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Changes in Adult Attachment Styles in American College Students Over Time: A Meta-Analysis

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Abstract

The current article examines changes over time in a commonly used measure of adult attachment style. A cross-temporal meta-analysis was conducted on 94 samples of American college students (total *N* = 25,243, between 1988 and 2011) who chose the most representative description of four possible attachment styles (Secure, Dismissing, Preoccupied, and Fearful) on the Relationship Questionnaire. The percentage of students with Secure attachment styles has decreased in recent years (1988: 48.98%; 2011: 41.62%), whereas the percentage of students with Insecure attachment styles (sum of Dismissing, Preoccupied, Fearful) has increased in recent years (1988: 51.02%; 2011: 58.38%). The percentage of students with Dismissing attachment styles has increased over time (1988: 11.93%; 2011: 18.62%), even after controlling for age, gender, race, and publication status. Positive views of others have declined across the same time period. We discuss possible implications and explanations for these changes.

Keywords

attachment style, secure attachment, insecure attachment temporal change, meta-analysis, secular trends

People spend nearly all their waking hours in the presence of others (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004); when people are not with others, they interact with others online or via phone or text message (Pew Internet Trend Data (Adults), 2013). When not directly interacting, they often watch others on television and movie screens—activities that consume the vast majority of their free time (Bohn & Short, 2009). And when people are not watching others, they think about others, of past events, and of future interactions yet to come (Gilbert & Wilson, 2009). Interpersonal connections are so prevalent that some scholars argue that they are the core of the human experience (Baumeister & Leary, 1995; Panksepp, 1998).

And yet not all social connections are equal. Some people form connections that are strong and supportive, with long-term mutual commitment. Others form connections that are superficial and fleeting, based on maximizing benefits while giving little back in return. Still others seek to avoid social interactions altogether. Given such differences in how people connect with others, and given that social connections are closely linked to well-being and other positive outcomes (Collins & Feeney, 2004; Collins & Read, 1990; Sarason, Sarason, & Gurung, 2001), researchers have been interested in factors that promote satisfying relationships.

The focus of this article is specifically on adult attachment styles, which involve people's tendencies to form or avoid interpersonal bonds. We use cross-temporal meta-analytic methods to examine changes over time in American college students' attachment styles. We do so by using a time-lag method, which separates the effects of birth cohort from age by analyzing samples of people of the same age at different points in time. In this study, we compare college students from the late 1980s with college students in the 1990s, 2000s, and 2010s. By studying college students during each of these time periods, we can compare people who are approximately the same age but from different birth cohorts. People from different birth cohorts can have very different personalities and values, even if they are born within the same culture (Stewart & Healy, 1989; Twenge, 2000). For example, children growing up in the United States in the 1970s were exposed to different sociocultural norms than those growing up in the 2000s, despite being physically located in the same country. This approach uses similar logic as studies examining similarities and differences in the self-construals, traits,

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and behaviors of people across different regions of the world (e.g., Choi, Nisbett, & Norenzayan, 1999; Heine & Lehman, 1997; Markus & Kitayama, 1991), except that it instead assesses differences between birth cohort groups (rather than cultures).

Several studies have used this method to identify cohort differences in anxiety, self-esteem, empathy, narcissism, locus of control, belief in a just world, and sexual behaviors (Konrath, O'Brien, & Hsing, 2011; Malahy, Rubinlicht, & Kaiser, 2009; Twenge, 2000; Twenge & Campbell, 2001; Twenge, Konrath, Foster, Campbell, & Bushman, 2008; Twenge, Zhang, & Im, 2004; Wells & Twenge, 2005). These studies used meta-analytic methods to compare samples of college students or children who completed the same psychological questionnaires at different points in time. In the method of cross-temporal meta-analysis, researchers correlate the mean scores on a measure with the year of data collection to assess changes over time. In the current study, we specifically examine changes over time in adult attachment styles.

What Is Attachment?

Attachment styles refer to the motivational systems underlying social relationships that explain differences in how people connect with and relate to others. Early attachment theory was predominantly focused on the bonds formed between infants and their caregivers (Bowlby, 1973). Subsequent work highlighted the parallels between these parent–child relationships and later relationships between romantic partners beginning in young adulthood (Hazan & Shaver, 1987). For example, children's relationships with their parents in early life are similar to their intimate relationships with nonfamilial others later in life (Bowlby, 1988; Fraley & Shaver, 2000). More recently, attachment theory was extended beyond early lifespan development and intimate relationships (e.g., parental, romantic) to include more general adult relationships (e.g., friendship, colleagues; Cassidy & Shaver, 2008). Recent research has demonstrated that the influence of early caregiving environments persists long after these bonds are formed, predicting relationship dynamics as long as 20 years after initial assessments in early childhood (Oriña et al., 2011; Zayas, Mischel, Shoda, & Aber, 2011).

Differences in adult attachment are conceptualized in terms of four distinct "styles," based on two-dimensional models of how people regard themselves (Dimension 1: Models of Self) and the others around them (Dimension 2: Models of Others; Bartholomew & Horowitz, 1991; Cassidy, 2000; Feeney, 2008; Pietromonaco & Barrett, 2000). The distinction between Models of Self and Others allows for more specific analyses than early conceptualizations of attachment, which often lumped potentially different dimensions into general bipolar categories such as "secure" versus "insecure" (e.g., Belsky & Rovine, 1987). Finer distinctions are particularly useful for understanding attachment processes within adults, who likely have more complex social networks than the close familial relationships held by infants and young children.

Table 1 summarizes the measurement and two-dimensional structure of the four attachment styles. *Secure attachment* characterizes people who are comfortable with intimacy and autonomy. They hold positive views of themselves and positive views of others. *Dismissing attachment* characterizes people who are self-reliant and value autonomy to an extreme degree, often at the expense of intimacy with others. This can result in interpersonal "coldness." They hold positive views of themselves but negative views of others. *Preoccupied* people typically have low self-worth and are anxious in close relationships. They hold negative views of themselves but positive views of others. *Fearful attachment* characterizes people who desire intimacy but have a general distrust for others, thereby avoiding involvement in relationships that may lead to rejection. They hold negative views of themselves and negative views of others.

Most measures of adult attachment are based on self-report questionnaires (see Crowell, Fraley, & Shaver, 2008, for a review). These are far more common than interview and behavioral methods, which are often complex, labor-intensive, and geared toward young children who may not comprehend self-report questions (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Brennan, Clark, & Shaver, 1998). The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) is one of the most widely used self-report measures of adult attachment. The RQ consists of four short paragraphs describing the four prototypical adult attachment styles, as seen in Table 1: Secure, Dismissing, Preoccupied, and Fearful (Bartholomew, 1990; Bartholomew & Horowitz, 1991). Typically, respondents rate the extent to which each paragraph describes them. However, researchers often administer a forced-choice method, in which respondents choose only one of the four descriptions that best describes their attachment style (Feeney, 1999; Pietromonaco & Barrett, 1997).

The RQ is an ideal measure of attachment style for use in a cross-temporal meta-analysis. Among self-report measures of attachment, the RQ is less susceptible to social desirability and self-report biases compared with other measures of attachment (Leak & Parsons, 2001). The scale is correlated highly with other self-report measures and interview-based assessments of attachment style (Bartholomew & Horowitz, 1991; Bartholomew & Shaver, 1998; Brennan et al., 1998). The RQ is reliable, well-validated, widely used, culture-sensitive, and carries considerable self-observer agreement among peers, romantic partners, and family members (Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994; Scharfe & Bartholomew, 1994; Schmitt et al., 2004). In addition, RQ responses are relatively stable across time periods ranging from 8 months to 2 years post-assessment, with stability coefficients of .51 and .38, respectively (Scharfe & Bartholomew, 1994; Zhang & Labouvie-Vief,

Table 1. The Four Adult Attachment Styles.

Attachment style	Measurement	Model of Self	Model of Other
Secure	"It is easy for me to become emotionally close to others. I am comfortable depending on others and having others depend on me. I don't worry about being alone or having others not accept me."	Positive	Positive
Dismissing	"I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me."	Positive	Negative
Preoccupied	"I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but sometimes worry that others don't value me as much as I value them."	Negative	Positive
Fearful	"I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others."	Negative	Negative

2004). The RQ's excellent psychometric properties make it an ideal measure to use for examining potential changes over time in adult attachment style.

Correlates of the RQ

Considerable research has examined the correlates of attachment styles in children (Carlson & Sroufe, 1995; Sroufe, Egeland, & Kreutzer, 1990; Zayas et al., 2011). However, the focus of the current article is on adult attachment styles as measured by the RQ. Although less developed than the childhood literature, the RQ has several important correlates across self-related and other-related outcomes (see Table 2, for a summary).

