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Preliminary validation of a romantic attachment orientation measure from the California Adult Q-Sort

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ABSTRACT

We present data on the preliminary validation of a measure of romantic attachment orientation from the California Adult Q-Sort (CAQ). The CAQ is found in several longitudinal data sets, and researchers can use the CAQ to answer questions about changes in romantic attachment across the lifespan. Expert raters nominated CAQ items that were characteristic of attachment anxiety and avoidance. In a sample of observers and targets, we compared ratings based on composites of these CAQ items to self- and observer-reports from a widely used scale of adult attachment. These expert-generated measures of CAQ-attachment orientation correlated highly with ECR measures of attachment orientation, suggesting that items from the CAQ can reliably measure an individual's attachment orientation.

Attachment theory was originally conceptualized as a theory of behavior, emotion, and cognition in close relationships across the lifespan (Bowlby, 1969/1982). As a theory about lifespan development, attachment theory makes several predictions about how relationships – and the people in them – change over time and across situations. Life experiences, such as partnering, separation, parenthood, and bereavement, can change people in meaningful ways. However, very little is known about how an individual's romantic attachment orientation, or characteristic approach to close relationships, changes across the lifespan and with these relationship experiences (Chopik, Edelstein, & Fraley, 2013). One reason for this gap in knowledge is that few intensive longitudinal studies include validated measures of adult attachment orientation over large stretches of time. In fact, the most reliable measures of adult attachment orientation were validated in just the last decade or two (Crowell, Fraley, & Shaver, 2008). As such, the longest possible study of changes in adult attachment orientations over time using these materials would be at most about 20 years.

However, several longitudinal studies have examined how other personality characteristics (e.g., narcissism) change over several decades, during periods that predated the development of standardized self-report measures of these personality characteristics (Block, 1971; Block & Block, 2006; Helson & Wink, 1992; Stewart & Vandewater, 1993). In

these studies, personality constructs were measured using broad, descriptive measures of individual characteristics. The advantage of using these more general measures of personality in longitudinal studies is that a researcher can select items that map onto a construct that they are interested in (e.g., romantic attachment orientation) that the original researchers may not have intended to measure. One such general measure that is commonly used in longitudinal studies is the California Adult Q-Sort (CAQ). In the current study, we report on the development and preliminary validation of a measure of romantic attachment orientation from the CAQ (Block, 2008). We hope that this measure will enable researchers to measure changes in romantic attachment orientation across the adult lifespan.

The California Adult Q-Sort

The CAQ is an observer-based method of personality assessment that relies on sub-jective judgments about a target within a forced item distribution (Block, 2008). Although Block's CAQ was one of the first instruments to employ the Q-Sort method to measure personality, researchers have since used variants of Q-Sorts to describe the psychological properties of situations and behavior (Furr, Wagerman, & Funder, 2010; Sherman, Nave, & Funder, 2010).

The original CAQ consists of 100 descriptive items, which are sorted by an observer into forced-choice categories, depending on how well they describe a person (i.e., the "target" of the judgment). The CAQ items are descriptive and flexible, which has enabled researchers to use them to measure several personality characteristics including gen-erativity, creativity and wisdom, narcissism, masculinity and femininity, and other, broader personality typologies (e.g., classifying a person as a "Traditional" *type* of person; Helson & Srivastava, 2002; Newton & Stewart, 2013; Peterson & Klohnen, 1995; Wink, 1992a; York & John, 1992). Typically, experts familiar with a particular construct will denote CAQ items that are highly characteristic of that construct. Composites of these characteristic items are then calculated and evaluated with respect to ratings using "criterion" measures of the construct (e.g., previously validated self-report scales). In the current study, we followed this process to generate a measure of adult attachment orientation from the CAQ (Block, 2008). Specifically, we compared observer-based CAQ scales of romantic attachment orientation to criterion measures of both self- and observer-reports of romantic attachment orientation and broader personality traits.

Observer-based measures of romantic attachment orientation

An individual's *romantic attachment orientation* is generally conceptualized as his or her position on two conceptually distinct dimensions: anxiety and avoidance (Fraley & Waller, 1998). *Attachment-related anxiety* reflects the degree to which people are con-cerned about the availability of close others (Mikulincer, Gillath, & Shaver, 2002). *Attachment-related avoidance* reflects the degree to which people are comfortable with physical and emotional intimacy. People self-reporting low scores on both dimen-sions are generally considered secure. The two-dimensional model of anxiety and avoidance has received both theoretical and empirical support as the dominant model underlying adult attachment orientations (Fraley & Shaver, 2000; Fraley & Waller, 1998).

