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How Do I Love Thee? A Latent Mixture Model Analysis of College Dating Relationships

Ariel Grace Halstead

A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Master of Science

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ABSTRACT

How Do I Love Thee? A Latent Mixture Model Analysis of College Dating Relationships

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Relationship researchers often assume that satisfying relationships are healthy, but is this true? We examined whether different types of college dating relationships exist if we analyze elements of relationship health that included not only global relationship satisfaction, but patterns of communication, intimate partner violence, and positive and negative appraisals of one's partner. To do this, we used latent mixture modeling in a large sample of students in committed relationships (N = 1935). Three distinct types of committed relationships emerged: unhealthy and unsatisfying (N=477), healthy and satisfying (N=703), and a group we termed healthy and satisfying but unimpressed with their partner (N=755). To understand factors associated with being in these empirically derived groups, we used a combination of bootstrap sampling and automatic variable selection. Variables related with unhealthy and unsatisfying relationships included higher levels of anxious and avoidant attachment, sanctification, neuroticism and relationship length; and lower levels of dedication and sexual satisfaction. Variables related with healthy and satisfying relationships included higher levels of sexual satisfaction and lower levels of neuroticism and relationship length. Variables related with healthy and satisfied but unimpressed with their partner included lower levels of sanctification and nonexclusive relationships. These findings can aid in the conceptualization of why people stay in poor, unsatisfying relationships; what variables are related to healthy, satisfying relationships; and the difference in variables that lead to partner ambivalence in otherwise satisfying relationships.

Keywords: college romantic relationships, relationship types, relationship health/satisfaction

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How Do I love Thee? A Latent Mixture Model Analysis of College Dating Relationships

Romantic relationships have pervasive effects on happiness and life satisfaction, with people in romantic relationships reporting higher life satisfaction and happiness, whether their romantic relationship is happy or not (Kamp Dush & Amato, 2005). In spite of this broad increase in satisfaction and happiness, stable and satisfying relationships relate to multiple positive outcomes (Kamp Dush & Amato, 2005), whereas low-quality relationships are associated with less happiness, health, and satisfaction (Hawkins & Booth, 2005). Because of their central role in overall well-being, romantic relationships, and the quality of those relationships are important topics of psychological study.

Understanding what makes satisfying and healthy relationships “good” and unsatisfying and unhealthy relationships “bad” is a less intuitive, but important task. Although researchers have studied the impact of romantic relationships for decades, they often operationalize relationship quality differently. This lack of consistency interferes with our ability to generate a cohesive body of knowledge and identify gaps in the current literature. In particular, the lack of clarity and consensus limits our ability to make basic assertions about what constitutes a healthy or satisfying relationship. In the present study, we hope to illuminate whether different types of relationships emerge when we examine distinct dimensions of relationship health and relationship satisfaction in college dating samples.

Not All Relationships Are Created Equal

Are Health and Satisfaction the Same Construct?

Relationships are often measured along spectrums of relationship satisfaction. Because it is ideal to be in relationships that are satisfying (i.e., these couples have the best outcomes), social scientists use relationship satisfaction as a global measure of relationship quality in

research. Authors then assume satisfying relationships are healthy relationships. This assumption implies that relationship satisfaction and relationship health are essentially the same thing, but are they? This issue can be further complicated by the heterogeneous ways that we define satisfaction and health within studies. These definitions often include measures of communication, intimate partner violence, and positive and negative evaluations of both the relationship and partner, but they are not necessarily uniform and do not often include all of these measures simultaneously.

Research suggests that satisfaction and health may be distinct constructs. For example, Robles and colleagues (2014) write, "...high marital quality is typically operationally defined by high self-reported satisfaction with the relationship, predominantly positive attitudes toward one's partner, and low levels of hostile and negative behavior. Low marital quality is characterized by low satisfaction, predominantly negative attitudes toward one's partner, and high levels of hostile and negative behavior" (pp. 140-141). This states that marital quality is a combination of both satisfaction and health (i.e., low levels of hostile, unhealthy behavior) which indicates they are distinct constructs. Adding additional support to these distinctions, marriages with initial satisfaction and low distress can end in divorce. Couples in this situation have been found to have negative relational skills and provide negative support, engaging in tactics such as blame, invalidation, and pessimism (Amato & Hohmann-Marriott, 2007; Lavner & Bradbury, 2012) demonstrating that satisfaction and health may not be inherently linked.

How Does Satisfaction Relate to Stability?

Relationship stability is a common outcome in relationship research. Relationship stability indicates whether the relationship is likely to endure or end (e.g., will the couple remain together or separate). It is often implied in research that stability is a positive outcome and

relationship termination a negative one. This assumption may be supported because negative interactions, such as problematic communication, increase the probability of relationship termination. Reason seems to dictate that satisfying and healthy relationships are stable, and unhealthy and unsatisfying relationships are unstable. However, relationships do not always operate at this intuitive level.

Stable relationships can be unsatisfying. Although low-quality marriages negatively affect the overall well-being of their members, they often endure (Hawkins & Booth, 2005). Large epidemiological studies show that among those who are in enduring relationships, approximately 20% are maritally distressed (Gurman & Fraenkel, 2002). Distressed, but stable relationships have been studied between men who have an avoidant attachment style and women who have an anxious attachment style (Davila & Bradbury, 2001; Kirkpatrick & Davis, 1994). This brief sampling of evidence suggests that couples can find ways to become dysfunctionally functional; meaning, they can achieve stability without attaining satisfaction.

Perhaps less obvious is the fact that even satisfying relationships with low-distress can be unstable (Amato & Hohmann-Marriott, 2007). A cluster analysis of couples from the National Survey of Families and Households revealed that half of the marriages ending in divorce were low-distress relationships (Amato & Hohmann-Marriott, 2007). It is difficult to imagine the circumstances of people in stably happy relationships with high initial commitment who decide to divorce. These people tended to be younger, have higher rates of parental divorce, had step-children, cohabitated before marriage, and several negative skills (Amato & Hohmann-Marriott, 2007; Lavner & Bradbury, 2012). Thus, even satisfying relationships do not guarantee relationship stability. In sum, satisfaction and stability are correlated, but not perfectly. This suggests that different groups exist within the dimensions of satisfaction and stability.

How Are Relationship Types Determined?

Given the evidence that suggests different kinds of relationships exist, what makes a relationship “different enough” from another relationship to justify its own category? One method to answer this question involves latent mixture modeling. Latent mixture modeling identifies sub-groups (latent classes) within a larger group based on similarities in response patterns on different measures (Ram & Grimm, 2009). This process is similar to factor analysis, where factor analysis is used to discover underlying factors (latent constructs) within a larger group of variables that share a similar pattern (Yong & Pearce, 2013). In the present study, we used latent mixture modeling to discern whether distinct groupings of romantic relationships exist among emerging adults in college dating relationships.

Latent mixture modeling not only reveals group features based on the variables used to separate classes, but it also provides distinct categories to study. The characteristics of these groups are important. Subtypes help researchers to discover characteristics related to groups that may have unique risk and protective factors. Understanding each group’s relative strengths and weaknesses may improve our ability to foster healthy and satisfying romantic relationships. Given the evidence that relationship health and satisfaction are sufficiently independent concepts, we sought to explore latent classes as a function of these two dimensions (Amato & Hohmann-Marriott, 2007; Lavner & Bradbury, 2012; Robles et al., 2014).

Satisfaction can be a difficult concept to capture because individuals may have both positive and negative evaluations of the relationship and positive or negative evaluations of the partner (Fincham & Bradbury, 1987; Fincham & Linfield, 1997; Mattson et al., 2007; McKinnon et al., 2018). Although satisfaction can be viewed as a single dimension where couples are either satisfied or not, factor analysis indicates that is possible for individuals to hold both positive and

negative beliefs about their relationship (Fincham & Linfield, 1997; Mattson et al., 2007; Rogge et al., 2017). Within the current study, relationship satisfaction was measured as both subjective satisfaction with the relationship, and with the romantic partner. This allows for an exploration of both positive and negative dimensions of relationship satisfaction and their potential conflicts (e.g., satisfied with the relationship but not the partner).

Relationship health can also be difficult to capture because it is an ill-defined construct that is often conflated with satisfaction. Despite a lack of consensus about the definition of relationship health, communication has been a consistent consideration, where healthy relationships demonstrate positive communication techniques (Meeks et al., 1998; Smith et al., 2008; Yoo et al., 2014). This is partially due to the role of communication in resolving conflict and developing and maintaining bonds, and has led to communication being recognized as a central tenet of relationship health (Eckstein & Goldman, 2001; Young, 2004).

