded a completely different pattern, as illustrated in Figure 1. Agreeableness was jointly predicted by both the SPA Family

and Friends scales but not by the New People scale. Again, this pattern was closely replicated with betas of .26 and .27 for the Friends and Family Scales, respectively, in the derivation sample, and .23 and .24 in the replication sample; in contrast, the betas for the New People Scale were .02 and -.01. These differential findings add to the literature that Big Five Agreeableness is the prosocial trait that facilitates investment in close relationships with family and friends, and suggest that individuals high in Agreeableness are motivated to make these investments because they anticipate more pleasure from these relationships than do individuals low in Agreeableness.

As expected, the correlations with the three nonsocial personality dimensions were generally smaller in size. In the replicated regression analyses, Neuroticism had a unique but small negative link to the SPA New People scale; Openness was uniquely linked only to the Friends scale; and Conscientiousness was uniquely linked to both Friends and Family scales.

As expected, the correlations between behavioral approach (BAS) and the SPA scales were all positive and significant, ranging from .25 to .51. The regression analyses estimated very similar betas in the derivation and replication sample (see Table 7) and indicated that behavioral approach was uniquely related to both the SPA Friends and New People scales but not to the SPA Family scale.

Finally, the correlations for the behavioral inhibition scale (BIS) were all quite small, and none of them was statistically significant in both samples. For example, the correlations were positive for the Friends scale in both samples but significant only in the derivation sample (r of .17) and not in the replication sample (r of .06). Conversely, the negative correlations for the New People scale were significant only in the replication sample. Although this positive-negative pattern held up in the regression analyses, the small effect sizes and lack of clear replication suggest that anticipatory social pleasure is not central to this measure of the behavioral inhibition system and its focus on avoiding negative and threatening outcomes.

To summarize these personality and motivation effects, the SPA scales were differentially related to Extraversion and Agreeableness. As illustrated in Figure 1, Extraversion was uniquely related to anticipated pleasure with *new people*, whereas Agreeableness was uniquely related to anticipated pleasure with emotionally closer relationships, namely *friends* and *family*. The SPA scales also related differentially to the BAS and BIS scales: Behavioral approach was uniquely and positively linked to anticipated pleasure with both friends and new people, whereas behavioral inhibition did not show any substantial links with anticipatory pleasure in any of the three types of relationships.

Social functioning. The correlations and regressions for the measures of social functioning are also shown in Table 7. Social closeness (as measured by the MPQ) was positively correlated with all three SPA scales, whereas shyness and loneliness were both negatively correlated with the SPA scales. The regression analyses indicated that the SPA Friends scale was most strongly linked to social closeness, followed by New People, and then Family; surprisingly, the regression weights for Family were only .11 and .15, suggesting that, despite its name, the MPQ social closeness scale pays scant attention to this important domain of relationship functioning.

As expected, shyness was uniquely related only to the New People scale, with substantial betas of $-.60$ and $-.66$. The overall pattern of regression weights is shown in Figure 2, separately in the derivation sample (Panel a) and replication sample (Panel b). These results suggest that shy people may find it hard to anticipate pleasure from social interactions in only one relationship type, namely with new people, whereas they may anticipate pleasure from friends and family similarly as do non-shy people. In contrast, for loneliness we found a more generalized pattern of diminished social pleasure anticipation, with significant and negative betas for all three relationship types as shown in Figure 2. The negative value for friends is conceptually most salient: even in their friendships, which people can freely choose, there diminished anticipated pleasure for the lonely. These findings support the conceptualization of loneliness as a generalized lack of social connectedness, whereas shyness involves diminished pleasure in only one, highly circumscribed social context (i.e., new people).

Psychological symptoms and well-being. As expected, social pleasure anticipation was negatively correlated with social anxiety, and positively correlated with well-being; this was true across all three relationship types and again replicated in the two samples. Results from regression analyses were consistent with predictions: social anxiety was uniquely related to the SPA New People scale (with betas of $.54$ in the derivation and $.57$ in the replication samples), but not to the Friends or Family scales. In short, social anxiety was uniquely related to anticipated pleasure with new people.

For well-being, the regression analyses were not fully consistent across the derivation and replication samples. Greater life satisfaction was linked with greater social pleasure anticipation from SPA Family in both samples (see Table 7) but the link with the SPA Friends scale was significant in the derivation sample (beta of $.20$) but not in the replication sample (beta of $.17$).

Study 4: Refining the three Social Pleasure Anticipation Scales: Replication and Extension of Links to Personality and Well-being

Studies 1-3 served to identify the relational factor structure of anticipatory social pleasure, and suggested that considering the role-specificity of anticipatory pleasure with regards to friends, family, and new people is important and generative. However, because these factors were empirically derived, we did not know the nature of the underlying factors and thus had not generated equal numbers of items for each of the three kinds of social pleasure. Thus, the number of items defining each of the preliminary SPA scales introduced in Study 1 (see Table 2) varied substantially. Further, some of our initial items had complex or vague conceptual links to the final factors because we had not specified the role-context of the social anticipatory pleasure explicitly or uniquely enough. For example, the item “I look forward to spending time with loved ones” may refer to anticipatory pleasure related to family or to friends; indeed, the cross-factor loadings we observed for this item (see Table 2) indicated just that. Finally, our preliminary item set did not include enough reverse-coded items, and the preliminary scales were not balanced in terms of true and false keyed items. Thus, the scale intercorrelations, especially between the Friends and New People scales, might turn out lower when these methodological issues are addressed.

We also wanted to replicate some of our core findings, especially the gender difference for SPA Family, the differences between Extraversion and Agreeableness in the Big Five, and

the differences between two kinds of diminished social functioning (shyness and loneliness). We additionally wanted to extend our findings with regards to the relationship between social pleasure anticipation and clinical symptoms. Here, we were interested in replicating findings for social anxiety and well-being, and to extend to symptoms of depression. Diminished social pleasure is also observed in depression (Blanchard, Horan, & Brown, 2001; Beck & Steer, 1987; Radloff, 1977). On the TEPS, decreased anticipatory pleasure in the non-social realm has been associated with greater depression symptoms (Gard et al., 2006). Similarly, a laboratory study of reward responsiveness indicated that decreased anticipatory pleasure is associated with greater depression symptoms (Pizzagalli, Iosifescu, Hallett, Ratner, & Fava, 2008). With these clinical symptoms, theory and research has not yet specified whether diminished anticipatory pleasure is widespread across all social relationships or whether its effects are more circumscribed. Our final goal was to begin to understand another important implication of individual differences in social pleasure, namely for the availability of social support, a critical interpersonal variable that has been linked to psychological and physical health, and well-being (e.g., Cohen, 2004).