Secure

Secure attachment, as measured with the RQ, is very similar to prior definitions of secure attachment (e.g., Hazan & Shaver, 1987). Secure people are low in neuroticism, high in agreeableness, and high in extraversion (Shaver & Brennan, 1992). They tend to disclose private information to intimate others (Keelan, Dion, & Dion, 1998) and trust others, valuing their ongoing relationships even through hardships (Ciechanowski & Katon, 2006). Secure individuals have relatively stable emotional and social lives (Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2009), reporting high levels of social support, interpersonal well-being, and a balance of control in their friendships (Bartholomew & Horowitz, 1991; Ognibene & Collins, 1998; Sarason et al., 2001; Vogel & Wei, 2005). Secure adults experience less frequent negative emotions in their romantic relationships (Simpson, 1990) and also report a greater satisfaction with and quality of their social relationships in general (Banse, 2004; Collins & Read, 1994). They have high social competence and report relatively low loneliness (DiTommaso, Brannen-McNulty, Ross, & Burgess, 2003). On a behavioral level, Secure people are the most likely of all styles to show compassion, helping, and other prosocial behaviors toward others (Mikulincer, Shaver, Gillath, & Nitzberg, 2005; Thompson & Gullone, 2008). In addition, since they have positive Models of the Self, it is not surprising that Secure people have high self-esteem, high self-acceptance, high self-confidence, and low subjective distress (Bartholomew & Horowitz, 1991). On the California Personality Inventory, Secure attachment is positively related to sociability, empathy, socialization, communality, independence, and tolerance (Diehl, Elnick, Bourbeau, & Labouvie-Vief, 1998).

Dismissing

Dismissing individuals report being comfortable without close relationships. They are independent, self-sufficient, and have high self-esteem, self-acceptance, and self-confidence (Bartholomew & Horowitz, 1991; Ravitz et al., 2009). Dismissing individuals are relatively unconcerned about what others think, are low in interpersonal warmth, have less satisfying romantic relationships, and are competitive in interpersonal settings (Bartholomew & Horowitz, 1991; Guerrero, 1996). They see "walls" between themselves and others, with a high sensitivity to being controlled by other people (Ciechanowski & Katon, 2006). Dismissing people have a general distrust of others, and they tend to avoid relying on other people, thus avoiding closeness and intimacy (Ciechanowski & Katon, 2006). In terms of coping with negative interpersonal experiences, Dismissing people (compared to people with other attachment styles) are more likely to avoid thinking about such events altogether rather than actively seeking out support (Ognibene & Collins, 1998), and perhaps as a result they are also more prone to loneliness (DiTommaso et al., 2003). On the California Personality Inventory, Dismissing attachment is negatively related to sociability, empathy, socialization, communality, and tolerance (Diehl et al., 1998).

Table 2. Representative Correlates of the Relationship Questionnaire.

Attachment style (Model)	Self-related outcomes	Other-related outcomes
Secure (pos self, pos other)	Agreeable/extroverted	Trusting/strong relationships
	Stable emotional lives	Strong social support
	Low subjective distress	Satisfying/stable social lives
	High self-esteem/self-acceptance/self-confidence	Prosocial behavior
Dismissing (pos self, neg other)	Independent/self-sufficient	Low need/desire for closeness
	Autonomous/self-controlled	Interpersonal "coldness"
	High self-esteem/self-acceptance/self-confidence	Competitive/less communality
Preoccupied (pos self, pos other)	Emotionally expressive	Low stability/balance in social life
	Low self-confidence	Trust/rely on others
	Low independence/self-control	Easily upset/worried in social life
Fearful (neg self, neg other)	Subservient to others	Distrustful of others
	High passivity/low agency	Low intimacy/sociability
	Low self-confidence/self-esteem/independence	Perceive the world as harsh

Preoccupied

Preoccupied adults strongly desire to be emotionally close to others, but they are easily upset and worried if closeness in relationships is not reciprocated (Bartholomew & Horowitz, 1991; Ravitz et al., 2009). Despite desiring closeness, they tend to report more feelings of loneliness (DiTommaso et al., 2003). They feel that they have limited control in their friendships, and other people often find them to be overly expressive to the point of being intrusive (Bartholomew & Horowitz, 1991). Not surprisingly, then, Preoccupied people are more socially sensitive but have low self-confidence (DiTommaso et al., 2003). They are emotional, caring, and able to rely on others with feelings of trust and security; however, they are also overprotective and overly sensitive (Bartholomew & Horowitz, 1991). On the California Personality Inventory, Preoccupied attachment is negatively related to independence and self-control (Diehl et al., 1998).

Fearful

Fearful individuals have negative Models of both Self *and* Others. As such, they have low self-confidence, low assertiveness, low agency, and high passivity. They also lack warmth and are generally distrustful of others (Bartholomew & Horowitz, 1991; Ciechanowski & Katon, 2006). They are low in sociability and highly sensitive to rejection (Guerrero, 1996; Ravitz et al., 2009). Fearful individuals are generally subservient to others; they are not competitive and feel as though they have little control in their close relationships (Bartholomew & Horowitz, 1991). They perceive the world as harsh, tend not to rely on other people (Ciechanowski & Katon, 2006), report distance from close others, and experience more loneliness than more Secure people (DiTommaso et al., 2003; Ognibene & Collins, 1998). On the California Personality Inventory, Fearful attachment is negatively related to sociability, empathy, socialization, communality, independence, self-control, and tolerance (Diehl et al., 1998).

Changes in Attachment Styles Over Time

In the current study, we examined changes in the percentage of American college students endorsing each RQ attachment style over time. We hypothesized that Secure attachment styles have been decreasing in prevalence in recent years, with a corresponding increase in Insecure attachment styles (sum of Dismissing, Preoccupied, and Fearful), and especially Dismissing attachment.

One particularly relevant program of research has found increasing levels of narcissism[1] in American college students from the mid-1980s to the 2000s, using similar cross-temporal methods as the current study (Twenge & Foster, 2008, 2010; Twenge et al., 2008). Narcissistic individuals have high self-esteem and inflated self-views, especially on agentic traits such as power and intelligence (e.g., Campbell, Rudich, & Sedikides, 2002; Raskin, Novacek, & Hogan, 1991). Thus, they have positive Models of the Self. Although narcissistic people are typically extraverted, they think of others primarily in terms of their utility rather than as interdependent relationship partners (Campbell, 1999). Narcissistic people tend to aggress against people who threaten their egos by rejecting or insulting them (Bushman & Baumeister, 1998; Konrath, Bushman, & Campbell, 2006). In addition, narcissistic people have low trust. For example, they are less likely to agree that "*most people are basically good and kind*" and "*most people can be trusted*" (Konrath & Bushman, 2007). Thus, evidence suggests that they have negative Models of Others. Smolewska and Dion (2005) suggested that narcissists' desire for dominance, low affiliative concerns, self-reliance, and suspiciousness toward others align well with what Bowlby originally called "compulsive self-reliance" or Dismissing attachment (Bowlby,

1973; Wink, 1991). Attachment insecurity is related to manipulative behavior in the context of close relationships (Gillath, Sesko, Shaver, & Chun, 2010), which parallels the exploitative interpersonal tendencies of narcissistic people (Wink, 1991). Furthermore, common to both narcissism and Dismissing attachment is the dismissal of close relationships that may pose a threat to their self-concept; each share an underlying set of defensive strategies when interacting with others (Smolewska & Dion, 2005). Taken together, people with Dismissing attachment styles (i.e., those characterized by positive Models of the Self and negative Models of Others) would likely score higher in narcissism than people with other attachment styles. Indeed, some studies have found a positive correlation between narcissism and Dismissing attachment (Campbell & Foster, 2002; Neumann & Bierhoff, 2004). If narcissism is increasing among American college students over time, then Dismissing attachment styles may also be increasing over time.

A related research program finds decreases in dispositional empathy in American college students from the late-1970s until 2009, also using the same cross-temporal methods as the current study (Konrath et al., 2011). Students attending college in the 2000s scored lower on a measure of empathic concern (emotional empathy) and perspective taking (cognitive empathy) compared to students attending college in the 1980s and 1990s. Although evidence suggests that people lack meta-knowledge regarding their own empathic accuracy (Ickes, 1993), studies have generally found that self-report measures of dispositional empathy predict a wide range of prosocial behaviors, confirming the validity of such scales (e.g., Archer, Diaz-Loving, Gollwitzer, Davis, & Foushee, 1981; Batson, Bolen, Cross, & Neuringer-Benefiel, 1986; Hojat, Mangione, Nasca, Gonnella, & Magee, 2005).