Another central factor considered in relationship health is intimate partner violence, which can affect the mental health of the partners as well as the qualities and dynamics of the relationship (Afifi et al., 2009; Johnson et al., 2015). The presence of intimate partner violence has become synonymous with unhealthy relationships in some research, with programs being developed to support healthy relationships by reducing or preventing intimate partner violence in adolescents (Antle et al., 2011a; Antle et al., 2011b). The presence of violence becomes a significant indicator of the health of a relationship because of its consequences.

As we sought to determine the presence of latent classes along dimensions of satisfaction and health, we took these variables into consideration. We separated satisfaction along positive and negative dimensions—as opposed to a single, bipolar measure—and assessed for satisfaction with both the relationship and the romantic partner. Relationship health was measured through

positive and negative communication skills and the presence of intimate partner violence, as these variables are widely regarded as central features of relationship health. Latent mixture modeling was applied to these measures to determine various groups in college dating relationships.

What About College Dating Relationships?

Relationship status has significant effects on subjective well-being (Diener et al., 2000; Diener et al., 1997). Married people report the highest levels of well-being followed by those in cohabitating, steady dating, casually dating, and infrequently dating people in that order (Kamp Dush & Amato, 2005). This finding may explain why many researchers have focused on marriage as the primary romantic relationship of interest. Although marriage has long-term consequences and represents the terminal romantic relationship for many people, it is unlikely to be the only romantic relationship engaged in throughout the lifespan.

College dating relationships have consequential outcomes, just as marriages do. They are related to mental health, physical health, and risky behaviors (Braithwaite et al., 2010). Similarly to marriage, the health of dating relationships determines whether they are positively or negatively related to those outcomes. Also, college-aged people are developing dating habits and beginning relationships that may ultimately lead to marriage (Braithwaite et al., 2010). This trend makes college-age a time where significant health-related habits are developed that bear long-lasting consequences on romantic relationships.

We suggest that the importance of this period makes it an optimal population for study. Within a college sample there are likely to be people from a variety of relationship statuses ranging from married to dating nonexclusively. Understanding dating relationships can lead to greater insight into long-term relationships, such as marriage, as well as the variables related to

being in healthy, satisfying versions of those relationships. We hypothesize that distinct groups can be found in college-dating samples and that understanding variables associated with these groups will ultimately have significance for personal well-being.

What Variables May be Related to Different College-Age Relationship Groups?

In our attempt to understand what factors might be correlated with different types of dating relationships, we reviewed the literature for the most likely candidates. Our review led us to hypothesize that neuroticism, attachment style, commitment, and demographic factors were important variables to examine. The rationale for each of these variables is reviewed below.

Neuroticism

Neuroticism is the personality trait that describes the tendency to experience negative feelings, including anxiety, anger, guilt, and depression. This predisposition makes people high in neuroticism more susceptible to environmental stress. They may interpret situations as more threatening than they are and can be overwhelmed by minor frustrations (Leary & Hoyle, 2009).

High neuroticism is consistently related to poor relational outcomes. It is the personality trait most likely to lead to relationship instability and dissatisfaction (Gattis et al., 2004; Lehnart & Neyer, 2006; Vangelisti et al., 2002). In addition to these destabilizing effects, people who are high in neuroticism tend to exacerbate negative feelings in their partners, compounding the detrimental effect (Vangelisti et al., 2002). Conversely, people in healthy, satisfying, and stable relationships tend to have lower levels of neuroticism (Lehnart & Neyer, 2006).

Neuroticism is reliably connected to a number of negative relationship outcomes, but does not consistently predict relational stability. Although neuroticism has been linked to the initial levels of marital satisfaction, it is not predictive of divorce in some samples (Karney & Bradbury, 1997). Relationship satisfaction and not the personality trait of neuroticism is the

predictive factor in many studies (Karney & Bradbury, 1997; Le et al., 2010; Lehnart & Neyer, 2006). High neuroticism can also be seen in people who are stably married but dissatisfied (Kelly & Conley, 1987). For men, higher neuroticism and lower extraversion and agreeableness were associated with stable but unhappy relationships (Kelly & Conley, 1987). Thus, neuroticism relates to dissatisfaction but not necessarily stability. This relationship may be influenced by the fact that personality traits themselves are not necessarily stable.

Neuroticism appears to be the personality trait that is most susceptible to environmental conditions according to some studies (Lehnart & Neyer, 2006; Watson & Casillas, 2003). Neuroticism has been shown to reliably affect satisfaction, but satisfaction can also influence neuroticism. For instance, neuroticism may increase in one partner after an affair occurs (Kurdek, 1997; Vangelisti et al., 2002). This example calls into question the definitive causal relationship between neuroticism and satisfaction. Are people high in neuroticism always creating dissatisfaction in their relationships, or does dissatisfaction occasionally increase neuroticism? This ambiguity leads to uncertainty about the multitude of ways that neuroticism predicts, affects, or is affected by relationship satisfaction and health across different relationships.

Attachment

Attachment styles describe relatively stable expectations for close relationships. These expectations influence the way that we form, maintain, and dissolve relationships. These patterns of attachment are hypothesized to form in childhood based on interactions with caregivers. Three primary attachment styles have been documented: anxious, where significant others are seen as unreliable and untrustworthy; avoidant, where significant others are seen as unreliable or overly

dependent; and secure, where significant others are seen as reliable, well-intentioned and trustworthy (Simpson, 1990).

Attachment styles have historically been supported as a good predictor of relationship stability and satisfaction (Le et al., 2010; Simpson, 1990). When the female partner in a heterosexual relationship has an anxious attachment style, both the man and woman rate the relationship negatively (Collins & Read, 1990; Kirkpatrick & Davis, 1994). An avoidant attachment style in men related to negative relationship ratings for the male but not female partners (Kirkpatrick & Davis, 1994). Attachment styles also predict stability. Men with anxious attachment styles and women with avoidant attachment styles have the least stable heterosexual relationships (Kirkpatrick & Davis, 1994). Conversely, secure attachment predicts stable and satisfying relationships with happy members who have positive feelings about one another (Collins & Read, 1990; Lehnart & Neyer, 2006).

However, similar to neuroticism, its predictive power over relationship stability has been questioned in some studies. Pairings between anxious and avoidant attachment styles are common, although it was anticipated that they would have low stability (Collins & Read, 1990). In heterosexual relationships where men have an avoidant attachment style, and the woman has an anxious attachment style, there was surprising stability over three years. Furthermore, even though the avoidant male partners tended to rate the relationship negatively, the female partners did not (Kirkpatrick & Davis, 1994). There are stable marriages that, although unhappy for some members, have the highest levels of attachment insecurity—both initially and over time (Davila & Bradbury, 2001).

In addition, attachment styles themselves have been shown to be unstable and are likely to be influenced by the current relationship (Le et al., 2010; Lehnart & Neyer, 2006). A person

who initially has a secure attachment style may become worried about being abandoned if their partner has an avoidant attachment style, for example, leading to a change from a secure to a more anxious attachment style (Collins & Read, 1990; Davila & Cobb, 2004). As many as 35% of married subjects have changed their attachment style over 2 years (Fuller & Fincham, 1995). Thus, attachment styles may not be stable in all relationships and this may influence their predictive power.

Commitment

Commitment is often conceptualized as a combination of dedication and constraint. Dedication refers to the personal desire to maintain or improve a relationship for the benefit of both members: it is the sense of “wanting to” be in or work for a relationship (Stanley et al., 2010). Constraints refer to the internal or external pressures that maintain the relationship by making it more costly to terminate: it is the “have to” in a relationship (Stanley et al., 2010). Although constraints seem to have a negative connotation because they deal with barriers to ending the relationship (i.e., it implies being stuck), constraints are not seen negatively unless satisfaction declines (Stanley et al., 2010). Dedication and constraint can be affected by investments in the relationship (Kurdek, 1995). Investments can be tangible or intangible (e.g., a home or shared emotions) and past or present (e.g., a purchased home or a planned vacation; (Goodfriend & Agnew, 2008).