Given these limitations and goals, Study 4 set out to refine the preliminary SPA scales to better capture the underlying conceptual structure of social pleasure anticipation. Specifically, we added items to expand the New People scale as well as new reverse-coded items to create scales that are more balanced in terms of scoring direction.

Methods

Participants and procedure. We recruited 492 participants from a large public university on the west coast of the United States (see Table 1 for demographics; Sample C) to complete the SPA scales and the other self-report measures in a single on-line testing session. All participants provided consent electronically prior to completing questionnaires online and received partial course credit for their participation. The Appendix shows the complete instructions, rating scale, scoring instructions, and items for the final version of the Social Pleasure Anticipation (SPA) Scales.

Measures. As a measure of personality, we administered the **new version of the Big Five Inventory** (BFI-2; Soto & John, 2016) because we wanted to extend the findings from Study 3 to include lower-level facets of Extraversion and Agreeableness. In Study 3 we showed that the SPA scales differentially predicted Extraversion and Agreeableness on the earlier, general-domain version of the Big Five Inventory (John & Srivastava, 1999). Current research indicates that the broad Big Five personality domains – including Extraversion and Agreeableness – subsume more specific “facet” traits that are needed to provide a more detailed description of personality (Soto & John, 2016). In Extraversion, the desire for social approach and engagement (“Sociability”) has been identified as a central facet, with Assertiveness and Energy Level comprising complementary facets (Soto & John, 2016). In Agreeableness, the central facet has been identified as Compassion, with Respectfulness and Trust comprising complementary facets. Thus, we could replicate links of the SPA scales not only with the broad personality domains of Extraversion and Agreeableness, but also with the more specific facets subsumed by these personality domains.

In terms of social functioning, we again measured loneliness and shyness. In Study 4, we used a **short version of the Loneliness Scale** (Hughes, Waite, Hawley, & Cacioppo, 2004)

derived from the much longer UCLA Loneliness Scale (Russell, 1980) using exploratory and confirmatory factor analyses; item examples include “I feel left out,” and “I lack companionship.” Participants rated how often they feel this way on a Likert scale from 1 (Never) to 4 (Always). Shyness was measured with a **short version of Shyness scale** developed by Cheek and Melchior (1990); see Study 3. To avoid redundancy with the SPA scales, we excluded from the Shyness scale any items that invoked “new people” as the source of social discomfort (e.g., we excluded the item “It is hard for me to act natural when I am meeting new people”), and focused instead on other aspects of shyness (e.g., reverse-scored: “I am confident about my social skills”). Participants rated the extent to which each item was characteristic of them on a scale from 1 (strongly disagree) to 5 (strongly agree).

In terms of psychological symptoms and well-being, we again measured life satisfaction and depression. Satisfaction with Life (SWLS) was measured with a **3-item short version of the original SWLS scale**. Depression symptoms were measured with the **Center for Epidemiologic Studies—Depression (CES-D)** scale (Radloff, 1977). The CES-D was developed to assess depression symptoms in community samples and should thus be sensitive to subclinical symptoms of depression.

We also assessed perceived social support using the **Interpersonal Support Evaluation List (ISEL; Cohen & Hoberman, 1983)**. The ISEL was designed to assess different ways in which other people may affect an individual’s responses to stressful life events. Participants rated how often each item was true for them on a Likert scale from 0 (Definitely False) to 3 (Definitely True). Here we focused on the Tangible Support and Appraisal Support subscales. Appraisal Support refers to socioemotional support and thus relies on relationships in which there is at least some existing level of familiarity and emotional closeness. An example item on the Appraisal Support scale is, “When I need suggestions on how to deal with a personal problem, I know someone I can turn to.” Because this type of interpersonal support necessitates emotional closeness, we predicted that the Appraisal Scale would be uniquely linked to anticipatory pleasure from friends and family. In contrast, Tangible Support refers to instrumental aid such as providing financial support or services. An example item is, “If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.” Although instrumental support may be provided by people with whom one is close, this type of social support does not necessitate a close, personal relationship and thus may be provided even by fairly new acquaintances. Therefore, we predicted that Tangible Support would be related to all three SPA scales.

Data Analytic Plan

We expected that, consistent with Study 3, the three SPA scales would be differentially related to these measures. We therefore conducted multiple regression analyses to examine the predictive validity of the SPA scales for measures of personality (BFI-2 Extraversion and Agreeableness and their facets), social functioning (shyness and loneliness), psychological symptoms (depression) and well-being (life satisfaction), as well as perceived social support. The three SPA scales were entered jointly as predictor variables, predicting the other measures as the dependent variables so that we could assess whether one or more of the SPA scales was uniquely related to the other measures after accounting for shared variance.

Results and Discussion

Testing the structure of the SPA Scales: Principal components analysis, internal consistency, and intercorrelations between the scales. Results from the principal components analysis of the final SPA items are summarized in Table 8, which gives the OBLIMIN-rotated loadings. As in Study 1, there was no evidence for a single, general factor; instead, the scree test suggested three major components. The first six eigenvalues were **6.37, 3.18, 1.59**, .95, .75, and .69. Closely replicating Study 1, the three-factor solution fit best. After OBLIMIN rotation, one factor was defined by items concerning friends, another factor was defined by family items, and the third by items related to new people. Together these three factors accounted for 61.9% of the variance. As indicated in Table 9, internal consistency for the three final scales was good. Correlations between the three scales, also shown in Table 9, were lower than the scale intercorrelations in Study 1 and indicate that the final scales are measuring distinct but related facets of anticipatory social pleasure. The final items, instructions, and rating scale are reprinted here in the Appendix.

Gender and ethnic differences. Here we set out to replicate the gender differences in pleasure anticipated from family from Study 3. An independent samples *t* test indicated significant gender differences, with women again scoring higher than men on the SPA Family scale (see Table 10). As in Study 3, there were no gender differences on either Friends or New People. Also consistent with Study 3, results from a one-way ANOVA indicated no ethnic differences in social pleasure anticipation, in any of the three relationship domains. In other words, we closely replicated our Study 3 findings with these final SPA scales.

Personality and motivation. The correlations between the three final SPA scales and measures of personality and motivation are shown on the left-hand side in Table 11. Correlations with the domains and facets of Extraversion and Agreeableness were all positive, and all but two were significant. Most interesting, however, are the results of the regression analyses, shown on the right-hand side of Table 11. Here, the three final SPA scales were entered to predict the personality variable in each row. Findings for the Big Five domains closely replicated Study 3. That is, Extraversion was uniquely related only to the SPA New People scale and Agreeableness was uniquely related to both the SPA Friends and Family scales. Figure 1 illustrates this pattern in a side-by-side comparison of the beta coefficients in Studies 3 and 4 and illustrates how closely these results replicated across the three samples in the two studies.

