Swiped Off My Feet: Exploring Differences Related to Relationship Initiation

by

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Abstract

An increasing number of people are going on dates and forming relationships after meeting through a mobile app or online dating site. Although stigma towards the use of these services is likely decreasing, negative perceptions persist that people who use online and mobile dating services are "desperate," only use the services to meet sexual partners, or deceive others by posting inaccurate content or photoshopped pictures. In a pilot study (N =198), I found participants viewed meeting a romantic partner through a mobile dating service as more embarrassing than meeting someone through an online dating service and both types of dating services were viewed as more embarrassing than meeting a romantic partner in person. The main study explored differences in the amount of relationship satisfaction, trust, social support, relationship initiation outness (willingness to disclose how partners met), and shame participants reported as a function of whether they met their partner in person (n = 104), through an online dating site (n = 99), or via a mobile app (n = 106). A total of 309 participants recruited from Amazon Mechanical Turk completed the Dyadic Trust Scale, Network Support Index, modified versions of the Outness Inventory and the Other As Shamer Scale, the Relationship Assessment Scale, and a demographic questionnaire. Participants who met through an online or mobile dating service were significantly less out about how they met their partner than those who met their partner face-to-face. No significant differences in relationship satisfaction, relational trust, social support, or shame were found between the three ways of meeting someone. Limitations, implications for practice, and directions for future research are discussed.

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Chapter I. Introduction

The history of using personal ads to search for a potential partner dates back to the late 1600's when British bachelors placed ads in the newspaper with the hopes of securing themselves a wife (Lee, 2016). In the early 1700's, gay men used personal ads containing coded messages to meet others like them (Lee, 2016). In 1727, Helen Morrison became one of the first known women to use a personal ad when she expressed her desire to find "someone nice to spend her life with" via an announcement in the *Manchester Weekly Journal* (Lee, 2016; Reimann, 2016). In response, the mayor placed her in an insane asylum for four weeks (Lee, 2016; Reimann, 2016). By the 1800's, some aristocrats began using personal ads, which was followed by some of the general public doing the same (Lee, 2016). In 1965, a few students at Harvard created the first known computer dating service and called it Operation Match (Lee, 2016).

The establishment of the public Internet in the 1990's led to a new way for individuals to connect (Lee, 2016). Match.com launched in 1995 and is thought to be one of the first online dating sites (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). Match.com connects people using characteristics like religion, sexual orientation, and common interests (Finkel et al., 2012). As Match.com grew in popularity and the movie *You've Got Mail* romanticized the idea of meeting someone online, similar websites started to spring-up (Merkle & Richardson, 2000). In 2000, eHarmony was founded and offered people an algorithm-based way of matching people, prompting a new wave of online dating sites offering this feature (Finkel et al., 2012). Some of these sites use self-report data to match people, however others use other forms of data like DNA samples (Finkel et al., 2012). Online dating became a particularly popular way for lesbian and gay couples to meet after the year 2000 (Rosenfeld & Thomas, 2012). Smartphones were

released in 2007 and with them came mobile dating applications (Arthur, 2012; Finkel et al., 2012). Mobile dating applications (apps) can use global positioning systems to identify other users located in the same area, thus providing people with a new way of meeting (Finkel et al., 2012).

Most people do not meet a partner through the newspaper classifieds today (Rosenfeld & Thomas, 2012). A longitudinal study exploring how adults in the United States met their partner found only four out of 3,009 couples met through a personal ad placed in the newspaper (Rosenfeld & Thomas, 2012). Meeting partners through friends, work, and near home has declined over the past 15 years, while meeting partners via the Internet is increasing (Rosenfeld & Thomas, 2012). In 2005, only 43% of online daters physically met with someone they met online, but this number increased to 66% in 2013 (Smith & Duggan, 2013). Rosenfeld and Thomas (2012) argue meeting on the Internet is quickly displacing other methods of meeting significant others. Meeting online is now the third most likely way for people to find a potential partner (Hamilton, 2016; Smith & Duggan, 2013). One out of every five relationships start as a result of online dating (Hamilton, 2016). These relationships are developing into long-term commitments or marriages with over one third of recent marriages in the United States crediting their start to meeting online (Cacioppo, Cacioppo, Gonzaga, Ogburn, & VanderWeele, 2013).

As the prevalence of individuals using online dating sites continues to grow, the increased accessibility of mobile technology has resulted in more and more people using smartphones to connect with others through social networking sites (Smith & Duggan, 2013). Most American adults (77%) now own a phone that enables them to connect to the Internet (Smith, 2017). An even higher percentage of young adults own smartphones, with 92% of 18 to 29 year-olds reporting they own one (Smith, 2017). Understanding how many smartphone users

also use mobile dating apps is a harder number to quantify as most researchers examining the usage of online dating sites lumped online and mobile app dating together. Researchers estimate approximately one in ten Americans have used an online dating site or mobile app (Smith & Duggan, 2013; Wiederhold, 2015). A survey conducted in 2013 found that of those who are "single and looking" for a partner, 38% reported using an online dating site or mobile app (Smith & Duggan, 2013, p. 2).

Sites like eHarmony, Match.com, OkCupid, and Tinder post their own statistics regarding how many people are using their services or online/mobile app dating in general, but their statistics were criticized for lacking empirical evidence (Finkel et al., 2012; Houran, Rentfrow, & Bruckner, 2004). The sites were accused of sampling biases, having a poor research design, incorrect statistical analyses, and for not making the psychometrics available to the public for peer review (Houran et al., 2004). The Pew Research Center, an unbiased organization that conducts public opinion polls, used interviewers to survey over 2,000 adults living in the United States regarding their use of dating platforms in 2005, 2013, and 2015 (Anderson, 2016; Smith & Duggan, 2013). They noted an increase in American adults using online or mobile app dating platforms over this timeframe (Anderson, 2016). In 2015, the Pew Research Center estimated 12% of American adults use an online dating site, which is a 3% increase from when they surveyed people in 2013 (Smith, 2016). They also found 9% of American adults used a mobile dating app, which was triple the percentage who reported using mobile dating apps in 2013 (Smith, 2016). The use of online dating services results in over $2 billion in revenue in the United States annually (Kapitall, 2016). This amount increased by 5% every year between 2010 and 2015 (Kapitall, 2016).

Online and mobile app dating have become a popular way to meet people and a profitable industry (Kapitall, 2016; Rosenfeld & Thomas, 2012). There are a number of benefits specific to meeting people through these services that may explain some of the appeal. Dating sites increase the number of potential partners one can meet (Finkel et al., 2012; Wiederhold, 2015). This is especially helpful for people who have a harder time meeting partners, such as individuals who identify as a sexual minority, older adults, or people who have gotten divorced (Rosenfeld & Thomas, 2012; Valkenburg & Peter, 2007). Compared to heterosexual individuals, gay men and lesbians are more likely to use a form of online social networking to meet others (Gudelunas, 2012). About 80% of people are in relationships by their late 30's, making finding an eligible partner harder for older adults (Hamilton, 2016). People who divorced are three times more likely than the average Internet user to use an online dating site (Valkenburg & Peter, 2007). In addition to increasing the number of potential partners, dating sites use algorithm-based matching to help screen out people who would not be a good fit (Finkel et al., 2012). This reduces the amount of time users spend talking to someone who would probably not be combatable with them long-term. Electronic dating services also provide users with a way of initiating contact that may be less threatening for some people because communication occurs through a written exchange of messages rather than having to approach someone in person (Finkel et al., 2012; Wiederhold, 2015). Individuals utilizing online dating services can also meet someone at more convenient times than is typically feasible in person (Finkel et al., 2012). For example, people who work overnight shifts may have an easier time matching with someone through a dating service at 3am than trying to meet someone in person at that hour.

Electronic dating services also have some unique downsides. Individuals who meet through an online dating site typically must overcome a larger geographical distance to make

their relationship work than those who meet in person or through a mobile app (Sprecher, 2012). People who meet through a dating site typically need to invest more time and energy into integrating their new partner into their existing social network than people who meet in person and they are not as confident as to how their social group will receive the newcomer (Sprecher, 2012). There are also concerns that individuals using electronic dating services may objectify potential partners more and become more selective about who they date because of the perception that they have more options (Finkel et al., 2012; Wiederhold, 2015). The increased number of choices may result in users making poor, uninformed decisions about who to date as less time is spent evaluating each "option" (Finkel et al., 2012; Wiederhold, 2015). When users do agree to interact after viewing each other's profiles, there is a stronger possibility someone may misinterpret the messages they are receiving because "talking" occurs without the aid of facial expressions and voice tone (Finkel et al., 2012; Wiederhold, 2015).

Another downside to electronic dating services is the concern that individuals using them are providing inaccurate information about themselves. Users have the opportunity to reflect on how they want to present themselves and edit the content they share, which is different than meeting in person (Sprecher, 2012). The additional time can result in someone presenting a more idealized, polished self-image or completely fabricating aspects of their identity. Although people fear being deceived by someone they meet online, research found people with online profiles tend to disclose information frequently and show their "true self" because of the more anonymous, anxiety-reducing format (Nguyen, Sun Bin, & Campbell, 2012; Rosen, Cheever, Cummings, & Felt, 2008). Researchers are still debating, however, whether self-disclosure occurring through computer mediated forms of communication is of the same depth of the self-disclosure that occurs in person or if it is perceived as feeling as deep and intimate as disclosures

in person (Nguyen et al., 2012). Self-disclosure and honesty are both important for building trust (Holmes & Rempel, 1985; Lazalere & Huston, 1980; Tait & Jeske, 2015; Uysal, Lin, & Bush, 2012), which is an important component of romantic relationships (Couch & Jones, 1997; Dainto & Aylor, 2001; Fletcher, Simpson, & Thomas, 2000; Holmes & Rempel, 1985; Larzelere & Huston, 1980; Simpson, 2007). Although no research found specifically examined whether trust in a relationship varies depending on whether a couple met online, through a mobile dating app, or in person, it is possible a difference exists given some of the concerns that dating service users are deceitful and the potential differences related to self-disclosure.

After reviewing the differences unique to online and mobile app dating, Finkel et al. (2012) concluded traditional offline dating is distinct from online dating. Despite being distinct experiences, research examining online dating is lacking and the research that does exist focuses primarily on the prevalence of this behavior (Smith, 2016; Smith & Anderson, 2016; Smith & Duggan, 2013), self-esteem of users (Gatter & Hodkinson, 2016; Kim, Kwon, & Lee, 2009), and how online daters present themselves (Ellison, Heino, & Gibbs, 2006; Whitty, 2008). Some researchers explored how the number of potential dating options affects users and found having more options reduces individuals' cognitive resources and makes it harder for them to make a good decision (Wu & Chiou, 2009; Yang & Chiou, 2009). Research on mobile app dating is also limited, focusing primarily on individuals' usage of and motivations for using these services (Goedel & Duncan, 2015; Sumter, Vandenbosch, & Ligtenberg, 2017; Timmermans & De Caluwé, 2017a; Timmermans & De Caluwé, 2017b), how they present themselves or manage people's impressions of them (Birnholtz, Fitzpatrick, Handel, & Brubaker, 2013; Blackwell, Birnholtz, & Abbott, 2015; Ward, 2017), relationship initiation behaviors (LeFebvre, 2018), and

how holding a mobile device and looking at dating profiles influences users' impressions (Banks, Westerman, & Sharabi, 2017).

A handful of studies explored the existence of stigma towards individuals who use online dating and mobile app services (Doan, 2010; Cali, Coleman, & Campbell, 2013; Finkel et al., 2012; Smith & Anderson, 2016; Smith & Duggan, 2013; Wildermuth, 2004). Individuals who use online dating services are sometimes perceived as desperate (Finkel et al., 2012; Smith & Anderson, 2016; Smith & Duggan, 2013), deceptive (Anderson, 2005; Anderson & Emmers-Sommer, 2006), nerdy (Anderson, 2005; Finkel et al., 2012; Wildermuth, 2004), shy (Anderson, 2005; Finkel et al., 2012), sexually deviant (Anderson, 2005; Finkel et al., 2012; Wildermuth, 2004), or unable to settle down (Smith & Duggan, 2013). Some researchers believe negative perceptions towards online daters are decreasing (Finkel et al., 2012; Smith & Anderson, 2016), but others say stigma is still present (Cali et al., 2013; Doan, 2010). Research is limited on stigma towards using a mobile dating app, but some studies found individuals worry admitting they use certain mobile apps like Tinder would cause people to view them as shallow, superficial, or more interested in sex than a relationship (Barkho, 2014).

The existence of stigma towards online and mobile app dating services could affect the amount of social support individuals perceive towards their relationship if they met their partner using these services. Research has found higher perceptions of social support are associated with lower perceptions of stigma (Galvan, Davis, Banks, & Bing, 2008; Mickelson, 2001; Slade, O'Neill, Simpson, & Lashen, 2007). People are also less likely to disclose an aspect of themselves associated with stigma if it is possible to avoid doing so (Kurdek, 2005; Schrimshaw, Downing, & Cohn, 2018; Whitehead, Shaver, & Stephenson, 2016). Lower levels of disclosure have also been associated with less social support (Kurdek, 2005; Slade et al., 2007). Compared

to people in relationships not affected by stigma, individuals who perceive stigma towards their relationship score lower on measures related to commitment (Lehmiller & Agnew, 2006) and relationship quality (Kurdek, 2005). They also have significantly higher rates of relationship dissolution (Bratter & King, 2008). Stigma towards the way in which someone met their partner may thus affect the amount of social support the individual perceives towards their relationship, which could have implications for the relationship itself.

When people perceive they have done something that would provoke someone to disapprove or view them negatively (like meeting a partner through a dating platform), they may feel a sense of shame (Brown, 2007; Brown, 2012; Dickerson, Gruenewald, & Kemeny, 2004). Shame makes people feel flawed and unworthy of connecting with others (Brown, 2007). It is "experienced when a core aspect of the self is judged as defective, inferior or inadequate" (Dickerson et al., 2004, p. 1195). Feeling shame is correlated with increased levels of aggression (Brown, 2012), depression (Brown, 2012), and eating disorders (Brown, 2012), as well as decreased self-esteem (Gruenewald, Kemeny, Aziz, & Fahey, 2004) and negative health outcomes (Dickerson et al., 2004). Shame can also negatively affect relationships, as people keep aspects of their lives secret and become reluctant to open up with others (Brown, 2007; Hartling, Rosen, Walker, & Jordan, 2004; Mereish & Poteat, 2015). Given some of the negative stereotypes and stigma surrounding the use of online and mobile app dating sites, individuals may negatively evaluate themselves if they meet their partner through an online or mobile app dating service and thus experience higher levels of shame than individuals who met their partner in an offline setting.

Previous research has found developing close relationships with others has a positive effect on subjective well-being (Braithwaite, Delevi, & Fincham, 2010; Hawkley & Cacioppo,

2010; Kamp Dush & Amato, 2005), mental health (Braithwaite et al., 2010; Hawkley & Cacioppo, 2010; Layous, Chancellor, & Lyubomirsky, 2014), and physical health (Hawkley & Cacioppo, 2010; Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015), and serves as a protective factor against risky behaviors (Braithwaite et al., 2010). Despite the positive effect relationships have, no research found examined relationship satisfaction of individuals using mobile dating apps. A few studies compared relationship satisfaction between face-to-face dating and online dating (Cacioppo et al., 2013; Haack & Falcke, 2014; Paul, 2014), but no studies were found that examined potential differences in relationship satisfaction between online, mobile app, and face-to-face dating. The research on relationship satisfaction between face-to-face and online daters produced mixed results. Cacioppo and colleagues (2013) found married couples who met online reported significantly higher marital satisfaction than married couples who met offline, but Haack & Falcke (2014) found unmarried couples who met online reported less relationship satisfaction than individuals who met offline. Another study found those who met their partner through church or school reported significantly higher relationship quality than those who met through family or an online service (Paul, 2014). If stigma exists towards how some partners meet and this affects other important aspects of the relationship like trust towards one's romantic partner, perceived social support for the relationship, how out people are about their relationship, and feeling shame, it is possible relationship satisfaction may also differ depending on how a relationship was initiated.

Statement of the Problem and Research Hypotheses

More and more people are using online and mobile app dating services to meet a romantic partner (Hamilton, 2016; Smith & Anderson, 2016; Smith & Duggan, 2013; Wiederhold, 2015). Some of the unique features of these dating services, such as the increase in

possible partners and the ability to use an algorithm to match with someone, make these services distinctly different than meeting someone in person (Finkel et al., 2012). Despite the possibilities online and mobile app dating services present, individuals who use these services are sometimes perceived negatively (Anderson, 2005; Anderson & Emmers-Sommer, 2006; Barkho, 2014; Finkel et al., 2012; Smith & Anderson, 2016; Smith & Duggan, 2013; Wildermuth, 2004). The stigma associated with using dating services may cause couples to feel less social support for their relationship and/or may make them less open to talking about how they met their partner. The negative stereotypes related to the use of deception online may also affect the amount of trust partners feel and how much shame people experience if they internalize some of the negative stereotypes as a reflection of their own abilities.

If trust, social support, relationship initiation outness, shame, and relationship satisfaction vary related to how an individual met their romantic partner, knowing this information could aid people in deciding whether they want to invest time, money, and energy into a dating service. These results would also help mental health providers be more attuned to the possibility that clients may feel shame related to how they met their partner. Shame could affect the client, their relationship with their partner, and/or their relationship with others. If trust, social support, relationship initiation outness, shame, and relationship satisfaction do not vary with regards to how an individual met their romantic partner, this information could be used to advocate against some of the negative stereotypes that are held towards dating services.

The present study examined how the way in which people met their romantic partner could affect different aspects of their relationship. Specifically, the current study addressed the following research hypotheses:

- Hypothesis 1a: Participants in a relationship that met face-to-face will score significantly higher on a measure of relationship satisfaction than participants in relationships that initiated from an online dating service or mobile dating app.
- Hypothesis 1b: Participants who met through an online dating service will score significantly higher on a measure of relationship satisfaction than participants in relationships that initiated from a mobile dating app.
- Hypothesis 2a: Participants in a relationship that met face-to-face will score significantly higher on a measure of relational trust than participants in relationships that initiated from an online dating service or mobile dating app.
- Hypothesis 2b: Participants who met through an online dating service will score significantly higher on a measure of relational trust than participants in relationships that initiated from a mobile dating app.
- Hypothesis 3a: Participants in a relationship that met face-to-face will score significantly higher on a measure assessing relationship initiation outness than participants in relationships that initiated from an online or mobile app dating service.
- Hypothesis 3b: Participants who met through an online dating service will score significantly higher on a measure of relationship initiation outness than those who met their partner through a mobile dating app.
- Hypothesis 4a: Participants in a relationship that met face-to-face will score significantly higher on a measure of relational social support than participants in relationships that initiated from an online dating service or mobile dating app.

- Hypothesis 4b: Those who met through an online dating service will score significantly higher on relational social support measure than individuals who reported meeting through a mobile dating app.
- Hypothesis 5a: Participants in a relationship that met through a mobile dating app will score significantly higher on a measure of shame than participants in a relationship that met through an online dating service and those who met face-to-face.
- Hypothesis 5b: Participants who met through an online dating service will score higher on a measure of shame than those who met their partner face-to-face.
- Hypothesis 6: Relationship satisfaction will be significantly correlated with relationship initiation outness, relational social support, and shame.
- Hypothesis 7: Shame, relationship initiation outness, and relational social support will mediate the relationship between how someone met their partner and relationship satisfaction.

These hypotheses were intended to examine if differences exist between how a relationship initiates and the amount of trust, social support, shame, and relationship satisfaction individuals report. Differences were anticipated because more stigma exists towards online and mobile app dating than face-to-face dating (Barkho, 2014; Cali et al., 2013; Doan, 2010) and previous research found a relationship between higher levels of stigma and lower levels of perceived social support (Galvan et al., 2008; Mickelson, 2001; Slade et al., 2007), lower levels of disclosure or outness about that aspect of their identity (Kurdek, 2005; Schrimshaw et al., 2018; Whitehead et al., 2016), and higher levels of shame (Hegland, 2014).

Definitions

Previous research has often included meeting someone though an online dating site or through a mobile phone app when studying "online dating." Timmermans and De Caluwé (2017a), however, identified three key differences between online dating sites and mobile dating apps: 1) online dating sites typically rely on an algorithm to match people, but mobile dating apps generally rely on geographic location, 2) online dating services are most often accessed at home, but mobile dating apps are used in a larger variety of locations, and 3) middle aged adults are more likely to use online dating, but young adults lean towards using mobile app dating sites. Given these differences, it is appropriate to view these as distinctly separate platforms for meeting people and consider the possibility that stigma towards and, subsequently, the amount of shame felt by daters, may be different dependent upon which platform an individual used to meet their partner.

The definitions Finkel et al. (2012) developed for their review of online dating research were used as the definitions for this study due to their specificity and distinction between individuals who initiated their relationship after meeting in person, online, or through a mobile app. Thus, *face-to-face dating* was defined as the "ways that people meet romantic partners in their everyday lives through non-Internet activities" (Finkel et al., 2012, p. 5). These activities include meeting someone at school, at work, through a mutual friend, through an organized activity, at a bar or club, through a religious organization, or through another face-to-face encounter (Cacioppo et al., 2013; Finkel et al., 2012).

Online dating was defined as ways people meet romantic partners by creating an account on a "Web site that primarily focus[es] on offering the user opportunities to form a new romantic relationship" (Finkel et al., 2012, p. 5). Online dating sites include websites that use an

algorithms to match individuals based on personality or interests like eHarmony or Match.com, sites that rely on interest in a specific niche like Christian Mingle or FarmersOnly.com, and sites that use algorithms not based on self-report like GenePartner and ScientificMatch (Finkel et al., 2012). Websites that enable people to meet, but do not involve creating an account with the intention of searching for a romantic relationship were not included in the definition of online dating. Examples of ways people could meet online that would not be considered online dating include meeting via e-mail, by posting on a listserv, using a social networking site like Facebook, through a virtual reality game, or by posting on a blog or website like Tumblr.

Mobile app dating refers to ways people meet romantic partners through the use of an application on their smartphone. Most mobile dating apps do not offer the ability for users to use their services from a computer. Examples of mobile app dating include using sites like Coffee Meets Bagel, Grindr, Bumble, and Tinder.