Commitment is a robust predictor of relational stability, and is even more robust than satisfaction at predicting relationship termination (Le et al., 2010). Higher levels of commitment are related to better relationship quality and stability (Stanley et al., 2010). People who want to remain in their romantic relationship, who have shared material items and the sense that their lives are intertwined have more stable relationships (Lehnart & Neyer, 2006; Rhoades et al.,

2010). This indicates that high dedication and the presence of different constraints—whether material, perceived, planned or intangible—lead to relationship stability (Goodfriend & Agnew, 2008; Lehnart & Neyer, 2006; Rhoades et al., 2010).

Dedication is additionally related to satisfaction. In heterosexual relationships, female satisfaction was related to their male partners' closeness and dependency, a form of male commitment (Collins & Read, 1990). Not only are relationships with more dedication stable, but their heightened personal commitment and stability increase satisfaction. Hence commitment, seen as a relational attachment, is significantly tied to both satisfaction and stability.

Sexual Satisfaction

Sexual satisfaction describes the subjective appraisal of the quality of the sex life in the romantic relationship and has been tied to broad relationship satisfaction over time (Butzer & Campbell, 2008; Byers, 2005; Litzinger & Gordon, 2005; Sprecher, 2002; Yeh et al., 2006). Sexual satisfaction and relationship satisfaction appear to change at the same time according to longitudinal assessments (Byers, 2005; Sprecher, 2002; Yeh et al., 2006). Although there has been difficulty in establishing the temporal sequence of this connection (i.e., does one element precede the others?) (Byers, 2005) there has been some work with autoregressive models—predicting future behavior based on past behavior—that indicates there are causal ties between sexual satisfaction and marital quality and stability (Yeh et al., 2006). This implicates global relationship satisfaction and relationship stability in the effects of sexual satisfaction.

This link may also be moderated by the association between communication and sexual satisfaction, such that those with higher-quality intimate communication also tend to have higher levels of both relationship and sexual satisfaction (Byers, 2005). An interaction also arises between communication and sexual satisfaction where couples who communicated

constructively did not have low relationship satisfaction when sexual satisfaction was low (Litzinger & Gordon, 2005). However, those with difficulty communicating did show differences in relationship quality depending on sexual satisfaction. Those who had higher sexual satisfaction had higher marital satisfaction than those who had less; indicating that sexual satisfaction may compensate for the negative effects of poor communication (Litzinger & Gordon, 2005).

Similar connections can be seen between sexual satisfaction and other variables under consideration in the current study. Sexual satisfaction is related to attachment in that individuals with higher levels of avoidance and anxiety, or with partners who have higher levels of avoidance, had lower levels of sexual satisfaction (Butzer & Campbell, 2008). In addition, those who had anxious attachment styles, or with partners who had anxious attachment styles, had a stronger relationship between sexual satisfaction and relationship satisfaction (Butzer & Campbell, 2008). In premarital relationships, sexual satisfaction was positively associated with commitment and love for both men and women, although the connection between sexual satisfaction and relationship satisfaction was greater for men (Sprecher, 2002). These findings were time stable over three years and indicate that sexual satisfaction is important for relationship quality in various relationship types (Sprecher, 2002). This relates sexual satisfaction to both relationship stability and satisfaction.

Sanctification

Sanctification describes a psychological process that deals with the perception that some aspect of an individual's life has a spiritual character or significance (Mahoney et al., 2003; Pargament & Mahoney, 2005). This is of particular concern in the current study when the sanctification of romantic relationships occurs. Relationship sanctification can occur in religious

individuals who adhere to a specific theology or church organization (Butler & Harper, 1994; Crohn et al., 2000; Lauer, 1985; Stanley et al., 2014) and in those who do not prescribe to any religion (Pargament & Mahoney, 2005). Sanctification can present as the belief that the relationship is a triadic partnership between the couple and their deity. This phenomenon of triangulation can occur regardless of the couples' specific belief system or religious affiliation (Butler & Harper, 1994), but it can also take shape within specific religious groups. For example, the Catholic belief that marriage is sanctified because the love found within the marital bond is closer to the nature of God than any other human experience (Lauer, 1985). The sanctification of relationships is important because people will invest time and energy into things they believe are sacred and will try to protect and sustain them (Pargament & Mahoney, 2005).

A strong connection between marital satisfaction and sanctification has been discovered that may have specific bearing on the relationship types we will analyze (Rusu et al., 2015). Sanctification is positively related to marital satisfaction and negatively related to marital dissatisfaction (Stafford et al., 2014). In fact, sanctification remained a strong predictor of marital quality even after controlling for forgiveness (or the lack of forgiveness) and sacrifice (Stafford et al., 2014). Individuals who had high ratings for their involvement in joint religious activities, the sacred qualities of marriage, and beliefs about the manifestation of God in marriage had distinct outcomes. Namely, greater global marital satisfaction, more perceived benefits from marriage, less marital conflict, more verbal collaboration and less verbal aggression or stalemate when in disagreement (Mahoney et al., 1999). Interestingly, sacrifice seemed to mediate sanctification and was related to negative marital quality, indicating that there are aspects of sanctification that may be negatively predictive of relationship satisfaction (Stafford et al., 2014).

The mechanism for the relationship between sanctification and relationship satisfaction has been explored in recent years. Supportive coping mechanisms used by relationship partners mediates the relationship between sanctification and marital satisfaction; individuals who sanctify their relationship give more support to their partner leading to increased satisfaction (Rusu et al., 2015). This provides evidence for the idea that sanctification increases efforts to protect the relationship and see it in a positive light (Rusu et al., 2015; Stafford, 2016). In addition, relationship maintenance behaviors (e.g., expressing positivity, demonstrating understanding, participating in joint social and family networks etc.) increase when the relationship is sanctified, and this is positively related to marital satisfaction in religious couples (Stafford, 2016). This indicates that sanctification is an important variable to consider in relation to satisfaction.

Demographic Variables

There is evidence to suggest that demographic variables are related to relationship satisfaction, health, and stability. Race is related to both marital quality and stability, with minorities having lower marital quality across the lifetime (Brown et al., 2012; James, 2014; Kuroki, 2017). Similarly, gender can influence satisfaction and stability, with women being less satisfied in some studies (Brown et al., 2012; Kirkpatrick & Davis, 1994; Rosenfeld, 2018). Earlier ages at the time of marriage have been related to divorce, with divorce simultaneously being more common in those over 35, indicating a complex connection between age, satisfaction, and stability (Amato & Hohmann-Marriott, 2007; Kennedy & Ruggles, 2014). This tendency for divorce at a later age may relate to the fact that marital relationships decrease in satisfaction over time (Proulx et al., 2017). The change of satisfaction throughout marriage, paired with the fact that courtship behaviors are known to affect marital satisfaction eventually, may explain

additional effects of marital status on satisfaction and health (Huston, 1994; Kamp Dush & Amato, 2005). Taken together, race, gender, age, relationship length, and marital status are all demographic features of important consideration.

Current Study

The current study examines college romantic relationships to explore whether distinct relationship subtypes exist and whether they reliably covary with the variables described in the previous section. We will use a latent class analysis to identify relationship subtypes. Groups will be analyzed along dimensions of relationship quality (i.e., relationship satisfaction and positive and negative partner appraisals) and relationship health (i.e., intimate partner violence and communication patterns). Following group identification, we will analyze relationship stability among the groups and conduct an exploratory examination of variables related to group membership using a combination of automated variable selection and bootstrap sampling.

Method

Participants

Participants (N=1935) were recruited from an undergraduate family science course that fulfilled a university-wide general education requirement at a large, public university in the Southeastern United States. Participation in this study was one of the multiple options for students to receive course credit. Data for the current study come from larger data collection efforts examining the course of emerging adulthood in the context of college and represent responses from 2007-2009 (i.e., fall 2007, fall 2008, spring 2008, fall 2009 and spring 2009). Participants provided data via an online self-report survey that they completed wherever they chose to access the Internet and were e-mailed links to a secure online system during the first

week of the semester. Prior to collecting data, institutional review board approval for all procedures and content were obtained.

For the study presented in this paper, participants were excluded if they did not report participation in a romantic relationship (i.e., nonexclusive, exclusive, engaged or married). From the initial sample size of $N=4957$ we excluded 3022 participants who indicated they were not in a romantic relationship. The analyzed sample included 1935 participants (1602 women, 333 men). The average age of respondents was 20-years old (ranging from 17-55). Participants largely self-identified as Caucasian (65.53%), with 13.39% reporting their race as African American, 10.65% as Latinx, and 7.39% as “other.”