In addition to replicating the findings from Study 3, we extend the findings to the facet level of Extraversion and Agreeableness. For the Extraversion facets, both Sociability and Assertiveness were uniquely related only to the SPA New People scale (betas of .62 and .43, respectively). This suggests that people who derive more anticipatory pleasure from interactions with new people are more likely to socially approach and engage with other people and to also express personal opinions and goals, and influence and lead others. Interestingly, the Energy Level facet (positively aroused states such as enthusiasm and excitement) was uniquely and significantly related to all three SPA scales, with the largest effect size observed for the New People scale (beta = .45) compared to Friends or Family scales (betas of .17 and .12, respectively). Thus, anticipated social pleasure across different relationships may have an energizing effect on a person. This is especially interesting given that the Energy Level facet does not contain any items with explicitly social content.

For Agreeableness facets, Compassion, or active emotional concern for others' well-being, was related uniquely to higher scores on both the Friends and Family SPA scales, whereas the Respectfulness and Trust facets were related only to the Family scale. This may reflect that the family can serve as the initial context for learning that other people are trustworthy and deserving of respect.

Psychological symptoms, social functioning, and well-being. In Study 3, we found that the SPA scales were differentially associated with shyness and loneliness, with shyness characterized by diminished anticipatory social pleasure in one type of relationship (i.e., new people) and loneliness showing a more general pattern of diminished social pleasure anticipation across all three relationship types. As shown in Table 11, these findings were solidly replicated in Study 4; Figure 2 illustrates this by showing the beta coefficients for the SPA scales predicting shyness and loneliness for all three samples in Study 3 and 4. Taken together, these results emphasize how important it is to consider differences in relationship types to understand diminished anticipatory pleasure and more broadly, social functioning.

Using a measure of depression symptoms developed for community samples, we found negative correlations for all three SPA scales. The regression analysis indicated a unique effect only for the New People scale (beta = $-.31$). These findings may reflect the fact that a core social task for people in college is to make new friends and build social networks. It appears that students who anticipate less pleasure from this social task (i.e., meeting and interacting with other students in classes and social situations) are more likely to experience depression symptoms.

General life satisfaction in Study 3 was correlated with all three SPA scales and uniquely related to anticipatory social pleasure with friends and family. In Study 4, we replicated the three positive correlations (all about $.27$) but found a slightly different regression pattern: life satisfaction was again uniquely related to the Family scale (beta of $.21$) but not to the Friends scale (beta of $.11$); instead the New People scale was significant (beta = $.19$)².

Did the SPA Scales predict social support? Finally, we examined links with perceived social support, which is a critical indicator of relationship quality that has been associated with physical and psychological health. As expected, Table 11 shows that the correlations were all positive. Moreover, the regression analyses showed that Appraisal support (i.e., the perceived availability of socio-emotional support) was uniquely associated with both the Friends and the Family scales (betas of $.24$ and $.15$, respectively) but not with the New People scale. This pattern of findings highlights the importance of friends and family for socioemotional support. In contrast, new people were implicated in Tangible support (obtaining concrete and immediate help and assistance from others): the Tangible support scale was uniquely associated with the SPA New People and Family scales (betas of $.30$ and $.14$, respectively) but not with the Friends scale. This pattern of support may reflect the ecology of undergraduate life at college: whereas the family may still provide tangible support in terms of financial assistance, new acquaintances (e.g., roommates) tend to be physically closer and therefore "first in line" for immediate tangible support, as longer-term friends tend to live further away and would be less available.

General Discussion

In this paper, we examined anticipatory social pleasure, a construct with relevance in many domains of psychology and neuroscience. We sought to address two fundamental questions. First, given that human beings are intensely social in nature and derive much pleasure from their interactions and relationships with others, we asked whether there are key individual differences in social pleasure *anticipation*. Second, we asked whether social pleasure anticipation is a unitary construct or is instead distinguished by different types of social relationships. Findings from the current set of studies identified meaningful individual differences in social anticipatory pleasure across three different relationship domains: friends, family, and new people. These individual differences, we suggest, can now be measured with the three distinct Social Pleasure Anticipation (SPA) self-report scales developed and validated here.

Given the importance of replication and statistical power in psychological science, we utilized a cross-validation research strategy in Studies 1 and 3, using derivation and replication samples to develop and validate the SPA scales and to bolster confidence that our findings are generalizable. Across four studies and three samples, we showed that the SPA scales have good internal consistency, retest reliability, predictive validity with peer ratings, and convergent and discriminant validity.

To examine the role of anticipatory pleasure specifically in the social domain, we tested predictions about the uniquely social (versus nonsocial) and anticipatory (versus consummatory) aspects of the SPA scales. Importantly, we found that the SPA scales were more strongly related to measures of social compared to non-social pleasure. Moreover, we found that the SPA scales were more strongly related to anticipatory compared to consummatory pleasure. Thus, the SPA scales provide a new means of assessing anticipatory pleasure, extending this construct into the social domain.

To study the unitary versus multifaceted nature of the social pleasure anticipation construct, we reported factor analytic results from three separate samples; they all converge to provide evidence for individual differences in three distinct but related facets of social pleasure anticipation. Moreover, we demonstrated and replicated results regarding how the SPA scales are differentially associated with and predictive of other domains in personality, social functioning, and well-being. For example, the two interpersonal personality domains in the Big Five taxonomy, Extraversion and Agreeableness, as well as their facets, were differentially related to the SPA scales; Extraversion uniquely involved anticipating pleasure from new relationships, whereas Agreeableness was uniquely linked to anticipating pleasure from emotionally close relationships, namely with friends and family.

The SPA scales were also differentially linked with social functioning. For example, social closeness was correlated with greater anticipated social pleasure from friends, family, and new people. By contrast, loneliness was related to *diminished* anticipated social pleasure across all relationship domains. Here, our results not only indicate that social closeness and loneliness have a strong inverse relationship ($r = -.52, p < 0.01$ in Study 3), suggesting that people who do not feel close to friends, family, or new people, are currently lonely and, to make matters worse, also do not look forward to future interactions with anybody in these three relationship contexts.

Further, social pleasure anticipation illuminated differences in constructs associated with a diminished sense of *belonging* in social functioning. Specifically, the SPA scales distinguished between shyness and loneliness: shyness appeared to be characterized by diminished social pleasure anticipation primarily with new people, whereas loneliness reflected diminished pleasure anticipation across all three relationship contexts. Our findings also illuminate differential linkages between the SPA scales and psychological symptoms and well-being. For example, in the college student samples studied here, people who do not anticipate pleasure from interactions with new people were likely to experience more depression and anxiety symptoms and were generally less satisfied with their life.