Due to their high self-reliance and lower motivation to maintain social relationships, Dismissing individuals may not engage in perspective taking as frequently or may be less able or willing to discern the thoughts and feelings of others (Wei, Liao, Ku, & Shaffer, 2011). Empirical studies support the notion that holding a negative view of others is associated with lower empathy (Britton & Fuendeling, 2005; Mikulincer et al., 2001). Thus, if empathy is decreasing among American college students, Dismissing attachment styles (and negative Models of Others in general) may concurrently be increasing in this population. Indeed, Dismissing individuals have lower empathy scores on the California Personality Inventory than those with other attachment styles (Diehl et al., 1998). Furthermore, empathy mediates the consistently reported relationship between attachment insecurity and subjective well-being (Wei et al., 2011). This mediation suggests that having a negative Model of Others may be a precursor to lower empathy and interfere with the ability to recognize the feelings of others. Since lower empathy can be detrimental to interpersonal relationships, this can be costly to one's well-being.

Still other related societal changes lead to the prediction that Secure attachment styles might be decreasing while Insecure attachment styles may be increasing, especially Dismissing attachment styles. For example, individualism (Twenge, 2006), self-esteem (Twenge & Campbell, 2001), positive self-views (Twenge & Campbell, 2008), and agentic traits (Twenge, 1997) have all increased over time. Highly individualistic people are, by definition, more concerned with their own success and well-being compared to others' success and well-being (see Fukuyama, 1999; Myers, 2000). Similarly, materialistic values are increasing over time, especially among American young adults (Schor, 2004). Not surprisingly, materialism is related to less prosocial behavior and weaker relationships with others (Kasser & Ryan, 1993; Vohs, Mead, & Goode, 2006). Furthermore, endorsement of beliefs in a just world (which are often used to justify inequality and blame victims for their outcomes) increased among American college students from 1973 to 2006—accompanying an increase in income inequality over that same time period (Malahy et al., 2009). Thus, Dismissing attachment styles may also be increasing because there is supporting evidence that college students may be more interested in their own outcomes rather than interpersonal connections in recent years. Indeed, the fact that more Americans live alone now than ever before (Olds & Schwartz, 2009) may be one subtle societal manifestation of the increase in Insecure attachment styles, especially those characterized by negative Models of Others.

Can Environmental Factors Affect Adult Attachment Styles?

To argue that cohort-based changes in attachment styles have occurred over time, there would need to be evidence that adult attachment styles can be influenced by changes in people's sociocultural and interpersonal environments.

Researchers have questioned whether attachment styles present in childhood persist throughout the course of people's lives. Hazan and Shaver (1987) theorized that Ainsworth and colleagues' (1978) patterns of childhood attachment may also be observed in adult relationships. Several adult attachment measures have been designed to assess the claim that attachment patterns formed in infancy can persist into adulthood (e.g., Bartholomew & Horowitz, 1991; Brennan et al., 1998; Stein, Jacobs, Ferguson, Allen, & Fonagy, 1998). Although some longitudinal studies assessing the stability of early attachment patterns have reported inconsistent findings (e.g., Bohlin, Hagekull, & Rydell, 2000; Hamilton, 2000; Lewis, 1997; Waters, Weinfield, & Hamilton, 2000), a meta-analysis of longitudinal studies found that the early formation of attachment style typically remains rather stable through early adulthood (Fraley, 2002). However, attachment patterns are still malleable under certain circumstances, such as the occurrence of negative life events (Hamilton, 2000; Waters et al., 2000).

Genetic research can also help us to understand the role of environmental factors in attachment styles. Research assessing the contributions of genetic versus environmental factors on attachment styles has found inconsistent patterns. These studies frequently focus on mono- and dizygotic twins to compare the influence of genetics to that of the environment (e.g., Brussoni, Jang, Livesley, & MacBeth, 2000). On the one hand, several studies have reported no significant effects of genetics on attachment, and thus, they mainly attribute variation to environmental influences (Bakermans-Kranenburg, van Uzendoorn, Bokhorst, & Schuengel, 2004; O'Connor & Croft, 2001). However, numerous other studies report contradictory findings that support some genetic contribution to attachment (e.g., Brussoni et al., 2000; Donnellan, Burt, Levendosky, & Klump, 2008). For example, a study on the genetic correlates of adult attachment revealed that attachment insecurity was related to several socially relevant genetic polymorphisms (i.e., the 5HT2A serotonin receptor gene; Gillath, Shaver, Baek, & Chun, 2008).

Even so, a twin study attributing much variability in attachment styles to genes still recognized environmental influences as important, especially within Dismissing attachment styles (Brussoni et al., 2000). This study, which used the Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994), found that genes accounted for a significant percentage of the variability in Fearful (h^2 = .43; e^2 = .57), Preoccupied (h^2 = .25; e^2 = .75), and Secure attachment (h^2 = .37; e^2 = .63). However, genes accounted for virtually no variation in Dismissing attachment (h^2 = .00; c^2 / shared environmental effects = .29; e^2 / non-shared environmental effects = .71). While genetic factors accounted for significant variance in most attachment styles, environmental influences accounted for virtually all of the variance in Dismissing attachment. The authors suggested that the Dismissing style may be the most responsive to changes in people's immediate environments. Furthermore, a recent 18-year longitudinal study examined the relative influence of social/environmental conditions and genetic polymorphisms in explaining individual differences in attachment (Fraley, Roisman, Booth-LaForce, Owen, & Holland, 2013). Variability in attachment styles was largely attributable to the quality of individuals' caregiving environments and close relationships in adolescence, and was virtually uncorrelated with genetic markers of personality. In addition, there is lower stability over time for attachment avoidance (a classification conceptually similar to Dismissing attachment) compared to other styles (Fraley, Vicary, Brumbaugh, & Roisman, 2011). This hypothesis is consistent with research linking changes in Dismissing (avoidant) attachment to variability in social environments and relationship history (Chopik, Edelstein, & Fraley, 2013; Davila, Karney, & Bradbury, 1999; Kirkpatrick & Hazan, 1994).

Taken together, adult attachment styles are relatively stable over time but are also susceptible to environmental influences. These findings suggest that sociocultural changes might indeed influence the distribution of a cohort's adult attachment styles. Moreover, sociocultural changes may exert *more* influence on Dismissing attachment styles compared to other attachment classifications (i.e., Preoccupied, Fearful, and Secure). This is demonstrated by studies revealing that variability in Dismissing attachment is attributable primarily to the quality of individuals' social environment (Brussoni et al., 2000).

Alternative Hypotheses

As discussed above, there is reason to predict that Insecure attachment styles (especially Dismissing attachment) are increasing over time. However, some scholars suggest a possible increase in the quality of social relationships and peoples' focus on others. For example, a cross-temporal meta-analysis examining the vocational interests of American college students from 1976 to 2004 found an increase in preference for "social"-related occupations (i.e., careers focused on helping others; Bubany & Hansen, 2011). However, preferences for "enterprising" occupations (i.e., careers focused on having influence over others) have increased at a faster rate over the same period. Other scholars have found that college students today are *more* interested in raising a family than in previous generations suggesting that students today may be *less* Dismissing, given their investment in raising children (Twenge, Campbell, & Freeman, 2012). However, this study also revealed that students today were less likely to donate to charity, less likely to change their diets if it meant that more food would be available for starving people, and less likely to express empathy for outgroup members. These studies find conflicting evidence on generational changes in variables related to Models of the Self and Others.

The Present Research

We conducted a cross-temporal meta-analysis of American college students' responses on the RQ. To do so, we examined the correlation between the percent of participants who selected each of the four RQ attachment styles and the year in which the data were collected, showing how percentages of Secure, Dismissing, Fearful, and Preoccupied attachment styles have changed since the late 1980s.

The issue of changing college populations is an important concern for studies that examine college student samples across time. However, college populations have remained similar on most important demographic variables. For example, the socioeconomic status of college students has remained quite stable over time. The median household income of college students, when adjusted for inflation, changed by less than $6,000 between 1988 ($81,840) and 2010 ($76,100; Higher Education Research Institute, 2011). The racial composition of college student samples has also changed only slightly over this time period, with students

remaining overwhelmingly White. African American students earned 5.8% of bachelor's degrees in 1989 and 9.8% in 2008; across the same time period Asian Americans increased from 3.1% to 7.9%, and Hispanic Americans increased from 3.7% to 7.0% (U.S. Bureau of the Census, 2010). Similar percentages of women were also enrolled in college across this time period: 55% of 4-year college students were female in 1988 compared with 56% in 2010 (U.S. Bureau of the Census, 2010). Overall, demographic changes in college student samples have been minimal during the time period covered by this study. In addition, previous meta-analyses found very similar patterns of birth cohort changes in college student *and* child samples (Twenge, 2000; Twenge & Campbell, 2001; Twenge & Im, 2007; Twenge et al., 2004). Because child samples are not as selective as college samples and do not experience enrollment shifts with time, these similar results suggest that the small changes in the composition of college populations are not likely to be significant confounds in birth cohort analyses.