Relationship Types

A latent class analysis was used to differentiate types of relationships (Ram & Grimm, 2009). Variables related to relationship health and satisfaction were used to discriminate sub-groups. Relationship health was considered a combination of positive and negative communication patterns and the presence of intimate partner violence. Relationship satisfaction was measured as a combination of relationship satisfaction and positive and negative partner ratings.

Relationship Communication

Relationship communication was measured using the Constructive Communication subscale of the Communication Patterns Questionnaire (CPQ), a self-report measure using a nine point Likert scale ranging from “very unlikely” to “very likely” (Christensen & Sullaway, 1984). The constructive communication subscale is calculated by summing three items that assess constructive communication and subtracting four items that measure destructive communication. Thus, both positive and negative communication can be measured from these seven items.

Constructive communication includes mutual discussion, mutual expression and mutual negotiation (current study Chronbach's alpha = 0.815-0.845). Negative communication includes mutual blame, mutual threat, and verbal aggression toward or from the romantic partner (current study Chronbach's alpha = 0.771-0.816). The constructive communication subscale of the CPQ has previously demonstrated strong internal consistency ($\alpha=0.91$ and $\alpha=0.89$ for women and men respectively); reliability demonstrated by spousal interobserver agreement ($r(70)=0.67$, $p<0.001$); and construct validity demonstrated by the correlation of positive communication and marital adjustment ($r=0.69$ and $r=0.78$ for husband and wives respectively; (Heavey et al., 1996). In the current study, Chronbach's alpha for the CPQ Constructive Communication subscale ranged from 0.794-0.839.

Intimate Partner Violence

Intimate partner violence was measured using the Revised Conflict Tactics Scale (CTS2) using items that measure minor physical (current study Chronbach's alpha = 0.777-0.906) and psychological aggression (current study Chronbach's alpha = 0.821-0.871) (Straus et al., 1996a). The CTS2 utilizes an eight point Likert-type scale designed to measure the frequency of certain behaviors with the following response options: 1 = once; 2 = twice; 3 = 3-5 times; 4 = 6-10 times; 5 = 11-20 times; 6 = more than 20 times; 7 = not in referent period but happened before; and 0 = never. The Likert scale was recoded at the midpoint of each item to provide a measure of frequency (i.e., 1=1, 2=2, 3=4, 4=8, 5=15, 6=25, 7=0 and 8=0). These values were then summed with higher scores represent more frequent occurrences of minor physical or psychological aggression. The decision to utilize only minor scales of physical and psychological aggression is due to the unreliability in the self-report of severe abuse (Mihalic & Elliott, 1997). The CTS2 has demonstrated strong reliability through internal consistency for both psychological aggression

($\alpha=0.79$) and physical assault ($\alpha=0.86$); strong construct validity through correlations between related constructs such as physical and psychological aggression ($r=0.71$ and $r=0.67$ for men and women respectively); and strong concurrent validity in its consistent correlation with similar measures (Chapman & Gillespie, 2019; Straus et al., 1996b). In the current study, Chronbach's alpha for the CTS2 ranged from 0.855-0.904.

Relationship Satisfaction

Relationship satisfaction was measured using the Couples Satisfaction Index (CSI), a self-report questionnaire assessing personal satisfaction with a romantic relationship (Funk & Rogge, 2007). In the current study, the four-item version of the CSI was used where items were summed and higher values indicated greater relationship satisfaction. These items include "Please indicate the degree of happiness, all things considered, of your relationship," on a seven point Likert scale ranging from "Extremely Unhappy" to "Perfect;" "I have a warm and comfortable relationship with my partner," on a six point Likert scale ranging from "Not at all True" to "Completely True;" "How rewarding is your relationship with your partner?" on a six point Likert Scale ranging from "Not at all" to "Completely;" and "In general, how satisfied are you with your relationship?" on the same scale from "Not at all" to "Completely" (Funk & Rogge, 2007). This short form of the CSI had very strong internal consistency ($\alpha=.94$); strong construct validity as measured by correlations with couple distress ($r=.84-.97$); and concurrent validity with various measures of satisfaction such as the Dyadic Adjustment Scale (Funk & Rogge, 2007). The score for couples satisfaction at time one was used in the latent class analysis. In the current study, Chronbach's alpha for the CSI ranged from 0.924-0.933

Partner Ratings

Positive and negative partner evaluations were measured using the Positive and Negative Quality in Marriage Scale (PANQM), a six-item self-report measure that evaluates the global impression of attitudes about a partner (Fincham & Linfield, 1997). The measure has three items to deal with positive and negative evaluations respectively; positive qualities of the partner; positive feelings towards the partner; and positive feelings about the marriage (current study Chronbach's alpha = 0.930-0.968). Negative questions measure the inverse (e.g., negative qualities about the partner; current study Chronbach's alpha = 0.931-0.958). Respondents were asked to rate the degree of their positivity or negativity on a ten point Likert scale ranging from "Not at all" to "Extremely," with items summed and higher scores representing more positive or negative feelings respectively (McKinnon et al., 2018). The PANQM was created as a bidimensional measure to accurately capture the fact that positive evaluations are distinct from negative evaluations according to factor analyses, as would be expected in ambivalent relationships (Fincham & Linfield, 1997; Mattson et al., 2007). Low correlations between positive and negative scales indicate criterion validity ($r=-0.17$ and $r=-0.23$ for women and men respectively), and incremental validity has been demonstrated over unipolar measures (Mattson et al., 2007). In the current study, Chronbach's alpha for the PANQM ranged from 0.851-0.867.

Relationship Stability

Relationship stability was calculated as the proportion of participants from each latent class who reported the termination of the relationship in any of the three time points. Participants were coded as experiencing a breakup if they reported participating in a relationship at time one and reported not being in a relationship in either time two or time three, or if they reported being in a relationship at time two and not time three.

Relationship Variables

Neuroticism. Neuroticism was measured using six items from the NEO Personality Inventory—3, a self-report measure (McCrae et al., 2005). The items included “1. I am not a worrier;” “2. I often feel inferior to other;” “3. When I am under a great deal of stress, sometimes I feel like I am going to pieces;” “4. I rarely feel lonely or blue;” “5. I often feel tense and jittery;” and “6. Sometimes I feel completely worthless.” Participants used a five-point Likert scale ranging from “Strongly agree” to “Strongly disagree.” Items one and four were reverse scored and then all six items were summed and averaged with higher scores indicated greater levels of anxiety. The NEO-PI-3 has been shown to demonstrate strong internal consistency ($\alpha=0.88-0.95$) and criterion validity was established through its correlation with the NEO-PI-R ($r=0.98-0.99$) which has strong evidence of validity (Costa & McCrae, 1992; McCrae & Costa, 2010). In the current study, Chronbach’s alpha ranged from 0.700-0.738.

Attachment. Attachment was measured using the Experiences in Close Relationships short form (ECR-S), a self-report questionnaire with twelve items that measure dimensions of anxiety and avoidance in adult attachment (Wei et al., 2007). The ECR uses a seven-point Likert scale that ranges from “disagree strongly” to “agree strongly.” Four of these items were reverse scored, one from the anxiety subscale and three from the avoidance and then the items were totaled with higher scores indicating greater levels of anxiety or avoidance. The ECR-S demonstrated acceptable reliability for both anxiety ($\alpha=0.78$) and avoidance ($\alpha=0.84$) and construct validity as measured by correlations with the excessive need for approval (anxiety) and an excessive need for self-reliance (attachment) (Wei et al., 2007). In the current study Chronbach’s alpha for the ECR-S ranged from 0.773-0.806.

Commitment. Dedication was measured using four items from the Revised Commitment Inventory where participants indicate their dedication to a relationship on four-point scale

ranging from “Strongly Disagree” to “Strongly Agree” (Owen et al., 2011). The selected questions included, “1. My relationship with my partner is more important to me than almost anything else in my life;” “2. I may not want to be with my partner a few years from now;” “3. I like to think of my partner and me more in terms of “us” and “we” than “me” and “him/her;” and “4. I want this relationship to stay strong no matter what rough times we may encounter.” Item two was reverse coded and all four items were summed with higher scores indicating higher levels of dedication. These four questions have demonstrated strong internal consistency ($\alpha=0.81-0.82$) is similar studies (Clifford et al., 2017). Dedication scores from time one were used in the exploratory analysis. In the current study, Chronbach’s alpha ranged from 0.741-0.771.