The CAQ, in contrast, utilizes observer ratings of a target individual. As such, one assumption in the development of a CAQ measure of attachment orientation is that individual differences in romantic attachment can be observed by others. Indeed, there is a rich history demonstrating that attachment orientation is an observable characteristic. Some of the earliest studies of attachment and human bonding are based entirely on observational accounts of children and non-human primates (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969/1982; Harlow, 1958). Contemporary research on adult romantic attachment reaches similar conclusions about the observability of individual differences in attachment. For example, the internal structure of attachment scales is the same whether people are answering questions about themselves or a friend (Bartholomew & Horowitz, 1991). Self- and observer-reports of attachment also show a large degree of correspondence with one another, particularly if the target and judge are well acquainted (Banai, Weller, & Mikulincer, 1998). Self-reports of attachment orientation also predict observable behavior in interpersonal settings (Edelstein et al., 2004; Fraley & Shaver, 1998).

Although Block's CAQ was one of the first Q-Sorts to be used to measure personality, other types of observer-based Q-Sort measures (using items not found in the CAQ) have been developed to measure infant-caregiver attachment (e.g., the Attachment Q-Sort; Solomon & George, 2008; Waters & Deane, 1985) or adults' representations of their early relationships with parental figures (e.g., the Adult Attachment Interview Q-Set; Hesse, 2008; Kobak, 1993). Thus, individual differences in attachment are observable characteristics of a person that can be quantified using observer reports. In the current study, we examined the extent to which composites of CAQ items in particular could be used to measure individual differences in romantic attachment.

Preliminary evidence suggests that observer ratings based on CAQ items correlate with prototype-generated scores of self-reported attachment orientation (Onishi, Gjerde, & Block, 2001). Onishi et al. created "prototypes" of attachment orientation, which are transformations of scale response scores to match an expert-generated "prototype" that exemplifies a particular attachment orientation (Bartholomew & Horowitz, 1991). In this procedure, experts first rated each item of a 48-item self-report attachment questionnaire on how well the item typified each of four attachment descriptions (i.e., Secure, Preoccupied, Fearful-Avoidant, and Dismissing Avoidant; Bartholomew & Horowitz, 1991; Hazan & Shaver, 1990). Participants' responses to each self-report attachment item were then correlated with the prototype ratings provided by experts to yield a continuous "prototype score" that measured the degree of matching or similarity of a participant's response to a particular prototype. For example, if a participant's item-level responses on the questionnaire correlated highly with the Preoccupied prototype, that individual's responses were characteristic of a Preoccupied individual (an orientation similar to attachment anxiety). Finally, these prototype scores were correlated with individual CAQ items.

Although this study provides some evidence for the utility of CAQ ratings, Onishi et al. focused on how *individual* CAQ items related to *transformed prototype scores of attachment*. Thus, they did not examine whether *composites* of CAQ items could *adequately represent attachment orientations*. For example, anxiety could be correlated with both "Is basically anxious" and "feels a lack of personal meaning in life". However, the former is a strong descriptor of attachment anxiety but the latter is merely a correlate of

attachment anxiety (Wei, Liao, Ku, & Shaffer, 2011). Moreover, as described above, when the CAQ is used to approximate more established measures of personality constructs, expert-selected CAQ items are typically validated against other, more established instruments of that construct (Wink, 1992a). In the absence of expert ratings and criterion measures, it is unclear which CAQ items can best describe romantic attachment orientation in lieu of other established scales.

One study in particular shows the possibilities of examining changes in romantic attachment orientations using the CAQ. In a longitudinal study of middle-aged women, Klohnen and Bera (1998) examined how self-reported attachment at age 52 was associated with changes in three CAQ domains conceptually related to attachment from age 21 to 43: interpersonal closeness, defensiveness/repressiveness, and vulnerability/low stress tolerance. The items comprising these domains were chosen a priori by experts but not validated with criterion measures of romantic attachment, which leaves their predictive validity in question. Further, the authors state that these domains were not meant to measure attachment orientations per se, but rather relational and behavioral outcomes for individuals with a particular attachment style. In the current study, we use expert ratings and a criterion sample to develop a measure from the CAQ that can reliably measure adult attachment orientations in place of attachment measures.