Method

Literature Search

We searched for articles that cited the original sources of the RQ (Bartholomew & Horowitz, 1991) using the Web of Knowledge citation index. The Web of Knowledge is a database that includes virtually all journals in the social and behavioral sciences, biological and physical sciences, and medicine. We also searched the ProQuest dissertation database for any dissertations that used the RQ, and included 23 unpublished dissertations. In addition, we included 3 unpublished data sets from our own research. Included data sources are marked with an asterisk in the References section.

Inclusion Criteria

To be included in our analysis, a study had to meet the following criteria: (1) participants were undergraduates at conventional 4-year institutions (e.g., not 2-year colleges or military academies); (2) participants were attending college in the United States; (3) participants were not selected for any criteria (e.g., not chosen for a particular RQ score, not clients at a counseling center); (4) participants' *general* attachment style was measured (i.e., "*the way you generally are in your close relationships*"); (5) the authors reported the *percentages* of participants who chose each attachment style as their dominant style, which was essential to ensure comparability of the samples over time.[2] When e-mail addresses could be located, we contacted authors of published articles who met the criteria outlined above but did not report data in their paper (or reported means only). Twenty of the 94 final samples were collected this way.

To estimate the year of data collection, we used the following procedure: (1) if year of data collection was mentioned in the article or by the author, we used that year in the analyses; (2) if the article reported the original date that the article was received, we used this year as the estimated data collection year; (3) if the article reported only the date that the article was accepted, we subtracted this year by 1, to account for publication time; (4) if the article reported that the data were presented at a conference, we used the year of the conference as the estimated year of data collection; (5) if the data source was a dissertation, we subtracted the dissertation defense year by 1, to account for data collection and writing time; (6) otherwise, year of data collection was coded as 2 years prior to publication, as in previous cross-temporal meta-analyses (e.g., Konrath et al., 2011; Oliver & Hyde, 1993; Twenge et al., 2008).

Attachment-Related Early Childhood Indicators

We also examined a number of attachment-related social indicators to see if they helped to explain changes in attachment styles over time. We specifically examined indicators relating to the early caregiving environment. Scholars have posited that optimal social and moral development is more likely when early caregiving behavior is characterized by constant touch, high responsivity to emotional and physical needs, a long duration of breastfeeding, sleeping near caregivers, having multiple caregivers (e.g., fathers, grandmothers, other extended family), high social embeddedness, and natural childbirth (Narvaez, 2008; Narvaez & Gleason, 2013).Other research has confirmed that breastfeeding mothers and those who have had vaginal childbirths (rather than cesarean sections) have increased activations in caregiving-relevant brain areas in response to their baby's cries (Kim et al., 2011; Swain et al., 2008). Both breastfeeding and natural childbirth release oxytocin (Carter, 1992, 1998), a hormone that is critical to maternal bonding behaviors, and oxytocin responses to breastfeeding are attenuated after C-section births compared to vaginal ones (Nissen et al., 1996). Moreover, Secure mothers have greater activation in reward areas of the brain in response to their infants' smiles, as well as higher peripheral oxytocin responses (Strathearn, Fonagy, Amico, & Montague, 2009).

We thus identified social indicators that could plausibly be associated with the presence or availability of caregivers, or that are biologically relevant to early caregiving interactions. Indicators relevant to the potential number or availability of caregivers were the annual percentage of single-parent homes (Synder & Shafer, 1996), the annual divorce rate for children under 18 years of age (Clarke, 1995), average annual household sizes (U.S. Census Bureau, 2003), the annual percentage of mothers with children under the age of 3 who were employed (U.S. Bureau of Labor Statistics, 2013), and the annual percentage of children under the age of 5 with employed mothers who were cared for by a parent or other relative (Laughlin, 2013; McGroder, 1988). Indicators relevant to early biological attachment

Table 3. Regression Models Predicting Attachment Styles From Year of Data Collection.

	Overall	Controlling for percent male	Controlling for age	Controlling for percent Caucasian	Controlling for publication status	Post-1990 samples only
Secure	−0.25*	−0.24*	−0.20†	−0.18†	−0.15	−0.24*
Insecure	0.25*	0.24*	0.20†	0.18†	0.15	0.24*
Dismissing	0.31**	0.34**	0.27*	0.27**	0.23*	0.32**
Fearful	0.17†	0.16	0.11	0.12	0.10	0.16
Preoccupied	−0.19†	−0.22*	−0.13	−0.19†	−0.16	−0.20*
Models of the Self	−0.03	0.002	−0.01	0.02	0.01	−0.01
Models of Others	−0.38***	−0.39***	−0.29**	−0.31**	−0.26*	−0.38***

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

bonds were the annual percentage of mothers who breastfed their infants for at least 6 months (Abbott Laboratories, 2013) and the annual C-section rate (MacDorman, Menacker, & Declercq, 2008).

Each social indicator in a specific year was matched with the average year of birth of each sample included in our study. To calculate average birth year of a sample, we subtracted participants' average age from the year of data collection. So, for example, if a sample had an average age of 20 and the data were collected in the year 2000, the average birth year for that sample was estimated to be 1980. Social indicators from each year were matched to the birth year for each sample so that these indicators would reflect participants' approximate early caregiving environment, relative to other time periods. We acknowledge that this is a crude approximation of this environment, but report these analyses in the interests of better understanding our results.

Results

Descriptive Statistics

The final data set consisted of 94 separate samples, for a total of 25,243 college students, with data collected between 1988 and 2011 (34.12% male, and 72.77% Caucasian, with a mean age of 20.17). Overall, samples with higher percentages of Secure attachment styles had lower percentages of the Insecure attachment styles (Dismissing: $r = -.49$, $p < .001$; Preoccupied: $r = -.55$, $p < .001$; Fearful: $r = -.46$, $p < .001$). In addition, Dismissing percentages were negatively correlated with Fearful ones: $r = -.32$, $p = .001$. The other correlations were non-significant (Dismissing with Preoccupied: $r = .07$, $p = .49$; Fearful with Preoccupied: $r = -.10$, $p = .33$).

Data Analysis Strategy

Insecure attachment was calculated by summing Dismissing, Preoccupied, and Fearful attachment styles. We calculated Models of the Self and Others in accordance with prior research (Griffin & Bartholomew, 1994). Self Models were calculated as (Secure + Dismissing) − (Preoccupied + Fearful), with higher numbers meaning a more positive view of the self overall. Other Models were calculated as (Secure + Preoccupied) − (Dismissing + Fearful), with higher numbers meaning a more positive view of others overall.

We examined changes in each attachment style and Model (of Self and Other) over time by correlating the percentages with the year of data collection. Analyses were conducted using linear regression in SPSS, and the reported βs were standardized to allow for easier interpretation.[3] As in previous cross-temporal meta-analyses, the regression analyses were weighted by the sample size of each study so that smaller studies had less influence on the results compared to larger studies. Results are summarized in Table 3.

Overall Results

Overall, the proportion of American college students with Secure (positive views of self and others; See Table 1) attachment styles significantly declined over time, $\beta = -0.25$, $p = .02$, $R^2 = 6.2\%$. We estimated the overall percent change in each type of attachment across the 23-year period by calculating the difference between the mean scores for the earliest and latest year in our study. To compute the mean scores for a specific year, we used the regression equation, $y = Bx + C$, where B = the unstandardized regression coefficient, x = the year, C = the regression constant or intercept, and y = the predicted attachment style percentage. This formula yielded the position on the regression line (the attachment style percentage, on the Y axis) for specific years. For Secure attachment styles, the regression equation (Secure mean = −0.32 × year + 685.79) yielded a score of 48.98% for 1988 and 41.62% for 2011, which represents a 15.04% decline across the 23-year study period. In addition, the proportion of students who endorsed Insecure attachment styles (sum of Dismissing, Preoccupied, and Fearful) over time increased across the study period, $\beta = 0.25$, $p = .02$, $R^2 = 6.2$ %. With an average score of 51.02% in 1988 and 58.38% in 2011, this corresponds to a rise of 14.44% across the study period.