Finally, we also examined gender and ethnic differences in social pleasure anticipation. In each of the three samples, we found one consistent gender difference: as suggested by previous research on women keeping closer connections with their family of origin, we found that women anticipated more social pleasure from interacting with family than did men. This replicated finding suggests that women's greater allegiance to families is just out of a sense of obligation but also may be linked with greater anticipation of pleasure in these interactions. We found no ethnic group differences in the way that people anticipate social pleasure from friends, family or new people, even though East Asian cultures emphasize interdependence and family connection to a greater extent than do Western cultures. Our findings thus suggest the hypothesis that East Asians abide by these cultural values not because of greater anticipation of personal pleasure (as was tested here) but, perhaps, out of a sense of duty and obligation to their family.

Given that social support and relationship quality are beneficial for physical and psychological health, future studies should examine the relationship between the SPA scales and other important facets of relationship quality including social closeness, social support, and social connectedness. In addition, the SPA scales have the potential to be clinically useful. For example, our findings that the SPA scales differentially predict psychological symptoms (social anxiety and depression), social functioning (shyness and loneliness), and well-being, suggest that the SPA scales might also be used to gauge from which type of social relationships a person can seek social support in the context of different psychological symptoms. In other words, if somebody who is depressed indicates that they anticipate greater social pleasure from family (compared to, for example, new people), this suggests that the person's family can likely serve as a powerful source of social support.

As with any research, it is important to acknowledge limitations. First, the participants in these studies were college students and thus it is possible that our findings may not generalize consistently to other samples (e.g., people who have no college-level education) and age groups. For example, the SPA New People scale may be more influential in predicting depression in these young-adult samples because those in college are away from family and friendship networks that had been built throughout childhood and adolescence and because they are in a period of life that emphasizes making connections with new people and building their own social networks apart from their families (e.g., Carstensen, 1993). By middle adulthood, however, the focus on social-network building may shift away from meeting new people (and perhaps even from friends) and towards couple or spousal relationships and family life (e.g., building a family). Indeed, throughout the lifespan, social anticipatory pleasure may shift in interesting ways. Future studies ought to include additional samples and investigate developmental trajectories of anticipatory social pleasure.

In addition, although we have examined peer ratings as an external data source for evidence of criterion validation (see Study 2), future studies should use more explicitly behavioral measures to complement the present set of studies. For example, future research could make use of well-established paradigms from the affective science literature, such as studying behavioral indicators of positive emotion (e.g., smiling) in response to stimuli representing friends, family, and new people.

Finally, although the SPA scales move the field forward by carefully distinguishing three important and consequential relationship contexts (family, friends, new people), they do not cover all possible relationship types. Future work might consider assessing individual differences in other domains, such as coworkers or colleagues, who may share common goals and values, but may be different from friends. Other important types of relationships include romantic partners or spouses and children; future research needs to investigate whether these kinds of relationships can (or cannot) be subsumed under the current SPA Family scale.

To summarize, the SPA scales provide a new self-report questionnaire that measures a contextualized conceptualization of individual differences in anticipatory social pleasure: we argue, and have provided evidence, that the degree of social pleasure a person anticipates depends crucially on the specific type of relationship being considered. The Friends, Family, and New People scales all have good internal consistency, convergent, discriminant, and predictive validity, temporal stability, and external validity. Further, the scales differentially predict unique personality patterns, psychological symptoms, social functioning, and well-being. Researchers interested in considering anticipatory pleasure in social contexts or in understanding the choices people make in social situations may want to consider the contextualized perspective provided by the SPA scales.

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Footnotes

1. Due to a clerical error, one item from the Friends scale was left out. Thus, the findings here present a conservative, lower-bound estimate of both temporal stability and of peer ratings.
2. We computed the results in Study 3 using both the 3- and 5-item version of the Satisfaction with Life scale, and the results remained the same. Thus, these inconsistencies are not due to the different scale versions.

Figure 1. Studies 3 and 4: Social Pleasure Anticipation (SPA) Scales differentially predicting BFI Extraversion and Agreeableness in the derivation and replication samples in Study 3 as well as in Study 4. Beta values were derived from regression analyses in which scores on the three SPA scales were entered as predictors and BFI Extraversion or Agreeableness were the dependent variables.