Moreover, the lack of convergent and divergent validity in Klohnen and Bera's study limits the extent to which any findings can be attributed to romantic attachment orientations instead of other personality traits (e.g., agreeableness). For example, if a measure is *too broad* and strongly related to nearly every personality construct, it is relatively uninformative because it is not distinguishable from other constructs. On the other hand, if a measure is *too narrow* and unrelated to conceptually similar constructs, it is also uninformative because its specificity prevents it from being situated in a larger nomological network of observable personality traits. Thus, an appropriate measure of CAQ romantic attachment orientation should be correlated with constructs related to romantic attachment orientation (convergent validity) and uncorrelated with constructs not related to romantic attachment orientation (divergent validity).

With respect to convergent and divergent validity, it is important to note that romantic attachment orientations have shown reliable associations with broader personality traits (i.e., the Big Five; Noftle & Shaver, 2006). Specifically, attachment anxiety is most strongly (negatively) correlated with emotional stability and is also negatively related to agreeableness, although to a lesser extent (Shaver & Brennan, 1992). Anxiety is either minimally (negatively) correlated with or unrelated to extraversion, openness to experience, and conscientiousness. Avoidance is most often negatively correlated with agreeableness and extraversion and is generally unrelated to emotional stability, openness to experience, and conscientiousness (Noftle & Shaver, 2006). Thus, we expected our CAQ measure of anxiety (hereafter CAQ-Anxiety) to be negatively related to emotional stability and agreeableness. We also expected our CAQ measure of avoidance (CAQ-Avoidance) to be negatively related to agreeableness and extraversion. We expected conscientiousness and openness to experience to be unrelated to the CAQ measures of romantic attachment orientation.

The current study

In the current study, we developed measures of CAQ-Anxiety and CAQ-Avoidance and provided some initial validation of these measures using a criterion sample. Expert ratings of CAQ items were used to generate composites for observer-rated CAQ-Anxiety and CAQ-Avoidance. Thus, the current study departs from previous research by examining whether composites of particular items – rather than prototypes – can reliably assess attachment anxiety and avoidance.

These composites were compared to (1) observer-based reports of romantic attachment orientation, using an adapted version of the Experiences in Close Relationships (ECR) Inventory, one of the most widely used measures of romantic attachment orientation, (2) self-reports of romantic attachment orientation (using the traditional ECR), and (3) self-reports of broader personality traits (using a brief measure of the Big Five personality factors). Observers completed the CAQ and an adapted version of the ECR in relation to someone they knew well (i.e., the target). A subsample of these targets then filled out self-report measures of romantic attachment and the Big Five. We hypothesized that CAQ measures of romantic attachment would be related to both observer- and self-reports of romantic attachment to a similar degree (e.g., CAQ-Anxiety would be related to observer-reported ECR-Anxiety and self-reported ECR-Anxiety; CAQ-Avoidance would be related to observer-reported ECR-Avoidance and self-reported ECR-Avoidance). Further, CAQ measures of attachment orientation should be correlated with constructs related to attachment orientation. Specifically, CAQ-Anxiety should be negatively correlated with emotional stability; CAQ-Avoidance should be negatively correlated with agreeableness and extraversion.

Because the expression of interpersonal behavior may change across the lifespan and/or differ by gender (Berscheid, 2010; Canary, Emmers-Sommer, & Faulkner, 1997), romantic attachment might be expressed differently between younger and older adults or men and women. Thus, we also conducted supplementary analyses to examine whether any of the associations between self- and observer-reports of romantic attachment orientation differed by age or gender. These supplementary analyses test whether romantic attachment orientation is less "observable" at certain ages or among men/women, an important consideration in the development of a tool to be used in studies of lifespan development.

Method

Participants

Participants were 265 undergraduate students and members from the community (*M*age = 24.09, *SD* = 11.03). Students (*N* = 229; 75.5% female; *M*age = 20.48, *SD* = 4.73) completed an online study as part of a class exercise; community members (*N* = 37; 54.1% female; *M*age = 46.41, *SD* = 12.61) received US$10 in compensation for their participation. Participants first nominated an individual they knew well (the "target") and then evaluated that individual's personality using the CAQ and observer-report measures of romantic attachment. Target names and

gender (provided by the participants) were piped into all survey questions. Approximately half of the targets were female (57.9%) and they ranged in age from 13 to 80 (*M*age = 28.28, *SD* = 14.43). At the end of the survey, participants provided the email address of the target, who was later contacted and asked to complete self-report measures of attachment and broader personality. Self-report data on 118 participants (72.1% female, *M*age = 24.79, *SD* = 11.58) are available for the current report. (Response rate for student sample: 40.2%; community sample: 70.3%.) Based on previous research demonstrating a range of correlations between .28 and .62 between self- and observer-reports of attachment (Banai et al., 1998), a power analysis suggested a recommended sample size of at least 98 to detect a significant effect of r = .28 at 80% power. Thus, we had sufficient power to replicate the effects of previous research.