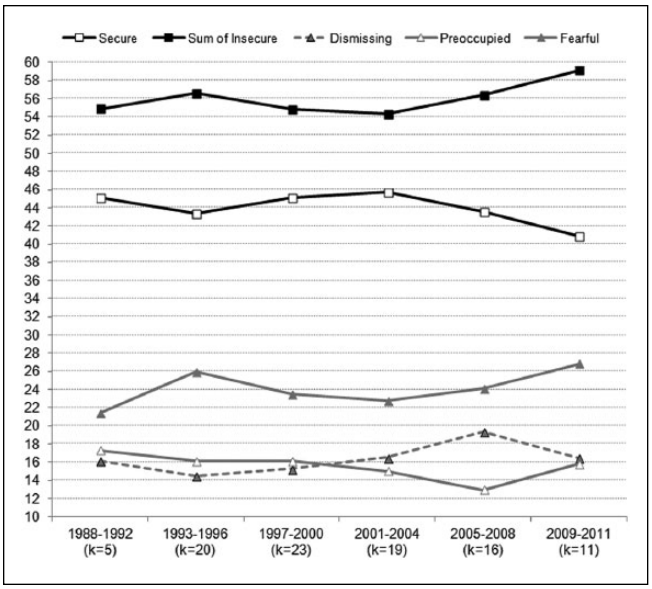

Figure 1. Changes in the percentage of attachment styles by time period, weighted by sample size.

When examining each of the Insecure attachment styles individually, the proportion of students with Dismissing (positive self, negative other) attachment styles significantly rose across this time period, β = 0.31, p = .002, R^2 = 9.7%. This reflects a 56.12% rise across the study period (11.93% in 1988 and 18.62% in 2011). In addition, the proportion of those with Fearful (negative self, negative other) attachment styles marginally rose over time, β = 0.17, p = .10, R^2 = 2.9%, a 17.65% increase (22.22% in 1988 and 26.14% in 2011). Both of these attachment styles are characterized by a negative view of others. However, interestingly, the only Insecure attachment style that is characterized by a positive view of others decreased. The proportion of students with a Preoccupied (negative self, positive other) attachment style marginally declined across the same time period, β = −0.19, p = .07, R^2 = 3.6%. This amounts to a 19.25% decline across the 23-year period (16.87% in 1988 and 13.62% in 2011).

We next examined changes in Models of the Self and Others over time. Overall, the proportion of American college students with positive Models of Others significantly declined over time, β = −0.38, p < .001, R^2 = 14.5%. With an average score of 31.71% in 1988 and 10.48% in 2011, this corresponds to a 66.96% decline across the 23-year study period. However, there were no changes in positive Models of the Self over time, β = −0.03, p = .81, R^2 = 0.10% (1988: 21.82%; 2011: 20.47%; which represents a 6.19% decline).

Taken together, more recent generations of college students reported less Secure and more Insecure attachment styles over time (see Figures 1 and 2), an effect that appears to be driven by their increasingly less positive views of others.

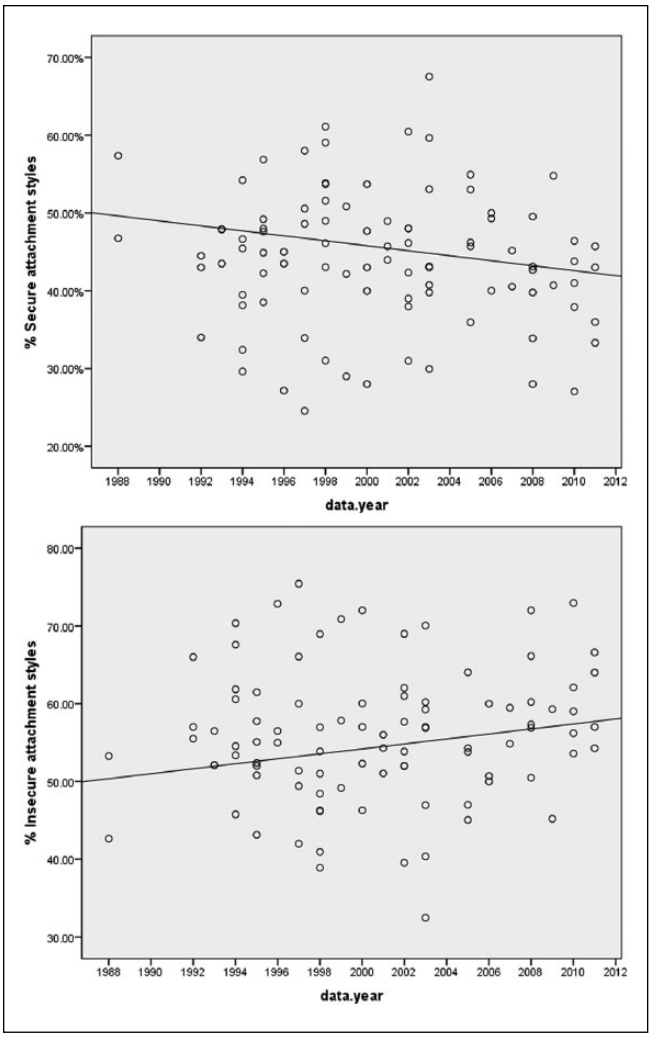

Figure 2. Raw data scatter plot of percentages of Secure (2a) and Insecure (2b) attachment styles over time.

Time Period

To examine whether the relationship between year of data collection and attachment style was linear or curvilinear, we centered the year variable to minimize collinearity, then squared it to create a quadratic term. Both terms were then simultaneously entered into the regression model to predict changes in attachment styles. No quadratic effects emerged as significant, *ps* > .21.

To test whether the two pre-1990 data points were inflating the effects, we next reran the analyses with these two samples excluded. The percentage of Secure attachment styles still declined over time, β = −0.24, p = .02, R^2 = 5.8%, while the percentage of Insecure attachment styles still rose over time, β = 0.24, p = .02, R^2 = 5.8%. In terms of each separate Insecure attachment style, the percentage of Dismissing attachment styles rose over time, β = 0.32, p = .002, R^2 = 10.4%, and the percentage of Preoccupied ones declined

over time, β = −0.20, p = .05, R^2 = 4.1%. However, there were no longer changes in Fearful attachment styles when excluding the two pre-1990 samples, β = 0.16, p = .13, R2 = 2.5%. Models of Others still became less positive over time, β = −0.38, p < .001, R^2 = 14.4%, and Models of Self did not change over time, β = −0.01, p = .94, R^2 = 0.0%.

Controlling for Demographic Variables

After conducting the primary analyses, we conducted separate analyses controlling for three demographic covariates (gender, age, and ethnicity). All three of the covariates had missing data. Four samples did not report the percentage of male participants, 16 samples did not report the average age of participants, and 25 samples did not report the percentage of Caucasian participants. Correlations were computed between the missing data variable (missing = 1, available = 0) and year: Gender, r(94) = −0.24, p = .02; Age, r(94) = −0.18, p = .09; Ethnicity, r(94) = −0.33, p = .001. The presence of missing data was not random: in each case, missing data were more common in earlier studies. Thus, before conducting analyses with these covariates, we addressed missing data with multiple imputation procedures via SPSS.

Multiple imputation is considered the best available missing data technique because it improves the accuracy and statistical power of analyses compared with other missing data techniques (Schafer & Graham, 2002). One missing data technique involves excluding all missing cases (i.e., including only cases with complete data). However, this approach is appropriate only when the presence of missing cases is random. In the current data, missing cases are related to one of the study's key variables, with missing data more common in earlier years. Another missing data technique involves replacing missing values with the mean of each variable. However, this technique artificially lowers the variance in the overall sample.

Multiple imputation uses other available variables in the data set to predict each missing value using regression-based models. A separate estimated value is computed for each case based on a number of other variables in the data set. In this case, we used nine variables (data collection year, the four attachment styles, sample size of each study, and any available demographic information) to estimate the percentage male, average age, and percentage Caucasian for each missing cell. Multiple imputation allows for several estimations of the missing data, which are then averaged to increase the accuracy of imputed missing scores. Based on a rule of thumb that researchers should run approximately as many imputations as the percent of missing data (Bodner, 2008; White, Royston, & Wood, 2011), we conducted 30 imputations. The results of these imputations were averaged and substituted into the data file for analyses.

Gender. Some studies have found that men are more likely to have Dismissing attachment styles compared to women (Schmitt et al., 2003), so attachment styles may change over time differently for men and women. Unfortunately, attachment style percentages were presented separately by gender in only 7 of the 94 samples, making it impossible to examine differences in men's versus women's scores over time. To create a relevant data point for the purpose of this study, we calculated the average overall percentage of each attachment style for these 7 cases, weighted by the number of men and women in the specific sample.