Sexual Satisfaction. Sexual satisfaction was measured using a single, face-valid item. Participants indicated their sexual satisfaction through a five-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree” in response to the statement, “We have a satisfying sensual or sexual relationship.” The item was scored so that higher responses indicated higher levels of sexual satisfaction. Although single-item measures are not typically ideal and may have limited test-retest validity across time with variables that are not trait stable, single-item measures have been shown to have comparable convergent validity with more elaborate measures of sexual satisfaction (Mark et al., 2014). Single-item measures are particularly useful for efficiency when a large number of measures are collected, as was the case with the current study, and are justified when there is evidence that it provides a comparably valid assessment of the construct (Mark et al., 2014). Sexual satisfaction scores from time one were used in the exploratory analysis. When scores from time one were missing, the variable was excluded for those individuals.

Sanctification. Sanctification was measured using a combination of two items from the Manifestation of God scale and the Sacred Qualities scales, measures often used to measure sanctification (Mahoney et al., 2009; Mahoney et al., 1999; Murray-Swank et al., 2005). The Manifestation of God scale asks participants to measure their sense of the presence of God in their relationship without specifying God; the Sacred Qualities scale asks participants to rate their agreement with the view that the relationship is sacred (Mahoney et al., 1999). The two items included “I sense God’s presence in my relationship with my partner,” (from the Manifestation of God scale) and “My relationship with my partner is holy and sacred.” Participants rated their agreement on a five-point Likert scale ranging from “Strongly Agree” to “Strongly Disagree.” Thus, higher scores indicate higher levels of sanctification. These items were selected based on the recommendation of A. Mahoney in order to best capture the construct with a brief two-item index (Mahoney, personal communication, May 26, 2005). Because the Manifestation of God scale is strongly correlated with religiosity ($r=0.71$) and the Sacred Qualities scale is only moderately correlated with religiosity ($r=0.43$ for wives and $r=0.39$ for husbands), the scales may cover different domains of sanctification. The items were analyzed separately within the latent classes. In the current study, Chronbach’s alpha between these two items ranged from 0.824-0.856.

Demographic Variables. A number of demographic variables were included to explore the features consistent with possible group types. These include race (i.e., Caucasian, African American, Latinx or Other), gender (i.e., male or female), age (measured as a continuous variable), relationship length (less than 2 months, 3-4 months, 5-6 months, 7-12 months, 1-2 years, and 3+ years), and relationship status (i.e., non-exclusive, exclusive, engaged and married). For all variables, scores from time one were used.

Statistical Analyses

In order to determine the presence of subgroups in romantic relationships along dimensions of health and satisfaction, response patterns were analyzed in a latent class analysis performed through MPlus (Geiser, 2012). The process of latent class analysis requires the designation of the number of classes and then performs tests of model fit (by examining the relative fit of k groups compared to $k-1$ groups), classification accuracy and interpretability. Latent class analyses were performed under the assumption of anywhere from 2-6 latent classes, allowing for various combinations of health and satisfaction variables. Subgroups are determined by the model of best fit.

Following the latent class analysis, variables associated with these empirically derived groups were determined using a combination of bootstrap sampling and automatic variable selection. Automatic variable selection describes the process of determining the optimal subset of predictors without manual selection through a series of regressions, but its use has been controversial due to its increase in false positive errors. Bootstrap sampling describes random sampling in a dataset where the selected observation is not removed and becomes available for selection again (i.e., sampling with replacement). Consistent with previous studies, the combination of these methods allows us to determine the best predictors for each group while avoiding false positive errors (Austin & Tu, 2004; Baucom et al., 2015).

The demographic variables race, relationship status, and gender were dummy coded prior to analysis. Following this step, variable inclusion in a relationship subgroup was regressed for each candidate variable to create separate models for each latent class. Rejection criteria for any variable was set a $p < 0.01$. Variables that met this criteria were used in the bootstrapped resampling process. One thousand data sets were generated through resampling and replacement.

BIC is applied to select the optimal subset of variables in each of the 1,000 generated data sets. We considered variables reliable associated with a group when they were selected in more than 50% of the bootstrapped samples. The variables that were maximally predictive were included in the final model for each class. We completed these analyses using the bootStepAIC package available for R Version 3.0.2 (Baucom et al., 2015). Missing data was handled through item imputation, where missing data is replaced with a substituted value (Yadav & Roychoudhury, 2018). Four variables had more than 5% of data missing and should be interpreted cautiously in their predictive value: relationship type (5.27%), neuroticism (8.22%), breakup (8.89%), and sexual satisfaction (27.1%).

Results

Are Health and Satisfaction the Same Construct? A Relationship Class Analysis

We performed the latent mixture modeling in Mplus. The initial step in the program requires that you determine the number of classes. This exploratory process examines multiple models with an increasing number of classes and then compares their relative fit (i.e., examining the relative fit of k groups to $k-1$ groups), classification accuracy and ultimate interpretability given the included variables. After appropriate data screening, we began to analyze the data with a single class factor and then continued to add until six classes had been utilized.

Data Screening

Mixture modeling is sensitive to outliers (Nylund et al., 2007). To deal with this limitation, we fenced outliers using the median plus or minus three interquartile ranges. This is preferable to using the mean plus or minus three standard deviations because the median and interquartile range are not influenced by outliers. Using this criterion, we fenced 31 observations for the low end of the CPQ (communication) and 10 observations for the low end of the CSI

(satisfaction). None of the values for the PANMQS (positive or negative marital qualities) fell outside this criterion, although the data were still significantly skewed. As mixture modeling is designed to ascertain classes from the profile of the data, including skewness, we did not attempt to transform these data to increase normality. Because skewness can still influence class solutions by grouping higher order solutions based almost exclusively on the skewed portion of variables, we were mindful of this influence when interpreting the class solution.

Table 1

Fit Indices for Each Class Solution

	One Class	Two Class	Three Class	Four Class	Five Class	Six Class
AIC	54826.132	52469.571	50801.673	50334.403	50120.459	49835.288
BIC	54876.243	52553.089	50918.598	50484.735	50304.198	50052.435
aBIC	54847.650	52505.433	50851.880	50398.956	50199.357	49928.531
Entropy	-	0.910	0.890	0.881	0.888	0.872
BLRT (<i>p</i> value)	-	.0000	.0000	.0000	.0000	.0000
% in Class 1	100	55	25	31	6	11
% in Class 2	-	45	36	35	18	13
% in Class 3	-	-	39	16	11	27
% in Class 4	-	-	-	18	31	6

% in Class 5	-	-	-	-	35	30
% in Class 6	-	-	-	-	-	14

Class Solution

We used the bootstrapped likelihood ratio test (BLRT) which compares a model with k classes to a model with $k-1$ classes. In every case it favored adding an additional class, but this is typical for situations with high power during the extraction of classes. Interpretability can then guide the selection of classes (Nylund et al., 2007). Given the fact that each additional class beyond three was capturing only a small group of individuals who reported slight variations in a given variable, we elected to retain three classes. This resulted in a model with high entropy and high interpretability. Figure 1 plots the mean values of these three classes. Inspections of means suggest that class one might be termed unhealthy and unsatisfying with partner ambivalence, class two is healthy and satisfying, and class three is satisfying and healthy, but unimpressed with their partner.

Class one (N=477), unhealthy and unsatisfying, was characterized by reports of low relationship satisfaction, low rates of constructive criticism, high rates of intimate partner violence (51.7% probability of physical or psychological aggression), and both high negative and high positive partner appraisals, indicating partner ambivalence. This class supported the broad association between health and satisfaction although demonstrates that satisfaction is not a bipolar measure. Class two (N=703), healthy and satisfying, was characterized by reports of high relationship satisfaction, uniformly positive partner appraisals, high rates of constructive communication and low rates of intimate partner violence (21% probability). This second class

also provided support for the relationship between quality and health. Class three (N=755), healthy and satisfying but unimpressed with partner, was also characterized by reports of high relationship satisfaction, high rates of constructive communication and low rates of intimate partner violence (24% probability). However, unlike class two, the reported low ratings of their partner's positive qualities and high ratings of their negative qualities. This represents a divergence in health and satisfaction along some dimensions; these were healthy relationships where they were satisfied with the relationship, but not with their partner.