Observer-reported attachment orientation

California Adult Q-Sort

Participants first rated the personality of targets using the California Q-sort (CAQ; Block, 1961, 2008). The CAQ consists of 100 descriptive statements that are sorted in terms of how characteristic they are of the target's personality and behavior. CAQ items cover a wide range of personality attributes, such as "Is vulnerable to real or fancied threat, generally fearful", "Is cheerful", and "Enjoys esthetic impressions; is esthetically reactive". Participants sorted each of the 100 descriptive statements into one of nine categories according to how characteristic the statement was of the target, ranging from 1 (*extremely uncharacteristic*) to 9 (*extremely characteristic*). The nine categories force the sorter to implement a normal distribution, such that only a designated number of statements can be placed into each of nine categories (5, 8, 12, 16, 18, 16, 12, 8, and 5 statements, respectively).

Observer-Reported Romantic Attachment Orientation was assessed with a modified version of the Experiences in Close Relationships (ECR) Inventory (Brennan, Clark, & Shaver, 1998). The ECR is a widely used measure of attachment-related avoidance and anxiety. Participants answered the ECR items in reference to how the *target* generally approaches close relationships. The 18-item *avoidance* subscale (a = .91) reflects the target individual's discomfort with closeness. The 18-item *anxiety* subscale (a = .95) reflects the target individual's concern about abandonment. Sample items include "[Target] doesn't feel comfortable opening up to others" (avoidance), and "[Target] worries a lot about his/her relationships" (anxiety). Participants rated the extent to which they agree with each statement, using a 7-point Likert scale, ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). The internal consistencies of this adapted version of the ECR closely match the traditional self-report version of the ECR (Brennan et al., 1998).

Targets' self-reported romantic attachment orientation and broader personality traits

Study personnel emailed the target with a survey that included self-report measures of romantic attachment orientation and the Big Five. Data on the 118 targets

(see descriptives above) who completed this survey were available for examining associations between self- and observer-reports. The 118 targets who completed the self-report measures did not significantly differ from non-respondents on age, $t(264) = .40$, $p = .69$, or any of the attachment measures, ts > 1.43, ps > .15. However, female targets (72.1%) responded at a higher rate than male targets (29.8%) compared to the total targets eligible (57.9% female), $\chi^2(1, N = 383) = 7.09$, $p = .007$.

Self-Reported Romantic Attachment Orientation was assessed with the ECR, but from the target's own perspective. The internal consistency of the avoidance subscale was .87 and the internal consistency of the anxiety subscale was .92.

Self-Reported Big Five Personality was measured with Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003), which assesses the Big Five facets of emotional stability, extraversion, openness to experience, agreeableness, and con-scientiousness. The TIPI has strong convergent and discriminant validity with longer measures of personality (Furnham, 2008). Participants rated the degree to which 10 sets of adjectives described how they saw themselves using a 7-point Likert scale, ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). The TIPI has shown high test-retest reliability comparable to longer measures of personality (Gosling et al., 2003; Romero, Villar, Gómez-Fraguela, & López-Romero, 2012).

Development of the CAQ anxiety and avoidance scales

The CAQ-Anxiety and CAQ-Avoidance scales were developed based on expert ratings of the 100 items of the CAQ. Five expert raters – faculty and advanced doctoral student attachment researchers – were recruited to rate CAQ items. These experts were blind to the purpose of the larger study and to all other study data. The current authors did not provide expert ratings. Raters assessed each of the 100 CAQ items according to how characteristic each item was with respect to attachment anxiety and avoidance, respectively, using a 9-point scale ranging from −4 (*very uncharacter-istic*) to 4 (*very characteristic*). The midpoint of the scale was labeled *not characteristic*. The absolute values of the ratings were used prior to the aggregation of ratings to ensure the inclusion of contra-indicative items. Inter-rater reliability (calculated as Cronbach's alpha; see Wink, 1992b) was high for the aggregate judgments of anxiety ($a = .93$) and avoidance ($a = .93$). For several items, expert raters were in perfect agreement (as noted by the standard deviations of zero; see Table 1). A scale score of 2.50 (i.e., a 7.50 on a standard 9-point scale) was used as an initial cut-off for item inclusion. An additional item for anxiety ($M_{rating} = 2.40$) was included to yield an equal number of items for each subscale. In the current study of observer reports of romantic attachment orientation, the 14 items from each scale that surpassed this cut-off were averaged to create scales for CAQ-Anxiety ($a = .75$) and CAQ-Avoidance ($a = .82$). The 14 most characteristic and uncharacteristic items are presented in Table 1; the remaining 86 CAQ items not used in computing the CAQ-Anxiety and Avoidance composites were not used. Expert ratings for all 100 CAQ items are available in the Supplementary Materials.