We first examined the simple relationship between gender and attachment styles by regressing the percentage of male participants onto each attachment style (weighting for number of participants). There was no relationship between the percentage of men in a sample and the percentage of participants who endorsed specific attachment styles (Secure: β = 0.08, p = .44, R^2 = 0.6%; Preoccupied: β = −0.12, p = .26, R^2 = 1.4%; Dismissing: β = 0.07, p = .51, R^2 = 0.05%; Fearful: β = −0.08, p = .44, R^2 = 0.6%). Nor were there relationships between gender and overall Insecure attachment, β = −0.08, p = .44, R^2 = 0.6%, or Models of Self and Others (Other model: β = 0.01, p = .90, R^2 = 0.0%; Self model: β = 0.15, p = .16, R^2 = 2.1%).

We next examined the relationship between year of data collection and each attachment style when including the percentage of men in each sample as a covariate in the regression analysis. The results remain similar as in the original analysis (see Table 3). The percentage of people with Secure attachment styles declined over time, β = −0.24, p = .02, R^2 = 6.3%, while the percentage of people with Insecure attachment styles rose over time, β = 0.24, p = .02, R^2 = 6.3%.

In terms of each separate insecure attachment style, the percentage of Dismissing, β = 0.34, p = .001, R^2 = 11.4%, and Fearful, β = 0.16, p = .13, R^2 = 3.2%, attachment styles rose over time, although the latter was no longer significant when controlling for gender. In addition, the percent of Preoccupied attachment styles again declined over time, β = −0.22, p = .04, R^2 = 6.0%, increasing from marginal to statistical significance when controlling for gender. Models of Others became less positive over time, β = −0.39, p < .001, R^2 = 14.8%, and Models of Self did not change over time, β = 0.002, p = .99, R^2 = 2.1%.

Age. We next tested whether the average age of each sample would affect these results. We first examined the simple relationship between age and attachment styles by regressing the average age of participants onto each attachment style (weighting for number of participants). Samples with older participants had a lower percentage of Secure attachments, β = −0.21, p = .04, R^2 = 4.3%, and a higher percentage of Insecure attachments, β = 0.21, p = .04, R^2 = 4.3%. In addition, older samples had a higher percentage of Dismissing, β = 0.22, p = .03, R^2 = 5.0%, and Fearful attachments, β = 0.23, p = .03, R^2 = 5.1%, and a lower percentage of Preoccupied attachments, β = −0.22, p = .03, R^2 = 5.0%. The average age of the sample was unrelated to Models of Self, β = −0.05,

p = .62, R^2 = 0.3%, but was associated with less positive Models of Others, β = −0.36, p < .001, R^2 = 12.8%.

We next examined the relationship between year of data collection and each attachment style, controlling for the average age of each sample. When controlling for age, the percentage of Secure attachment styles still declined over time, β = −0.20, p = .065, R^2 = 7.9%, while the percentage of Insecure attachment styles still rose over time, β = 0.20, p = .065, R^2 = 7.9%. However, both results were reduced to marginal significance when age was included as a covariate.

In terms of each separate insecure attachment style, the percentage of Dismissing attachment styles still rose over time, β = 0.27, p = .01, R^2 = 11.2%, but there were no longer changes in Fearful, β = 0.11, p = .34, R^2 = 6.1%, or Preoccupied attachment styles over time, β = −0.13, p = .24, R^2 = 6.4%, when including age as a covariate. Models of Others still became less positive over time, β = −0.29, p = .004, R^2 = 20.3%, and Models of Self did not change over time, β = −0.01, p = .94, R^2 = 0.3%.

Ethnicity. To examine whether the ethnic background of the sample affected the results, we regressed the percentage of Caucasian participants onto each attachment style (weighting for number of participants).

Samples with a higher percentage of Caucasians had a higher percentage of Secure attachments, β = 0.39, p < .001, R^2 = 15.5%, and a lower percentage of Insecure attachments, β = −0.39, p < .001, R^2 = 15.5%. In addition, samples with a higher percentage of Caucasians had a lower percentage of Dismissing, β = −0.26, p = .01, R^2 = 6.9%, and Fearful attachments, β = −0.29, p = .005, R^2 = 8.2%. Ethnicity was unrelated to the proportion of individuals with a Preoccupied attachment style, β = 0.03, p = .76, R^2 = 0.1%. The percentage of Caucasians in each sample was positively related to Models of Self, β = 0.23, p = .03, R^2 = 5.3%, and Models of Others, β = 0.44, p < .001, R^2 = 19.3%.

We next examined the relationship between year of data collection and each attachment style, when including ethnicity as a covariate. When controlling for the percentage of the sample that was Caucasian, the percentage of Secure attachment styles still declined over time, β = −0.18, p = .061, R^2 = 18.7%, while the percentage of Insecure attachment styles still rose over time, β = 0.18, p = .061, R^2 = 18.7%. However, both results were reduced to marginal significance with ethnicity as a covariate.

In terms of each separate insecure attachment style, the percentage of Dismissing attachment styles rose over time, β = 0.27, p = .007, R^2 = 14.1%, and the percentage of Preoccupied ones marginally declined over time, β = −0.19, p = .073, R^2 = 3.6%. However, there were no changes in Fearful attachment styles over time, β = 0.12, p = .23, R^2 = 9.7%, when including ethnicity as a covariate. Models of Others still became less positive over time, β = −0.31, p = .001, R^2 = 28.6%, and Models of Self did not change over time, β = 0.02, p = .87, R^2 = 5.3%.

Publication status. To examine whether publication status of the samples affected the results, we regressed publication status (unpublished samples, including 23 dissertations and 3 studies from our own lab, were coded as 0; published samples were coded as 1) onto each attachment style (weighting for number of participants).

Published samples had a higher percentage of Secure participants compared with unpublished samples, β = 0.29, p = .005, R^2 = 7.4%, and a lower percentage of Insecure participants, β = −0.29, p = .005, R^2 = 7.4%. In addition, published samples had a lower percentage of Dismissing, β = −0.30, p = .003, R^2 = 8.0%, and Fearful participants, β = −0.20, p = .049, R^2 = 3.1%. Publication status was unrelated to the proportion of individuals with Preoccupied attachment styles, β = 0.15, p = .16, R^2 = 1.1%. Overall, published samples had more positive Models of Others, β = 0.40, p < .001, R^2 = 14.9%, but there was no relationship between publication status and Models of the Self, β = 0.08, p = .43, R^2 = 0.0%.

We next examined the relationship between year of data collection and each attachment style, when including publication status as a covariate. When controlling for publication status, there was no longer a significant relationship between year and the proportion of the sample that was Secure, β = −.15, p = .17, R^2 = 10.2%, or Insecure, β = .15, p = .17, R^2 = 10.2%.

In terms of each separate insecure attachment style, the percentage of Dismissing attachment styles still rose over time when controlling for publication status, β = 0.23, p = .04, R^2 = 13.1%. Year was unrelated to the percentage of individuals with Preoccupied, β = −.16, p = .18, R^2 = 4.1%, or Fearful attachment styles, β = .10, p = .37, R^2 = 5.0%, when publication status was entered as a covariate. Models of Others still became less positive over time, β = −0.26, p = .01, R^2 = 21.2%, and Models of Self did not change over time, β = .01, p = .92, R^2 = 0.7%, when controlling for publication status (see Table 3 for summary of results).

Attachment-Related Early Childhood Indicators

Two regression models were run for each of the seven bonding-related early childhood indicators. In Model 1, we simultaneously entered all three Insecure attachment styles to predict each indicator. In Model 2, we simultaneously entered Models of Self and Models of Others into regression analyses to predict each indicator. All analyses were weighted by study sample size.

As shown in Table 4, higher proportions of Dismissing attachment styles were associated with a higher percentage of single-parent homes, a higher percentage of working mothers, a higher C-section rate, smaller household sizes, and a lower percentage of childcare by parents or relatives (for young children of working mothers). The proportion of Dismissing attachment styles was unrelated to the divorce or breastfeeding rate. Preoccupied attachment (negative view of self, positive view of others) was unrelated to any of the

Table 4. Regression Models Predicting Attachment-Related Social Indicators in Participants' Birth Years From Attachment Styles.

	% Single parent	Divorce rate	Household size	% Working mothers	% Childcare by parent or relative	Breastfeeding rate	C-section rate
Regression Model 1							
Dismissing (+ self, – other)	.26*	.03	−.25*	.44**	−.25*	.16	.29**
Preoccupied (– self, + other)	−.11	−.02	.09	−.10	.13	−.09	−.13
Fearful (– self, – other)	.14	−.02	−.12	.18†	−.14	−.06	.09
Regression Model 2							
Models of Self	.17	.04	−.16	.25*	−.17	.20†	.23*
Models of Others	−.34**	−.03	.32**	−.52**	.34**	−.16	−.37**

†$p \leq .10$. *$p < .05$. **$p < .01$.

social indicators. As for Fearful attachment styles (negative self, positive other), the only result that approached significance was that the higher the proportion of Fearful attachment styles, the higher the percentage of working mothers with young children.