Operational Definitions

Relational trust is the amount of trust one has in their romantic partner (Couch & Jones, 1997). The Dyadic Trust Scale (DTS; Larzelere & Huston, 1980) was chosen to measure relational trust because it is brief, has excellent internal consistency, and was validated for use with a variety of heterosexual and same-sex relationships.

Relational social support is a type of social support specific to relationships where other people in a person's life encourage and approve of a couple being together (Bryant & Conger, 1999; Widmer, 2014). Relational social support was measured with the Network Support Index (Sprecher & Felmlee, 1992). The Network Support Index is one of the few social support measures designed specifically to look at relational social support (Sprecher & Felmlee, 1992).

The Network Support Index assesses the supportive or discouraging social reactions from someone's family and friends and has good internal consistency (Sprecher & Felmlee, 1992).

Relationship initiation outness is the degree to which someone's social network is aware of how the individual met their partner and how openly this is discussed. To measure relationship initiation outness, the Outness Inventory (OI; Mohr & Fassinger, 2000) was modified to assess how open people are about how they met their romantic partner instead of how open they are about their sexual orientation. The Outness Inventory is a public access measure with excellent internal consistency (Mohr & Fassinger, 2000). The scale measures overall outness, outness specific to certain individuals (like a parent), or outness towards a specific domain (like family).

Shame is the painful feeling someone has when they believe they are not good enough or something unchangeable about them is inadequate (Brown, 2007; Brown, 2012; Dickerson et al., 2004). A modified version of The Other As Shamer Scale (OAS; Goss, Gilbert, & Allan, 1994) measured the presence of shame. The OAS is one of the few shame measures that specifically examines beliefs related to others, which could vary for individuals in relationships depending on the stigma associated with how they met their partner.

Relationship satisfaction is the "degree to which an individual is content and satisfied with his or her relationship" (Anderson & Emmers-Sommer, 2006, p. 155). The Relationship Assessment Scale (RAS; Hendrick, 1988) measured relationship satisfaction because it is a general measure that can be used with individuals who are dating or married and uses gender neutral, unassuming language (e.g., "How well does your partner meet your needs?"; Hendrick, 1988).

Purpose

The purpose of the current study was to examine if how an individual met their romantic partner (in person, online, or through a mobile app) related to differences in relational trust, perceived social support for the relationship, relationship initiation outness, shame, and relationship satisfaction. The results of the study add to the existing body of knowledge regarding online and mobile app dating and provide a fuller picture of relationship differences that exist associated with the way in which someone met their partner.

Summary

Existing research has not adequately explored the potential effects online and mobile dating app stigma may have on someone's relationship. This dissertation study provides valuable information to the field of psychology regarding online and mobile app dating. The results have implications for practicing psychologists who encounter a client who may have met their partner through an online or mobile dating service. The following sections provide additional information regarding the research that already exists related to online and mobile app dating, stigma, social support, relationship initiation outness, relationship satisfaction, relational trust, and shame. The study methodology and procedures will also be explained in further detail.

Chapter II. Literature Review

Initiating A Relationship

Connecting with others and building relationships is an important part of the human experience and is associated with a number of benefits. Research comparing individuals in committed relationships to those who are not in a relationship found even when relationship happiness is controlled for, those in a relationship report higher levels of subjective well-being (Kamp Dush & Amato, 2005). Developing close relationships with others can increase positive emotions and social interactions, which have a positive effect on mental health (Braithwaite et al., 2010; Hawkley & Cacioppo, 2010; Layous et al., 2014). A study examining the romantic relationships of college students found those who identify as being in a committed romantic relationship have greater well-being than college students who are not in a romantic relationship (Braithwaite et al., 2010). They are also less likely to be overweight and engage in risky behaviors like binge drinking, drinking and driving, and having sex with multiple partners (Braithwaite et al., 2010).

Being in a relationship may serve as an important protective factor for individuals. Satisfying relationships are linked with happiness and emotional well-being, but loneliness and unsatisfying relationships are correlated with increased risks of depression, lost productivity, and illness (Finkel et al., 2012). Several different types of psychopathology are comorbid with loneliness including depression, anxiety, suicide, and personality disorders (Hawkley & Cacioppo, 2010; Layous et al., 2014). Relationships can also have effects on people's physical health. A meta-analysis of actual and perceived social isolation found loneliness, social isolation, and living alone are all linked with an increased risk for early mortality (Holt-Lunstad et al., 2015). Loneliness has also been linked to increased cardiovascular health risks (Hawkley &

Cacioppo, 2010), impaired sleep (Hawkley & Cacioppo, 2010), and accelerated cognitive decline in older adults (Donovan, Qu, Rentz, Sperling, Marshall, & Glymour, 2017).

Relationships are particularly important in young adulthood. Erik Erikson's stages of psychosocial development lists intimacy versus isolation as the conflict young adults face at this stage of their life (Erikson, 1997). The search for a partner increases in importance during this time (Donn & Sherman, 2002; Sumter et al., 2016). Although numerous studies have examined when relationships emerge and the benefits associated with being in one, there is limited research examining how the ways in which one meets their partner affects the individual. Meeting a romantic partner through an online or mobile app dating platform is becoming increasingly popular (Rosenfeld & Thomas, 2012), but there are aspects of these services that make them a distinct experience from meeting someone in person (Finkel et al., 2012).

Face-to-Face Dating

Finkel et al. (2012) defined "conventional offline dating" as the "myriad [of] ways that people meet potential romantic partners in their everyday lives though non-Internet activities" such as through friends, at work, or by chance (p. 5). The term "face-to-face dating" will be used throughout this manuscript because "traditional" or "conventional" may carry a certain connation to them that could be found offensive. Cacioppo et al. (2013) surveyed over 19,000 people in the United States who married between 2005 and 2012 and compared the characteristics of individuals who met online to those who met their partner face-to-face. They found 65.05% of the sample met their partner through a non-Internet based activity (Cacioppo et al., 2013). Individuals who met offline were most likely to meet through work (21.66%), a friend (19.06%), school (10.97%), a social gathering (9.99%), or a bar or club (8.83%; Cacioppo et al., 2013). Other offline meeting sites included through family (6.77%), a place of worship (4.09%), as a

result of growing up together (7.57%), or on a blind date (2.66%; Cacioppo et al., 2013). Cacioppo et al. (2013) noted a difference in marital satisfaction in the venues for how someone met their spouse with those who grew up with their spouse or who met them through school, a social gathering, or through a place of worship reporting significantly higher levels of marital satisfaction than those who met their spouse through a bar/club, blind date, family, or work. These differences in satisfaction remained even after the authors controlled for age, sex, ethnicity, education, employment status, income, religion, and the number of years the couple was married (Cacioppo et al., 2013). Cacioppo et al.'s (2013) findings provide precedence that differences may exist in relationships related to how a couple meets.

Online Dating

Definition and prevalence. Previous research on online dating has varied in how "online dating" was defined, with some researchers including the use of mobile dating apps within their definition. The phenomenon has also increased in prevalence with time, which helps explain why researchers have cited different numbers for how many people are engaging in this activity. For the purposes of this study, online dating is when an individual creates an account on a website specifically designed to aid users in forming a romantic relationship (Finkel et al., 2012). This includes the use of sites themed around a specific interest or niche like religion (like JDate), sites that match people using self-report data (like Chemistry.com), and sites that rely on DNA (like GenePartner). Among spouses who met through an online dating site, the majority met through either eHarmony (25.04%), Match.com (24.34%), or a smaller dating site (24.74%; Cacioppo et al., 2013). Although people may meet online in a variety of ways including through e-mail, chatrooms, forums, and Internet based games, for the purposes of this study only websites whose sole purpose is to aid people in meeting to form a romantic relationship are considered a form of

online dating (Parks & Roberts, 1998). Research has noted older individuals are more likely to meet through e-mail and some of these alternative ways, but younger individuals tend to meet through social networks, virtual reality worlds, and online dating platforms (Cacioppo et al., 2013).

A Pew Research Center study found 11% of Internet users have tried an online dating site (Smith & Duggan, 2013). Over one third (38%) of Internet users in the United States who identify as single have gone to a dating website online to look for a romantic partner (Smith & Duggan, 2013). This number is similar to the percentage of married couples Cacioppo and colleagues (2013) found met online (34.95%) in their sample of over 19,000 people who married within a seven-year time period. Smith and Duggan (2013) reported that of those who tried online dating, 23% met a spouse or long-term partner though the site. Online dating has become the third most likely way for people to meet a new potential partner (Hamilton, 2016; Rosenfeld & Thomas, 2012). Hamilton (2016) estimated one out of every five relationships starts online and 42% of adults from the United States report knowing someone who has used an online dating site (Smith & Duggan, 2013). Rosen and colleague's (2008) research examining online dating found many of their participants (43%) were using the services to look for a long-term relationship or a relationship that would lead to marriage compared to only 5% who were looking for a sexual relationship lasting one night.

Characteristics of online daters. There are some significant differences in the characteristics of individuals who use online dating compared to those who meet partners offline. Significantly more men use dating sites than women (Cacioppo et al., 2013; Valkenburg & Peter, 2007). Online dating also tends to be more popular among Americans in their mid-20's to 40's compared to other age groups (Cacioppo et al., 2013; Smith & Duggan, 2013). This may be

changing, however, as online dating nearly tripled in prevalence among 18- to 24-year-old's in only two years, increasing from 10% in 2013 to 27% in 2015 (Smith & Anderson, 2016). Among individuals who met their spouse online compared to those who met their spouse offline, online users were more likely to be Hispanic, from a higher socioeconomic status, and working (Cacioppo et al., 2013). Individuals who have graduated college (58%) are more likely to know someone who uses online dating services compared to those who obtained some college (46%) and those who have their high school diploma or less (25%; Smith, 2016). This may be an indication that individuals who use online dating sites also tend to have higher levels of education.

Advantages of online dating. Finkel et al. (2012) examined how online dating differs from offline dating and ultimately concluded the two are "fundamentally different" (p. 21). Online daters are exposed to potential partners users would not have met otherwise (Finkel et al., 2012; Valkenburg & Peter, 2007). Instead of meeting someone face-to-face, people dating online formulate an impression of a potential partner based on a profile typically consisting of a few photos and a description the person created (Finkel et al., 2012). Users have access to these profiles 24/7, enabling them to spend more time looking for a partner than someone searching offline given the difficulty in going out seven days a week to meet people (Valkenburg & Peter, 2007). Online daters also have the added advantage of already knowing the people they are viewing are open to starting a new relationship, but offline daters typically need to determine the relationship status of the people they meet. Individuals who use dating websites generally pay for the service and are serious about starting a relationship (Gatter & Hodkinson, 2016).

Also distinct from meeting people offline, online daters typically talk using computer-mediated communication (CMC) to get a better sense of their compatibility before meeting in

person (Finkel et al., 2012). This form of communication feels less threatening than talking face-to-face for some people (Finkel et al., 2012; Wiederhold, 2015). Users self-disclose more when communicating through a computer because they feel it provides them with a sense of anonymity (Valkenburg & Peter, 2007). Increased self-disclosure tends to create more intimacy within a relationship (Ellison et al., 2006), which is a characteristic that predicts relationship satisfaction (Anderson & Emmers-Sommer, 2006). Online daters also do not need anyone to introduce them to a potential partner like many offline daters do (Valkenburg & Peter, 2007). This results in individuals making more independent decisions about their partners rather than relying on what friends and family have to say about them (Valkenburg & Peter, 2007).

Some online dating sites have the ability to "match" individuals using an algorithm, which provides users with the increased likelihood that the people they are meeting have several interests or characteristics that are important to them (like religion, income, life goals, etc.) in common (Finkel et al., 2012). Users are then able to find people who are similar to them, which is important for the success of a relationship (Anderson & Emmers-Sommer, 2006; Sprecher, 2012). These formulas can also reduce the number of incompatible matches made (Finkel et al., 2012; Wiederhold, 2015). People using online dating services can even establish their own parameters for people they are not interested in dating (people outside of a certain age range, people who already have kids, etc.). If someone went to a bar to meet a potential partner, they may be able to discern certain visible characteristics they prefer (like hair color or a desired height), but they would not be able to know other aspects that may be important (like number of children or religion) based on looks. Online dating services ultimately make finding a potential partner easier and enable users to spend less time searching than they would if they were interacting with people face-to-face (Valkenburg & Peter, 2007).

Disadvantages of online dating. Despite the advantages specific to online dating, there are also downsides. People tend to be pickier when they believe they have more options, online dating profiles may contain false information, and there are more concerns related to safety when meeting someone originally encountered on the Internet (Finkel et al., 2012; Wiederhold, 2015). Online dating has been critiqued for potentially increasing the objectification of partners because of the focus placed on photos and physical characteristics (Finkel et al., 2012; Wiederhold, 2015). Although objectification of partners is anticipated, no studies were found that specifically examine whether this behavior is occurring. The large pool of possible partners online dating presents results in people being less likely to commit (Finkel et al., 2012; Wiederhold, 2015). A couple of studies have noted having a larger number of options forces people to rely on heuristics more for processing the increased amount of information (Wu & Chiou, 2009; Yang & Chiou, 2009). This is correlated with making poorly informed choices and sometimes experiencing regret (Wu & Chiou, 2009; Yang & Chiou, 2009). People also cannot tell how popular someone is online (how many other people are pursuing them), which is a piece of data sometimes available when meeting someone face-to-face (Finkel et al., 2012). For example, observing how many other people are approaching someone at a social gathering could influence the decision to approach that individual (Finkel et al., 2012). Users are also more likely to misinterpret the computer mediated communication that accompanies online dating whereas miscommunication is not as much of a challenge for individuals communicating face-to-face (Wiederhold, 2015). There is also no evidence dating algorithms work or are better than other ways of meeting people and these services often cost money (Bilton, 2014; Finkel et al., 2012; Houran et al., 2004).

Mobile App Dating

Definition and prevalence. Mobile dating apps are smartphone apps that utilize global positioning to help users locate someone new to meet within their geographical vicinity (Finkel et al., 2012). Examples of mobile dating apps include Coffee Meets Bagel, Grindr, Bumble, and Tinder. Timmermans and De Caluwé (2017a) distinguished mobile dating apps from online dating sites in several ways: 1) online dating sites tend to use an algorithm to match people based on personality, interests, and preferences, but mobile phone apps place more emphasis on physical appearance, geographic location, and sometimes mutual Facebook friends, 2) online dating is typically used at home, but mobile app dating is used in a wider variety of places, and 3) young adults lean towards using mobile app sites, but middle aged adults are more likely to use online dating. Using a mobile dating app also requires individuals to hold a product in their hand while making a decision, which can affect impression formation (Banks et al., 2017).

Mobile dating apps became available after online dating sites started, but quickly began picking up users despite this late start (Finkel et al., 2012). In 2013, a Pew Research Center study found 7% of cell phone users in the United States have tried a mobile app dating site (Smith & Duggan, 2013). When they surveyed people just two years later, this number increased to 9% of American adults surveyed (Smith, 2016). Research on the use of mobile dating apps in several European countries found 30.8% of people are using them (Gatter & Hodkinson, 2016). Grindr was launched in March 2009 to enable gay men to connect with other gay men in their geographical area (Gudelunas, 2012). By 2012, the site had over 750,000 users in 162 countries (Gudelunas, 2012). By 2014, Grindr expanded to 192 countries and the site remains one of the top apps in gay social media (Trebay, 2014). Tinder was founded in 2012 and only two years later reported users were viewing profiles and “swiping” left or right to indicate their interest

over one billion times a day (Bilton, 2014). On average, people log into Tinder 11 times a day (Bilton, 2014). The amount of time spent on the mobile app quickly adds up with women spending 8.5 minutes and men averaging 7.2 minutes swiping through options every time they log into Tinder (Bilton, 2014). The percentage of long-term relationships or marriages resulting from people meeting through mobile app dating services is unknown, but Tinder, OkCupid, and Bumble report regularly receiving notifications from their users that they are marrying someone they met as a result of their services (Krueger, 2018). Bumble reported they receive these notifications daily and has hired two staff members to manage this correspondence (Krueger, 2018). Tinder estimates they receive about 50 marriage announcements a week from their users (Krueger, 2018).

One of the co-founders of Tinder argued the popularity of the mobile dating app is largely due to the app's ability to mimic how people make decisions in real life (Bilton, 2014). Attractiveness plays a large role in impression formation and people form impressions in a mere fraction of a second (Bilton, 2014; Willis & Todorov, 2006). Most mobile dating apps are designed to present users with a few photos of a potential partner and enable them to quickly decide if they want to keep looking at the profile or move on to another one, but profiles on online dating sites present users with more content to evaluate. To use an online dating service, most users need to fill out a survey of their preferences. Using surveys to collect information would not be a typical interaction between individuals who meet in a coffee shop and is not replicated by most mobile dating apps (Bilton, 2014).

Characteristics of mobile app daters. Mobile app dating services is becoming increasingly popular among young adults, as 22% of 18- to 24-year-olds report using mobile dating apps (Smith, 2016; Smith & Anderson, 2016). This is quadruple as many as the

percentage who reported using them in 2013 and makes young adults "more likely than any other age group to use mobile dating apps" (Smith, 2016). Aside from noting age differences in the individuals most likely to use mobile dating apps (Smith, 2016; Smith & Anderson, 2016; Gudelunas, 2012), only a few studies have explored the characteristics of mobile dating app users and whether they differ from people who do not use these services. Tinder users reported significantly higher levels of internalization, lower levels of body and face satisfaction, and more body shame and surveillance compared to individuals who do not use the service (Strubel & Petrie, 2017). Men using Tinder had significantly lower levels of self-esteem compared to men without the app (Strubel & Petrie, 2017). Tinder users also scored significantly higher on extraversion and openness to experiences and significantly lower on conscientiousness compared to people who never used Tinder (Timmermans & De Caluwé, 2017b). Whether these findings are specific to people who use Tinder or can be generalized to all mobile dating app users is unclear. Mobile dating app users also scored significantly higher on sociability, impulsiveness, and desire for sexual activity than people who have never used a mobile dating app (Carpenter & McEwan, 2016).

Motivation for using mobile dating apps. Much of the past research on mobile dating apps has focused on the motivation behind why people use these services to examine the perception that users are more interested in engaging in sexual activity than forming a long-term relationship (Gatter & Hodkinson, 2016; Sumter et al., 2016; Timmermans & DeCaluwé, 2017a; Ward, 2017). Although some people are using mobile dating apps to find a casual sex partner, the desire to form a relationship was a major theme found for why people are using Tinder (Sumter et al., 2016; Timmermans & De Caluwé), 2017a). Those who use Tinder with the intention of seeking a relationship are indeed more likely to have a relationship come from using

the service (Timmermans & De Caluwé, 2017a). Of those who are looking for a casual sex partner instead of a relationship, significantly more users are male than female (Gatter & Hodkinson, 2016; Sumter et al., 2016). Age also affects interest in sexual activity as younger individuals are more likely to use apps and online dating for sex and older individuals are more likely to use these services to find a romantic partner (Gudelunas, 2012). Although most of the research has focused on Tinder, there is reason to believe people are using mobile dating apps to establish relationships similarly to how people use online dating services for the same purpose.

Advantages and disadvantages of mobile app dating. Some of the advantages unique to using mobile dating apps include that they are typically easy to use, accessible wherever people can go with their phones, and many of the apps are free or less expensive than online dating sites (Gatter & Hodkinson, 2016). They also enable users to identify others who are within the same geographical location as them. Mobile dating apps tend to be more photo focused than online dating sites, making them less time consuming to set up and scroll through as they do not involve filling out surveys or reading lengthy profiles (Gatter & Hodkinson, 2016). Mobile dating apps are also more inclusive of or specifically designed for individuals who identify as a sexual minority, whereas many online dating sites are targeted more towards straight men (Gudelunas, 2012). Gudelunas (2012) critiqued online dating sites for often including questions that feel like they are targeting heterosexual people more (like asking about having kids), with only one box to check who you are interested in dating to distinguish gay men from straight men. Some of the disadvantages of mobile dating apps result from the low cost of the service because some users do not take the app seriously, use the app to boost their self-esteem, or use it because they feel social pressure to do so (Timmermans & De Caluwé, 2017a). The emphasis mobile dating apps place on matching people based predominantly on appearance

also makes some users worry they will be perceived as "shallow" for using these services (Barkho, 2014). The geographical matching capabilities can result in some people inadvertently disclosing aspects of their life to other people who may know some of the same people or frequent some of the same places. Blackwell and colleagues (2015) looked at the use of the mobile app Grindr which enables gay men to interact without initially exchanging names. They found some users were being identified by others in their social circle from cues in their profile (Blackwell et al., 2015).

Comparisons Between Face-to-Face, Online, and Mobile App Dating

Face-to-face dating, online dating, and mobile app dating are three viable ways to meet a long-term romantic partner. All three vary in how information is collected (by observing and talking to someone face-to-face, by reading through a profile and looking at pictures chosen by the user, or by seeing a couple photos and a few basic pieces of information like age and occupation), in what format communication initially takes place (face-to-face, via a message sent on the computer, or through a text message typically sent through an app), and where interactions occur. They also range in cost, vary in strategies used to help meet a potential partner with some relying on algorithms to assist in meeting people, and force individuals to present themselves somewhat differently to make a good impression. For example, when meeting someone face-to-face, an individual's voice, mannerisms, and presence can affect someone's impression of them, but if people are meeting through an online dating service they tend to focus more on using key phrases or descriptors that will result in receiving more messages (Ward, 2017). Mobile dating app users, on the other hand, concentrate on choosing pictures that make them look better yet are still authentic to who they are (Ward, 2017). Face-to-

face dating, online dating, and mobile app dating are distinct ways of initiating a relationship, so examining whether any differences exist between them is appropriate.

Differences in sociability and self-esteem. Only one study was found that made direct comparisons among individuals who used online dating services, those who used Tinder (a mobile dating app), and those who do not use either service (Gatter & Hodkinson, 2016). Individuals use the different forums for similar reasons, but Tinder users tend to be younger than those using online dating sites (Gatter & Hodkinson, 2016). No significant differences in self-esteem, sociability, or sexual permissiveness (once age was controlled for) were found between the three groups (Gatter & Hodkinson, 2016). Additional research examining online dating services and face-to-face daters also found no significant differences in sociability between the two groups (Kim et al., 2009). Kim and colleagues (2009) noted individuals who scored higher on self-esteem used online dating services significantly more than people with low self-esteem when romantic relationships were important to the person, but if they were not important, people with low self-esteem used internet dating services more often than people with high self-esteem. This effect was only seen, however, when individuals scored higher on sociability, causing the authors to conclude that those who use online dating services tend to be fairly social unlike the stereotype of online daters (Kim et al., 2009).