Figure 2

Means Values for Continuous Variables Across Latent Classes

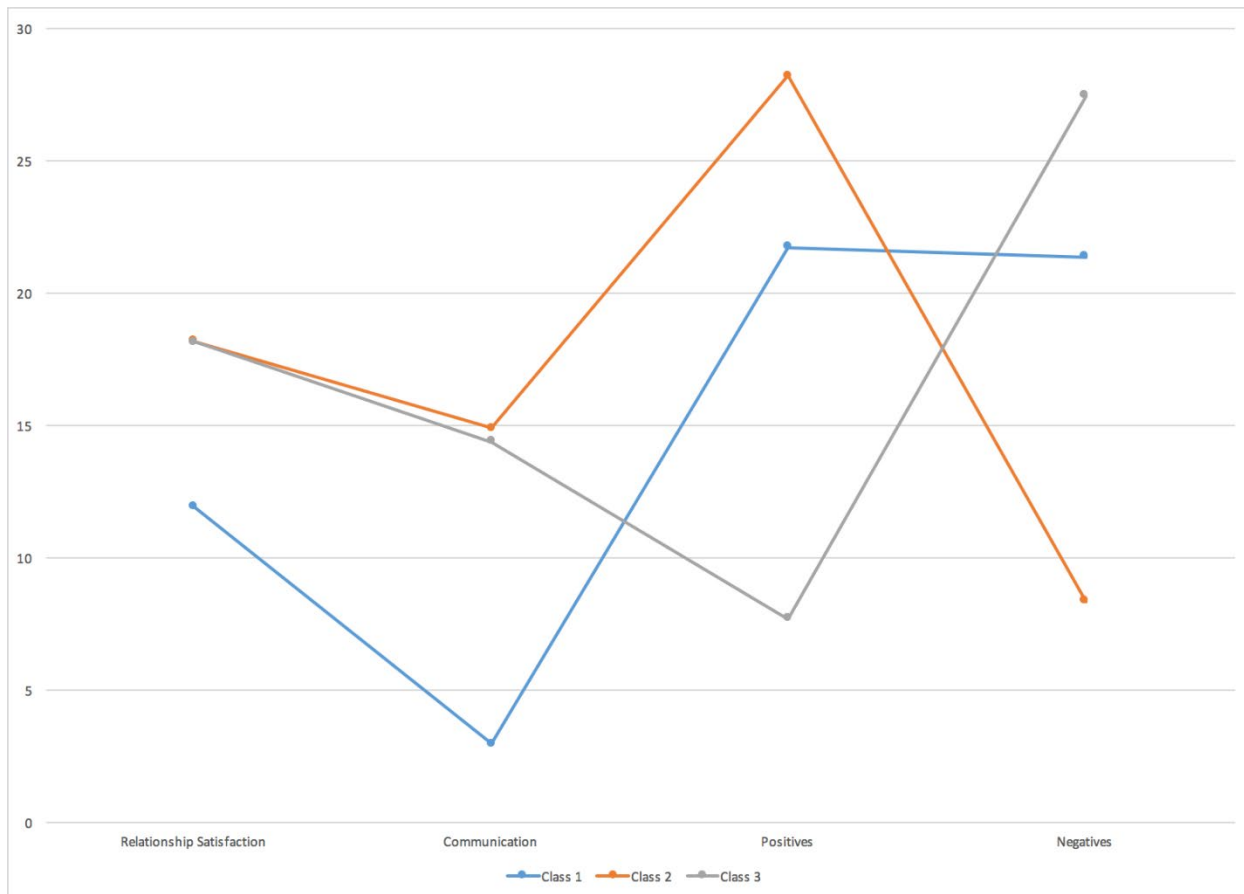
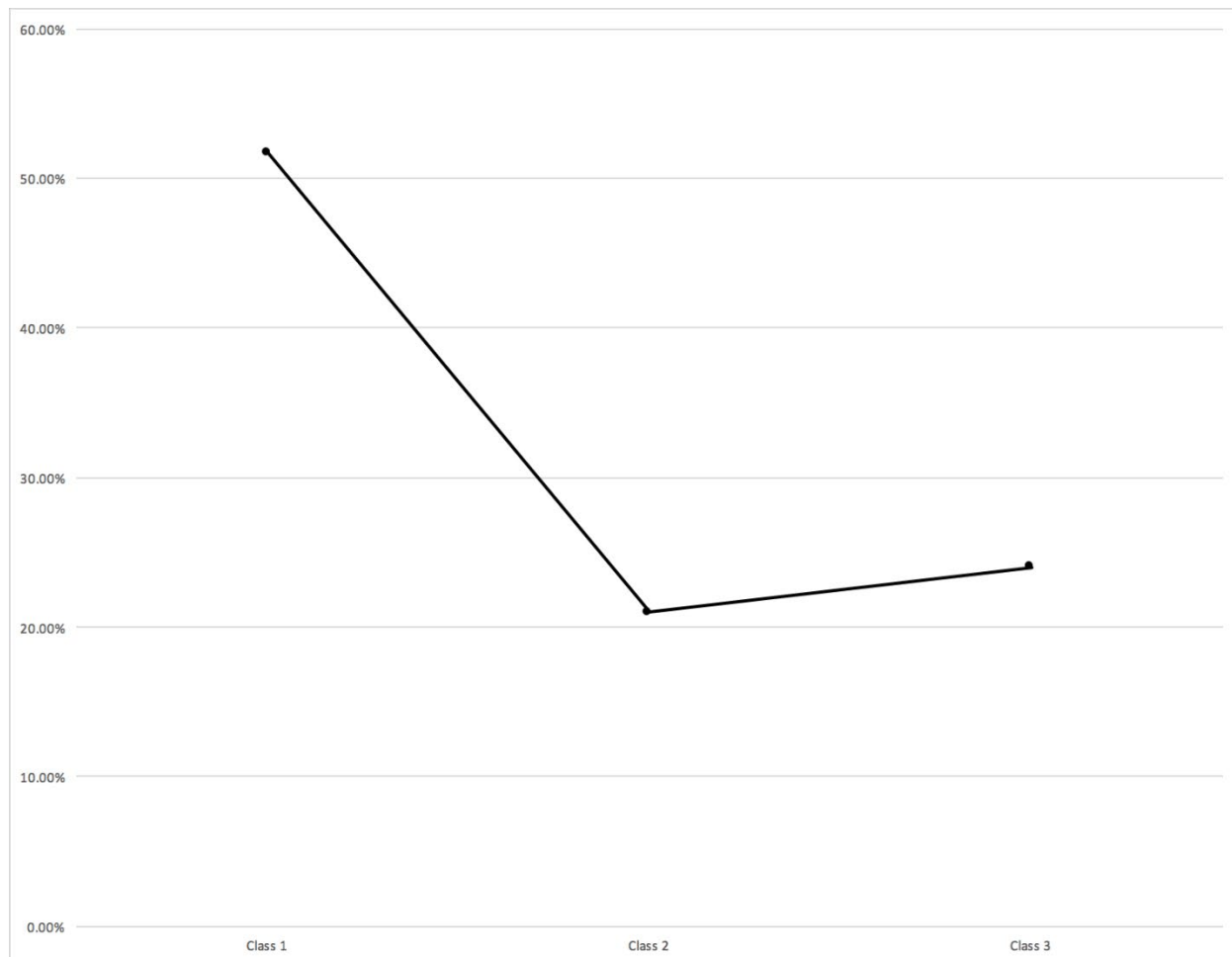