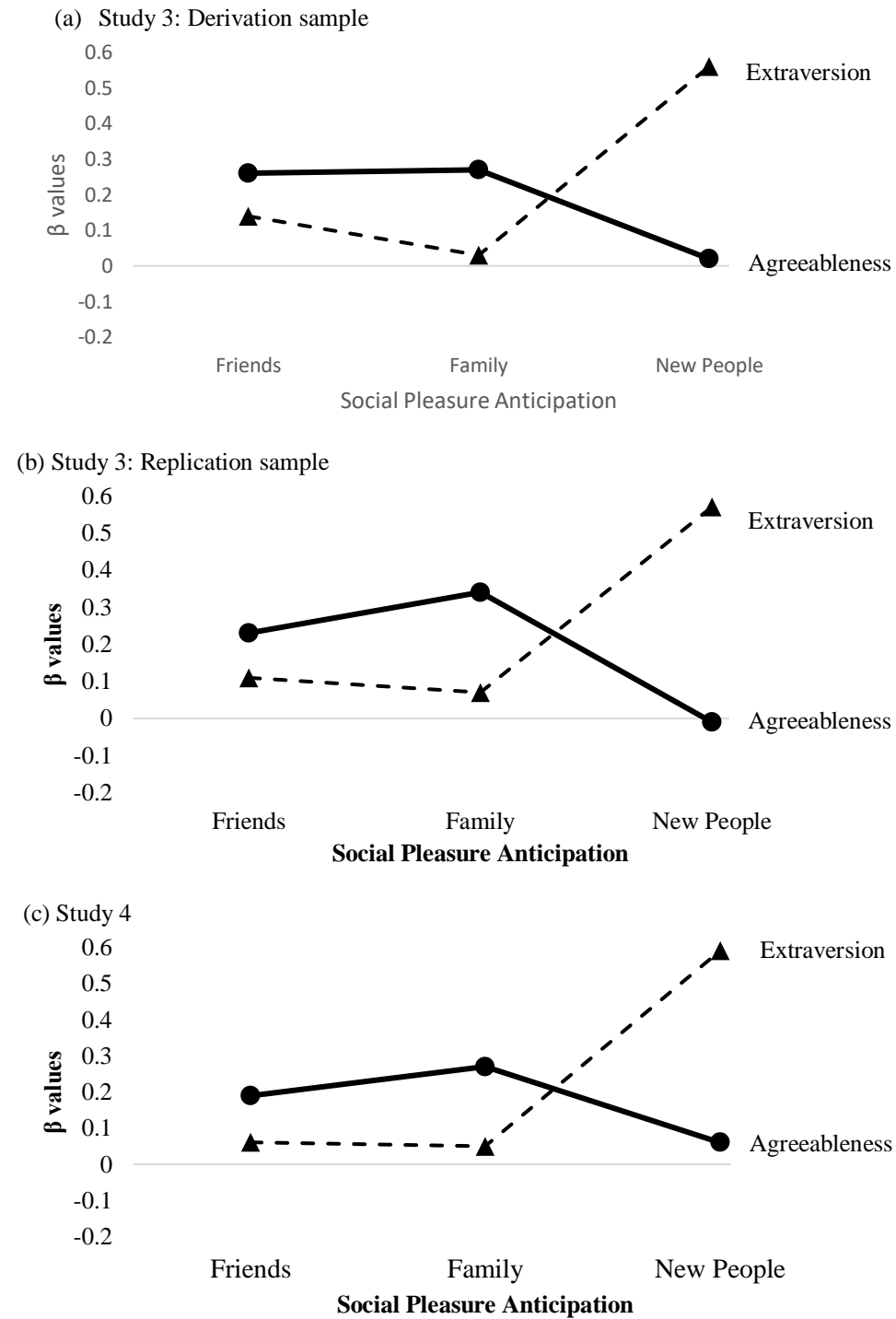
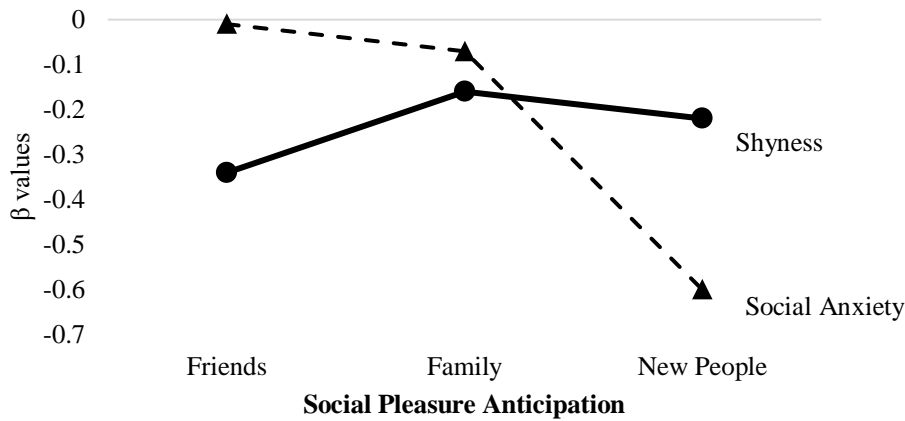
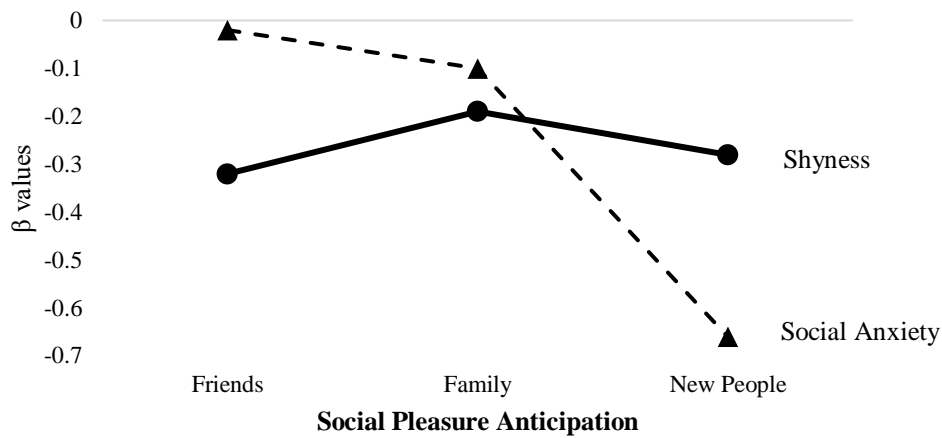


Figure 2. Studies 3 and 4: SPA Scales differentially predicting shyness and loneliness in the derivation and replication samples in Study 3 as well as in Study 4. Beta values were derived from regression analyses in which scores from the three SPA scales were entered as predictor variables and the Cheek & Melchior Shyness Scale or the UCLA Loneliness Scale were the dependent variables.

(a) Study 3: Derivation sample



(b) Study 3: Replication sample



(c) Study 4

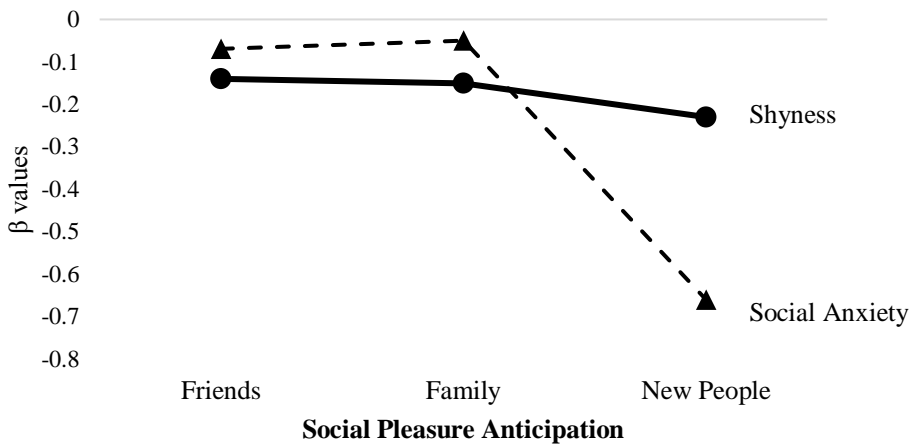


Table 1

Demographic Characteristics of Samples A, B, and C

	<u>Sample A</u>	<u>Sample B</u>	<u>Sample B</u>	<u>Sample C</u>
	Participants	Participants	Peers	Participants
Sample size	803	195	147	492
Women	71%	83%	71%	74%
<i>Ethnicity</i>				
Asian	44%	44%	38%	48%
African American	2%	1%	4%	2%
Latino/a	7%	13%	8%	10%
European-American	31%	29%	34%	30%
Other	16%	13%	16%	10%

Note. Tabled values are either frequencies or percentages. Under ethnicity, “Other” includes individuals who self-identified as other ethnicities (e.g., Middle-Eastern), multi-racial, or did not report their racial background.