Relationship success. The success of a relationship is an important element to consider when examining potential variations that exist related to how a relationship initiated. Many online dating sites claim users will "achieve better romantic outcomes when seeking partners through their site than through traditional offline dating," but there is not enough evidence to sufficiently support these claims (Finkel et al., 2012, p. 26). Past research found users can tell from online profiles if someone will be a better partner than others in general, but they cannot

tell if someone will be compatible with them specifically (Finkel et al., 2012). Relationship success can also be defined in different ways including how individuals score on different variables important to relationships, marital satisfaction, and the ultimate outcome (continued commitment or dissolvement) of the relationship.

Past research identified similarity, intimacy, passion, and commitment as characteristics important for a successful relationship (Carter & Buckwalter, 2009; Haack & Falcke, 2014). Online dating sites advertise their ability to match people who have more in common because of the sites' usage of algorithms (Anderson & Emmers-Sommer, 2006; Sprecher, 2012). Carter and Buckwalter (2009) surveyed over 4,000 married people (about half met their partner through eHarmony.com and half did not use online dating services) and found those who met through an online dating site were more similar in personality traits than those who met face-to-face (Carter & Buckwalter, 2009). Another study examining online and offline daters found those in romantic relationships with people they met online had significantly lower scores for intimacy and decision/commitment compared to those who met their partner in person (Haack & Falcke, 2014). No significant differences were found for passion (Haack & Falcke, 2014). These findings may not be characteristic of most online dating relationships, however, because most of the participants (71.8%) in the online dating group viewed themselves as single (Haack & Falcke, 2014). Comparing relationships between people who viewed themselves as in a relationship with those who view themselves as single introduces a confounding variable.

Research examining how marital satisfaction varies between online daters and face-to-face daters produced mixed results (Cacioppo et al., 2013; Carter & Buckwalter, 2009; Haack & Falcke, 2014). Two studies found married couples who met through online dating reported significantly higher levels of marital satisfaction than married couples who met face-to-face

(Cacioppo et al., 2013; Carter & Buckwalter, 2009). In contrast with this finding, Haack and Falcke (2014) found online daters reported significantly lower marital quality compared to offline daters, but their sample consisted of unmarried individuals (Haack & Falcke, 2014). The differences in the level of commitment to the relationship between the three samples may explain why two studies consisting of married individuals found online daters had higher scores of marital satisfaction (Cacioppo et al., 2013; Carter & Buckwalter, 2009) and a third study consisting of unmarried individuals found face-to-face daters had higher scores (Haack & Falcke, 2014).

Another way to explore differences in how successful a relationship is between online and face-to-face daters is to examine if one group is more likely to commit to a long-term relationship or marriage than the other group. One study found online daters were less likely to get married compared to people who met offline even after controlling for age and length of relationship (Paul, 2014). This may be occurring because online dating provides people with more options to choose, so online daters may be less likely to make a commitment (Paul, 2014). Individuals meeting partners online can also struggle with trusting their partner because of the concerns about people presenting themselves deceitfully (Paul, 2014; Rosen et al., 2008). An alternative explanation is that online relationships develop faster than face-to-face ones because the anonymity online makes sharing personal information and showing someone's true self easier (Rosen et al., 2008). Sharing more personal information also means the relationship may progress faster than a face-to-face relationship (Rosen et al., 2008).

Research on the divorce rates between couples who met online and those who met face-to-face also produced mixed findings (Cacioppo et al., 2013; Paul, 2014). One study found couples who met online and married were more likely to end the relationship (8%) than couples

who met offline (2%; Paul, 2014). The length and quality of the relationship helped to explain this finding as longer lasting relationships and higher levels of marital quality both significantly related to married couples staying together (Paul, 2014). Another study examined relationship dissolution rates in a sample of 19,000 people who married someone they either met face-to-face or met online (Cacioppo et al., 2013). Marriages resulting from a couple meeting online were significantly less likely to end than marriages between couples who met offline even after controlling for how long couples were married and the demographics of the individuals (Cacioppo et al., 2013).

Although some differences in relationship success were found between online dating and face-to-face dating (Cacioppo et al., 2013; Carter & Buckwalter, 2009; Haack & Falcke, 2014; Paul, 2014), no research was found for mobile dating app users related to marital or relationship satisfaction, commitment, or dissolvement of the relationship. More research is needed to examine possible differences between relationship success and how a relationship was initiated (face-to-face, online, or mobile app dating) given some of the mixed findings related to marital quality (Cacioppo et al., 2013; Carter & Buckwalter, 2009; Haack & Falcke, 2014) and dissolvement rates (Cacioppo et al., 2013; Paul, 2014).

Summary. Face-to-face, online, and mobile app dating are distinctly different ways to meet people. Each method of meeting a romantic partner is accompanied by its own set of advantages and disadvantages. Face-to-face, online, and mobile app daters do not significantly vary in self-esteem, sociability, or sexual permissiveness (Gatter & Hodkinson, 2016), but there may be some differences between how individuals met their partner and the success of the relationship. More research on potential differences that exist between how a relationship is initiated and relationship success are needed. Some individuals may perceive a stigma exists

against online or mobile app dating and their perceived stigma could influence different aspects of their relationship.

Stigma

Stigma is the convergence of when a difference is labeled, negative attributes or stereotypes become associated with that label, a separation is made between the groups, and the distinction results in a negative consequence such as discrimination or status loss for the labeled person (Link & Phelan, 2001). Negative stereotypes associated with people who use online and mobile dating services may make users of these services worry they will be devalued, rejected, or viewed differently with regards to their social status (Link & Phelan, 2001). Although reactions to people using online and mobile app dating services are not as extreme as the mayor forcing users into an insane asylum like Helen Morrison experienced after placing her personal ad in 1727 (Lee, 2016; Reimann, 2016), people have had some negative reactions towards the premise of online and mobile app dating (Anderson, 2005; Barkho, 2014; Donn & Sherman, 2002; Finkel et al., 2012; LeFebvre, 2018).

Online dating stigma. A lot of negative stereotypes are associated with online dating. Some people view online relationships as "desperate people embarking on their last attempt at a romantic interlude" (Anderson, 2005, p. 521), however others view online dating as "being associated with deviant (and sometimes illegal) behaviors and practices such as pornography and cybersex" (Anderson, 2005, p. 521). Online daters have been stereotyped as nerdy, shy, sex-crazed, and socially awkward or inept (Anderson, 2005; Finkel et al., 2012). Others believe only people who are bored or lonely would utilize online dating services (Wildermuth, 2004). The media and TV shows like *Catfish* (a show featuring individuals who have presented themselves

as someone else online), have portrayed online relationships as fitting certain roles: the geek, the freak, the predator, and the vulnerable (Wildermuth, 2004).

Research examining the prevalence of assumed characteristics associated with online daters have proven them false. For example, one study examined over 18,000 online daters to see how many were "lonely" or "Internet addicts" and found only 5.7% of their sample fit these descriptions (Wildermuth, 2004, p. 74). Another study looked at over 360 Dutch Internet users between the ages of 18 and 60 and found online dating was most active for people low in dating anxiety or shyness (Valkenburg & Peter, 2007). This is contrary to the belief that only those who are anxious, socially awkward, or introverted will use online dating. Kim and colleagues (2009) found people who are sociable, value romantic relationships, and have high self-esteem are more likely to use Internet dating services (Kim et al., 2009). Research does not seem to support the notion those using forms of online dating struggle with social interactions (Gatter & Hodkinson, 2016; Kim et al., 2009), are desperate or lonely (Wildermuth, 2004), or have low self-esteem (Gatter & Hodkinson, 2016; Kim et al., 2009).

Despite this lack of evidence, negative perceptions of online daters continue to persist. A poll by the Pew Research Center in 2015 found 23% of adults in the United States still believe people who use online dating sites are "desperate" (Smith & Anderson, 2016). Online daters are viewed as significantly less attractive than people who meet their partners face-to-face (Doan, 2010). Negative perceptions towards people who use online dating services are held even among people who use the services themselves (Doan, 2010; Smith & Duggan, 2013). One study found 13% of people using online dating believe other "people who use online dating sites are desperate" and 29% endorse the idea that online dating "keeps people from settling down" (Smith & Duggan, 2013, p. 4). The finding that negative perceptions towards online dating exist

even among people who use the services themselves is consistent with research on attribution theory which found people view their own online behavior more positively than they view friends and acquaintances engaging in the same online behavior (DeAndrea & Walther, 2011).

People who use online dating services themselves view online dating more positively and endorse less stigma than those who have not used the services (Anderson, 2005; Cali et al., 2013; Doan, 2010). Even people who have more exposure to online dating services report a more positive perception of the services (Donn & Sherman, 2002). These findings may be explained by cognitive dissonance theory, which proposes that people feel uncomfortable when their attitudes or beliefs do not match their behaviors, so people change their behaviors or their beliefs to reduce any feelings of discomfort (Festinger, 1962). People who are using online dating services or even simply viewing them may report a more positive view of online dating to maintain consistency between their actions and beliefs (Festinger, 1962). Online daters may also view other online daters more positively because of a self-serving bias, or a need to see themselves in a positive manner (Miller & Ross, 1975).

Mobile dating app stigma. Mobile dating app users are sometimes viewed as narcissistic, crazy, unstable, and/or creepy (LeFebvre, 2018). There is little written about these stereotypes aside from memorable stories of bad dates that reinforce these labels. Ward (2017) conducted 21 qualitative interviews with Tinder users in the Netherlands and found some individuals are using the app to boost their ego. No other research was found that supports or defies these negative perceptions. Mobile dating apps are also frequently viewed as "hookup" or "sex" apps (LeFebvre, 2018). This results in their users being perceived negatively with regards to their assumed sexual behavior such as being viewed as horny, promiscuous, sexually deviant, or slutty (Arthur, 2017; LeFebvre, 2018). Part of this perception may stem from the emphasis

mobile dating apps place on choosing a potential partner after viewing a few photos of them and only reading a couple sentences on a profile.

Although mobile dating apps are sometimes associated with casual sex, researchers exploring the motivations behind using mobile dating apps found there are many users searching for a long-term relationship on these services (LeFebvre, 2018; Sumter et al., 2016; Timmermans & De Caluwé, 2017a; Ward, 2017). LeFebvre (2018) found of the nearly 400 people she surveyed, 51.5% believed Tinder was invented as a hookup app, yet only 5.1% of people were using the app for this purpose (LeFebvre, 2018). Tinder users were more motivated to use the mobile app to find a romantic relationship than for casual sex (Sumter et al., 2016; Timmermans & De Caluwé, 2017a). Age did play a role in moderating participants' reported use of the app with younger users using Tinder more for casual sex and older users logging onto the service to look for love (Sumter et al., 2016). Interestingly, the stereotype that people are using mobile dating apps to hookup may be attracting users interested in hookups, which then frustrates people looking for a long-term relationship. Research examining why people chose to delete Tinder from their phones supported this idea as users reported they deleted the app because they were looking for a long-term relationship and were tired of talking to people interested in something more casual (LeFebvre, 2018). Despite how many people are using mobile dating apps to assist them in finding a romantic partner, the inaccurate perception that the apps are only for those interested in casual sex could be affecting those who use them.

Interviews with Tinder users found people were embarrassed to admit they met someone through Tinder because they did not want to be associated with a hookup app or be viewed as shallow or superficial despite successfully entering a relationship because they used the service (Barkho, 2014). People may feel less stigmatized if they say they used the app to "check it out,"

"because my friends were doing it," or "I was curious." Although anecdotal evidence and research suggests the negative stereotypes of mobile app daters are not true, this area remains largely unexplored. No studies found specifically examined the existence of stigma towards mobile app daters. One study found some young adults feel social pressure to download and use the app, so stigma may be decreasing as using dating apps becomes a more common behavior (Timmermans & De Caluwé, 2017a). LeFebvre (2018) also noted one of the biggest motivations behind people using Tinder is because they perceive the app as popular among other people, with 48.3% of the sample endorsing this as a reason for why they use the service. A recent article in *The New York Times* highlighted how some couples are inviting the dating service they met through (i.e., Tinder, Bumble, etc.) to their wedding similar to how one would invite the friend who introduced them (Krueger, 2018). Although stigma towards mobile app dating may be decreasing, research is still needed to explore how stigma could be affecting those who use these services and the relationships they are trying to develop given the current existence of some of the stereotypes associated with mobile dating apps.

Summary. Link and Phelan (2001) viewed associating undesirable characteristics with a particular group as a form of stigma. Some negative attributes associated with online dating include the perception that online daters are socially awkward, nerdy, desperate, and sexually deviant (Anderson, 2005; Finkel et al., 2012; Smith & Anderson, 2016). Mobile app daters are viewed as narcissistic, crazy, and only interested in hooking up (LeFebvre, 2018). Although research on these stereotypes is limited, most of the research that does exist suggests these perceptions are inaccurate (Gatter & Hodkinson, 2016; Kim et al., 2009; LeFebvre, 2018; Sumter et al., 2016; Timmermans & De Caluwé, 2017a; Valkenburg & Peter, 2007; Ward, 2017; Wildermuth, 2004). People who perceive more stigma exists towards online or mobile app dating

may worry more about what others would think about their relationship if other people knew how they met their partner. This could affect how likely people are to talk about their relationship (Kurdek, 2005; Schrimshaw et al., 2018; Whitehead et al., 2016), the amount of social support they feel (Galvan et al., 2008; Mickelson, 2001; Slade et al., 2007), and how much shame they experience if they believe others see them as flawed or inferior (Brown, 2007; Brown, 2012; Dickerson et al., 2004).

Social Support

Social support is a "type of social network composed of people in whom an individual is most likely to confide or place trust" (Bryant & Conger, 1999, p. 437-438). Social support can come from a romantic partner, family, friends, coworkers, and other individuals in someone's life. These individuals can influence someone's thoughts, perceptions, and behaviors (Bryant & Conger, 1999). Higher levels of social support are associated with better physical health (Davis, Morris, & Kraus, 1998; Hale, Hannum, & Espelage, 2005; Stone, Mezacappa, Donatone, & Gonder, 1999), improved emotional well-being (Davis et al., 1998; Fong, Scarapicchia, McDonough, Wrosch, & Sabiston, 2016; Siedlecki, Salthouse, Oishi, & Jeswani, 2014), higher life satisfaction (Adams, Rabin, Da Silva, Katz, Fogel, & Lipton, 2016; Haber, Cohen, Lucas, & Baltes, 2007; Young, 2006), and can protect people from the negative effects of stress (Cohen & McKay, 1984; Davis et al., 1998).

Social support and relationships. When people begin a romantic relationship, they also form relationships with their partner's family and friends (Bryant & Conger, 1999; Sinclair & Wright, 2009). A type of social support specific to relationships and distinct from the amount of support people feel generally either develops or its absence is noticed as family and friends either promote relationship quality or relationship problems (Bryant & Conger, 1999; Widmer, 2014).

Relational social support consists of relationship validating comments and actions like positive comments made about the couple being a good fit together, encouragement given to the couple to work through problems, and inviting both partners to social gatherings (Bryant & Conger, 1999).

One of the first studies on relational social support examined parent disapproval in romantic relationships (Driscoll, Davis, & Lipetz, 1972). They found higher amounts of parental interference in a romantic relationship increased commitment and love in the relationship, an effect they called the Romeo and Juliet effect (Driscoll et al., 1972). In 2014, Sinclair, Hood, and Wright replicated this study with the original measures and with modern measures and found no evidence for this effect. Instead, they found disapproval for romantic relationships was associated with less relationship quality (Sinclair et al., 2014). The finding that people who perceive greater support for their relationship from their family and friends report higher relationship quality is sometimes called the "social network effect" and was found by most other researchers (Bryant & Conger, 1999; Connolly & Johnson, 1996; Felmlee, 2001; Sinclair et al., 2014; Sprecher & Felmlee, 1992; Taylor, Brown, Chatters, & Lincoln, 2012; Widmer, 2014). A meta-analysis found a moderate effect (0.49) for a correlation between social network approval of a relationship and love (Sinclair et al., 2014).

Relationship specific social support influences the formation, development, and longevity of the relationship (Connolly & Johnson, 1996; Sinclair & Wright, 2009). Couples who perceive their social network as supportive of their relationship report higher relationship satisfaction (Blair & Homberg, 2008; Bryant & Conger, 1999; Sprecher & Felmlee, 1992; Taylor et al., 2012), relationship well-being (Blair & Holmberg, 2008), commitment (Sinclair, Felmlee, Sprecher, & Wright, 2015; Sinclair & Wright, 2009; Sprecher & Felmlee, 1992), feelings for love (Bryan & Conger, 1999; Sinclair et al., 2015; Sinclair et al., 2014), attachment (Sprecher &

Felmlee, 1992), stability (Bryant & Conger, 1999; Sinclair & Wright, 2009), and positivity about their partner (Sinclair et al., 2015). These findings remain even after controlling for sexual orientation (Blair & Holmberg, 2008), general social support (Blair & Holmberg, 2008; Bryant & Conger, 1999), and the degree to which one person likes their partner's friends (Bryant & Conger, 1999). Perceived support from one's own social network has a greater effect on relationships than perceived support from the partner's social network (Sprecher & Felmlee, 1992).

The importance individuals place on receiving social support for their relationship can be explained by a few theories including the principle of transitivity and uncertainty reduction theory (Sprecher & Felmlee, 1992). The principle of transitivity is the idea that if an individual likes their social network and their social network likes their partner, the individual will like their partner too, thus increasing relationship satisfaction and investment (Sprecher & Felmlee, 1992). Uncertainty reduction theory is the idea that uncertainty between a pair of individuals is reduced when people communicate more as this allows them to gain additional information about the other person (Berger & Calabrese, 1975). When individuals receive approval for their romantic partner from their social network, they feel more confident their partner is a good match because they have additional information to help them reduce their cognitive uncertainty (Sprecher & Felmlee, 1992; Bryant & Conger, 1999). The more often people communicate with their partner's social network and receive support for their relationship from their own social network, the less uncertain they feel about their romantic partner and the less likely they are to end the relationship (Parks & Adelman, 1983).

Stigma and relationship support. Social support is important for relationships (Connolly & Johnson, 1996; Sinclair & Wright, 2009; Sprecher & Felmlee, 1992), but the

existence of stigma towards online and mobile app dating services could affect the amount of social support felt. Higher levels of perceived stigma for HIV (Galvan et al., 2008), special needs (Mickelson, 2001), and infertility (Slade et al., 2007) were all associated with lower levels of perceived social support, which demonstrates a relationship between stigma and social support. Research on social support for romantic relationships facing stigma has focused predominantly on same-sex, interracial, and relationships with a large age gap between the partners (Lehmiller & Agnew, 2006). People in non-traditional relationships perceive more social disapproval for their relationship, which is associated with lower commitment (Lehmiller & Agnew, 2006; Sprecher & Felmlee, 1992), lower relationship quality (Kurdek, 2005; Sprecher & Felmlee, 1992), less relationship stability (Felmlee, 2001; Sprecher & Felmlee, 1992), and with significantly higher rates of relationship dissolution (Bratter & King, 2008; Sprecher & Felmlee, 1992) compared to those in relationships not affected by stigma. The effects social approval has on relationships were found even after researchers controlled for arguing and partner closeness (Felmlee, 2001). Only one study specifically examined how stigma affected the quality of the relationships of people who met online (Wildermuth, 2004). Individuals who received more disapproving messages about their online relationship reported significantly higher levels of stigma consciousness (Wildermuth, 2004). Stigma consciousness correlated with relationship quality, so those who reported perceiving more stigma towards their relationship were less satisfied with the overall quality of their relationship (Wildermuth, 2004).

Summary. Research examining the relationship between social support and stigma found higher levels of stigma are associated with less social support (Galvan et al., 2008; Mickelson, 2001; Slade et al., 2007). One study found individuals in online relationships who perceived higher levels of stigma reported less relationship satisfaction (Wildermuth, 2004), but no studies

were found examining if social support mediated this relationship. Given the importance of relational social support to relationship satisfaction (Bryant & Conger, 1999; Sprecher & Felmlee, 1992; Taylor et al., 2012), commitment (Bryant & Conger, 1999; Sinclair & Wright, 2009; Sprecher & Felmlee, 1992), and relationship longevity (Connolly & Johnson, 1996; Sinclair & Wright, 2009), studying potential differences between the amount of support perceived towards one's relationship could provide some insight into concerns that may be specific to people using online and mobile dating app services.

Relationship Initiation Outness

Relationship initiation outness is when someone's social network is aware of how the individual met their partner and this is openly discussed. Most of the research on outness examines the experience of individuals who identify as gay, lesbian, or bisexual as out regarding their sexual orientation (Balsam & Szymanski, 2005; Clausell & Roisman, 2009; Knoble & Linville, 2012). Some studies found individuals who are out report higher levels of relationship satisfaction (Clausell & Roisman, 2009), but other researchers found outness does not determine relationship satisfaction (Knoble & Linville, 2012). One study found stigma (measured as internalized homophobia and discrimination) related to lower reports of relationship quality rather than outness (Balsam & Szymanski, 2005).

Stigma may affect people's willingness to tell others about how they met their partner, which could have implications for social support. Previous research found people are less likely to disclose something associated with stigma (Kurdek, 2005; Schrimshaw et al., 2018; Whitehead et al., 2016). This appears to apply to online dating as participants were significantly less likely to want people to know they were dating someone they met online compared to someone they met face-to-face (Doan, 2010). Individuals actively using an online dating profile

were 2.78 times more likely to lie about the origin of their relationship compared to those who never tried online dating (Hegland, 2014). Participants also believed their family would be disappointed in them if they dated someone they met online compared to dating someone they met face-to-face (Doan, 2010). Less is known about how willing mobile dating app users are to disclose their use of these services, but one study noted users are worried people will view them as shallow, superficial, or only interested in casual sex if they share they use mobile dating apps (Barkho, 2014). Lower levels of disclosure are associated with less social support (Kurdek, 2005; Slade et al., 2007). Thus, individuals who meet their partners through an online or mobile app dating service may be less open about their relationships and feel less social support.