Table 1. Expert ratings of top CAQ-Anxiety and CAQ-Avoidance items.

CAQ-Anxiety		CAQ-Avoidance	
Item	Mean (SD)	Item	Mean (SD)
Seeks reassurance from others (19)	3.80 (.45)	Keeps people at a distance; avoids close interpersonal relationships (48)	4.00 (0.00)
Tends to ruminate and have persistent preoccupying thoughts (79)	3.80 (.45)	Values own independence and autonomy (96)	4.00 (0.00)
Has a brittle ego-defense system; vulnerable to stress (45)	3.60 (.89)	Has warmth; has the capacity to form close relationships; compassionate * (35)	3.80 (.45)
Is thin skinned; sensitive to criticism (13)	3.40 (.89)	Is basically distrustful of people in general; questions their motivations (49)	3.80 (.45)
Is calm, relaxed in manner * (33)	3.40 (.89)	Creates dependency in people * (61)	3.60 (.89)
Is vulnerable to real or fancied threat; generally fearful (40)	3.40 (1.34)	Repressive; refuses to acknowledge anxiety and conflict (86)	3.60 (.55)
Is basically anxious (68)	3.20 (1.10)	Arouses nurturant feelings in others * (21)	3.20 (1.79)
Interprets basically simple and clear-cut situations in complicated and particularizing ways (87)	3.20 (.45)	Prides self on being "objective", rational (24)	3.20 (.84)
Is uncomfortable with uncertainty and complexities (9)	2.80 (1.10)	Is self-dramatizing; exaggerates emotion * (99)	3.20 (1.10)
Over-reactive to minor frustrations; irritable (34)	2.80 (1.64)	Is protective of those close to him/her * (11)	3.00 (1.00)
Is self-defeating; acts in ways which undermine his/her own goals and desires (55)	2.80 (.84)	Behaves in a sympathetic or considerate manner * (17)	3.00 (1.23)
Is impulsive; has little self-control; unable to postpone pleasure (53)	2.60 (1.52)	Is emotionally bland; has flattened affect (97)	3.00 (1.73)
Has doubts about adequacy as a person (72)	2.60 (1.14)	Tends to be self-defensive (12)	2.80 (1.79)
Develops physical symptoms in reaction to stress/anxiety (10)	2.40 (1.52)	Emphasizes being with others; prefers to be with others * (54)	2.60 (1.67)

Note: Asterisks denote contra-indicative items. Numbers in parentheses represent the numbered item in the original CAQ for easy calculation in future work.

Results

Correspondence amongst observer reports of romantic attachment orientation

To examine the degree of correspondence between the two observer reports of romantic attachment orientation (CAQ-Attachment Orientation and ECR-Attachment Orientation), we correlated the subscales of both measures. We predicted that CAQ-Anxiety and CAQ-Avoidance would be related to ECR-Anxiety and ECR-Avoidance, respectively. Further, the associations between equivalent constructs from different measures (e.g., the association between CAQ-Anxiety and ECR-Anxiety) should be stronger than the associations between different constructs from the same measure (e.g., the association between CAQ-Anxiety and CAQ-Avoidance).

As shown in Table 2, as predicted, the two observer measures showed a high degree of correspondence. Correlations between equivalent constructs are bolded. CAQ-Anxiety

Table 2. Associations between observer-reports of romantic attachment orientation.