Table 2

Study 1: OBLMIN-Rotated Loadings after Principal Components Analysis of the 26 Preliminary Social Pleasure Anticipation Items

Initial Item Text	Friends factor		Family factor		New People factor	
	Deriv.	Replic.	Deriv.	Replic.	Deriv.	Replic.
Close Friends items (3)						
I look forward to meeting up with close friends.*	.88	.85	-.02	-.04	-.13	-.06
Planning to see someone I am close to brings me joy.*	.87	.88	.07	.07	-.18	-.14
I get excited when making plans to visit a friend I have not seen in a long time.*	.83	.79	-.02	.00	-.01	.07
General (or Unspecified) items (4)						
I look forward to seeing someone I have made plans with.*	.78	.74	.01	.02	.07	.10
After I make plans to see someone, I enjoy thinking about what we will do together.*	.69	.71	.01	.06	.11	.06
Knowing I will spend time with people in the future brings me happiness.	.69	.66	.07	.09	.14	.19
I look forward to making plans with another person.	.64	.69	-.01	-.04	.26	.18
Groups of Others items (4)						
When I have plans to see a group of friends, I look forward to it.*	.87	.82	-.07	-.02	.03	.09
I look forward to joining groups of people who have similar interests to mine.	.62	.67	-.08	-.13	.19	.13
I look forward to doing things with a group of others.	.52	.54	-.01	.01	.42	.43
I enjoy making plans to meet with a group of people.	.51	.44	.03	.04	.41	.49
Mixed Friends and Family Items (4)						
I look forward to spending time with loved ones.	.51	.50	.46	.47	-.13	-.14
There's at least one person I look forward to seeing on holidays.	.50	.46	.42	.46	-.28	-.23
I look forward to checking online for messages from friends or family.	.41	.51	.05	.01	.15	.02
The thought of my friends or family throwing a party for me is exciting.	.41	.50	.21	.19	.23	.19
Family items (8)						
I look forward to holidays because I get to spend time with my family.*	.00	.02	.89	.89	.06	.04
I look forward to spending time with my family.	.01	.03	.89	.89	.07	.03
I get excited when I think about spending time with my family.*	-.07	-.01	.88	.84	.21	.22
I look forward to being with my family in my free time.	-.05	.02	.87	.86	.13	.10
I like making plans to see my family.*	-.01	.01	.86	.86	.14	.11
Before I visit my parents, I know I won't enjoy it. (Reversed)*	-.08	-.24	.75	.79	-.08	.06
I look forward to spending time with at least one person in my family.	.26	.29	.67	.66	-.17	-.17
I don't look forward to visits from my family. (Reversed)*	.00	.08	.63	.59	-.11	-.15

New People items (3)

I look forward to meeting new people when I'm out and about.*	.11	.12	.11	.08	.79	.80
I look forward to parties or social gatherings where I will meet new people.*	.15	.16	.08	.08	.78	.78
I look forward to meeting people.*	.21	.20	.08	.09	.73	.75

Sum of squared loadings in OBLIMIN Analysis

	5.66	5.73	4.25	4.08	4.01	4.16
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Alpha reliability of preliminary scale based on this factor

	.91	.91	.89	.88	.89	.90
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Note. Items retained on the 14-item preliminary SPA scales are set in bold and marked with an asterisk. Some items were edited for use in later studies (see final item text in Table 8 in Study 4 and the Appendix). Loadings of .40 or higher are set in bold. Within content categories, items were sorted by the size of their factor loadings in the derivation sample. Deriv. = Derivation sample; Replic. = Replication sample.

Table 3

Study 1: Means (and Standard Deviations) for Gender and Ethnicity in the Derivation, Replication, and Total Samples

	<u>Friends</u>			<u>Family</u>			<u>New People</u>		
	Deriv.	Replic.	Total	Deriv.	Replic.	Total	Deriv.	Replic.	Total
All participants	4.75 (.90)	4.72 (.93)	4.74 (.91)	4.71 (1.05)	4.74 (1.03)	4.72 (1.04)	3.98 (1.14)	3.95 (1.19)	3.97 (1.16)
Gender									
Women: Mean (SD)	4.77 (.90)	4.71 (.95)	4.75 (.92)	4.79 (1.02)	4.84 (1.00)	4.81 (1.0)	3.97 (1.13)	3.91 (1.21)	3.95 (1.16)
Men: Mean (SD)	4.66 (.90)	4.74 (.89)	4.69 (.89)	4.50 (1.07)	4.55 (1.05)	4.52 (.99)	3.99 (1.17)	4.05 (1.15)	4.01 (1.16)
<i>Test of gender difference</i>									
<i>t</i> statistics	1.24	.29		2.76	2.21		.18	.94	
<i>p</i> level	.22	.77		.006	.028		.85	.35	
Cohen's <i>d</i>	.12	-.03	.07	.28	.28	.29	-.02	-.12	-.05
Ethnicity									
Asian: Mean (SD)			4.70 (.83)			4.56 (.96)			3.91 (1.04)
European-American: Mean (SD)			4.71 (.91)			4.67 (1.05)			3.97 (1.16)
Latino/a: Mean (SD)			4.73 (.85)			4.80 (1.00)			3.93 (1.02)
<i>Test of ethnic differences</i>									
ANOVA <i>F</i> statistics			1.65			.79			1.29
<i>p</i> level			.176			.502			.276
Cohen's <i>d</i> : Asian vs. European-American			-0.01			-0.11			-0.05
Cohen's <i>d</i> : Latino/a vs. European-American			0.02			0.13			-0.04

Note. Deriv. = derivation sample; Replic. = replication sample.

Table 4

Study 1: Correlations Between the Three Social Pleasure Anticipation scales in the Derivation and Replication Samples

	Friends		Family	
	Derivation (N = 500)	Replication (N=303)	Derivation (N=500)	Replication (N=303)
Family	.46*	.43*		
New People	.58*	.62*	.28*	.28*

Note. *N* was 500 in the Derivation sample, and 303 in the Replication sample.

* $p < 0.01$.

Table 5

Study 2: Alpha Reliability in Self- and Peer-Reports, Retest Reliability, and Self-Peer Validity

Psychometric index	SPA Scales		
	Friends	Family	New People
Internal consistency (alpha)			
Self-report	.82	.89	.77
Peer report	.80	.87	.74
Retest reliability (self-report)	.80*	.80*	.81*
Self-peer validity	.50*	.56*	.50*

*Note: *p < 0.01.*

Table 6

Study 3: Zero-Order Correlations and Regression (Beta) Coefficients for Pairs of Existing Constructs When Both Jointly Predict Each Social Pleasure Anticipation (SPA) Scale, separately in the Derivation (D) and Replication (R) Samples