Summary. Higher levels of stigma are associated with lower levels of disclosure regarding the characteristic stigma is targeting (Kurdek, 2005; Schrishaw et al., 2018). Although some research has confirmed people using online dating services are less likely to share they met someone through the service compared to sharing they met someone face-to-face (Doan, 2010; Hegland, 2014), no known research has examined if relationship initiation outness varies between online, mobile app, and face-to-face dating. Previous research examining self-disclosure of sexual orientation produced mixed findings regarding how outness affects relationship satisfaction (Clausell & Roisman, 2009; Knoble & Linville, 2012). No studies were found examining how relationship initiation outness relates to relationship satisfaction in individuals who met their partner through online or mobile dating services.

Relationship Satisfaction

Relationship satisfaction, or "the degree to which an individual is content and satisfied with his or her relationship, is a strong indicator of relationship length and success" (Anderson & Emmers-Sommer, 2006, p. 155). Research examining face-to-face relationships have identified a

number of variables that affect how successful a relationship is including similarity, intimacy, commitment, trust, attributional confidence (or how certain individuals feel about the relationship), and communication satisfaction (Anderson & Emmers-Sommer, 2006). Although mobile dating apps are often criticized for being "hookup apps," longitudinal studies found earlier sexual satisfaction is another variable that predicts later relationship satisfaction in face-to-face relationships, particularly for men (Fallis, Rehman, Woody, & Purdon, 2016). No known research has explored what variables affect relationship satisfaction in couples who met through a mobile dating app.

A few studies have explored relationship satisfaction in couples who met online (Baker, 2002; Anderson & Emmers-Sommer, 2006). People who communicated for a long period of time without too much physical intimacy, had a lot in common, worked through any barriers that arose, and negotiated conflict well were more likely to keep dating (Baker, 2002). Similar to face-to-face dating, intimacy, trust, and communication satisfaction significantly predicted online relationship satisfaction (Anderson & Emmers-Sommer, 2006). Although similarity influenced the length of the relationship (Baker, 2002), similarity did not predict relationship satisfaction for online relationships like it did for face-to-face relationships, even though online dating services often market their ability to match people who are similar (Anderson & Emmers-Sommer, 2006).

Studies that directly compared relationships between face-to-face daters and online daters produced mixed findings related to relationship dissolution and satisfaction (Cacioppo et al., 2013; Haack & Falcke, 2014; Paul, 2014). Married couples who met online were less likely to end the relationship according to Cacioppo and colleagues (2013), but online couples were more likely to end their relationship than face-to-face daters in another study (Paul, 2014). Research on married couples found those who met online reported significantly higher marital satisfaction

than married couples who met offline even after controlling for "year of marriage, sex, age, educational background, household income, ethnicity, religious affiliation, and employment status" (Cacioppo et al., 2013, p. 2-3). Research on unmarried couples found people in online relationships had significantly lower scores for intimacy, commitment, and marital quality compared to those in face-to-face relationships (Haack & Falcke, 2014). Another study found individuals who met through church or school rated their relationship quality as significantly higher than those who met through family or online (Paul, 2014). These findings indicate relationship satisfaction may vary depending on how people met, but more research is needed to determine what could explain these differences. There were also no studies found that explored relationship satisfaction in individuals who met through a mobile dating app. Additional research is needed to explore if relationship satisfaction varies between face-to-face, online, and mobile app dating and what variables could be contributing to some of these differences.

Summary. No research was found examining relationship satisfaction in individuals who met through a mobile dating service even though anecdotal stories indicate some people are getting married after meeting through these apps (Krueger, 2018). Previous research that explored relationship satisfaction between face-to-face and online daters is limited in scope and produced mixed results. Some of the variables important to relationship satisfaction like partner similarity, commitment, trust, communication satisfaction, and social support may differ related to how partners meet, which could then affect the relationship itself (Anderson & Emmers-Sommer, 2006; Blair & Homberg, 2008; Sinclair et al., 2015; Sprecher & Felmlee, 1992). Relationship satisfaction may thus vary between face-to-face, online, and mobile app daters and should be explored.

Relational Trust

Relational trust refers to how confident someone feels in their relationship and partner (Couch & Jones, 1997; Larzelere & Hutson, 1980). The concept is distinct from general or global trust, which is defined as "an individual's belief about the character of people in society as a whole" (Gabbay, Lafontaine, & Bourque, 2012, p. 259). Relational trust is important for developing (Fletcher et al., 2000; Holmes & Rempel, 1985; Larzelere & Huston, 1980; Simpson, 2007) and maintaining a relationship (Dainto & Aylor, 2001; Holmes & Rempel, 1985; Simpson, 2007). When there are higher levels of trust, people become more dependent on the relationship, are willing to invest more into it, and the relationship tends to last longer (Norris & Zweigenhaft, 1999; Wieselquist, Rusbult, Foster, & Agnew, 1999). Trust affects relationship quality and satisfaction (Couch & Jones, 1997; Fletcher et al., 2000), commitment (Wieselquist et al., 1999), emotional intimacy (Hallam, Walgrave, & De Backer, 2018), and sexual behaviors (Mullinax et al., 2016).

The ways in which trust is developed may be uniquely affected by how romantic partners meet. Relational trust is developed through increased communication (Mullinax et al., 2016), shared life experiences (Mullinax et al., 2016), and demonstrations of sacrifice for the other person (Simpson, 2007; Wieselquist et al., 1999). Online and mobile app dating services do not present as many opportunities for individuals to show their interest in the relationship above their interest in themselves (Simpson, 2007; Wieselquist et al., 1999). These services do encourage computer mediated communication, which provides a fast way of communicating that feels somewhat anonymous (Bryce & Fraser, 2014; Finkel et al., 2012; Valkenburg & Peter, 2007). When people perceive what they are sharing as anonymous, they disclose more personal

information and feel a greater sense of intimacy which intensifies the process of establishing a relationship (Bryce & Fraser, 2014).

Self-disclosure. The research on whether online and mobile app daters disclose more than face-to-face daters is mixed. Some studies found people are apt to disclose more personal and intimate information to people online (Nguyen et al., 2012; Rosen et al., 2008; Tait & Jeske, 2015; Valkenburg & Peter, 2007), but other studies found the amount of disclosure is equivalent to (Nguyen et al., 2012; Parks & Roberts, 1998; Ruppel, 2014) or less than face-to-face relationships (Ruppel, 2014). People tend to self-disclose more information to people with more attractive profile pictures on online dating sites (Tait & Jeske, 2015). People are also more likely to trust someone they perceive as attractive, but when a picture on a dating site is perceived as "overly attractive," trust is reduced (Obada-Obieh & Somayaji, 2017). Only one study found examined relational trust and online dating (Anderson & Sommer, 2006). Trust significantly predicted relationship satisfaction for individuals in an online dating relationship (Anderson & Sommer, 2006).

Self-disclosure can be explained by Social Exchange Theory and Social Penetration Theory. Social Exchange Theory is the notion that people unconsciously weigh the costs and rewards of a potential interaction before engaging in it (Homans, 1958). If people believe revealing information about themselves will enable them to obtain dates and forge relationships, they are more likely to keep engaging in this behavior. The lack of physical social cues available to online and mobile app daters to gauge how their self-disclosures were perceived encourage people to disclose more information as they are not receiving negative feedback (Hallam et al., 2018; Ruppel, 2014). If they worry that what they share will make people view them negatively or be relayed to their offline social circle, they will be less likely to self-disclose. A number of

schools across the United States implemented programs for students and their parents to increase people's awareness of using safety precautions online, which included warnings about disclosing information through the internet (Bryce & Fraser, 2014). Online and mobile app daters have to balance disclosing personal information with protecting personal information from identity theft, stalkers, and other safety related concerns (Hallam et al., 2018). If people are more concerned about online safety, they may be less likely to self-disclose through online or mobile dating services compared to face-to-face relationships.

Social Penetration Theory posits that relationships develop by engaging in increasingly more intimate exchanges (Altman & Taylor, 1973). More self-disclosure thus helps deepen the relationship (Altman & Taylor, 1973) and leads to more trust (Holmes & Rempel, 1985; Uysal et al., 2012) and more trust leads to more self-disclosure (Lazalere & Huston, 1980; Tait & Jeske, 2015). Ruppel (2014) found people may disclose more information through computer mediated services (self-disclosure breadth), but they are not discussing as many personal topics (self-disclosure depth) as face-to-face communicators cover when developing a romantic relationship. The hesitation in self-disclosing personal items may be related to the perceived costs that could accompany engaging in this behavior. When someone does not disclose, people tend to believe the individual is concealing something from them and they have less trust (Uysal et al., 2012). Loss of trust then increases self-concealment, thus creating a negative cycle that adversely affects the relationship (Uysal et al., 2012).

Deception. The anonymity accompanying computer mediated communication also provides an environment ripe for deception (Bryce & Fraser, 2014). Dating service profiles market individuals to others, which raises concerns about whether the information posted on these sites can be trusted (Jin & Martin, 2015). Research examining mobile dating conversations

found about 7% of the messages sent during the period of time between when people "matched" through the dating app and when they met in person were lies (Markowitz & Hancock, 2018). The majority (over 60%) of the lies told were related to impression management like exaggerating someone's height, fabricating hobbies to make themselves sound more interesting, and using modified or outdated photographs (Markowitz & Hancock, 2018). People also tell more lies through text messages than they do when interacting face-to-face, which could affect someone's trust if the lie was caught (Markowitz & Hancock, 2018).

Online and mobile app dating service users have to find alternative ways of evaluating someone's reputation and determining whether they should trust a potential match compared to face-to face daters (Bryce & Fraser, 2014; Obada-Obieh & Somayaji, 2017). For example, friends often rely on each other's impressions and knowledge of someone else to determine whether they should trust someone new (Obada-Obieh & Somayaji, 2017). This information is generally missing when meeting someone through an online or mobile dating service as these services do not allow other users to rate their date. Determining if information on an online or mobile dating profile can be trusted is difficult when the falsified information is not obvious like a poorly photoshopped picture (Obada-Obieh & Somayaji, 2017).

Safety concerns. Trust is particularly important to online and mobile app dating because individuals using these services need to eventually meet face-to-face which requires trusting the other person with their personal safety (Obada-Obieh & Somayaji, 2017). Users also have to feel a level of comfort before exchanging contact information like phone numbers (Obada-Obieh & Somayaji, 2017). Users of dating services thus need to develop alternative ways of establishing interpersonal trust in someone they are communicating with than people who meet face-to-face (Jin & Martin, 2015; Obada-Obieh & Somayaji, 2017). Online dating sites try to accommodate

this need by enabling users to see when users last logged in (so they know the profile is currently active), allowing people to block users who make them uncomfortable, using Facebook to verify the user, and not allowing users to change certain information after they create their account like their birthdate (Obada-Obieh & Somayaji, 2017). Users also look for specific cues such as a completed profile (Obada-Obieh & Somayaji, 2017), however whether these tactics are successful in helping increase generalized trust is unknown. Researchers found people who "match" online will meet face-to-face for a date despite feeling a high level of distrust (Obada-Obieh & Somayaji, 2017). Additionally, people with higher levels of general trust towards other people are more likely to use mobile dating apps (Chan, 2017), but less likely to use online dating services (Kang & Hoffman, 2011).

Summary. Relational trust is important for developing and maintaining relationships (Dainto & Aylor, 2001; Fletcher et al., 2000; Holmes & Rempel, 1985; Larzelere & Huston, 1980; Simpson, 2007). Relational trust can also affect relationship satisfaction (Couch & Jones, 1997; Fletcher et al., 2000), commitment (Wieselquist et al., 1999), and the longevity of relationships (Norris & Zweigenhaft, 1999; Wieselquist et al., 1999). One of the ways people decide whether they should trust someone else is through self-disclosure (Hallam et al., 2018), but self-disclosure may be different when it occurs through a computer mediated format as opposed to taking place face-to-face (Bryce & Fraser, 2014; Nguyen et al., 2012). The concerns surrounding online and mobile app daters being deceitful could also have implications for self-disclosure and trust. Even though only one study explored relational trust related to online dating and no studies were found examining trust and mobile app dating, the amount of trust in one's partner may vary related to how a couple met.

Shame

Brené Brown (2007) defined shame as "the intensely painful feeling or experience of believing that we are flawed and therefore unworthy of love and belonging" (p. 5). Shame is often confused with embarrassment, humiliation, or guilt, but they are all different concepts. Embarrassment is a temporary feeling about something people recognize others have also done (Brown, 2007). The emotion dissipates quickly and people do not remain in distress. Humiliation is a negative feeling that people do not feel they deserve (Brown, 2012). It is distinct from shame because people believe they deserve to feel shame (Brown, 2012). Shame is also different from guilt because of the attribution made following the emotion (Teyber & Teyber, 2017). When people feel guilt, they attribute this feeling of regret towards something they feel they did wrong. When people feel shame, they do not attribute the feeling towards an action, but feel they themselves are "bad" (Teyber & Teyber, 2017). Put more simply, shame means "I am bad," whereas guilt means, "I did something bad" (Brown, 2007, p. 92).

Guilt can motivate change because it is related to a specific behavior that went against someone's ethics, but can be changed (Brown, 2007). People who feel guilt often behave in ways to try and apologize or repair what happened (Teyber & Teyber, 2017). Shame is not a behavior that can be changed and so it can lead to paralysis (Brown, 2007). People who feel shame do not feel they can repair what happened, so it can lead to "feelings of fear [and] blame," avoidance behaviors, and disconnection (Brown, 2007, p. 30; Teyber & Teyber, 2017). Feelings of shame can lead individuals to feel like something is wrong in who they are (Teyber & Teyber, 2017). This could be linked to feeling like there is something wrong with how they look, how they interact with others, and to them feeling they are unwanted.

Effects of shame. Past research has noted shame can have deleterious effects on relationships, physical, and mental health (Mereish & Poteat, 2015). Shame can present itself in a wide array of ways including perfectionism, blaming others, being judgmental, having low self-esteem, and being preoccupied with appearances (Teyber & Teyber, 2017). Feelings of shame can be accompanied by feelings of worthlessness, helplessness, anger at oneself, feeling unlovable, inadequate, inferior, or like a failure (Hegland, 2014; Teyber & Teyber, 2017). The emotion is also connected with substance use (Dearing, Stuewig, & Tangney, 2005; Luoma, Kohlenberg, Hayes, & Fletcher, 2012) and suicide attempts (Hastings, Northman, & Tangney, 2002; Lester, 1997). Research on physical pain and experiences of social rejection found they both activate the same parts of the brain, but unlike physical pain, social rejection can be imagined and relived (Eisenberger, 2012; Kross, Berman, Mischel, Smith, & Wager, 2011). Past research has also found shame is "highly correlated with addiction, violence, aggression, depression, eating disorders, and bullying" (Brown, 2012, p. 94-95).

Shame also results in physiological changes in the body. Dickerson and colleagues (2004) found repeated experiences of feeling rejected and then feeling shame because of the rejection leads to proinflammatory cytokine activity and increased amounts of cortisol, which can lead to negative health outcomes. Shame then affects people's behavior and increases the likelihood of them withdrawing or submitting, having poor posture, avoiding eye contact, and keeping their head down (Dickerson et al., 2004; Hartling et al., 2004). The emotion can cause people to evaluate themselves more negatively (Dickerson et al., 2004). Gruenewald and colleagues (2004) also examined shame and cortisol levels. They found that when subjects showed increased shame in a social evaluation condition, they experienced cortisol increases and decreases in self-esteem (Gruenewald et al., 2004).

Shame can also affect people's relationships as it "can be seen as a signal of a threat to the bond" (Scheff, 2003, p. 239). Interpersonal behavior is sometimes motivated by avoiding embarrassment and being cognizant of the perception of others (Scheff, 2003). People have relied on each other to survive for hundreds of years. How others perceive behavior has played an important role in determining what behavior is acceptable (like sharing) and what behavior is not and should be extinguished (like lying and cheating). If people feel others are viewing them or what they are doing negatively, they may become reluctant to engage with others (Hartling et al., 2004). Shame can then result in people keeping important aspects of their lives secret from others because they do not feel safe sharing. As people hold back from sharing, the growth of a relationship could be negatively affected (Hartling et al., 2004). Shame impairs people's ability to perceive social support, diminishes genuine, authentic connections between people, and makes people feel unworthy in relationships (Mereish & Poteat, 2015).

Shame, stigma, and dating. People experience shame when they believe something is "defective, inferior or inadequate" about themselves (Dickerson et al., 2004, p. 1195). These beliefs are evoked by perceiving that other people view them negatively even if this perception is inaccurate (Dickerson et al., 2004; Scheff, 2003). If people perceive that stigma or negative stereotypes exist towards online or mobile app dating, it is possible the imagined disapproval of these dating services could evoke a sense of shame in some users (Wildermuth, 2004). If people experience shame related to their relationship, they may also feel unworthy of love and belonging or embarrassment about the relationship (Brown, 2007; Brown, 2012), which could then negatively affect the relationship (Carlson, 2016).

No research to date has explored shame and mobile app dating, but one study looked at shame and stigma towards online dating (Hegland, 2014). Shame did not predict whether

someone lied about how they met their partner, but higher amounts of shame were significantly correlated with higher levels of stigma towards online dating (Hegland, 2014). Lying is a behavior that can be apologized for and changed, so it may evoke feelings of guilt rather than shame (Brown, 2007; Pivetti, Camodeca, & Rapino, 2016). Although this study found a relationship exists between stigma towards online dating and shame, the study did not examine if the amount of shame experienced differed in those who used online dating compared to those who did not (Hegland, 2014).

Summary. Brené Brown (2012) believes, "shame derives its power from being unspeakable" (p. 77). In the United States, talking about shame is not considered socially appropriate (Scheff, 2003). Other cultures, like German and French, have two words for shame: one that refers to an everyday feeling of shame and one pertaining to feeling a sense of disgrace (Scheff, 2003). The lack of language in English for talking about shame highlights one of the issues- people do not talk about what they feel ashamed of and thus feel isolated. Recognizing they feel shame can be difficult for some people, but avoiding the subject enables the emotion to continue to grow (Brown, 2007; Brown, 2012; Scheff, 2003). Talking about shame and practicing self-compassion can cause shame to lose its power (Brown, 2012).

If individuals are internalizing some of the stigma towards online or mobile app dating, they may be at risk for experiencing higher levels of shame (Doan, 2010; Wildermuth, 2004). One study found a relationship between higher levels of stigma and a higher score on measures of shame, but the study did not explore if shame differs depending on whether someone met their partner face-to-face or through an online dating platform (Hegland, 2014). No studies were found that explore whether individuals who use mobile dating apps report higher levels of shame than those who do not use these services. Shame is an important emotion that often causes

people to be silent (Scheff, 2003) and reduces self-disclosures because people do not disclose when they anticipate what they share will be met with social disapproval or rejection (Cameron, Holmes, & Vorauer, 2009). Self-disclosures and people's responses to what is shared can affect intimacy, connection, and the quality of interpersonal relationships (Laurenceau, Barrett, & Pietromonaco, 1998; Maisel & Gable, 2009). Talking about romantic relationships can also affect the relationship because the communication with others helps people feel more committed to their partner (Baxter & Pittman, 2001). People may be less likely to talk about their relationship if they are ashamed of how it began (Cameron et al., 2009), which could have a deleterious effect on the individual and/or on the relationship (Baxter & Pittman, 2001; Laurenceau et al., 1998; Maisel & Gable, 2009).

Summary

As technology continues to develop and more people obtain smartphones, the use of online and mobile app sites to date continues to grow (Hamilton, 2016; Kapitall, 2016). Initiating a relationship through a dating platform is very different than meeting someone face-to-face (Finkel et al., 2012). Online and mobile app dating services provide users with increased options for potential partners (Finkel et al., 2012; Valkenburg & Peter, 2007), help eliminate poor choices for a partner (Finkel et al., 2012; Wiederhold, 2015), are beneficial for marginalized or minority groups who may have a harder time finding a partner (Rosenfeld & Thomas, 2012; Valkenburg & Peter, 2007), and help reduce the threat associated with approaching someone in person and disclosing personal information (Finkel et al., 2012; Valkenburg & Peter, 2007; Wiederhold, 2015). Despite these advantages, some people believe individuals who use dating services are desperate, deceitful, socially awkward, or only interested in casual sex (Anderson, 2005; Finkel et al., 2012; LeFebvre, 2018; Smith & Anderson, 2016) Although research does not

support these stereotypes (Gatter & Hodkinson, 2016; Kim et al., 2009; LeFebvre, 2018; Sumter et al., 2016; Timmermans & De Caluwé, 2017a; Valkenburg & Peter, 2007; Ward, 2017; Wildermuth, 2004), their existence may have implications for social support, relationship initiation outness, relational trust, shame, and relationship satisfaction. More research needs to be done to explore if the stigma towards how one met their romantic partner affects these constructs. The results of this research would enable individuals to have a greater understanding of how electronic dating services could affect them or their relationships. The research would also provide mental health professionals with more information on how online and mobile app dating services may affect clients.

Chapter III. Method

Pilot Study

Although the literature on online dating and mobile app dating described some differences between the two forms of meeting a partner (Finkel et al., 2012; Timmermans and De Caluwé, 2017a), technology advances rapidly such that it was possible that by 2019, the differences between them were no longer distinct. To examine how stigma did or did not vary related to how participants met, determine if there were differences between online and mobile app dating, and ensure appropriateness of hypotheses that differentiated online and mobile app dating, a pilot study was conducted. The information collected from the pilot study was used to better inform the hypotheses.

Participants. Participants were solicited through online postings on Amazon Mechanical Turk. Amazon Mechanical Turk is an internet site where anonymous individuals can be recruited to participate in research studies. Participants were compensated with $0.50 for their time. A total of 411 individuals responded to the advertisement requesting participants who were at least 18-years-old and lived in the United States. One-hundred-and-eighty people were immediately excluded for not having IP addresses affiliated with the United States or not being able to pass a reCaptcha item designed to prevent robots from participating. An additional 22 participants were removed for starting, but not completing the survey. Four participants were removed for stating they currently reside in a country other than the United States. Two participants were removed for "selecting all" options on multiple questions (i.e., selecting all genders and all ethnicities). An additional five participants were removed because they never entered codes into MTurk.com to be compensated for completing the survey. This left a sample size of 198 participants. On average, participants took 4.92 minutes to complete the survey.