With the exception of the divorce rate, all social indicators were at least marginally related to Models of Self and/or Others. The relationships between these indicators and Models of Others were most consistent: more positive Models of Others were associated with fewer single-parent homes, larger household sizes, fewer employed mothers of young children, more childcare by parents or relatives when women are employed, and a lower C-section rate. The only relationship that approached significance for the breastfeeding rate was a marginally significant relationship with more positive Models of Self.

Discussion

A meta-analysis of 94 samples of American college students found that the percent of students with Secure attachment styles has decreased in recent years, while the percent of students with Insecure attachment styles has increased across the same time period. These changes are primarily driven by declines in positive Models of Others. The most consistent findings that emerge, when controlling for gender, average age, percent Caucasian, and publication status, is that the percentage of students with Dismissing attachment styles has increased over time and that, overall, Models of Others declined across the same time period (see Table 3). In other words, compared with college students in the late 1980s, a larger proportion of students today agree that they are "comfortable without close emotional relationships."

Why Are Attachment Styles Changing?

The relationship between social relationships and culture is dynamic and reciprocal, with societal changes likely affecting attachment and changes in attachment likely feeding back into societal beliefs and norms. Our data cannot directly speak to the causes of the observed rise in the percentage of Dismissing attachment styles over time or the corresponding decrease in positive Models of Others, but we can speculate on parallel trends in society that may be related. Given that the changes in Dismissing attachment styles and Models of Others were the most robust, we limit our discussion to societal trends that are closely related to Models of Others, and Dismissing attachment in particular.

Attitudes and Traits Consistent With a Rise in Dismissing Attachment

Some of the correlates of Dismissing attachment styles have also changed over this same time period, although we cannot know for certain whether such changes are directly tied to changes in attachment styles. As discussed previously, Dismissing attachment styles are operationally defined by positive views of the self and negative views of others. Correlates of this positive self/negative other model also increased over time, demonstrated by rising narcissism (Twenge et al., 2008), individualism (Twenge, 2006), self-esteem (Twenge & Campbell, 2001), and agentic traits (Twenge, 1997), as well as declining empathy (Konrath et al., 2011). Attitudes have also changed in a direction that is consistent with increases in Dismissing attachment styles. In a 2006 survey, 81% of 18- to 25-year-olds (born in the 1980s) said that getting rich was among their most important goals, a rise of nearly 20% from the responses of the previous generation, born in the 1960s and 1970s. Sixty-four percent named it as the most important goal of all. In contrast, only 30% chose helping others in need (Pew Research Center, 2007). These responses suggest that people may be more interested in self-achievement and less interested in others than before, which closely fits the RQ operationalization of Dismissing attachment styles.

Changing Parenting and Family Practices

Given that attachment style in adulthood is strongly influenced by early parent–child relationships (Bowlby, 1988; Carlson & Sroufe, 1995; Fraley & Shaver, 2000; Zayas et al.,

2011), recent cohorts of college students may have had parents who focused strongly on building up their self-image, and less on teaching them to care for other people. This type of environment could plausibly create more Dismissing views about others.

More pragmatically, mothers' labor force participation rose from 38% in the late 1960s (when the first cohort in our study was born) to 69% in the early 1990s (when the last cohort in our study was born), straining parents' collective ability to invest quality time in their children (Bianchi & Wight, 2010; L. Fox, Han, Ruhm, & Waldfogel, 2012; Hout & Hanley, 2002). Changes in family structure may also play an important role in explaining why negative Models of Others, and Dismissing attachment in particular, appear to be on the rise. Increases in divorce, from around 25% to 30% in the late 1960s to over 50% in the early 1990s (U.S. Bureau of the Census, 2011), may also have contributed to generational differences in comfort with intimacy (Perlman & Fehr, 1987).

Other researchers suggest that a decreased reliance on extended families and growing career pressures in American society may also influence the degree to which individuals desire to connect with others (Reis & Shaver, 1988). Indeed, the composition and structure of families have undergone dramatic changes in recent decades. When responding to the question, "Were you living with both your own mother and father around the time you were 16?" (a standardized format that has been used across many years in survey research on family life), about a quarter of Americans reported "no" throughout the 1960s, but this percentage nearly doubled by the early 1990s (Ellwood & Jencks, 2004). The average household size in 1990 was 2.63 people, down from 3.14 in 1970; in a similar vein is the finding that in 1990, 24.6% of households were one-person households—much higher than in 1970 (17%; U.S. Bureau of the Census, 2000). Since parental supervision and control are lower in single-parent families (Dornbusch, 1985), greater independence, and possibly more Dismissing attachment styles, may be fostered by this environment.

Taken together, it is possible that changes in attachment-related early childhood indicators may provide some explanation for changes in attachment styles (see Table 4). However, we hesitate to make any causal claims given the correlational nature of these data and the fact that many other social indicators not related to attachment rise and fall in parallel with Insecure and Secure attachment styles, respectively. In fact, many different causal factors are probably at play. Nor are we advocating a return to traditional family structures in order to increase the proportion of Secure attachment styles. Instead, a more realistic approach in the current economic environment, where many families rely on two incomes, may be that "it takes a village" to raise a child who is comfortable with both autonomy and intimacy. The stable availability of multiple familial or "family-like" caregivers may help children to both (a) feel able to connect with and care for others and (b) have a healthy and autonomous sense of themselves. In other words, we recommend that parents try to find creative ways to help children develop healthy attachment bonds with them and others in their community. In practice, this could be achieved in a variety of ways in contemporary society. For example, people could cluster into small groups of 2 to 4 families who see each other regularly and provide "family-like" support to each other during their reproductive and childrearing years. Many such informal structures already exist in modern contexts, and some scholars believe that humans have evolved for such alloparenting (Hrdy, 1999). We recommend that attachment researchers examine how such "family-like" relationships outside of traditional nuclear family structures can help to promote Secure attachment styles.

Changes in Media Content and Usage

In the 1990s, several new types of media emerged (handheld video games, cell phones, the internet) and children began spending increasingly more time being exposed to various types of media. Time spent exposed to media among children grew from nearly 7.5 hr a day on average in the 1990s to 11 hr per day by the 2000s, up from nearly 10 hr per *week* in the 1930s (with obviously different types of media; Gutnick, Robb, Takeuchi, & Kotler, 2011). Several scholars have commented that the rise of internet usage and new media in the 1990s and 2000s has created a paradoxical feeling of increased *disconnection* in an age of increased *connection* (via the Internet and increased media usage; see Konrath, 2012, for a review). The development of sites such as Blogger in the late 1990s gave individuals a forum to express their thoughts and ideas but also quickly rushed in a cascade of other platforms that might have led individuals to invest more time and energy managing their online identities at the expense of interacting with people in real life. The emergence of these forums in the late 1990s coincides with the rise in Dismissing attachment styles among American college students, and the innovations in social networking soon thereafter may have accelerated these changes throughout the 2000s. Friendster was developed in 2002 (Lapinski, 2006), MySpace in 2003 (Lapinski, 2006), Facebook in 2004 (Ellison, Steinfield, & Lampe, 2007), YouTube in 2005 (Gueorguivera, 2008), and Twitter in 2006 (Lenhart & Fox, 2006). By 2011, 65% of American adult internet users had social networking sites—representing 50% of American adults (Madden, 2011). In that same year, 1 out of every 5 min spent online was on social networking sites (comScore, 2011).

Although we are aware of no studies examining the effect of new social media use on attachment styles, several correlational studies find an association between social media use and narcissism (Buffardi & Campbell, 2008; Mehdizadeh, 2010; Ong et al., 2011; Panek, Nardis, & Konrath, 2013; Ryan & Xenos, 2011; Saculla, 2010), and

some evidence suggests that social media can cause at least temporary increases in narcissism and self-esteem (Gentile, Twenge, Freeman, & Campbell, 2012; Gonzales & Hancock, 2011). These studies suggest that the media designed to connect individuals that began to emerge in the late 1990s may have had the paradoxical effect of making people more self-oriented, but much more research is needed to understand new media's positive and negative outcomes—particularly with respect to its impact on how and why people form views of others.

Nonetheless, although it might be easier to establish friends and relationships online, online behaviors might not translate into smooth social relations in real life: the number of organizations and meetings people are involved in, as well as the number of average family dinners and friendly visits, have declined significantly in the past half century (Putnam, 2000; Putnam & Feldstein, 2004). More Americans live alone now than ever before (Olds & Schwartz, 2009), and people today have significantly fewer close others to whom they can express their private thoughts and feelings (McPherson, Brashears, & Smith-Lovin, 2006). Thus, Dismissing attachment styles may be rising because young Americans today might have fewer real social support systems, and a lack of high-quality social support is a critical determinant of Dismissing attachment styles (Ciechanowski, Katon, Russo, & Walker, 2001; Ciechanowski et al., 2006).