Pairs of measures hypothesized to differentially predict SPA scales	Correlations						Beta Coefficients						
	Friends		Family		New People		Friends		Family		New People		
	(D)	(R)	(D)	(R)	(D)	(R)	(D)	(R)	(D)	(R)	(D)	(R)	
<i>Anticipation or consumption, nonsocial</i>													
Anticipatory Scale (TEPS-Ant)	.53*	.53*	.45*	.41*	.36*	.37*	.46*	.44*	.34*	.31*	.35*	.29*	.37
Consummatory Scale (TEPS-Con)	.41*	.42*	.39*	.38*	.24*	.29*	.10	.11	.16*	.16	-.02	.07	.10
<i>Social or nonsocial anticipation</i>													
Social Anticipation (ACIPS)	.77*	.77*	.49*	.49*	.53*	.53*	.65*	.67*	.38*	.41*	.50*	.51*	.52
Nonsocial Anticipation (SBI – Ant)	.61*	.56*	.41*	.38*	.36*	.34*	.20*	.18*	.17*	.13	.05	.03	.13
<i>Social or nonsocial pleasure, general</i>													
Social Anhedonia Scale	-.56*	-.55*	-.37*	-.38*	-.40*	-.40*	-.45	-.44*	-.22*	-.25*	-.34*	-.36*	-.34
Physical Anhedonia Scale	-.45*	-.44*	-.41*	-.39*	-.24*	-.26*	-.24*	-.24*	-.30*	-.27*	-.07	-.10	-.20
<i>Past week pleasure experienced</i>													
Social Pleasure (MAP-SR)	.55*	.59*	.36*	.39*	.41*	.46*	.52*	.54*	.36*	.42*	.38*	.42*	.44
Nonsocial Pleasure (MAP-SR)	.28*	.35*	.13*	.12	.23*	.29*	.08	.12	-0.01	-0.05	.08	.12	.06
<i>Past week motivation</i>													
Social Motivation (MAP-SR)	.50*	.54*	.24*	.26*	.50*	.54*	.45*	.48*	.18*	.20*	.44*	.48*	.37
Nonsocial Motivation (MAP-SR)	.29*	.35*	.22*	.24*	.33*	.36*	.12	.17	.15*	.17*	.17	.17	.16
<i>Importance of Social Relationships</i>													
Importance of friends (MAP-SR)	.57*	.58*	.26*	.30*	.42*	.48*	.51*	.53*	.04	.08	.40*	.48*	n.a.
Importance of family (MAP-SR)	.34*	.31*	.71*	.73*	.19*	.18*	.18*	.15*	.70*	.71*	.06	.03	n.a.

Note. Correlations of .40 or above are set in bold. Important and replicated regression (beta) coefficients are also set in bold. Note that the regression design here is different from Table 7: Here we are using the two constructs in each pair (i.e., the two adjacent rows) to jointly predict each SPA scale (i.e., listed in the column heading). For example, the first column under the regression coefficients lists a value of .46* for the TEPS-Anticipatory Scale and .10 for the TEPS-Consummatory Scale in predicting the SPA-Friends scale in the derivation sample, indicating that only TEPS-Anticipatory (and not Consummatory) was uniquely related to social pleasure anticipation for Friends. n.a. = Not applicable. ACIPS = Anticipatory and Consummatory Interpersonal Pleasure Scale; MAP-SR = Motivation and Pleasure Scale, Self-Report; SBI = Savoring Beliefs Inventory; TEPS = Temporal Experience of Pleasure Scale.

* p < .01

Table 7

Study 3: Zero-Order Correlations and Regression (Beta) Coefficients Predicting Each Measure Jointly from All Three Social Pleasure Anticipation Scales, separately in the Derivation (D) and Replication (R) Samples

	Zero-order correlations						Beta coefficients for the three SPA scales					
	Friends		Family		New People		Friends		Family		New People	
	(D)	(R)	(D)	(R)	(D)	(R)	(D)	(R)	(D)	(R)	(D)	(R)
<i>Measures correlated with and predicted jointly by the three SPA scales</i>												
<i>Links with personality and motivation</i>												
Big Five Inventory (BFI)												
Extraversion	.48*	.50*	.25*	.28*	.65*	.66*	.14	.11	.03	.07	.56*	.57*
Agreeableness	.40*	.37*	.40*	.44*	.25*	.24*	.26*	.23*	.27*	.34*	.02	-.01
Neuroticism	-.20*	-.23*	-.17*	-.20*	-.25*	-.29*	-.03	-.03	-.10	-.12	-.20*	-.24*
Openness	.26*	.27*	.10*	.08	.19*	.21	.23*	.25*	-.02	-.05	.06	.07
Conscientiousness	.32*	.32*	.29*	.28*	.10*	.13	.31*	.33*	.19*	.18*	-.13	-.13
BIS-BAS Scales												
Behavioral Approach Total	.49*	.51*	.25*	.26*	.40*	.44*	.37*	.37*	.04	.05	.17*	.19*
Behavioral Inhibition Total	.17*	.06	.11*	.06	-.10	-.19*	.34*	.25*	-.05	.06	-.32*	-.36*
Other social functioning												
Social Closeness Scale (MPQ)	.61*	.60*	.37*	.38*	.54*	.57*	.40*	.35*	.11*	.15*	.27*	.31*
Shyness Scale	-.40*	-.44*	-.25*	-.28*	-.62*	-.67*	-.01	-.02	-.07	-.10	-.60*	-.66*
UCLA Loneliness Scale	-.54*	-.58*	-.38*	-.40*	-.47*	-.54*	-.34*	-.32*	-.16*	-.19*	-.22*	-.28*
<i>Links with Psychological Symptoms and Subjective Well-Being</i>												
Satisfaction with Life Scale	.35*	.38*	.36*	.39*	.25*	.33*	.20*	.17	.26*	.28*	.05	.14
Interaction Anxiousness Scale	-.28*	-.32*	-.13*	-.17*	-.52*	-.55*	.04	.04	.01	-.03	-.54*	-.57*

Note. Correlations of .40 or above are set in bold. Important and replicated regression (beta) coefficients are also set in bold. Note that the regression design here is different from Table 6: Here we are using all the 3 SPA scales to predict the measure that is listed in each row. For example, the first row of regression coefficients indicates how well each SPA scale predicted Extraversion in each sample; that is, only SPA New People was uniquely related to Extraversion. MPQ = Multidimensional Personality Questionnaire. * p < .01

Table 8
Study 4: OBLIMIN-Rotated Loadings after Principal Components Analysis of the Final 18 Social Pleasure Anticipation Items