Participants ranged in age from 21 to 71 with a mean age of 37.13 (*SD* = 12.14). As evident in Table 1, the sample was primarily comprised of individuals who identify as men (60.6%) and women (38.9%), with individuals who do not identify on the gender binary being poorly represented in the sample. Although participants identified with a range of racial and ethnic backgrounds, Caucasian/White identified individuals were overrepresented in the sample and sexual minorities comprised only a small portion of the sample. The sample identified with a variety of religions (see Table 1). Most participants (90.4%) obtained some sort of education past high school and over half of the sample had a college degree or more education, making the sample relatively highly educated. Table 1 provides the demographics of all participants.

Table 2 provides information related to participants' relationships. Most identified as currently being in a romantic relationship (74.2%). The majority of the participants identified as married (48.0%) or never married (35.9%). Of those in a relationship, 104 (70.7%) initially met their partner face-to-face, 21 (14.3%) met through a mobile dating app, 13 (8.8%) met through an online dating service, and 9 (6.1%) met in another way like through a Facebook group or online game. Table 3 includes information on how participants met their partner. Of those who used online dating services, most met their partner through Match.com and Plenty of Fish (POF). Of those who met their partner through mobile dating apps, Tinder was the most popular. Table 4 lists which online dating sites and mobile dating apps participants tried using at some point in their life.

Procedures. After gaining approval from the Institutional Review Board at Auburn University, participants were recruited through an online posting on Amazon Mechanical Turk. Participants who clicked on the survey link embedded in the posting were redirected from MTurk.com to the Qualtrics survey where they were presented with an information letter

notifying them of the purpose of the research, any potential risks, and reminded that participation was voluntary so they could withdraw at any time. After providing consent online, participants responded to a reCaptcha and two items that assessed if they met the inclusion criteria. Any participants who did not meet the inclusion criteria or could not complete the reCaptcha were unable to continue with the survey.

Participants were next presented with three questions to examine potential differences pertaining to how people perceive different ways of meeting a romantic partner. One question asked participants to sort different ways of meeting a romantic partner into an "embarrassing" way to meet your partner, "not embarrassing," and "never heard of it." The second question asked participants to sort ways of meeting a romantic partner into categories related to commitment: "a good way to meet someone to causally hookup with," "a good way to meet someone to date for a while," "a good way to meet a long term partner," and "never heard of it." The third question asked participants to indicate whether they believe online and mobile app dating are the same thing so that I could examine whether people report a perceived difference between the two platforms. The information collected from the first question was used to examine if more stigma still exists towards some ways of meeting relative to others (e.g., more online dating sites are placed in the "embarrassing" category than face-to-face ways of meeting). The information from the second question examined if there is a difference in perception of suitability for finding a partner between the three ways of meeting (e.g., more mobile apps are placed in the "causal sex" category than online dating sites).

The first two questions presented participants with a list of 17 ways in which people could meet a potential partner. The list consisted of five ways of meeting face-to-face, five online dating sites, five mobile dating apps, and two generic descriptions ("Any dating app or

site that involves “swiping” on pictures” and “Any dating app or site that involves creating a profile”). The five face-to-face methods chosen were the top five ways people meet in person according to Cacioppo et al.’s (2013) research: at school, at work, at a social gathering, at a bar/club, and by being introduced by someone else. To choose the top five online dating sites and top five mobile dating apps, five articles on the most popular online dating sites and five articles on the most popular mobile dating apps were compared to determine which services were consistently identified as the top five. Match.com, Elite Singles, eHarmony, Plenty of Fish (POF), and Zoosk were the online dating sites most frequently listed in the top five and Tinder, Bumble, Coffee Meets Bagel, OkCupid, and Hinge were the mobile dating apps identified. Only 17 ways of meeting were chosen to reduce respondent frustration and time.

Lastly, participants responded to a questionnaire consisting of demographic questions and, if applicable, questions about their current relationship. Following the completion of the demographic questionnaire, participants were thanked for completing the study and provided with a code to enter into the MTurk.com website to receive compensation.

Any participants who did not complete the measures in the study were removed. The survey was created so that individuals with the same IP address or MTurk ID could not take it more than once. After 200 people responded, the data were downloaded into the Statistical Package for the Social Sciences (SPSS) for analysis.

Results. To determine if there were significant differences in how ways of meeting a partner were viewed, the number of ways to meet someone face-to-face, online dating, or through a mobile app dating were combined for each category and then compared using chi square tests. Table 5 shows how participants sorted the various ways of meeting with regards to embarrassment. A 3 x 2 chi-square test was performed to determine whether meeting a potential

romantic partner face-to-face, online, or through a mobile dating app were viewed as equally embarrassing. The three ways of meeting were not viewed as equally embarrassing, $\chi^2(2, N = 198) = 355.95$, $p < .001$ (see Table 6). A 2 x 2 chi-square test revealed a significant difference in the view of how embarrassing it is to meet someone through an online dating service compared to a mobile dating app, $\chi^2(1, N = 198) = 5.98$, $p = .014$, with more people placing mobile dating apps in the embarrassing category than online dating sites. Another 2 x 2 chi-square test found a significant difference in the view of how embarrassing it is to use a dating app or site that involves "swiping" on pictures compared to a dating app or site that involves creating a profile, $\chi^2(1, N = 198) = 10.39$, $p = .001$. More people viewed dating apps or sites that involve swiping as embarrassing than services where users create a dating profile.

A 3 x 3 chi-square test examined whether the three ways of meeting a partner were viewed as equivalent ways to have a casual hookup, meet someone to date, or meet a long-term partner. Table 7 shows how participants sorted the various ways of meeting that were presented to them. As can be seen by the frequencies cross tabulated in Table 8, there is a significant relationship between how someone met their partner and what kind of relationship they are seeking, $\chi^2(4, N = 198) = 418.10$, $p < .001$. When looking specifically at meeting a partner through online dating and mobile dating apps, participants' belief in the type of relationship was also significant, $\chi^2(2, N = 198) = 69.78$, $p < .001$. More people classified mobile dating apps as a casual hookup than online dating sites. A 3 x 2 chi-square test resulted in a significant difference in the type of relationship sought by individuals using dating apps or sites that involve "swiping" on pictures compared to dating apps or sites where users create a dating profile, $\chi^2(2, N = 198) = 52.12$, $p < .001$. More people viewed dating apps or sites that involve "swiping" as services for casual hookups than services that involve creating a profile. Additionally, more people

associated creating a dating profile with finding a date or a long term partner compared to the number of people who associated "swiping" services with these outcomes.

When participants were presented with the statement "online and mobile app dating are the same thing," 73.2% of the sample agreed while 26.8% thought they were different. The chi square results, however, were significant and support the idea that people view the three ways one could meet a romantic partner differently. Thus, the decision was made to proceed with recruiting a group of people who met their partner online and a group who met their partner through a mobile dating app as opposed to condensing these two groups. A more detailed discussion of the results of the pilot study can be found in Appendix A.

Current Study

The current study used a non-experimental, cross-sectional design to examine whether any variations exist regarding relational trust, social support, relationship initiation outness, shame, and relationship satisfaction in three groups: online daters, mobile app daters, and face-to-face daters. The study addressed the following hypotheses: Participants who met their partner face-to-face would score significantly higher on a measure of relationship satisfaction (Hypothesis 1a) and a measure of relational trust (Hypothesis 2a) than participants in relationships that were initiated through an online dating service or mobile dating app. Participants who met their partner through an online dating service would score significantly higher on a measure of relationship satisfaction (Hypothesis 1b) and a measure of relational trust (Hypothesis 2b) than participants who met their partner through a mobile dating app. Participants who met their partner face-to-face would also score significantly higher on a measure assessing how public or "out" they are about their relationship with others in their life (Hypothesis 3a) and a measure assessing relational social support (Hypothesis 4a) compared to people who met their

partners online or through a mobile dating app. Participants who met through an online dating service would score significantly higher on relationship initiation outness (Hypothesis 3b) and social support (Hypothesis 4b) than participants who met their partner through a mobile dating app. Participants in a relationship that met through a mobile dating app would score significantly higher on a measure of shame than participants in a relationship that met through an online dating service or face-to-face (Hypothesis 5a). Participants who met their partner though an online dating service would also score significantly higher on a measure of shame than those who met their partner face-to-face (Hypothesis 5b). Relationship satisfaction would be significantly correlated with outness, social support, and shame (Hypothesis 6). Shame, outness, and relational social support would mediate the relationship between how someone met their partner and relationship satisfaction (Hypothesis 7).

Participants. Participants were recruited through online postings on Amazon Mechanical Turk and offered monetary compensation. Amazon Mechanical Turk recommended against recruiting a random selection of participants from the pilot study for a follow up study, so a new pool of participants was recruited. A total of 2,019 individuals responded to the advertisements for the study, but 793 were ejected from the study because they failed the reCaptcha question, did not have an IP address from the United States, or did not give consent to continue participating. Inclusion criteria included age, country of origin, United States Internet Protocol (IP) addresses, relationship status, and length of relationship. Participants were required to be at least 18 years-old to ensure they met the legal age of consent. Only individuals who identified as residing in the United States and had an IP address from the United States were included. Relationship expectations likely vary across cultures and although understanding how a relationship is initiated may affect relationship satisfaction and shame in other cultures would be

valuable, it was beyond the scope of this study. Participants were required to be in a monogamous relationship with a partner they originally met either face-to-face, through an online dating service, or through a mobile dating app and eventually met in person. Monogamy was an inclusion criterion for participation in the study to reduce the likelihood of someone filling out the measures with different partners in mind.

The relationship needed to be a newly formed relationship (someone the individual met within the last four years) so that the way in which the partners met was likely to still be relevant to the relationship. According to Knapp's (1978) model of relational stages, a relationship begins when two people first have contact with each other. People may meet and then vary in the time it takes to get to know each other, express more interest in the relationship, and then take steps towards committing by telling others about the relationship (Fox, Warber, & Makstaller, 2013; Knapp, 1978). A four-year period was chosen because individuals who met online may take longer to meet in person and one of the inclusion criteria was that the partners must meet in person. Four years was also the timeframe consistent with what Clark, Shaver, and Abrahams (1999) chose to inquire about in their study on behavioral strategies used to initiate romantic relationships. To prevent respondents from responding to the survey multiple times, each user ID in MTurk could only be used to complete the survey once.

Of the remaining 1,226 who consented to the study and passed the reCaptcha question, only 764 individuals met all of the inclusion criteria and were able to proceed with the study. Two hundred and twenty-three people did not complete all of the required measures and 203 participants were ejected from the study for not passing the attention checks. Ten participants were inconsistent in reporting how they met their partner (i.e., saying they met their partner face-to-face for one question and then saying they met their partner online later on in the survey) and

so their data were removed. Nineteen participants were removed because their IP address appeared multiple times despite Qualtrics being programmed to prevent the same IP address from participating more than once. Even though it is possible a partner and their spouse could have both participated from the same IP address, their responses were removed to ensure one person's replies were not overrepresented in the sample. This left a sample size of 309 participants (104 who met their partner face-to-face, 99 who used online dating services, and 106 who met their partner on a mobile dating app). On average, participants took 14.08 minutes (*SD* = 10.91 minutes) to complete the survey.

Participants ranged in age from 19 to 70 with a mean age of 31.54 (*SD* = 8.27). All participants met the inclusion criteria of being in a monogamous relationship with someone they met and started dating within the past four years. On average, participants reported knowing their partner for 23.70 months (about two years; *SD* = 14.06) and spending 21.35 of those months dating their partner (*SD* = 13.43). All participants reported being born and raised in the United States. They all reported meeting their partner in person at least once at some point during the relationship. As can be seen in Table 9, the sample was primarily comprised of men (62.8%) and women (37.2%). Most participants identified as Caucasian or White (74.4%), heterosexual or straight (79.9%), and/or never married (58.3%), leaving other racial and ethnic backgrounds, sexual orientations, and those with differing marital statuses underrepresented in the sample. The sample identified with a variety of religions including 61 (19.7%) people identified as agnostic, 59 (19.1%) as atheist, 4 (1.3%) as Buddhist, 85 (27.5%) as Catholic, 57 (18.4%) as Christian, 6 (1.9%) as Hindu, 8 (2.6%) as Jewish, 2 (0.6%) as Muslim, 17 (5.5%) as Spiritual, 3 (1.0%) as "other," and 7 (2.3%) said they would prefer not to share their religion. The sample also varied

regarding their level of education, but most (91.6%) attended at least some college, making the sample highly educated. Table 9 provides the demographics of the participants.

Some demographic information was also collected regarding a participant's partner. This information can be found in Table 10. Most participants reported dating a man (40.1%) or a woman (59.5%). When asked about their partner's race/ethnicity, participants were able to choose more than one option that may be relevant to their partner, so the total may not match the sample size. Thirty-six (11.7%) participants reported dating an African-American or Black partner, five (1.6%) reported dating an American Indian or Alaskan Native partner, 27 (8.7%) reported dating someone who is Asian, seven (2.3%) identified dating someone who is biracial, multiracial, or multiethnic, 225 (72.8%) reported dating someone who identifies as Caucasian or White, 23 (7.4%) reported dating someone Hispanic or Latina/o/x, and three (1.0%) participants reported their partner's ethnicity as Native Hawaiian or other Pacific Islander.

Table 11 includes information on how participants met their romantic partner. Meeting someone at work, at a social gathering, school, or being introduced by someone were the most common ways participants met a partner face-to-face. Individuals who chose "other" reported a variety of locations including meeting at the beach, in line at Starbucks, at a movie theater, and at a 12 Steps meeting. Tinder, Bumble, and OkCupid were the top three mobile dating apps participants in the sample used to meet their current partner. Of those who used online dating services, Match.com, Plenty of Fish (POF), and eHarmony were the most popular. Table 12 provides information about the sample's past dating behaviors and familiarity with other people's dating experiences. Table 13 lists ways in which participants met previous romantic partners.

Most of the analyses required for the study involved separating the sample into three groups: participants who met their partner face-to-face, those who met their partner through a mobile dating app, and participants who met their partner through an online dating service. Analyses were run to explore any potential differences between the three groups. One-way analysis of variances (ANOVA) were completed to assess if any differences existed between those who met their partners face-to-face, through a mobile dating app, or on an online dating site related to how long it took participants to complete the survey, age, number of months the participant reported knowing their current partner, and the number of months participants reported dating their current partner. A significant difference was found between the three groups related to how many months participants reported knowing their partner, $F(2, 306) = 5.10$, $p = .007$. Participants in the face-to-face group, on average, reported knowing their current partner for a longer length of time than participants in the online and mobile dating groups. No significant differences were found related to the duration of time spent taking the survey, age, and how much time was spent dating their current partner. Table 14 contains group means, standard deviations, and the results of the ANOVAs for these variables.

Chi square analyses were performed to explore if any differences existed between the groups regarding their gender, ethnicity/race, sexual orientation, marital status, education, and religion. A chi square analysis can only be performed if at least five participants identified with each category. For any characteristic where there were not enough people in a category to run the chi square analysis, the analysis was run without including that particular identity. For example, for gender one person identified as nonbinary in the online dating group and so the chi square analysis was run comparing only the identities man and woman. For ethnicity/race, a chi square analysis examined ethnicities that contained at least five participants (African American or

Black, Asian, and Caucasian or White). A second chi square analysis was then performed to examine the representation of racial/ethnic groups with privilege (i.e., those who identified as Caucasian or White) compared to those who historically experienced oppression (i.e., African American or Black, American Indian or Alaskan Native, Asian, Biracial/Multiracial/Multiethnic, Hispanic or Latina/o/x, Native Hawaiian and Other Pacific Islander, and other; Sue & Sue, 2013). Tables 15 through 20 list demographic information for each of the groups and the results of the chi square analyses.

A significant difference by gender was found between the face-to-face, mobile dating app, and online dating groups, $\chi^2(2, N = 308) = 14.53$, $p = .001$. Thus, the proportion of men and women were not equally represented across the three groups. No significant differences were found related to race/ethnicity when comparing participants who identified as African American or Black, Asian, and Caucasian or White, $\chi^2(4, n = 289) = 1.35$, $p = .852$ or when examining racial and ethnic groups who have historically been oppressed compared to those who have historically held privilege, $\chi^2(2, N = 323) = 2.29$, $p = .317$. No significant differences were found between the three ways people met a partner related to sexual orientation when comparing participants who identified as bisexual and heterosexual/straight, $\chi^2(2, n = 293) = 0.03$, $p = .984$. A 3x3 chi square analysis showed there were no significant differences related to marital status when comparing individuals who reported being engaged, married, or not married, $\chi^2(4, n = 291) = 2.02$, $p = .732$. There also was not a significant difference between the three groups related to education when examining those who reported attending some college, obtaining a degree from a four-year school, and those who attended graduate school, $\chi^2(4, n = 251) = 2.43$, $p = .658$. A chi square analysis showed there was no significant difference between the three ways participants

met their partner and religion when comparing those who identified as agnostic, atheist, Catholic, and Christian, $\chi^2(6, n = 262) = 5.01, p = .543$.

Chi square analyses were also performed to explore if any differences existed between the groups regarding their partner's demographics. Tables 21 and 22 contain participants' partner's demographics for the three groups and the results of the chi square analyses. A 3x2 chi square analysis showed there were no significant differences between the three groups related to a partner's gender, $\chi^2(2, N = 308) = 2.15, p = .340$. There were also no significant differences related to race/ethnicity when comparing participants whose partners identified as African American or Black, Asian, and Caucasian or White, $\chi^2(4, n = 288) = 3.69, p = .450$ or when examining racial and ethnic groups who have historically been oppressed compared to those who have historically held privilege, $\chi^2(2, N = 326) = 3.09, p = .213$. Participants who met their partner through a mobile dating app or through an online dating site were asked how often they get to see their partner in person as some of these services enable users to meet individuals who do not live in the same geographic location. A 2x5 chi square analysis showed there were no significant differences between those who met their partners online and those who met through a mobile dating app and how often they get to see their partner in person, $\chi^2(4, n = 205) = 2.71, p = .607$. Table 23 shows how often participants reported seeing their partner face-to-face.

Measures.

Inclusion criteria screening. Several items were presented to check that participants met the inclusion criteria (see Appendix B). These items asked about age, country of origin, relationship status, length of relationship, number of current romantic partners, how participants met their current partner, whether participants have met their partner in person, and included a reCaptcha item to prevent robots from participating. Individuals who did not meet the inclusion

criteria were not permitted to continue. The information related to how participants met their current partner was used to assign participants to either the face-to-face, online dating, or mobile dating app groups for data analysis.

Dyadic Trust Scale (DTS). Relational trust was assessed using the *Dyadic Trust Scale* (DTS; Larzelere & Huston, 1980). The DTS consists of eight items measuring the level of trust, benevolence, and honesty in a close relationship. Items include statements like "there are times when my partner cannot be trusted" and "my partner is perfectly honest and truthful with me" (Larzelere & Huston, 1980). The statements are evaluated on a 7-point Likert scale where 1 is "strongly disagree" and 7 is "strongly agree" (Larzelere & Huston, 1980). Some of the items are reverse scored to reduce bias in responding (Larzelere & Huston, 1980). Higher scores on the DTS indicate the participant believes his or her partner is more trustworthy (Larzelere & Huston, 1980).

The DTS was tested with married, divorced, separated, and unmarried couples (Larzelere & Huston, 1980). Internal consistency for the scale is excellent and was 0.93 with heterosexual couples (Larzelere & Huston, 1980) and 0.90 with same-sex couples (Gabbay et al., 2012). A confirmatory factor analysis supported a one-factor model structure for the scale (Gabbay et al., 2012). The scale correlated with other measures of relational trust (Couch & Jones, 1997) as well as with measures of love, self-disclosure, and commitment, which are related to the construct of trust (Larzelere & Huston, 1980). Scores on the DTS were also distinct from generalized trust (Larzelere & Huston, 1980), social desirability (Larzelere & Huston, 1980), and global trust (Couch & Jones, 1997).

Network Support Index. The *Network Support Index* was developed by Sprecher and Felmlee (1992) to measure supportive and discouraging social reactions from significant others.

The measure consists of six items participants rate on a 7-point Likert scale where 1 indicates a lack of support and 7 indicates a high amount of support (Sprecher & Felmlee, 1992). Items include questions like "To what degree do you think your family disapproves/approves of this relationship?" and "Overall, how much actual discouragement or encouragement do you get from others to continue to date (or remain married)" (Sprecher & Felmlee, 1992). The scores are added together and averaged with higher means representing greater levels of perceived social support for one's relationship (Sprecher & Felmlee, 1992). The measure's Cronbach's alpha coefficient ranged from 0.83 to 0.86 (Sprecher & Felmlee, 1992). The test-retest reliability coefficient was examined for three different time points and ranged from .56 between Time 1 and Time 3 to 0.67 between Time 1 and Time 2 (Sprecher & Felmlee, 1992).

Modified Relationship Initiation Outness Inventory (RIOI). The *Outness Inventory* (OI; Mohr & Fassinger, 2000) is a public access measure designed to assess how open lesbian, gay, and bisexual individuals are about their sexual orientation. The directions of the scale were modified to state "use the following rating scale to indicate how open you are about how you met your romantic partner" instead of asking how open participants are regarding their sexual orientation. The scale consists of 11 items that participants rate on a 7-point Likert scale regarding how likely it is that other people in the individual's life know about how they met their partner and talk about it. On this scale, 1 indicates that people do not know how the participant met their partner and 7 indicates people know how the participant met their partner and it is openly discussed. Participants can also indicate if a certain group (e.g., members of my religious community) is not applicable to their life. The Outness Inventory provides information about how open people are to specific people in their life (e.g., father, siblings), how out they are in different domains of their life (e.g,, family, everyday life), and provides an overall outness score

(Mohr & Fassinger, 2000). The three subscales ("out to family," "out to world," and "out to religion") are averaged to create the "overall outness" score with higher scores representing higher levels of outness (Mohr & Fassinger, 2000). Internal consistency is excellent for the entire scale ($\alpha = 0.94$) and adequate to excellent for the three subscales (ranges from 0.78 to 0.91 for family, 0.80 to 0.91 for world, and 0.96 to 0.97 for religion; Mohr & Fassinger, 2000; Wilkerson, Noor, Galos, & Rosser, 2016). Strong support was found for a 3-factor structure for the OI and discriminant validity was found regarding scores on the Out to Religion subscale related to reported involvement with religious organizations (Mohr & Fassinger, 2000). Only the "out to family" and "out to world" subscales were combined to calculate the overall outness score for this study.