	Mean (SD)	1	2	3
1. CAQ-Anxiety	4.42 (.89)			
2. CAQ-Avoidance	4.57 (.69)	.10		
3. ECR-Anxiety	3.32 (1.15)	**.55****	.20	
4. ECR-Avoidance	2.84 (1.26)	.14	**.48****	.36**

Note: $N = 265$; ** $p < .01$. Bolded coefficients denote matching subscales from different measures.

and ECR-Anxiety were positively correlated; as were CAQ-Avoidance and ECR-Avoidance. ECR-Anxiety and ECR-Avoidance were positively related, which is common in research using self-reports of the ECR (Brennan et al., 1998). CAQ-Anxiety and CAQ-Avoidance were not significantly correlated. In sum, the subscales from the CAQ measure of romantic attachment showed a strong degree of correspondence to the subscales from the ECR measure of romantic attachment. Further, CAQ-Anxiety and CAQ-Avoidance are more strongly correlated with their corresponding ECR subscales than with each other, $Zs > 4.84$, $ps < .001$.

Associations between observer-reported romantic attachment orientation and self-report ratings of romantic attachment and broader personality traits

To assess the convergent and divergent validity of observer-based measures of romantic attachment, we correlated the observer-reported attachment orientations with self-reported attachment orientations and broader personality. Establishing convergent and divergent validity situates our measure in a broader nomological network of personality traits while also distinguishing it from other, related personality traits. We predicted that observer-reported anxiety and avoidance would be related to self-reported anxiety and avoidance, respectively. We also predicted that observer-reported anxiety would be negatively correlated with emotional stability and agreeableness. Avoidance was expected to be negatively correlated with agreeableness and extraversion. Further, we expected that observer reports of attachment would be unrelated to openness to experience and conscientiousness (Noftle & Shaver, 2006).

As shown in Table 3, the observer-rated anxiety and avoidance subscales of both the CAQ and the ECR were significantly related to their respective self-report subscales. It is also worth noting that both observer-based romantic attachment measures were associated to similar degrees with self-reported romantic attachment orientation. Thus, observer-based measures (from both the CAQ and the ECR) are significantly associated with self-reported romantic attachment orientation.

Also, as predicted, observer-reported anxiety and avoidance were consistently negatively correlated with self-reported agreeableness. Observer-reported attachment anxiety was negatively correlated with emotional stability and observer-based avoidance was negatively correlated with extraversion and agreeableness, as hypothesized (Noftle & Shaver, 2006).

Table 3. Correlations between observer-reported romantic attachment and self-reports of romantic attachment and personality.

			Observer reports			
		Mean (SD)	CAQ-Anxiety	ECR-Anxiety	CAQ-Avoidance	ECR-Avoidance
Self-Reports	ECR-Anxiety	3.63 (1.00)	**.51****	**.50****	.18	.31*
	ECR-Avoidance	2.85 (.99)	.19	.27*	**.46****	**.47****
	Emotional stability	4.57 (1.33)	−.49**	−.41**	−.19	−.13
	Extraversion	4.44 (1.61)	−.16	−.13	−.23*	−.18
	Openness to experience	4.96 (1.20)	.02	−.08	.04	−.10
	Agreeableness	5.04 (1.05)	−.23*	−.20*	−.34**	−.25*
	Conscientiousness	5.57 (1.16)	.04	.13	.10	.09

Note: $N = 118$; *$p < .05$; **$p < .01$. Bolded coefficients denote matching subscales from different measures.

Do the associations between CAQ-attachment measures and ECR-attachment measures vary by age and gender?

Supplementary analyses were conducted to examine whether any of the associations between CAQ-attachment orientations and self-/observer-reported ECR-attachment orientations were moderated by the target's age and gender. Significant moderation would suggest that the degree of correspondence between the measures is different between people of different ages or between men and women. Any moderation of the associations between measures by age and gender is particularly important in examining longitudinal changes in romantic attachment orientation using the CAQ, as it would suggest that attachment orientation is less "observable" at certain ages or among men/women. To examine this possibility, we ran eight regressions in which CAQ-attachment orientation, age, and the interaction between these two variables were regressed onto self-/observer-reported ECR-attachment orientations. We also did the same for gender. Target age, βs < .12, ps > .17, and gender, βs < .07, ps > .34, did not moderate the association between CAQ measures of attachment and either self-reported or observer-reported ECR-attachment. That is, the utility of the CAQ was unrelated to targets' age or gender.

Discussion

In the current study, we developed and validated a measure of romantic attachment orientation from the CAQ (Block, 2008). This new measure will enable researchers to measure changes in romantic attachment orientation across the adult lifespan. Measures of CAQ-attachment orientation were related to both self- and observer-reported ECR-attachment orientation. Further, CAQ-attachment orientation was related to self-reported Big Five traits in predictable ways based on previous research. The cross-measure associations of romantic attachment orientations were also invariant across age and gender, suggesting that romantic attachment orientation is equally observable at different ages and between men and women. Taken together, the findings of the current study demonstrate that an individual's romantic attachment orientation can be reliably measured with the CAQ.