Item text	Friends factor	Family factor	New People factor
<i>Friends Items (6)</i>			
I look forward to seeing someone I have made plans with.	.83	.07	.01
Planning to see a friend I am close to brings me joy.	.73	-.06	.10
After I make plans to see someone, I enjoy thinking about what we will do together.	.66	-.04	-.06
I don't look forward to spending a lot of time with friends.	-.66	.02	.10
I make plans to see a group of friends but then I don't look forward to it.	-.62	-.03	.18
Meeting up with friends is not my greatest source of happiness.	-.61	.02	-.03
<i>Family items (6)</i>			
I get excited when I think about spending time with my family.	.02	.87	.03
I like making plans to see my family.	.12	.86	.06
I look forward to holidays because I get to spend time with my family.	.06	.85	.03
Before I visit my parents, I know I won't enjoy it.	.01	-.78	.00
I don't look forward to visits from my family.	.13	-.78	.00
Planning a family visit is not what I would consider a fun time.	.12	-.77	.10
<i>New People items (6)</i>			
I look forward to parties or social gatherings where I will meet new people.	.01	.06	.90
I look forward to meeting new people when I'm out and about.	-.05	.01	.85
I don't get excited about upcoming social events with lots of new people.	-.04	-.03	-.82
I dread the idea of going out to make new friends.	.03	-.02	-.79
I look forward to meeting people.	.02	-.13	.73
Meeting new people is the last thing I would look forward to.	.07	-.01	-.72
Sum of squared loadings in OBLIMIN Analysis	4.95	4.64	4.46
Alpha reliability of the 6-item scale based on this factor	.78	.91	.90

Table 9

Study 4: Alpha Reliabilities for and Correlations between the Final Social Pleasure Anticipation scales

	Friends	Family	New People
Friends			
Family	.31*		
New People	.49*	.19*	
Alpha reliability	0.78	0.91	0.90

Note. * indicates $p < 0.01$.

Table 10

Study 4: Means and Standard Deviations for Gender and Ethnicity

	Friends	Family	New People
<u><i>Gender</i></u>			
Women	4.02 (.73)	4.14 (.89)	3.47 (.99)
Men	4.00 (.64)	3.84 (.84)	3.50 (.90)
<i>t</i> statistics	0.29	3.33	0.28
<i>p</i> level	0.776	0.001	0.777
Cohen's <i>d</i>	0.01	0.34	-0.03
<u><i>Ethnicity</i></u>			
Asian	4.02 (.66)	3.98 (.86)	3.41 (.95)
European-American	4.04 (.76)	4.15 (.94)	3.62 (1.03)
Latino/a	4.00 (.76)	4.21 (.80)	3.34 (.94)
<i>Test of ethnic differences</i>			
<i>F</i> statistics	0.05	2.43	2.48
<i>p</i> level	0.96	0.09	0.09
Cohen's <i>d</i> : Asian vs. European-Americans	-0.03	-0.19	-0.21
Cohen's <i>d</i> : Latino/a vs. European-Americans	-0.05	0.07	-0.28

Table 11

Study 4: Zero-Order Correlations and Regression (Beta) Coefficients Predicting Each Measure Jointly from All Three Social Pleasure Anticipation Scales

Measure	Correlations (<i>r</i>)			Beta coefficients		
	Friends	Family	New People	Friends	Family	New People
Big Five Inventory						
Extraversion	.38*	.20*	.63*	.06	.05	.59*
Sociability	.35*	.16*	.60*	.03	.02	.62*
Assertiveness	.17*	.07	.41*	-.05	-.01	.43*
Energy Level	.44*	.28*	.56*	.17*	.12*	.45*
Agreeableness	.31*	.35*	.21*	.19*	.27*	.06
Compassion	.29*	.29*	.17*	.21*	.21*	.02
Respectfulness	.20*	.30*	.12	.10	.27*	.01
Trust	.26*	.25*	.21*	.15	.18*	.10
Conscientiousness	.22*	.25*	.20*	.09	.19*	.12
Neuroticism	-.25*	-.17*	-.37*	-.05	-.08	-.32*
Openness	.17*	.10	.20*	.08	.04	.16*
UCLA Loneliness Scale	-.31*	-.26*	-.34*	-.14*	-.15*	-.23*
Shyness	-.42*	-.22*	-.70*	-.07	-.05	-.66*
Depression (CES-D)	-.29*	-.19*	-.38*	-.10	-.08	-.31*
Satisfaction with Life Scale	.27*	.27*	.28*	.11	.21*	.19*
Interpersonal Support Evaluation List	.41*	.33*	.41*	.20*	.21*	.26*
Appraisal Support	.34*	.26*	.26*	.24*	.15*	.10
Tangible Support	.27*	.23*	.36*	.07	.14*	.30*

Note. Correlations of .40 or above are set in bold. Important and replicated regression (beta) coefficients are also set in bold. Note that the regression design here is the same as in Table 7 but different from Table 6: Here we are using all the 3 SPA scale to jointly predict the measure that is listed in each row. For example, the first row of regression coefficients indicates how well each SPA scale predicted Extraversion in this joint regression; that is, only SPA New People was uniquely related to Extraversion. CESD = Center for Epidemiologic Studies Depression Scale. * $p < .01$

SCORING INSTRUCTIONS

The SPSS syntax is shown below. These are the major conceptual steps to follow. First, all the items that are false keyed need to be reverse coded. The false-keyed items are:

Friends: 4, 10, 16
Family: 2, 8, 14
New People: 6, 12, 18

To reverse-code these items, subtract the observed score for each item from 6. For example, if the self-rating was "5", then compute 6 minus 5 and the reverse-coded score is 1. That is, a score of 5 becomes a 1, a 2 becomes 4, a 3 remains 3, a 4 becomes 2, and a 6 becomes 1.

Next, create scale scores by averaging the 6 items for each relationship domain; note that 3 of the items are always true-keyed and the other 3 are always false-keyed items (where R indicates using the reverse-coded item scores):

Friends: 1, 4R, 7, 10R, 13, 16R
Family: 2R, 5, 8R, 11, 14R, 17
New People: 3, 6R, 9, 12R, 15, 18R

SPSS SYNTAX

*** REVERSE-CODING ITEMS

```
RECODE  
SPA2 SPA4 SPA6 SPA8 SPA10 SPA12 SPA14 SPA16 (1=5) (2=4) (3=3) (4=2) (5=1) INTO SPA2r  
SPA4r SPA6r SPA8r SPA10r SPA12r SPA14r SPA16r.  
EXECUTE .
```

*** COMPUTING SCALE SCORES AS ITEM MEANS (NOT AS SUMS)

```
COMPUTE SPAFr = mean(SPA1, SPA4r, SPA7, SPA10r, SPA13, SPA16r) .  
VARIABLE LABELS SPAFr 'SPA Friends Scale'.  
EXECUTE .
```

```
COMPUTE SPAFam = mean(SPA2R, SPA5, SPA8R, SPA11, SPA14R, SPA17) .  
VARIABLE LABELS SPAFam 'SPA Family Scale'.  
EXECUTE .
```

```
COMPUTE SPANew = mean(SPA3, SPA6R, SPA9, SPA12R, SPA15, SPA18R) .  
VARIABLE LABELS SPANew 'SPA New People Scale'.  
EXECUTE .
```