Figure 2

Probability of Experiencing Assault in Past Year Based on Class Membership



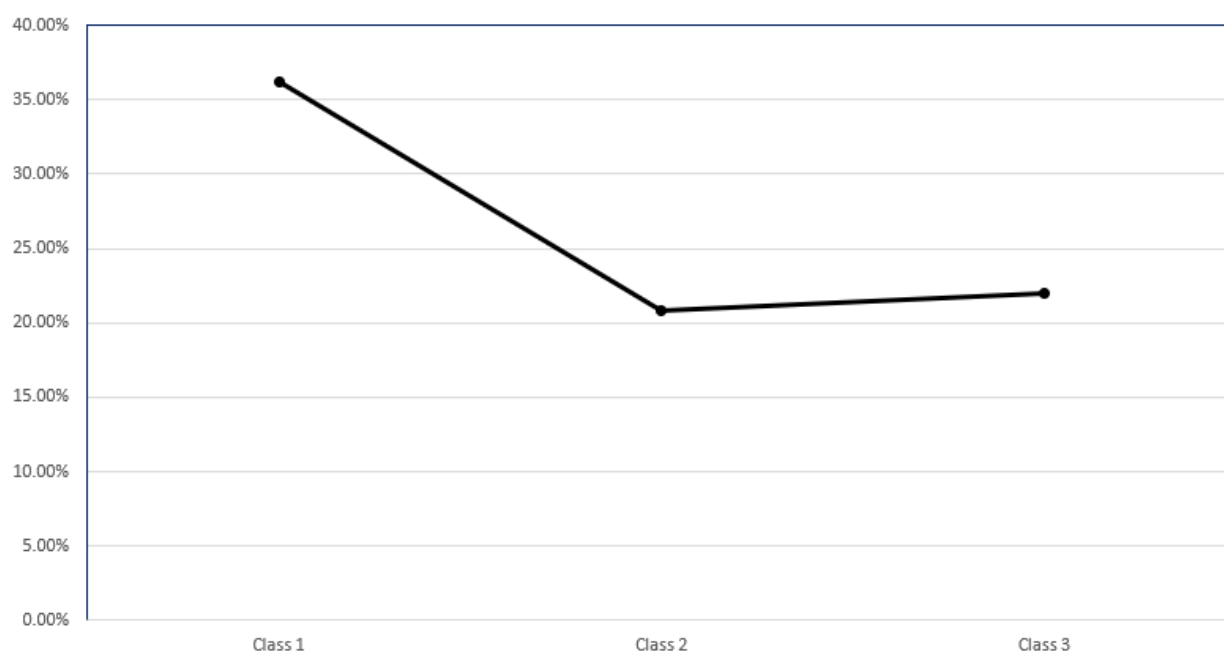
How Does Satisfaction Relate to Stability?

Data was missing for 8.89% of the total respondents (69 participants from class one, 34 from class two, and 69 from class three) which made the presence of a break-up undeterminable (e.g., relationship status was not reported for time two or time three). Of those remaining participants 36.25% of class one participants (unhealthy and unsatisfying with partner ambivalence) experienced a breakup during the semester; 20.84% of class two participants (healthy and satisfying) experienced a breakup; and 22.04% of class three participants (healthy

and satisfying but unimpressed with partner) experienced a breakup. There was a small, positive correlation between class one relationships and relationship instability ($r = 0.145$, $p < 0.05$), and small, negative correlations with class two and three relationships ($r = -0.073$, $p < 0.05$; $r = 0.053$, $p < 0.05$ respectively).

Figure 3

Probability of Experiencing Breakup Based on Class Membership



What Variables May be Related to Different College-Age Relationship Groups?

Membership in class one was uniquely predicted by nine variables that were selected in at least 50% of the bootstrapped samples. Individuals in unhealthy and unsatisfying relationships were significantly more likely to have an anxious ($r=0.274$, $p < 0.001$) or avoidant ($r=0.256$, $p < 0.001$) attachment style; believe the relationship is holy and sacred ($r=0.194$, $p < 0.001$); demonstrate trait neuroticism ($r=0.180$, $p < 0.001$); and have longer relationships ($r=0.072$, $p < 0.002$). They were less likely to feel dedication to their relationship ($r=-0.417$, $p < 0.001$); have

lower levels of sexual satisfaction ($r=-0.291$, $p<0.001$); are less likely to be in an exclusive dating relationship ($r=-0.171$, $p<0.001$); and less likely to be White ($r=-0.120$, $p<0.001$).

Exclusive relationship status was selected in 84.15% of bootstrapped samples, avoidant attachment was selected in 84.15% of bootstrapped samples, and White race was selected in 61.35%. All other variables were selected as significant predictors in 100% of the bootstrapped samples.

Being in a minority race other than Black or Latinx was a significant predictor of both class one and class two relationships (i.e., unhealthy and unsatisfying, and healthy and satisfying). It was not significantly correlated with class one ($r=0.025$, $p=0.266$), or class two ($r=0.017$, $p=0.449$), indicating that there may be a nonlinear relationship between the predictors and relationship class. Race other was selected in 63.12% of bootstrapped samples for class one, and 100% of bootstrapped samples for class two.

Membership in class two was uniquely predicted by seven variables. Individuals in healthy and satisfying relationships were significantly more likely to report being sexually satisfied ($r=0.177$, $p<0.001$); be White ($r=0.083$, $p<0.001$); have lower levels of neuroticism ($r=-0.108$, $p<0.001$); and were likely to either be in nonexclusive relationships ($r=0.015$, $p=0.500$), or to be married ($r=0.043$, $p=0.060$), engaged ($r=0.024$, $p=0.302$) or exclusive ($r=0.030$, $p=0.182$). Unique predictors related to relationship status did not have significant correlations, indicating that there may not be a linear relationship between relationship class and relationship status. Engaged and exclusive relationship status was selected in 99.9% of bootstrapped samples, neuroticism was selected in 85.09% of bootstrapped samples, all other variables were selected in 100% of bootstrapped samples.

Four variables served as a significant predictor for membership in both class two and three. Individuals in both relationships were likely to have higher levels of dedication ($r=0.175$, $p<0.001$; $r=0.198$, $p<0.001$), selected in 100% and 99.9% of bootstrapped samples respectively. Both were less likely to have an anxious attachment style ($r=-0.132$, $p<0.001$; -0.106 , $p<0.001$), selected in 100% and 99.9% of bootstrapped samples respectively. Being Latinx was a significant predictor in both classes ($r=-0.013$, $p=0.578$; $r=0.009$, $p=0.680$); selected in 100% and 54.24% of bootstrapped samples respectively. The non-significant correlations suggest that the relationship with race is not linear. They were both likely to have a shorter relationship length, although the correlation with class two was significant ($r=-0.054$, $p<0.001$) and was not significant for class three ($r=-0.010$, $p=0.667$), indicating that the relationship with class three is not linear. It was selected in 100% of bootstrapped samples for both classes.

Membership in class three was uniquely predicted by six variables. Individuals in healthy relationships with partner ambivalence were less likely to be in nonexclusive relationships ($r=-0.171$, $p<0.001$), and were less likely to believe that their relationship is sacred and holy ($r=-0.111$, $p<0.001$). These were selected in 99.8% and 99.39% of bootstrapped samples respectively. They were also more likely to be older ($r=-0.008$, $p=0.730$); and less likely to be married ($r=-0.029$, $p=0.205$); less likely to be engaged ($r=-0.021$, $p=0.352$); and less likely to be a minority person ($r=-0.018$, $p=0.447$). The relationship between class and age, status as married or engaged, and minority race had nonsignificant correlations indicating a nonlinear relationship. Nonexclusive status was selected in 99.80% of bootstrapped samples, marriage was selected in 99.69% of bootstrapped samples, engaged was selected in 99.59% of bootstrapped samples, sanctification was selected in 99.39% of samples, minority race was selected in 62.69%, and age was selected in 56.75%.

Table 2*Categorical Variables by Latent Class*

	Percentage by Class	Pearson's R	P-Value	Bootstrap Samples
Exclusive				
Class One	68.96%	-0.171	<0.001*	99.90%
Class Two	82.31%	0.030	0.182	99.90%
Class Three	86.74%	-	-	15.10%
Nonexclusive				
Class One	14.17%	-	-	28.49%
Class Two	9.42%	0.015	0.500	100%
Class Three	4.91%	-0.111	<0.001*	99.8%
Married				
Class One	1.04%	-	-	28.84%
Class Two	2.00%	0.043	0.060	100%
Class Three	0.93%	-0.029	0.205	99.69%
Engaged				
Class One	3.75%	-	-	5.18%
Class Two	6.46%	0.024	0.302	99.90%
Class Three	3.32%	-0.021	0.352	99.59%
Female				
Class One	81.88%	-	-	28.16%
Class Two	82.74%	-	-	0.61%
Class Three	83.42%	-	-	41.41%
African American				
Class One	16.88%	0.059	0.010 *	69.67%
Class Two	10.84%	-0.056	0.013 *	99.80%
Class Three	13.53%	0.003	0.883	85.82%
Race Other				
Class One	8.54%	0.025	0.266	63.12%
Class Two	7.99%	0.017	0.449	100%
Class Three	6.10%	-	-	-
Caucasian				
Class One	55.63%	-0.120	0.001 *	61.35%
Class Two	70.76%	0.083	<0.001*	100%
Class Three	66.98%	-	-	-
Latinx				
Class One	10.83%	-	-	23.29%
Class Two	10.13%	-0.013	0.578	100%
Class Three	11.01%	0.009	0.730	54.24%
Minority				
Class One	36.25%	-	-	-
Class Two	28.96%	-	-	-
Class Three	30.64%	-0.018	0.447	62.69%

Note. * indicates a nonsignificant value. Correlations were not calculated for variables that were not selected in at least 50% of bootstrapped samples.