Researchers examining individual differences in romantic attachment rely almost exclusively on self-report measures (Crowell et al., 2008). The current study is one of the few to examine associations between self- and observer-reports of romantic attachment. We found a high degree of correspondence between self- and observer-report measures, suggesting that individual differences in romantic attachment are observable characteristics that can be reported by multiple informants. Further, we examined associations between romantic attachment orientations measured across similar (self- vs. observer-reports of ECR-Attachment Orientation) and different methods (self/observer-reports of ECR-Attachment Orientation vs. CAQ-Attachment Orientation), which provides a strong test of the validity of a psychological construct (Campbell & Fiske, 1959). So, although the primary purpose of the current study was to provide the preliminary validation of a measure of romantic attachment from the CAQ, it also provides information about the observability and measurement of romantic attachment more broadly.

There are several benefits to using the CAQ to measure romantic attachment orientation. For example, the CAQ has been included in several longitudinal data sets (Block,

1971; Block & Block, 2006; Helson & Wink, 1992; Stewart & Vandewater, 1993), enabling researchers to examine changes in romantic attachment over long periods of time. Indeed, in a recent study, we tested this new CAQ measure in the Block and Block (2006) Longitudinal Study of Cognitive and Ego Development (Chopik, Moors, & Edelstein, 2014). Specifically, we examined how CAQ-Anxiety and CAQ-Avoidance changed over a 9-year period during emerging adulthood (the CAQ was available at ages 14, 18, and 23). Anxiety decreased initially from age 14 to 18 before increasing from age 18 to 23, replicating prior cross-sectional work (Chopik et al., 2013). Avoidance decreased overall from age 14 to 23 – a time during which individuals are forming committed relationships for the first time (Schindler, Fagundes, & Murdock, 2010). We also related these changes in attachment to reports of maternal nurturance at age 3, nearly 20 years prior. Maternal nurturance moderated changes in attachment avoidance, such that individuals with nurturant caregivers experienced the sharpest declines in avoidance from ages 14 to 23. This study was one of the first to examine how maternal behavior in childhood moderated *changes* in attachment orientation nearly 20 years later. Because the CAQ was available in this study of normative development, we were provided with the unprecedented opportunity to examine the enduring effects of early experience on later romantic attachment orientation, which is a hotly debated topic in studies of human development (Roisman & Fraley, 2012). Thus, the CAQ-Attachment Orientation measure has already begun contributing to our knowledge about how romantic attachment changes across the lifespan.

There are also other methodological and practical benefits to using the CAQ to measure romantic attachment. For example, the CAQ can be employed by both experts and lay people, providing additional data and another perspective to describe a person (Bem & Funder, 1978; Vazire, 2010). Aside from its use in archival data sets, CAQ-Attachment Orientation can be used to examine the observability of attachment-related behaviors in future studies and can complement self-report measures of attachment. The flexibility with respect to data collection is another benefit for CAQ measures of personality. As with any observer-based measure, access to the participants of interest is not always necessary (or possible) when completing a Q-Sort. For example, Kowert (1996) examined and compared the personalities of several US presidents using the CAQ. Normally, personality data on inaccessible individuals are extremely hard to acquire (particularly if they are no longer living; as was the case in Kowert's sample). Kowert recruited observers who knew his participants very well – historians, social scientists, and journalists who cover presidential administrations – to complete the CAQ on each president.

Thus, the CAQ provides a unique tool that researchers can use to acquire personality data from people with whom they do not have regular contact. This advantage of the CAQ is also useful for more practical challenges in data collection. For example, researchers may realize after data collection has ceased that it would have been beneficial to assess a particular unmeasured personality construct. These omissions are especially worrisome if restarting the study or re-contacting the participants is too onerous or expensive. Many researchers have used the CAQ to measure constructs that were not included in the original study design, often several years after data collection had ceased (Edelstein, Newton, & Stewart, 2012; Helson & Srivastava, 2002; Newton & Stewart, 2013; Peterson, 2002; Wink, 1992a; York & John, 1992). Assuming that there is enough source material (e.g., open-ended responses, knowledge of responses

on similar scales) to accurately judge an individual's personality, researchers do not need to be restricted to just the measures included in their (or others') studies.