Alternatively, the ease and speed of such technology may lead people to become more readily frustrated or bored when things in their life do not go as planned (O'Brien, Anastasio, & Bushman, 2011), resulting in less positive social interactions. Furthermore, people simply might feel that they do not have time to reach out to others because they are spending so much time with technology. At least four televisions sit within 29.9% of American households (Reisinger, 2010), and overall, television viewing recently reached an all-time high (Media Literacy Clearinghouse, 2010). One study strikingly reveals that average Americans are now exposed to a 350% increase in total information outside of work than the amount they experienced only 30 years ago (Bohn & Short, 2009). Of course, people from earlier generations experienced other kinds of time-consuming daily tasks, such as washing clothes and dishes by hand. Thus, the additional time spent with technology in recent years may have simply replaced such time-intensive tasks experienced by previous generations—with no net effect on how we relate to others.

Yet, the *content* of exposure to modern media might also influence how people view others. For example, some of the early iterations of reality programming began to gain popularity in the mid-1990s with MTV's The Real World and Road Rules, exposing a young generation to the voyeuristic practice of watching individuals similar to themselves struggle to live and compete among strangers (Murray & Oullette, 2008). Competition-based reality shows exploded with *Survivor* starting in 2000 (Haralovich & Trosset, 2004) and *American Idol* starting in 2002 (Lee, 2006). Both shows revolve around single winners, multiple losers, and rugged competition. Similarly, reality programming often depicts characters with extremely positive self-views (Young & Pinsky, 2006). Since then, the number of similar programs and the ratings of these programs have grown, and they increasingly dominate the television industry (Murray & Oullette, 2008; Nabi, Biely, Morgan, & Stitt, 2003). Such agentic and narcissistic qualities found in media since the mid-1990s seem consistent with rising Dismissing attachment styles, which combine positive self-views with negative other-views.

Other Speculative Possibilities

The relationship between societal shifts and changing attachment styles is ultimately too complex to have any single, identifiable cause, and many forces likely interact to explain our observed patterns. In addition to the possibilities that are outlined above, for example, the current generation's economic struggles and various military conflicts may have had a unique impact on interpersonal development, social skills, and independent values. In the early 1990s, nearly 90% of college seniors were employed within a year of graduation, but by 2011 that number had dropped to about 70% (U.S. Department of Education, 2012). Perhaps an increase in the percentage of Dismissing attachment styles represents a coping strategy against these potentially more straining circumstances, although of course previous generations also experienced stressful circumstances such as recessions and wars.

At the other end of the spectrum, today's options within other life domains may have pushed young people toward less committed social connections. For example, online dating (which emerged as an extremely popular and profitable online industry by the mid-2000s) provides people with an unprecedented number of potential dating partners and relationship choices, which may ironically lead them to feel overwhelmed, less satisfied, and thus more isolated from real social connections (see Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). Future work at the intersection of such basic psychological processes and broader societal mechanisms could explore the relative weight of each of these possibilities.

Limitations

One of the limitations of analyzing self-report data is that they might be influenced by people's tendencies to respond in a socially desirable fashion. However, a study that specifically examined the influence of social desirability on ratings of attachment style revealed that the RQ was less sensitive to social desirability biases compared to other measures of attachment style (Leak & Parsons, 2001). Moreover, scores on social desirability have remained relatively stable from the 1980s onward (Twenge & Im, 2007).

The current study limits its discussion to American society because there is not much data on attachment styles over time from other countries. Relatively little work has examined cross-cultural similarities and differences in attachment style (e.g., Schmitt et al., 2003). Future work should examine whether similar changes are occurring in other countries or whether these changes are only occurring in the United States. Such research would help to test some of our speculations about potential causes of increases in Dismissing attachment styles, and negative views of others in general. The data are also limited to college student populations; future research should examine shifts in the proportion of attachment styles in other populations (e.g., toddlers in the Strange Situation; Ainsworth et al., 1978). However, the RQ is commonly given to college students, and their relative homogeneity over time is precisely why they are an ideal population in which to examine temporal change. Some non-college populations may not be as comparable over time (e.g., community/clinical samples), making them less ideal for such comparisons.

This study also cannot determine whether the changes in Dismissing attachment styles are a cohort effect or a time-period effect. Any time-lag study that includes people of only one age group does not allow researchers to determine if other age groups also changed on a given characteristic. It is possible that both younger and older Americans had increasingly negative views of others from the late 1980s to 2011. To address this possibility, we examined data from the General Social Survey (Smith, Marsden, Hout, & Kim, 2013), which asked nationally representative samples of Americans the following question: "*Generally speaking, would you say that most people can be trusted or that you can't be too careful in life*?" Overall, a higher percentage of Americans said that most people cannot be trusted in 2012 (66.7%) compared with 1988 (58.2%). This decline in trust existed for all age groups except those aged 56+, for whom there was no change in trust levels (1988: 54.5%; 2012: 54.0%). More young adults (18-25) said that people cannot be trusted in 2012 (78.2%) compared with 1988 (70.1%). This pattern was similar for 26- to 40-year-olds (1988: 56.1%; 2012: 70.8%) and 41- to 55-year-olds (1988: 52.5%; 2012: 63.6%). Taken together, this suggests that the shift we found in adult attachment styles may be a combination of a time-period effect (i.e., general changes in society that affect most age groups) and a generational effect (i.e., changes that influence certain generations more than others). However, future research would be needed to clarify these issues.

Conclusion

To summarize, the present article examined changes in the proportion of attachment styles over time, based on speculation that related trends and correlates (e.g., increasing narcissism and decreasing empathy) may reflect increasing Dismissing attachment styles and negative Models of Others in general. We found that Dismissing attachment styles—as measured by the RQ (Bartholomew & Horowitz, 1991)—increased over time among American college students. More generally, we documented an overall decrease in positive Models of Others. These findings may be troubling at the moment, but they open the door for future work on the causes and consequences of people's shifting connections to the social world.

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Authors' Note

The names of the second, third, and fourth authors are alphabetical to reflect their equal contribution.

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Notes

1. The claim that narcissism may be rising has roused considerable academic debate, with some researchers arguing that narcissism has remained stagnant over time (B. W. Roberts, Edmonds, & Grijalva, 2010; Trzesniewski & Donnellan, 2010). These concerns have been addressed elsewhere, for example, by showing that their samples consist solely (Trzesniewski & Donnellan, 2010) or primarily (B. W. Roberts et al., 2010) of students from UC Davis, who score unusually low on narcissism. When campus is controlled, or data are examined within campus, narcissism levels indeed show significant increases (Twenge & Foster, 2008, 2010). Thus, the current article rests on the assumption that the overarching evidence currently favors an increase.
2. Although the original authors of the Relationship Questionnaire (RQ) have suggested that researchers should use attachment means and avoid using attachment categories (Bartholomew, 2014; Bartholomew & Horowitz, 1991), most researchers still use attachment categories, likely for the convenience of comparing the four groups. Only 19 of the 94 eligible samples in our study reported means; this is an insufficient number to conduct a separate cross-temporal meta-analysis. Although we acknowledge this as a limitation of our study, the fact that we had enough data points to conduct a full cross-temporal

meta-analysis on the RQ suggests that this is an issue that goes beyond the current study.

3. Cross-temporal meta-analyses typically present effect sizes (e.g., Cohen's *d*) to estimate the magnitude of the results from the beginning to the end of the study period (Konrath, O'Brien, & Hsing, 2011; Twenge, Konrath, Foster, Campbell, & Bushman, 2008). Such effect sizes are computed using within-study means and within-study standard deviations. However, data in the current study represent the proportion of participants in each sample who selected one specific attachment category (e.g., Secure) rather than another one (e.g., Dismissing, Preoccupied, or Fearful). Thus, unlike in prior cross-temporal meta-analyses that rely on mean scores (e.g., Konrath et al., 2011; Twenge et al., 2008), in the current study within-study standard deviations are not available. Although the *standard error of proportion* is a suitable measure of variance for such categorical data (Rolf, 2013), it cannot be used to compute Cohen's *d* effect sizes, which rely on standard deviations. In addition, although it is possible to obtain a mean and standard deviation for each attachment category *across* the 94 samples, this may exaggerate the magnitude of the effect because mean scores do not differ as much as individual scores (Rosenthal, Rosnow, & Rubin, 2000). Thus, for the current study we rely on the R^2 and standardized betas as indicators of the strength of these results.

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