Other As Shamer Scale (OAS). The *Other As Shamer Scale* (OAS; Goss et al., 1994) assessed participant shame. The OAS was developed by modifying some of the wording of the *Internalized Shame Scale* Cook developed in 1993 to examine expectations of how others perceive the individual instead of how they perceive themselves (Goss et al., 1994). The OAS has 18 items participants rate on a 5-point Likert scale to indicate the frequency with which they experience each statement (Goss et al., 1994). The lowest item on the scale (0) represents "never" and the highest item (5) means "almost always" (Goss et al., 1994). The items include statements like "I think others are able to see my defects" and "Others think there is something missing in me" (Goss et al., 1994). The directions for the scale were modified to encourage participants to think about their relationship and how they met their partner when responding to the items. These directions were repeated three times to help participants continue to keep their relationship in mind. A total OAS score is calculated by totaling the items. Higher scores represent higher levels of external shame. The OAS has excellent internal consistency

(Cronbach's alpha = 0.92; Goss et al., 1994). Although the OAS assesses external shame instead of internalized shame, moderate and high correlations were found between the OAS and other shame trait and state shame measures including the *Adapted Dimensions of Conscience Questionnaire* (ADCQ), the *Dimensions of Conscience Questionnaire* (DCQ), and the *Internalized Shame Scale* (ISS), which examine internalized shame (Goss et al., 1994). A principal components analysis found OAS has a single-factor structure (Goss et al., 1994; Matos, Pinto-Gouveia, & Duarte, & Figueiredo, 2015). The measure was tested with nonclinical populations, making it appropriate for use with the chosen sample (Goss et al., 1994).

Relationship Assessment Scale (RAS). The *Relationship Assessment Scale* (RAS; Hendrick, 1988) assessed relationship satisfaction. The RAS consists of seven items participants rate on a five-point Likert scale, where 1 is "not satisfied" and 5 is "very satisfied" (Hendrick, 1988). Items include questions like "How well does your partner meet your needs?" and "How good is your relationship compared to most" (Hendrick, 1988). The higher the score, the more satisfied someone is with their relationship (Henrick, 1988). This measure was chosen because it is a more general measure of relationship satisfaction that utilizes non-gendered language whereas most other relationship measures are specific to individuals who are married (Hendrick, 1988). Other measures like the *Dyadic Adjustment Scale* have items that may not be applicable to all couples like how often partners agree on "handling family finances" and "career decisions" (Spanier, 1976). The RAS is correlated with other measures of relationship satisfaction including the *Dyadic Adjustment Scale* (Hendrick, 1988; Hendrick, Dicke, & Hendrick, 1998; Vaughn & Matyastik Baier, 1999), the *Kansas Marital Satisfaction Scale* (Hendrick et al., 1998), and the *Love Attitudes Scale* (Hendrick, 1988).

The RAS was validated for use with college students (Hendrick, 1988; Khaddouma et al., 2016; Moore, Elkins, McNulty, Kivisto, & Handsel, 2011; Renshaw, McKnight, Caska, & Blais, 2010), married and unmarried individuals (Hendrick, 1988; Hendrick et al., 1998; Renshaw et al., 2010), and a wide range of ages and ethnicities (Hendrick et al., 1998). Internal consistency for the scale is good and has ranged from .81 to .91 (Khaddouma et al., 2016; Moore et al., 2011; Vaughn & Matyastik Baier, 1999). The RAS also shows good test-retest reliability ranging from 0.74 to 0.89 (Hendrick et al., 1998; Renshaw et al., 2010). The scale demonstrated predictive validity in determining which couples will stay together and which relationships will dissolve (Hendrick, 1988) and those with lower relationship satisfaction show more depressive symptoms at a later point in time (Renshaw et al., 2010). The RAS also shows strong discriminant validity in predicting which couples were in a relationship and which ones were not (Hendrick, 1988).

Brief stigma check. To confirm stigma is higher for mobile dating services compared to online dating services and that both have higher levels of stigma than meeting a partner face-to-face, three items assessed for the degree of stigma people believe exists for meeting a partner face-to-face, through an online dating service, and through a mobile dating app (see Appendix C). Participants responded to these items using a slider scale that ranged from 0 (no stigma) to 10 (a lot of stigma). Higher scores mean participants believe more stigma is felt towards that particular way of meeting a romantic partner.

Demographic questionnaire. A demographic questionnaire was administered to all participants (see Appendix D). Multiple-choice items collected information pertaining to participants' gender identity, race and ethnicity, sexual orientation, marital status, education level, current partner, and previous dating experience. Six yes or no items asked participants if they ever dated or knew of anyone who dated someone met face-to-face, online, or through a

mobile dating app. Based on their responses, participants indicated which services they used and provided some additional information on these services. Questions related to the inclusion criteria were repeated in this section so that anyone who did not respond consistently could be removed before the data were analyzed.

Procedures. After gaining approval from the Institutional Review Board at Auburn University, participants were recruited through online postings (see Appendix E) on Amazon Mechanical Turk (MTurk.com). Three different task descriptions were posted on MTurk to recruit people who met their partner through an online dating service, through a mobile dating app, or face-to-face. Participants were compensated with $2.00 for their time. Similar to the pilot study, participants who clicked the survey link were redirected from MTurk.com to the Qualtrics survey where they were presented with an information letter (see Appendix F).

After providing informed consent online, participants who met the inclusion criteria were presented with a set of instructions reminding them to think about their current relationship and the way in which they met their partner as they responded to the questionnaires. The DTS, NSI, RIOI, OAS, and RAS were presented in a randomized order to control for any possible confounding effects resulting from the order of the measures. Participants responded to the brief stigma check and the demographics questions last to prevent these measures from influencing the results. The three questions in the brief stigma check were presented in a randomized order. Four attention checks added to the study measures checked if participants attended to the various items. Participants who did not meet inclusion criteria, pass the attention checks, or complete all of the measures in the study were immediately removed. Participants were thanked for completing the study and given a code to enter into the MTurk.com website to receive compensation. Data collection continued until approximately 100 participants for each of the

conditions (online dating, mobile app dating, and face-to-face dating) responded to the survey. Data were then downloaded into the Statistical Package for the Social Sciences (SPSS).

Data Analytic Strategy. Descriptive statistics on demographic data were computed and frequencies of each category reported. Reliability coefficients (Cronbach's alpha) were examined on all measures to ensure reliability was acceptable for inclusion in the analyses. A repeated measures analysis of variance was performed as a validity check to examine differences between the three items on the stigma check measure.

To test hypotheses 1 through 5 related to differences in how a relationship began (online dating, mobile app dating, or face-to-face) and the different variables (relationship satisfaction, relational trust, relationship initiation outness, relational social support, and shame), a MANCOVA was performed controlling for age and the length of the relationship as covariates. Age and the length of the relationship were chosen as covariates because previous research examining relationships noted these variables can influence aspects of the relationship such as commitment and relationship satisfaction (Cacioppo et al., 2013; Gatter & Hodkinson, 2016; Paul, 2014; Sumter et al., 2016). Since the MANCOVA was significant, follow-up univariate ANCOVAs with Fisher's Least Significant Difference (LSD) were performed. Scatterplots and correlations were used to examine if the assumption of linearity between the dependent variable and the covariate was met before proceeding with performing an ANCOVA for each variable. If a significant relationship did not exist, an ANOVA was performed instead. Hypothesis 6 stated relationship satisfaction would be significantly correlated with outness, social support, and shame. To explore this, multiple bivariate correlations were conducted to examine whether a significant relationship existed between scores on the RAS, OAS, RIOI, and Network Support Index. Hypothesis 7 stated shame, outness, and relational social support would mediate the

relationship between how someone met their partner and relationship satisfaction. To examine if scores on the OAS, RIOI, and Network Support Index accounted for the association between how participants met their partner and relationship satisfaction, Baron and Kenny's (1986) approach to mediation was used and indirect effects were explored using the PROCESS macro developed by Hayes entering all variables at once.

Table 1. *Demographics of Pilot Study Participants (N = 198)*

		n	%
Gender Identification	Man	120	60.6
	Nonbinary	1	0.5
	Woman	77	38.9
Ethnicity/Race	African American or Black	22	11.1
	American Indian or Alaska Native	1	0.5
	Asian	11	5.6
	Caucasian or White	157	79.3
	Hispanic or Latina/o/x	19	9.6
	Native Hawaiian or Other Pacific Islander	1	0.5
Sexual Orientation	Bisexual	25	12.6
	Gay/Lesbian	4	2.0
	Heterosexual/Straight	168	84.8
	Pansexual	1	0.5
Religion	Agnostic	36	18.2
	Atheist	39	19.7
	Buddhist	2	1.0
	Catholic	51	25.8
	Christian	49	24.7
	Hindu	1	0.5
	Jewish	4	2.0
	Mormon	1	0.5
	Muslim	1	0.5
	Spiritual	13	6.6
	Prefer Not to Say	1	0.5
Education Obtained	GED	1	0.5
	High School Diploma	13	6.6
	Vocational School	5	2.5
	Some College	36	18.2
	Degree from a 2-year College	28	14.1
	Degree from a 4-year University	80	40.4
	Some Graduate School	5	2.5
	Graduate School	30	15.2

Table 2. *Relationship Demographics of Pilot Study Participants (N = 198)*

		n	%
Currently in a Relationship	Yes	147	74.2
	No	51	25.8
Number of Current Partners	Zero	51	25.8
	One	124	62.6
	Two	7	3.5
	Three-Five	8	4.0
	More Than Five	8	4.0
Marital Status	Divorced	14	7.1
	Engaged	12	6.1
	Married	95	48.0
	Never Married	71	35.9
	Remarried	1	0.5
	Separated	4	2.0
	Widowed	1	0.5
How Participants Met Current Partner	Face-to-Face	104	70.7
	Mobile Dating App	21	14.3
	Online Dating Service	13	8.8
	Other	9	6.1

Table 3. *How Pilot Study Participants Met Partners* (*n* = 147 identified currently being in a relationship)

		n	%
Online Dating Service Used to Meet Partner *(n = 13)*	Adult Friend Finder	2	15.4
	Badoo	1	7.7
	Christian Mingle	1	7.7
	Elite Singles	1	7.7
	Match.com	3	23.1
	OkCupid	2	15.4
	Plenty of Fish (POF)	3	23.1
Mobile Dating App Used to Meet Partner *(n = 23)*	Badoo	3	13.0
	Bumble	3	13.0
	Clover	2	8.7
	Hinge	1	4.3
	Huggle	1	4.3
	MeetMe	1	4.3
	OkCupid	3	13.0
	Tinder	9	39.1
In Person Method of Meeting *(n = 104)*	At the gym	2	1.9
	At school	14	13.5
	At a social gathering	17	16.3
	At work	20	19.2
	Blind date	3	2.9
	Grew up together	5	4.8
	In a bar/club	8	7.7
	Speed dating event	5	4.8
	Introduced by someone	26	25.0
	else	2	1.9
	Through a religious organization	2	1.9
	Other		
Other Manner of Meeting *(n = 9)*	Facebook	3	33.3
	Online Game	3	33.3
	Other Social Media Site	2	22.2
	Did Not Specify	1	11.1
If Introduced, Who Introduced Partner *(n = 26)*	Coworker	1	3.8
	Mutual Friend	20	76.9
	Parent	1	3.8
	Relative	3	11.5
	Sibling	1	3.8

Table 4. *Pilot Study Usage of Electronic Dating Services (N = 198)*

	n	%
Adult Friend Finder	17	8.6
AsianDating.com	6	3.0
Badoo	6	3.0
BlackPeopleMeet.com	6	3.0
Bumble	22	11.1
CatholicMatch.com	14	7.1
Chemistry	11	5.6
Christian Mingle	14	5.6
Clover	2	1.0
Coffee Meets Bagel	11	5.6
eHarmony	23	11.6
Elite Singles	6	3.0
FarmersOnly.com	3	1.5
FriendFinder.com	4	2.0
Gene Partner	4	2.0
Grindr	12	6.1
Happn	6	3.0
Her	3	1.5
Hinge	6	3.0
Huggle	9	4.5
Jack’d	4	2.0
JDate	4	2.0
JSwipe	2	1.0
The League	2	1.0
Match.com	38	19.2
MeetMe	1	0.5
Muslima.com	3	1.5
OkCupid	40	20.2
OurTime.com	7	3.5
Plenty of Fish (POF)	24	12.1
Scientific Match	3	1.5
Scruff	5	2.5
Silver Singles	4	2.0
Tinder	51	25.8
Zoosk	16	8.1
None	76	38.4

Table 5. *Frequencies of Embarrassing Items Sorted by Pilot Study Participants*

	Embarrassing		Not Embarrassing		Never Heard of It	
	n	%	*n*	%	*n*	%
Face-to-Face Ways of Meeting						
Bar	82	41.4	113	57.1	3	1.5
Introduced to your partner by someone else	28	14.1	167	84.3	3	1.5
School	14	7.1	174	87.9	10	5.0
Social Gathering	9	4.5	172	86.9	17	8.6
Work	10	5.0	174	87.9	14	7.1
Online Dating Sites						
eHarmony	96	48.5	95	48.0	7	3.5
Elite Singles	83	41.9	43	21.7	72	36.4
Match.com	79	39.9	108	54.5	11	5.6
Plenty of Fish	74	37.4	78	39.4	46	23.2
Zoosk	40	20.2	41	20.7	117	59.1
Mobile Dating Apps						
Bumble	68	34.3	42	21.2	88	44.4
Coffee Meets Bagels	56	28.3	55	27.8	87	43.9
Hinge	50	25.2	18	9.1	130	65.6
OkCupid	81	40.9	83	41.9	34	17.2
Tinder	108	54.5	75	37.9	15	7.6
Descriptions						
Swiping	102	51.5	78	39.3	18	9.1
Create a Profile	71	35.8	108	54.5	19	9.6

Table 6. *Chi Square Results for Embarrassment Related to Relationship Initiation*

	Embarrassing		Not Embarrassing		χ^2	*p*
	n	%	*n*	%		
Face-to-Face	143	15.2	800	84.8	355.95	<.001
Online Dating	372	50.5	365	49.5		
App-Based	363	57.1	273	42.9		
Online Dating	372	50.5	365	49.5	5.98	.014
App-Based	363	57.1	273	42.9		
Swiping	102	56.7	78	43.3	10.39	.001
Create a Profile	71	39.7	108	60.3		

Table 7. *Frequencies of Commitment Outcome Items Sorted by Pilot Study Participants*

	Casual Hookup		Date for a While		Long-term Partner		Never Heard of It	
	n	%	*n*	%	*n*	%	*n*	%
Face-to-Face Ways of Meeting								
Bar	164	82.8	24	12.1	7	3.5	3	1.5
Introduced to your partner by someone else (i.e., friend, etc.)	28	14.1	44	22.2	120	60.6	6	3.0
School	22	11.1	56	28.3	114	57.6	6	3.0
Social Gathering	26	13.1	61	30.8	106	53.5	5	2.5
Work	19	9.6	59	29.8	115	58.1	5	2.5
Online Dating Sites								
eHarmony	63	31.8	82	41.4	47	23.7	6	3.0
Elite Singles	73	36.9	43	21.7	12	6.1	70	35.4
Match.com	48	24.2	99	50.0	47	23.7	4	2.0
Plenty of Fish	76	38.4	69	34.8	16	8.1	37	18.7
Zoosk	45	22.7	38	19.2	15	7.6	100	50.5
Mobile Dating Apps								
Bumble	78	39.4	30	15.2	7	3.5	83	41.9
Coffee Meets Bagels	59	29.8	43	21.7	13	6.6	83	41.9
Hinge	59	29.8	18	9.1	4	2.0	117	59.1
OkCupid	74	37.4	78	39.4	17	8.6	29	14.6
Tinder	136	68.7	38	19.2	15	7.6	9	4.5
Descriptions								
Swiping	123	62.1	46	23.2	17	8.6	12	6.1
Create a Profile	55	27.8	99	50.0	36	18.2	8	4.0

Table 8. *Chi Square Results for View of Dating Related to Relationship Initiation*

	Casual Hookup		Date		Long term Partner		χ^2	*p*
	n	%	*n*	%	*n*	%		
Face-to-Face	259	26.8	244	25.3	462	47.9	418.10	<.001
Online Dating	305	39.5	331	42.8	137	17.7		
App-Based	406	60.7	207	30.9	56	8.4		
Online Dating	305	39.5	331	42.8	137	17.7	69.78	<.001
App-Based	406	66.1	207	30.9	56	8.4		
Swiping	123	66.1	46	24.7	17	9.1	52.12	<.001
Create a Profile	55	28.9	99	52.1	36	18.9		

Table 9. *Demographics of Participants (N = 309)*

		n	%
Gender Identity	Man	194	62.8
	Nonbinary	1	0.3
	Transgender	1	0.3
	Woman	115	37.2
Ethnicity/Race	African American or Black	39	12.6
	American Indian or Alaskan Native	4	1.3
	Asian	17	6.6
	Biracial, Multiracial, or Multiethnic	6	1.9
	Caucasian or White	233	75.4
	Hispanic or Latina/o/x	21	6.8
	Native Hawaiian or Other Pacific Islander	2	0.6
	Other	1	0.3
Sexual Orientation	Bisexual	46	14.9
	Demi/Asexual	2	0.6
	Gay/Lesbian	9	2.9
	Heterosexual/Straight	247	79.9
	Pansexual	4	1.3
	Queer	1	0.3
Religion	Agnostic	61	19.7
	Atheist	59	19.1
	Buddhist	4	1.3
	Catholic	85	27.5
	Christian	57	18.4
	Hindu	6	1.9
	Jewish	8	2.6
	Muslim	2	0.6
	Spiritual	17	5.5
	Prefer Not to Say	7	2.3
	Other	3	1.0
Education Obtained	GED	3	1.0
	High School Diploma	21	6.8
	Vocational School	2	0.6
	Some College	69	22.3
	Degree from a 2-year College	20	6.5
	Degree from a 4-year University	151	48.9
	Some Graduate School	12	3.9
	Graduate School	31	10.0

		n	%
Marital Status	Divorced	14	4.5
	Engaged	44	14.2
	Married	67	21.7
	Never Married	180	58.3
	Separated	2	0.6
	Widowed	2	0.6

Table 10. *Partner Demographics (N = 309)*

		n	%
Gender Identity	Man	124	40.1
	Transgender	1	0.3
	Woman	184	59.5
Ethnicity/Race	African American or Black	36	11.7
	American Indian or Alaskan Native	5	1.6
	Asian	27	8.7
	Biracial, Multiracial, or Multiethnic	7	2.3
	Caucasian or White	225	72.8
	Hispanic or Latina/o/x	23	7.4
	Native Hawaiian or Other Pacific Islander	3	1.0

Table 11. *How Partners Met (N = 309)*

		n	%*
In Person Method of Meeting *(n = 104)*	In a bar/club	5	4.8
	Grew up together	6	5.8
	At the gym	3	2.9
	Introduced by someone else	17	16.3
	Through a religious organization	2	1.9
	At school	14	13.5
	At a social gathering	15	14.4
	At work	38	36.5
	Other	4	3.8
If Introduced, Who Introduced Partner *(n = 17)*	Coworker	2	11.7
	Mutual Friend	11	64.7
	Parent	1	5.9
	Relative	1	5.9
	Sibling	1	5.9
	Other	1	5.9
Mobile Dating App Used to Meet Partner *(n = 106)*	Badoo	3	2.8
	Bumble	19	17.9
	Coffee Meets Bagel	5	4.7
	Ferzu	1	1.0
	Grindr	3	2.8
	Hinge	1	1.0
	Huggle	2	1.9
	OkCupid	9	8.5
	Plenty of Fish (POF)	2	1.9
	Tinder	61	57.5
Online Dating Service Used to Meet Partner *(n = 99)*	Adult Friend Finder	1	1.0
	AsianDating.com	1	1.0
	BlackPeopleMeet.com	1	1.0
	CatholicMatch.com	4	4.0
	Chemistry	3	3.0
	Christian Mingle	2	2.0
	eHarmony	12	12.1
	JDate	2	2.0
	Match.com	39	39.4
	MeetMe.com	1	1.0
	Plenty of Fish (POF)	22	22.2
	OkCupid	4	4.0
	Silver Singles	1	1.0
	Zoosk	5	5.1
	Other	1	1.0

**Percentages listed were calculated out of number who responded to that specific question.*

Table 12. *Dating Behaviors (N = 309)*

	Face-to-Face Group[a]		Mobile Dating App Group[b]		Online Dating Group[c]		Total Sample	
Characteristic	*n*	%	*n*	%	*n*	%	*n*	%
Ever dated someone you met face-to-face?								
Yes	104	100.0	97	91.5	93	93.9	294	95.1
No	0	0.0	9	8.5	6	6.1	15	4.9
Ever dated someone met through an online dating site?								
Yes	50	48.1	75	70.8	99	100.0	224	72.5
No	54	51.9	31	29.2	0	0.0	85	27.5
Ever dated someone met through a mobile dating app?								
Yes	37	35.6	106	100.0	71	71.7	214	69.3
No	67	64.4	0	0.0	28	28.3	95	30.7
Know someone who dated someone they met face-to-face?								
Yes	101	97.1	99	93.4	94	94.9	294	95.1
No	3	2.9	7	6.6	5	5.1	15	4.9
Know someone who has dated someone they met online?								
Yes	92	88.5	96	90.6	96	97.0	284	91.9
No	12	11.5	10	9.4	3	3.0	25	8.1
Know someone who dated someone they met through a mobile dating app?								
Yes	80	76.9	98	92.5	84	84.8	262	84.8
No	24	23.1	8	7.5	15	15.2	47	15.2

	Face-to-Face Group[a]		Mobile Dating App Group[b]		Online Dating Group[c]		Total Sample	
Characteristic	*n*	%	*n*	%	*n*	%	*n*	%
Did you pay for the online dating site?*								
Yes	11	22.0	20	26.7	38	38.4	69	30.8
No	25	50.0	24	32.0	24	24.2	73	32.6
Some sites, but not all	10	20.0	17	22.7	27	27.3	54	24.1
Used the "free trial" period	4	8.0	13	17.3	10	10.1	27	12.1
Someone bought it for me	0	0.0	1	1.3	0	0.0	1	0.4
Did you pay for the mobile dating app?*								
Yes	12	32.4	32	30.2	15	21.1	59	27.6
No	18	48.7	56	52.8	43	60.6	117	54.7
Some apps, but not all	2	5.4	5	4.7	5	7.0	12	5.6
A special feature on the app, but not the service itself	5	13.5	13	12.3	8	11.3	26	12.1
What did you focus on when viewing an online dating profile?*								
Pictures of the person	22	44.0	33	44.0	37	37.4	92	41.1
Basic information	15	30.0	24	32.0	29	29.3	68	30.4
Content posted	13	26.0	17	22.7	31	31.3	61	27.2
Other	0	0.0	1	1.3	2	2.0	3	1.3
What did you focus on when viewing a mobile dating profile?*								
Pictures of the person	23	62.2	55	51.9	40	56.4	118	55.1
Basic information	12	32.4	28	26.4	16	22.5	56	26.2
Content posted	2	5.4	22	20.8	15	21.1	39	18.2
Other *(all of it)*	0	0.0	1	0.9	0	0.0	1	0.5

[a]*n* = 104. [b]*n* = 106. [c]*n* = 99.