In the current study, we proposed that items from the CAQ could accurately measure an individual's romantic attachment orientation. Although the preliminary validation of the CAQ-attachment orientation measure is an exciting advancement for researchers interested in examining changes in romantic attachment across the lifespan, some considerations of its use must be noted. These considerations focus mainly on the nature of observer-based judgments – the information that can be gained from their use and how their use can be tailored to answer research questions from different perspectives. In the current study, we had observers rate targets with whom they were very familiar. These observers were often a friend or family member of the target and likely based their judgments on several interactions spanning several years. Normally, and with nearly all observer-based measures, participants may give overly positive evaluations of their close others (Vonk & Konst, 1998).

The ipsative nature of the CAQ partially reduces concerns about enhancement of close others. By requiring raters to organize the 100 CAQ statements into a forced distribution, only a select few statements that quintessentially describe an individual can be chosen for the "highly characteristic" and "highly uncharacteristic" categories; the majority of statements must fall in the middle category of "not characteristic". Longitudinal studies that utilize the CAQ often rely on Q-sorts generated by study personnel, who do not personally know study participants, using source material to make their judgments (Block, 1971; Block & Block, 2006; Helson & Wink, 1992; Stewart & Vandewater, 1993). In this way, the current validation study employs a slightly different method than the traditionally administered CAQ. In the current study, five experts rated CAQ items, and *one* rater filled out the CAQ on a close other. In the aforementioned longitudinal studies, *multiple* raters who are blind to the hypotheses (and the participants' identities) complete the CAQ and then researchers later select items to form a composite that they hope measures their construct of interest. As such, rater bias may be present in the current case but not the typical case in which the CAQ is used in longitudinal data. In the typical case, CAQ judgments are also entirely dependent on the quality of the source material (interviews, interactions, open-ended questionnaires) available to the raters, rather than a long history of shared experiences and interactions with a friend or family member. The impersonal practice of raters being blind to participants' identities can be juxtaposed against a growing literature suggesting that close others might have more insight into an individual's personality and behavior than both strangers and at times even the individuals themselves (Vazire & Carlson, 2011). Future research can determine which characteristics are more suitable to be rated by impersonal judges, close others (e.g., romantic partners), or the self, and the implications of different sources for examining changes in personality over time, as multiple perspectives can provide additional information about an individual.

A final consideration is the degree to which measures of CAQ-attachment orientation overlap with measures of broader personality. In most cases, these associations were small and consistent with prior research (Noftle & Shaver, 2006). However, in the current sample, CAQ-Anxiety was correlated with emotional stability ($r = -.49$) almost as highly as it was with ECR-Anxiety across informants ($rs > .51$). Experts in attachment theory rated items from the CAQ that were characteristic of attachment anxiety. However,

several of the items from the CAQ-Anxiety subscale also appear to measure emotional stability more generally. Emotional stability and attachment anxiety are often strongly correlated in the literature. However, there are reasons to believe that attachment anxiety and emotional stability are unique constructs associated with unique outcomes. For instance, attachment anxiety predicts relationship quality even after controlling for the variance attributable to emotional stability (i.e., in regression analyses; Noftle & Shaver, 2006). That is, despite the strong association between the two constructs, emotional stability was unrelated to relationship quality while attachment anxiety was a strong predictor. Attachment anxiety also predicts interpersonal problems even after controlling for variation in positive and negative affect (Wei, Vogel, Ku, & Zakalik, 2005). In our study examining changes in attachment orientation from ages 14 to 23, the longitudinal trajectory of CAQ-Anxiety replicates the cross-sectional age patterns of ECR-Anxiety across these same ages. This replication suggests that CAQ-Attachment measures also reliably capture variation in attachment anxiety across developmental periods (Chopik et al., 2014). Together, these findings suggest that the two constructs are distinct and that attachment anxiety is more closely related to relational outcomes than emotional stability. Nevertheless, in future studies of intra-individual change in romantic attachment orientation, it will be important to control for changes in other constructs related to romantic attachment orientation.

Conclusion

The development of our CAQ-attachment orientation measure should be empowering to researchers interested in studying how romantic attachment changes over long periods of time. The CAQ measure is currently present in many longitudinal datasets and can be easily completed using a researcher's existing data provided they have adequate source material. By examining how romantic attachment changes over time using this new measure, we hope to further understand how people shape and are shaped by their social relationships.

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Disclosure statement

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