Table 3

Continuous Variables by Latent Class

	Mean by Class	Standard Deviation	Pearson's R	P-Value	Bootstrap Samples
Anxious Attachment					
Class One	22.870	7.771	0.274	<0.001*	100%
Class Two	17.797	6.870	-0.132	<0.001*	100%
Class Three	18.103	7.379	-0.106	<0.001*	99.9%
Avoidant Attachment					
Class One	15.493	7.512	0.256	<0.001*	84.15%
Class Two	11.310	6.258	-	-	8.09%
Class Three	11.417	6.331	-	-	17.11%
Dedication					
Class One	12.065	4.828	-0.417	<0.001*	100%
Class Two	15.912	3.049	0.175	<0.001*	100%
Class Three	15.975	3.280	0.198	<0.001*	100%
Neuroticism					
Class One	2.854	0.731	0.180	<0.001*	100%
Class Two	2.508	0.716	-0.108	<0.001*	86.09%
Class Three	2.565	0.748	-	-	6.02%
Sexual Satisfaction					
Class One	3.858	1.010	-0.291	<0.001*	100%
Class Two	4.514	0.799	0.177	<0.001*	100%
Class Three	4.450	0.798	-	-	5.70%
Relationship Length					
Class One	4.654	1.980	0.072	0.002*	100%
Class Two	4.261	1.958	-0.054	0.019*	100%
Class Three	4.375	1.945	-0.010	0.667	100%
Age					
Class One	19.895	2.601	-	-	35.01%
Class Two	19.548	2.206	-	-	10.50%
Class Three	19.651	2.262	-0.008	0.730	56.75%
Sanctification One					
Class One	3.296	0.870	0.194	<0.001*	100%
Class Two	2.893	0.937	-	-	3.56%
Class Three	2.834	0.952	-0.111	<0.001*	99.39%
Sanctification Two					
Class One	3.161	0.952	-	-	2.73%
Class Two	2.766	1.021	-	-	40.84%
Class Three	2.750	1.070	-	-	2.29%

Note. * indicates a nonsignificant value. Correlations were not calculated for variables that were not selected in at least 50% of bootstrapped samples.

Discussion

Historically, romantic relationships are measured along a dimension of relationship satisfaction with the assumption that satisfying relationships are also healthy. This occurs in spite of

evidence to suggest that relationship satisfaction and health are distinct constructs where one refers to subjective attitudes and the other refers to constructive or destructive behaviors (Robles et al., 2014). Our research sought to empirically identify latent classes within a college dating sample that might exist along dimensions of relationship health and satisfaction. Here, relationship health is defined as positive or negative communication strategies and the presence of intimate partner violence, and relationship satisfaction is defined as positive or negative attitudes about both the relationship and the partner. We then looked to establish the connection between these latent classes and relationship stability, as well as various predictor variables.

Results of a bootstrapped likelihood ratio test indicated three latent classes exist within the college dating sample: 1) unhealthy and unsatisfying with partner ambivalence, 2) healthy and satisfying and 3) healthy and satisfying but unimpressed with partner. In class one, individuals had low rates of positive communication, high rates of IPV (i.e., more than 50%) and low relationship satisfaction, but were also likely to provide high ratings for both positive and negative partner qualities. The third class represented a group that demonstrated positive communication, low rates of IPV, and high ratings of relationship satisfaction, but simultaneously low ratings of partner satisfaction (i.e., high ratings of partner's negative qualities and low ratings of their positive qualities). Furthermore, individuals in class two and three had more than a 20% chance of experiencing minor physical assault which appears contradictory to relationship satisfaction and health. This is consistent with evidence that suggests relationship health and satisfaction are distinct constructs that may differ between couples and along different dimensions within the same couple (Robles et al., 2014).

These classes further varied by their connection to relationship stability and various predictive constructs. Small correlations ($r=0.145$) existed between the latent classes and

relationship stability where 36.25% of individuals in class one relationships experienced a breakup in the course of a semester compared to 20.84% and 22.04% of class two and three relationships, respectively. Automated variable selection with bootstrap sampling clarified unique predictor variables for the three classes. Class one relationships were uniquely and moderately correlated with more anxious and avoidant attachment styles, and had small correlations with increased relationship sanctification, higher trait neuroticism, lower dedication, lower likelihood of being White and longer relationship lengths. Class two relationships were uniquely predicted by small correlations with high rates of sexual satisfaction, a higher likelihood of being White, shorter relationship length and lower levels of neuroticism. Both class two and three also had small to moderate correlations with higher levels of dedication and lower levels of anxious attachment styles. Class three demonstrated a small to moderate negative correlation with being in an exclusive relationship and a small, negative correlation with relationship sanctification.

Taken together, these results inform and support various existing theories. Epidemiological studies suggest there are stable but distressed couples (Gurman & Fraenkel, 2002; Hawkins & Booth, 2005), a finding preliminarily supported by the existence of class one college dating relationships correlated with longer relationship lengths. Because college relationships are likely to form dating habits that contribute to marriage (Braithwaite et al., 2010), this may provide insight into the broader pattern of stable but unsatisfying relationships. The exploratory consideration of predictive variables hint at possible mechanisms. For instance, individuals in class one relationships were more likely to believe that the relationship is holy and sacred. Future studies might explore the stabilizing effect of relationship sanctification on unhealthy and unsatisfying relationships. Even the existence of satisfying but unstable

relationships (Amato & Hohmann-Marriott, 2007) may be supported by the existence of couples who are satisfied with the relationship but not their partner. Individuals who were satisfied with the relationship and their partner tended to have less trait neuroticism. These exploratory correlations serve as a foundation for future studies related to causal factors and interventions that will promote healthy, satisfying and stable relationships, while reducing those that are unhealthy and unsatisfying.

Not all of the findings within the study were intuitive, however. Nonlinear relationships (i.e., variables that were predictive of class membership but not correlated in a linear fashion) existed for demographic variables such as race and relationship status (i.e., married, engaged, exclusive or nonexclusive). This may partially be explained by the low proportions of minority groups and diverse relationship types. Although the sample is representative of the proportion of married or engaged college students and racial demographics of the region of the southeastern united states, the studies design may have been poorly suited to accurately capture these predictive relationships.

This is representative of the limitations and weaknesses of the current study. Although college-aged participants represent a key demographic for understanding romantic relationships, it is necessary to exercise caution in generalizing these results to other long-term romantic relationships and geographic regions. Additional studies that replicate and extend these findings are recommended, along with the elaboration of various measures. For instance, sexual satisfaction was measured using a single item, and the construct was moderately correlated with participation in healthy and satisfying relationships. A more nuanced and through look at such constructs may reveal the aspect of sexual satisfaction that exists in these relationships (e.g., is there a difference between emotional intimacy during intercourse and physical chemistry?).

Despite these limitations, this study boasts a number of strengths. With a large sample size, it is well powered to pick up small but meaningful differences that might exist between classes. The use of automated variable selection with bootstrapped sampling allows for predictive variables to be discovered in an exploratory fashion while reducing false positives (Austin & Tu, 2004).

Future research may expand upon these results by utilizing a more diversified pool with more stratified sampling of race and relationship status as well as more robust measures. In addition to replication, this study introduces novel insights that may prompt future study. These include the relationship between relationship dissatisfaction and sanctification, and the connection between neuroticism and partner ambivalence. A more nuanced look at the maintaining factors of unsatisfying but stable relationships can be explored, as can the connection between intimate partner violence in even satisfying and healthy relationships.

Romantic relationships remain profoundly influential on happiness, life satisfaction and well-being. Understanding relationship types, their stability, and the variables associated with these relationship types can significantly improve quality of life. The identification of three relationship classes that do not perfectly correlate along dimensions of relationship health and satisfaction suggest that there is significant nuance yet to be explored within relationship types and their defining characteristics. This study serves as an exploration of possible mechanisms that might underlie these differences. It suggests that how we love, may be as essential to relationship success, as who we love.

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