**Percentage listed was calculated out of number who responded to that specific question.*

Table 13. *Different Ways Participants Met Past Partners (N = 309)**

Method of Meeting Someone	Face-to-Face Group[a]		Mobile Dating App Group[b]		Online Dating Group[c]		Total Sample	
	n	%	*n*	%	*n*	%	*n*	%
Face-to-Face								
Bar/Club	14	13.5	30	28.3	25	25.3	69	22.3
Blind Date	4	3.8	10	9.4	6	6.1	20	6.5
Grew up Together	14	13.5	15	14.2	18	18.2	47	15.2
Gym	6	5.8	7	6.6	6	6.1	19	6.1
Introduced by Someone	28	27.0	30	28.3	23	23.2	81	26.2
Through a Religious Organization	4	3.8	4	3.8	5	5.1	13	4.2
School	27	26.0	45	42.5	42	42.4	114	36.9
Social Gathering	28	26.9	32	30.2	31	31.3	91	29.4
Speed Dating Event	1	1.0	13	12.3	8	8.1	22	7.1
Work	39	37.5	23	21.7	20	20.2	82	26.5
Other	2	2.0	0	0.0	1	1.0	3	1.0
Online Dating Sites								
Adam4Adam	1	1.0	0	0.0	0	0.0	1	0.3
Adult Friend Finder	3	2.9	8	7.5	9	9.1	20	6.5
AltScene	0	0.0	1	0.9	0	0.0	1	0.3
AsianDating.com	1	1.0	3	2.8	2	2.0	6	1.9
Badoo.com	0	0.0	1	0.9	0	0.0	1	0.3
BlackPeopleMeet.com	0	0.0	11	10.4	3	3.0	14	4.5
CatholicMatch.com	6	5.8	7	6.6	4	4.0	17	5.5
Chemistry	5	4.8	7	6.6	5	5.1	17	5.5
Christian Mingle	4	3.8	5	4.7	2	2.0	11	3.6
eHarmony	11	10.6	20	18.9	32	32.3	63	20.4
Elite Singles	1	1.0	1	0.9	2	2.0	4	1.3
FarmersOnly.com	3	2.9	4	3.8	2	2.0	9	2.9
FriendFinder.com	4	3.8	7	6.6	4	4.0	15	4.8
Gene Partner	2	1.9	1	0.9	2	2.0	5	1.6
JDate	1	1.0	2	1.9	2	2.0	5	1.6
Match.com	17	16.3	36	34.0	57	57.6	110	35.6
MeetMe.com	0	0.0	2	1.9	1	1.0	3	1.0
Muslima.com	0	0.0	2	1.9	1	1.0	3	1.0
OkCupid.com	4	3.9	2	1.9	8	8.1	14	4.5
OurTime.com	0	0.0	2	1.9	1	1.0	3	1.0
Plenty of Fish (POF)	15	14.4	26	24.5	40	40.4	81	26.2
Scientific Match	3	2.9	2	1.9	0	0.0	5	1.6
Silver Singles	0	0.0	4	3.8	1	1.0	5	1.6
Singles.net	0	0.0	1	0.9	0	0.0	1	0.3

Method of Meeting Someone	Face-to-Face Group[a]		Mobile Dating App Group[b]		Online Dating Group[c]		Total Sample	
	n	%	*n*	%	*n*	%	*n*	%
XY.com	1	1.0	0	0.0	0	0.0	1	0.3
Zoosk	2	1.9	6	5.7	11	11.1	19	6.1
Other	0	0.0	1	0.9	0	0.0	1	0.3
Mobile Dating Apps								
Badoo	2	1.9	8	7.5	7	7.1	17	5.5
Bumble	15	14.4	40	37.7	10	10.1	65	21.0
Clover	1	1.0	3	2.8	7	7.1	11	3.6
CoffeeMeetsBagel	5	4.8	14	13.2	6	6.1	25	8.1
Ferzu	0	0.0	1	0.9	0	0.0	1	0.3
Grindr	7	6.7	5	4.7	4	4.0	16	5.2
Happn	2	1.9	3	2.8	0	0.0	5	1.6
Her	1	1.0	2	1.9	2	2.0	5	1.6
Hinge	7	6.7	6	5.7	6	6.1	19	6.1
Huggle	3	2.9	6	5.7	4	4.0	13	4.2
Jack'd	1	1.0	3	2.8	1	1.0	5	1.6
JSwipe	0	0.0	1	0.9	1	1.0	2	0.6
The League	1	1.0	3	2.8	2	2.0	6	1.9
Match (the app)	0	0.0	0	0.0	1	1.0	1	0.3
OkCupid	10	9.6	26	24.5	29	29.3	65	21.0
Plenty of Fish (POF)	1	1.9	1	0.9	2	2.0	4	1.3
Scruff	2	1.9	1	0.9	2	2.0	5	1.6
Tinder	24	23.1	83	78.3	46	46.5	153	49.5
Zoosk	0	0.0	0	0.0	1	1.0	1	0.3

[a]*n* = 104. [b]*n* = 106. [c]*n* = 99.

**Participants could select as many options as applicable. Percentages refer to the percentage of the sample that met a previous partner through the means listed.*

Table 14. *Participant Demographic ANOVAs (N = 309)*

	Face-to-Face Group		Mobile Dating App Group		Online Dating Group			
Characteristic	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Age	32.93	9.01	30.24	7.39	31.47	8.20	2.83	.061
Number of months you have known partner	27.04	13.18	21.01	14.56	23.09	13.86	5.10	.007
Number of months you have dated partner	22.45	12.36	19.00	14.20	22.72	13.46	2.51	.083

Table 15. *Chi Square Results for Participant Gender Identity*

Gender	Man		Nonbinary*		Woman		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%			
Face-to-Face[a]	70	67.3	0	0.0	35	33.7	14.53	2	.001
Mobile App[b]	43	40.6	0	0.0	63	59.4			
Online Dating[c]	54	54.5	1	1.0	44	44.4			

[a]*n* = 104. [b]*n* = 106. [c]*n* = 99.
**Cell count is less than five, so this identity was not included in the chi square analysis.*

Table 16. *Chi Square Results for Participant Ethnicity/Race*

Ethnicity /Race	African American or Black**		American Indian or Alaska Native**		Asian**		Biracial, Multiracial, or Multi-ethnic**		Caucasian or White		Hispanic or Latina/o/x **		Native Hawaiian or Other Pacific Islander**		Other**		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%			
Face-to-Face[a]	11	10.6	2	1.9	6	5.8	2	1.9	82	78.8	6	5.8	1	1.0	0	0.0	1.35	4	.852
Mobile App[b]	16	15.1	0	0.0	6	5.7	2	1.9	75	70.8	11	10.4	1	0.9	1	0.9			
Online Dating[c]	12	12.1	2	2.0	5	5.1	2	2.0	76	76.8	4	4.0	0	0.0	0	0.0			

Ethnicity/Race (cont.)	Combined Ethnicities/Races		χ^2	*df*	*p*
	n	%			
Face-to-Face[a]	28	26.9	2.29	2	.317
Mobile App[b]	37	34.9			
Online Dating[c]	25	25.2			

[a]*n* = 104. [b]*n* = 106. [c]*n* = 99.

***Cell count is less than five, so this identity was not included in the first chi square analysis. These identities were summed together to examine potential differences in representation of groups that have a history of discrimination compared to a privileged group (Sue & Sue, 2013).*

Table 17. *Chi Square Results for Participant Sexual Orientation*

Sexual Orientation	Bisexual		Demi/ Asexual*		Gay/ Lesbian*		Heterosexual /Straight		Pansexual*		Queer*		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%			
Face-to-Face[a]	16	15.4	0	0.0	5	4.8	83	79.8	0	0.0	0	0.0	0.03	2	.984
Mobile App[b]	16	15.1	0	0.0	2	1.9	86	81.1	2	1.9	0	0.0			
Online Dating[c]	14	14.1	2	2.0	2	2.0	78	78.8	2	2.0	1	1.1			

[a]$n = 104$. [b]$n = 106$. [c]$n = 99$.

**Cell count is less than five, so this identity was not included in the chi square analysis.*

Table 18. *Chi Square Results for Participant Marital Status*

Marital Status	Divorced*		Engaged		Married		Never Married		Separated*		Widowed*		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%			
Face-to-Face[a]	7	6.7	15	14.4	21	20.2	58	55.8	2	1.9	1	1.0	2.02	4	.732
Mobile App[b]	4	3.8	17	16.0	20	18.9	65	61.3	0	0.0	0	0.0			
Online Dating[c]	3	3.0	12	12.1	26	26.3	57	57.6	0	0.0	1	1.0			

[a]*n* = 104. [b]*n* = 106. [c]*n* = 99.
**Cell count is less than five, so this identity was not included in the chi square analysis.*

Table 19. *Chi Square Results for Participant Education*

Education	General Education Diploma (GED)*		High School Diploma		Vocational School*		Some College		Degree from a 2-year College		Degree from a 4-year University		Some Graduate School*		Graduate Degree		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%			
Face-to-Face[a]	2	1.9	9	8.7	1	1.0	22	21.2	15	14.4	44	42.3	1	1.0	10	9.6	2.43	4	.658
Mobile App[b]	1	0.9	8	7.5	1	0.9	19	17.9	2	1.9	57	53.8	7	6.6	11	10.4			
Online Dating[c]	0	0.0	4	4.0	0	0.0	28	28.3	3	3.0	50	50.5	4	4.0	10	10.1			

[a] $n = 104$. [b] $n = 106$. [c] $n = 99$.

**Cell count is less than five, so this identity was not included in the chi square analysis.*

Table 20. *Chi Square Results for Participant Religion*

Religion	Agnostic		Atheist		Buddhist*		Catholic		Christian		Hindu*		Jewish	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Face-to-Face[a]	26	25.0	18	17.3	1	1.0	28	26.9	20	19.2	0	0.0	2	1.9
Mobile App[b]	13	12.3	20	18.9	2	1.9	31	29.2	20	18.9	2	1.9	3	2.8
Online Dating[c]	22	22.2	21	21.2	1	1.0	26	26.3	17	17.2	4	4.0	3	3.0

Religion (cont.)	Muslim		Non-religious/ None*		Spiritual*		Prefer Not to Say*		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%	*n*	%			
Face-to-Face[a]	0	0.0	0	0.0	7	6.7	2	1.9	5.01	6	.543
Mobile App[b]	2	1.9	2	1.9	6	5.7	5	4.7			
Online Dating[c]	0	0.0	1	1.0	4	4.0	0	0.0			

[a] $n = 104$. [b] $n = 106$. [c] $n = 99$.

**Cell count is less than five, so this identity was not included in the chi square analysis.*

Table 21. *Chi Square Results of Partner's Gender Identity*

Gender Identity	Man		Transgender*		Woman		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%			
Face-to-Face[a]	37	35.6	0	0.0	68	65.4	2.15	2	.340
Mobile App[b]	43	40.6	0	0.0	63	59.4			
Online Dating[c]	44	44.5	1	1.0	53	53.5			

[a]*n* = 104. [b]*n* = 106. [c]*n* = 99.

**Cell count is less than five, so this identity was not included in the chi square analysis.*

Table 22. *Chi Square Results of Partner's Ethnicity/Race*

Ethnicity /Race	African American or Black**		American Indian or Alaska Native**		Asian**		Biracial, Multiracial, or Multi-ethnic**		Caucasian or White		Hispanic or Latina/o/x **		Native Hawaiian or Other Pacific Islander**		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%			
Face-to-Face[a]	8	7.7	3	2.9	7	6.7	4	3.8	81	77.9	5	4.8	1	1.0	3.69	4	.450
Mobile App[b]	16	15.1	0	0.0	11	10.3	2	1.9	75	70.8	14	13.2	0	0.0			
Online Dating[c]	12	12.1	2	2.0	9	9.1	1	1.0	69	69.7	4	4.0	2	2.0			

Ethnicity/Race (cont.)	Combined Ethnicities/Races		χ^2	*df*	*p*
	n	%			
Face-to-Face[a]	28	26.9	3.09	2	.213
Mobile App[b]	43	40.6			
Online Dating[c]	30	30.3			

[a]*n* = 104. [b]*n* = 106. [c]*n* = 99.

***Cell count is less than five, so this identity was not included in the first chi square analysis. These identities were then summed together to examine potential differences in representation of groups that have a history of discrimination compared to a privileged group in the second chi square analysis (Sue & Sue, 2013).*

Table 23. *Chi Square Results of Face-to-Face Interaction with Partner*

How often participants get to see their partner in person	One to 10 times		Once a month		Once a week		Multiple times a week		Every day		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%	*n*	%	*n*	%			
Mobile App[a]	17	16.0	5	4.7	8	7.5	31	29.2	45	42.4	2.71	4	.607
Online Dating[b]	10	10.0	7	7.0	9	9.1	25	25.3	48	48.5			

[a] $n = 106$. [b] $n = 99$.

Chapter IV. Results

Overview

The results of the analyses performed to test the different hypotheses are reported in the following chapter. The underlying assumptions were examined for each statistical test for each of the three conditions and some violations of the assumptions were identified. Histograms and the Shapiro-Wilk test of normality revealed the data were not normally distributed for the variables assessing for stigma, relationship satisfaction, dyadic trust, social support, and shame. The skewness and kurtosis were then examined for each variable for the group (face-to-face, mobile dating app, and/or online dating) that was not normally distributed. The largest values for skewness (1.03) and kurtosis (1.20) were still within an accepted range (Cain, Zhang, & Yuan, 2017; George & Mallery, 2010; Kim, 2013). The sample size was also large enough that the statistical tests should be robust to violations of the assumption of normality and so the statistical tests were still performed (Kim, 2013; Ross & Shannon, 2011).

A few outliers were identified in the data for scores on the Relationship Assessment Scale (RAS), Dyadic Trust Scale (DTS), and Network Support Index (NSI). The outliers that were identified were all possible scores that could be obtained and removing the outliers did not change the violation of nonnormality, so the outliers were included in the dataset when running the analyses. The analyses were tested a second time without the outliers, but the findings of significance remained the same. Additional information related to how any violations of assumptions specific to a statistical test were addressed are described prior to presenting the results of that statistical test.

Reliability Statistics

The reliabilities of the RAS, DTS, NSI, Relationship Initiation Outness Inventory (RIOI), and Other As Shamer scale (OAS) were examined to determine acceptability for inclusion in analyses. All measures had good internal consistency and were included in the analyses. For this study, the RAS had good internal consistency (α = .83), consistent with previously reported values, .81 to .91 (Khaddouma et al., 2016; Moore et al., 2011; Vaughn & Matyastik Baier, 1999). The DTS also had good internal consistency (α = .87), slightly below previously reported values of .90 with same-sex couples (Gabbay et al., 2012) and .93 with heterosexual couples (Larzelere & Huston, 1980). The NSI had good internal consistency (α = .88), slightly above previously reported values of .83 to .86 (Sprecher & Felmlee, 1992). The modified RIOI also had good internal consistency (α = .84), consistent with previously reported values of .78 to .97 (Mohr & Fassinger, 2000; Wilkerson et al., 2016). The OAS had excellent internal consistency (α = .97), slightly better than the previously reported value of .92 (Goss et al., 1994). Table 24 contains a comparison of the reliability statistics found for each measure in this study and the reliability found for those measures in the literature.

Validity Check

Although the pilot study found differences in how people perceived meeting a romantic partner face-to-face, online, or through a mobile dating app, a different sample of participants was recruited for the full study and so a validity check was performed to examine whether differing levels of stigma were associated with the three ways in which one could meet a romantic partner within this sample. All participants, regardless of their own experience with ways of meeting a partner, rated the extent to which they believed stigma was associated with online, mobile app, and face-to-face dating. I used a repeated measures analysis of variance with

a Hunyh-Feldt correction to examine if any differences existed in the perception of stigma towards how someone meets a romantic partner because Mauchly's Test of Sphericity indicated the assumption of sphericity was violated, $\chi^2(2) = 106.73$, $p < .001$. The repeated measures ANOVA determined the mean scores for perceived stigma towards how someone met their partner significantly differed, $F(1.55, 479.11) = 124.61$, $p < .001$. Post hoc tests using the Bonferroni correction revealed the amount of perceived stigma towards people who met their partner in person ($M = 2.67$, $SD = 3.24$), through an online dating service ($M = 4.72$, $SD = 2.89$), or through a mobile dating app ($M = 5.25$, $SD = 2.85$) were all significantly different ($p < .001$) from one another. Therefore, we can conclude people believe more stigma exists towards people who meet their partner through an online or mobile dating service than those who meet their partner face-to-face. Additionally, people believe more stigma exists towards those who meet their partner though a mobile dating app than those who meet their partner though an online dating service. The results of the evaluation of stigma perception were consistent with the results of the pilot study and indicate people associate varying levels of stigma to the way in which someone meets their romantic partner. Table 25 presents the mean and standard deviation for each of the stigma questions.

Hypotheses 1-5: MANCOVA, ANCOVA, and ANOVA Results

To explore if the measured variables (relationship satisfaction, relational trust, relationship initiation outness, relational social support, and shame) differed as a function of how a relationship began (online dating, mobile app dating, or face-to-face), a MANCOVA was performed controlling for age and the length of the relationship as is consistent with previous research examining relationships that noted these variables can affect the results (Cacioppo et al., 2013; Gatter & Hodkinson, 2016; Paul, 2014; Sumter et al., 2016). The assumption of

homogeneity of covariances was met (Box M = 52.57, p = .009).The Box's M Test value of 52.57 was associated with a p value of .009, which was interpreted as not significant based on the alpha level of .001 recommended for larger sample sizes (Hahs-Vaughn, 2016).

To examine the assumption of homogeneity of error variances, Levene's test was examined for each dependent variable. Levene's test showed the variances for relationship satisfaction (F(2, 292) = 1.21, p = .299), dyadic trust (F(2, 292) = 0.38, p = .681), social support (F(2, 292) = 0.20, p = .816), and relationship initiation outness (F(2, 292) = 2.34, p = .098) were all equal at the alpha .05 level. Variances for shame were not equal at the .05 level, F(2, 292) = 4.61, p = .011, but this assumption is robust for larger sample sizes especially when the group sizes are roughly equal. Additionally, the Brown-Forsythe test can be used when data are not normally distributed and the 1.96 value found by this test revealed the variances were equal (p = .142), so the decision was made to proceed with performing the MANCOVA (Garson, 2012).

An initial MANCOVA revealed a statistically significant difference between how people met their partner on the combined dependent variables after controlling for age and the length of the relationship F(10, 572) = 1.87, p = .047, Wilks' Λ = .94, partial η^2 = .032. Given the significance of the overall test, the univariate main effects were examined. Levene's Test showed the homogeneity of variance assumption was met for all of the dependent variables with the exception of the OAS, F(2, 306), = 3.57, p = .029. This assumption was met using the Brown-Forsythe test value of 1.96 (p = .142), which is a more appropriate statistic given the lack of normality of the data (Garson, 2012). Testing the assumption that a linear relationship exists between the covariate and dependent variable for each ANCOVA originally planned revealed a linear relationship did not exist between one or both covariates and the dependent variable. Additionally, scatterplots of the correlations between the variables did not provide any evidence

for linear or curvilinear distributions consistent with the correlations found. Table 26 shows the correlations found for each dependent variable and the intended covariates. Based on these findings, an ANOVA was performed for RAS, DTS, and NSI, an ANCOVA with length of relationship as a covariate for the RIOI, and an ANCOVA with age as a covariate was performed for the OAS. For each ANOVA and ANCOVA run, the covariate was independent of the independent variable and the group regression slopes were equal.

A one-way ANOVA was completed to examine if how someone met their partner affected their relationship satisfaction. Hypothesis 1a stated participants in a relationship that met face-to-face would have higher relationship satisfaction than those who met their partner through an online dating site or mobile dating app. Hypothesis 1b stated participants who met their partner online would have higher relationship satisfaction than those who met their partner through a mobile dating app. No significant differences in relationship satisfaction between the three groups were found, $F(2, 305) = 2.34$, $p = .098$, partial $\eta^2 = .015$, thus the hypotheses were not supported.

Hypothesis 2a stated participants in a relationship that met face-to-face would report significantly more relational trust than participants in relationships initiated from online dating services or mobile dating apps. Hypotheses 2b stated those who met their partner through an online dating service would report more relational trust than those who met their partner through a mobile dating app. These hypotheses were also not supported. No significant differences in relational trust between the three groups were found, $F(2, 305) = 1.70$, $p = .184$, partial $\eta^2 = .011$.

Hypothesis 3a stated participants in a relationship with a partner they met face-to-face would be significantly more out about their relationship than those who met their partner online

or through a mobile dating app. Hypothesis 3b stated participants who met through an online dating service would be more out about how they met their partner than those who met their partner through a mobile dating app. Given the significant linear relationship found between the RIOI and the length of the relationship, an ANCOVA controlling for the length of the relationship was completed to examine the relationship between how someone met their partner and how out they are about how they met. Significant differences in how out someone was about their relationship were found related to the way in which they met their partner. These differences existed even after controlling for how long participants were dating, $F(2, 305) = 3.39$, $p = .035$, partial $\eta^2 = .022$. Post hoc comparisons using Fisher's LSD test provided support for hypothesis 3a and indicated those who met their partner face-to-face ($M = 43.30$, $SD = 12.54$) were significantly ($p = .023$) more open about how they met their partner than those who met their partner through an online dating service ($M = 38.89$, $SD = 13.57$) and those who met their partner using a mobile dating app ($M = 38.64$, $SD = 15.35$, $p = .029$). Hypothesis 3b was not supported, as individuals who use online dating sites and mobile dating apps did not significantly differ ($p = .906$) in relationship initiation outness.

Hypothesis 4a stated participants in a relationship that met face-to-face would report more social support for their relationship than those who met their partner through an online dating site or mobile dating app. Hypothesis 4b stated participants who met their partner online would report experiencing significantly more relational social support than those who met their partner through a mobile dating app. No significant differences were found in relational social support between the three groups, $F(2, 292) = 2.21$, $p = .111$, partial $\eta^2 = .015$, thus the hypotheses were not supported.

Hypothesis 5a stated those who met their partner through a mobile dating app would score higher on a measure of shame than the other two groups. Hypothesis 5b stated participants who met their partner online would score higher on a measure of shame than participants who met their partner face-to-face. Given the significant linear relationship found between the OAS and the age of participants, an ANCOVA controlling for age was completed to examine the relationship between how someone met their partner and their score on a measure of shame. No significant differences in shame between the three groups were found, $F(2, 305) = 1.57$, $p = .211$, partial $\eta^2 = .010$, thus the hypotheses were not supported. Table 27 presents the means and standard deviations for all three groups for all of the dependent variables.

Hypothesis 6: Bivariate Correlations with Relationship Satisfaction

To test hypothesis 6 and determine if relationship satisfaction was correlated with relationship initiation outness, relational social support, and shame, bivariate correlations were run. Before the bivariate correlations were performed, Q-Q plots demonstrated a symmetric distribution with fat tails which is indicative of a normal distribution (Ford, 2015). Residuals plots from the regression, however, exhibited heteroscedasticity. This means the resulting *p*-values may be smaller than is accurate (Frost, 2019).

The Pearson correlation indicated there was not a significant relationship between relationship satisfaction and relationship initiation outness, $r(309) = .08$, $p = .138$. There was a significant positive association between relationship satisfaction and relational social support as measured by the NSI, $r(295) = .58$, $p < .01$. A higher score on the Network Support Index means participants perceived greater social support for their relationship. This means individuals who reported being more satisfied with their relationship also reported experiencing more support for their relationship from others in their social network. There was a significant negative

association found between relationship satisfaction and shame, $r(309) = -.48$, $p < .01$. As people reported higher levels of relationship satisfaction, they also reported experiencing less external shame. Partial support for hypothesis 6 was thus found. Table 28 shows the correlations between variables for the entire sample.

Correlations between relationship satisfaction, relationship initiation outness, relational social support, and shame were also examined within each group (those who met their partner face-to-face, through a mobile dating app, or through an online dating site). For all three ways of meeting a potential partner, relationship satisfaction was significantly positively correlated with social support and negatively correlated with shame. For participants who met their partner face-to-face, relationship initiation outness was significantly positively correlated with relationship satisfaction, $r(104) = .21$, $p = .033$. Higher scores on the Relationship Initiation Outness Inventory represent an individual being more open about how they met their partner with different groups of people in their life. Thus, those who reported being more open about their relationship also reported being more satisfied with their relationship in the group who met their partner face-to-face. A significant relationship between relationship satisfaction and relationship initiation outness was not found among those who met their partner through a mobile dating app ($r(106) = .08$, $p = .416$) or those who met their partner through an online dating site ($r(99) = -.06$, $p = .577$). Tables 29, 30, and 31 present the correlations found for each group.

Hypothesis 7: Mediation Results

Hypothesis 7 stated that shame, outness, and relational social support would mediate the relationship between how someone met their partner and relationship satisfaction. To test Hypothesis 7, Baron and Kenny's (1986) four step approach to mediation was followed to examine the significance of the relationships among each of the variables and assess the

mediational effects of how someone met their romantic partner on relationship satisfaction. The indirect effect was then tested using Hayes's parallel process mediation model (model 4). The analyses for the study used 5,000 bootstrapped samples with bias corrected and accelerated estimates and a 95% confidence interval. Dummy coding was used for the categorical variable of how participants met their partner (e.g., face-to-face, online, or through a mobile dating app) with online dating used as the reference group.

In the mediation model (see Figure 1), regressing how someone met their partner on relationship satisfaction, ignoring the mediator, was not significant for X_1, B = -.83, $t(293)$ = -1.62, p = .107, or X_2, B = -.51, $t(293)$ = -.97, p = .333. Regressing how someone met their partner on the mediator shame was not significant for X_1, B = -1.54, $t(293)$ = -.63, p = .527, but was significant for X_2, B = -5.17, $t(293)$ = -2.11, p = .036. Similarly, regressing how someone met their partner on the mediator relationship initiation outness was not significant for X_1, B = .57, $t(293)$ = .29, p = .770, but was significant for X_2, B = 5.11, $t(293)$ = 2.62, p = .009. However, regressing how someone met their partner on the mediator social network support was not significant for X_1, B = -1.14, $t(293)$ = -1.16, p = .249, or X_2, B = .92, $t(293)$ = .92, p = .356. The mediator shame, controlling for how someone met their partner, was significantly related to relationship satisfaction, B = -.10, $t(290)$ = -7.76, $p < .001$. The mediator relationship initiation outness, controlling for how someone met their partner, was also significantly related to relationship satisfaction, B = -.04, $t(290)$ = -2.26, p = .024. The mediator social network support, controlling for how someone met their partner, was significantly related to relationship satisfaction, B = .36, $t(290)$ = 10.68, $p < .001$.

Full mediation is supported by the direct path being significant without the mediator but failing to be significant once the mediator is added. The relationship between relationship

satisfaction and how someone met their partner was not significant and so this relationship could not be mediated by shame, social network support, or relationship initiation outness. The process macro by Hayes (2018) investigates indirect effects without the requirement of a significant direct effect. No relationships were significant for X_1 (when online and face-to-face dating were coded as 0 and mobile app dating coded as 1). When online and mobile app dating were coded as 0 and face-to-face dating was coded as 1 (X_2), the independent variable (how participants met their partner) was significantly related to shame (p = .036) and relationship initiation outness (p = .009), but not network social support (p = .356) or relationship satisfaction (p = .333). Hayes (2018) recommends using bootstrap confidence intervals to examine indirect effects in mediation models because Sobel tests make assumptions about the shape of the sampling distribution that often do not fit the actual distribution. A significant indirect effect is present when the confidence interval (CI) does not contain a value of 0. The mediation analysis did not provide evidence of an indirect effect of how someone met their partner on relationship satisfaction via shame for X_1 (B = .15, SE = .26, 95% CI = -.36, .67), relationship initiation outness (B = -.02, SE = .08, 95% CI = -.20, .14), or network social support (B = -.41, SE = .37, 95% CI = -1.20, .26). The mediation analysis provided evidence of an indirect effect of how someone met their partner on relationship satisfaction via shame for X_2 (B = .52, SE = .26, 95% CI = .05, 1.05), but not via relationship initiation outness (B = -.19, SE = .12, 95% CI = -.45, 0.00) or network social support (B = .33, SE = .34, 95% CI = -.38, .97). Thus, partial support for hypothesis 7 was found.

Exploratory Analysis

Given the findings of significance between how a participant met their partner and relationship initiation outness (p =.01) and network social support and relationship satisfaction (p < .001), a sequential mediation analysis (model 6) was performed to further explore the

relationships between these variables. Relationship initiation outness was entered as the first mediator and network social support as the second mediator. The analyses were based on 5000 bootstrapped samples using bias corrected and accelerated 95% confidence intervals. Dummy coding was again used for the categorical variable of how participants met their partner (e.g., face-to-face, online, or through a mobile dating app) with online dating used as the reference group. This resulted in Group 1 (X_1) consisting of the face-to-face and online dating participants compared to the mobile dating app participants and Group 2 (X_2) consisting of the online and mobile dating app participants compared to the face-to-face participants.

Figure 2 illustrates the testing of how someone met their romantic partner as a sequential mediator on relationship satisfaction. Regressing how someone met their partner on relationship satisfaction, ignoring the mediator, was not significant for X_1, B = -.58, $t(293)$ = -1.04, p = .300, or X_2, B = -.01, $t(293)$ = -.01, p = .991. Regressing how someone met their partner on the first sequential mediator, relationship initiation outness, was not significant for X_1, B = .57, $t(293)$ = .29, p = .770, but was significant for X_2, B = 5.11, $t(293)$ = 2.62, p = .009. Regressing how someone met their partner on the second sequential mediator, network social support, was not significant for X_1, B = -1.24, $t(293)$ = -1.33, p = .185, or X_2, B = .05, $t(293)$ = .05, p = .959. Regressing relationship initiation outness (i.e., the first sequential mediator) on the network social support (i.e., the second sequential mediator) was significant, B = .17, $t(293)$ = 6.06, p < .001. Regressing network social support on relationship satisfaction was significant, B = .44, $t(293)$ = 12.34, p < .001.

Although the failure to find a significant relationship between how someone met their partner and relationship satisfaction meant that traditional mediation would not be possible, the process macro by Hayes (2018) allows for the testing of indirect effects in the absence of a

significant direct effect. How participants met their partner was not significantly associated with relationship initiation outness for X_1 (p = .770), but it was significant for X_2 (p = .009). Relationship initiation outness was significantly associated with network social support (p < .001) and network social support was significantly associated with relationship satisfaction (p < .001). The mediation analysis, thus provided evidence of an indirect effect of how someone met their partner on relationship satisfaction via relationship initiation outness and network social support for X_2, B = .38, SE = .16, 95% CI =.01, .74, but not X_1, B = .04, SE = .16, 95% CI =-.26, .38.

Post-hoc analyses, running three tests of indirect effect in the Hayes's macro with each test comparing two of the groups, were performed to examine which of the ways of meeting created the indirect effect found. These analyses were based on 5000 bootstrapped samples using bias corrected, accelerated 95% confidence intervals, and standardized coefficients. Figures 3, 4, and 5 illustrate how someone met their romantic partner as a sequential mediator on relationship satisfaction for the online and mobile app groups, the mobile app and face-to-face groups, and the online and face-to-face groups respectively. As shown in Table 32, the post-hoc analyses revealed the indirect effect of how someone met their partner on relationship satisfaction via relationship initiation outness and network social support existed for the mobile app and face-to-face groups (B = .09, SE = .04, 95% CI =.02, .17) and the online and face-to-face groups (B = .04, SE = .02, 95% CI =.01, .01), but not the online and mobile app groups (B = .01, SE = .03, 95% CI = -.04, .06). Thus the post-hoc analyses revealed that the indirect effect was such that those who met face-to-face are more out about how they met their partner (as shown by the ANCOVA findings) and potentially benefit more from the being out about how they met their partner in terms of increased support for the relationship and relationship satisfaction.

Summary of Results

The results supporting the hypotheses were mixed. No significant differences in relationship satisfaction, trust, social support, or shame were found between those who met their partner face-to-face, online, or through a mobile dating app. Participants who met their partner face-to-face were significantly more out about how they met their partner than those who met their partner through an online or mobile dating service. Relationship satisfaction was significantly correlated with social support and shame, but not relationship initiation outness. Shame, social network support, and relationship initiation outness do not mediate the relationship between how someone met their partner and relationship satisfaction, however, there was an indirect effect for the way in which someone met their partner on relationship satisfaction via shame. In addition, exploratory analyses revealed an indirect effect of how someone met their partner on relationship satisfaction through outness and then relationship support from one's social network. In other words, how someone met was related to how out they were about how they met, that then related to the support they received for the relationship, which then related to relationship satisfaction.

Table 24. *Comparison of Cronbach's Alpha*

Measure	Current Sample Reliability	Established Reliability
RAS	.83	.81 - .91[a]
DTS	.87	.90 - .93[b]
NSI	.88	.83 - .86[c]
RIOI	.84	.78 - .97[d]
OAS	.97	.92[e]

Note: RAS = Relationship Assessment Scale. DTS = Dyadic Trust Scale. NSI = Network Support Index. RIOI = Relationship Initiation Outness Inventory. OAS = Other As Shamer scale.
[a]Khaddouma et al., 2016; Moore et al., 2011; Vaughn & Matyastik Baier, 1999
[b]Gabbay et al., 2012; Larzelere & Huston, 1980
[c]Sprecher & Felmlee, 1992
[d]Mohr & Fassinger, 2000; Wilkerson et al., 2016
[e]Goss et al., 1994

Table 25. *Means and Standard Deviations for Stigma (N = 309)*

Items	*M*	*SD*	*F*	*p*
Stigma			124.61	<.001
Face-to-Face	2.67	3.24		
Online Dating	4.72	2.89		
App-Based	5.25	2.85		

Table 26. *Correlations with Covariates*

	Variables	Age		Length of Relationship	
		r	*p*	*R*	*p*
1.	RAS	-.01	.840	.10	.089
2.	DTS	.08	.165	-.02	.698
3.	RIOI	-.06	.281	.13	.022*
4.	NSI	-.02	.709	.05	.361
5.	OAS	-.18	.002*	-.01	.872

Note: RAS = Relationship Assessment Scale. DTS = Dyadic Trust Scale. RIOI = Relationship Initiation Outness Inventory. NSI = Network Support Index. OAS = Other As Shamer scale.
*$p < .05$.

Table 27. *ANOVA and ANCOVA Comparisons Between Groups*

	Face-to-Face Group		Mobile Dating App Group		Online Dating Group				
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	F	*p*	Partial η^2
RAS	29.41	4.64	28.12	4.99	29.32	4.82	2.34	.098	.015
DTS	45.27	8.45	43.42	7.92	45.28	8.88	1.70	.184	.011
RIOI[a]	43.30	12.54	38.64	15.35	38.89	13.57	3.39	.035*	.022
NSI	34.92	6.76	32.86	7.26	34.00	6.69	2.21	.111	.015
OAS[b]	16.69	15.46	19.58	17.01	21.38	18.52	1.57	.211	.010

Note: RAS = Relationship Assessment Scale. DTS = Dyadic Trust Scale. RIOI = Relationship Initiation Outness Inventory. NSI = Network Support Index. OAS = Other As Shamer scale.
*$p < .05$.
[a]Controlled for length of relationship.
[b]Controlled for age.

Table 28. *Correlations Among Variables for Full Sample*

Variables	*M*	*SD*	1	2	3
1. RAS	28.94	4.84			
2. RIOI	40.29	14.01	.08		
3. NSI	33.92	6.94	.58**	.34**	
4. OAS	19.19	17.07	-.48**	-.04	-.28**

Note: RAS = Relationship Assessment Scale. RIOI = Relationship Initiation Outness Inventory. NSI = Network Support Index. OAS = Other As Shamer scale. All correlations are in the direction that was predicted.
*$p < .05$. **$p < .01$.

Table 29. *Correlations Among Variables for Condition 1 (Face-to-Face)*

Variables	*M*	*SD*	1	2	3
1. RAS	29.41	4.64			
2. RIOI	43.30	12.54	.21*		
3. NSI	34.92	6.76	.75**	.37**	
4. OAS	16.69	15.46	-.54**	-.26**	-.53**

Note: RAS = Relationship Assessment Scale. RIOI = Relationship Initiation Outness Inventory. NSI = Network Support Index. OAS = Other As Shamer scale.
*$p < .05$. **$p < .01$.

Table 30. *Correlations Among Variables for Condition 2 (App-Based)*

Variables	*M*	*SD*	1	2	3
1. RAS	28.12	4.99			
2. RIOI	38.64	15.35	.08		
3. NSI	32.86	7.26	.52**	.40**	
4. OAS	19.58	17.01	-.47**	.09	-.11

Note: RAS = Relationship Assessment Scale. RIOI = Relationship Initiation Outness Inventory. NSI = Network Support Index. OAS = Other As Shamer scale.
*$p < .05$. **$p < .01$.

Table 31. *Correlations Among Variables for Condition 3 (Online Dating Sites)*

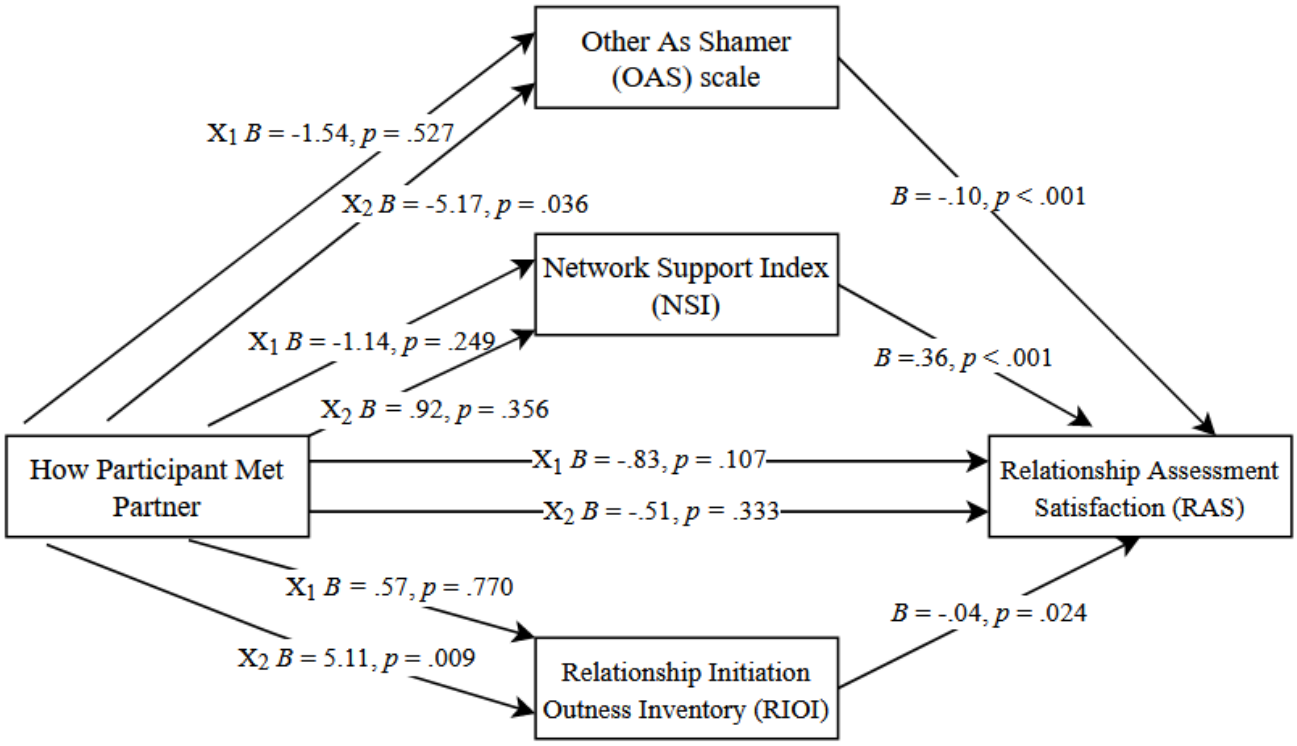
Variables	*M*	*SD*	1	2	3
1. RAS	29.32	4.82			
2. RIOI	38.89	13.57	-.06		
3. NSI	34.00	6.69	.48**	.22*	
4. OAS	21.38	18.52	-.46**	.05	-.25*

Note: RAS = Relationship Assessment Scale. RIOI = Relationship Initiation Outness Inventory. NSI = Network Support Index. OAS = Other As Shamer scale.
*$p < .05$. **$p < .01$.

Table 32. *Post-hoc Analyses Examining Indirect Effect of How Someone Met Their Partner on Relationship Satisfaction via Relationship Initiation Outness and Network Social Support FT*

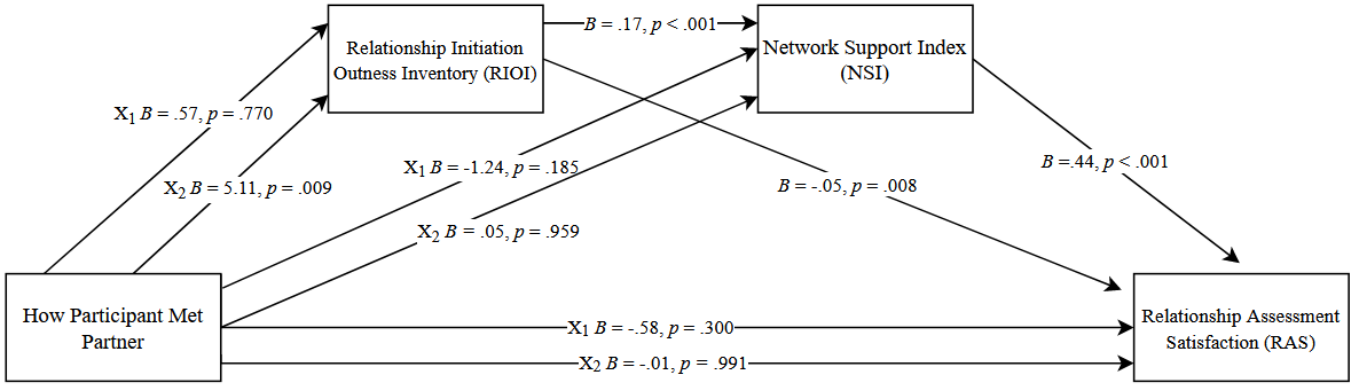
Comparisons	*B*	SE	95% CI	
			Lower Bound	Upper Bound
Online vs. Mobile App	.01	.03	-.04	.06
Mobile App vs. Face-to-Face	.09	.04	.02	.17
Online vs. Face-to-Face	.04	.02	.01	.08

Figure 1. *Testing of Mediation of OAS, NSI, and RIOI on Relationship Satisfaction*



X_1 = Online and face-to-face dating were coded as 0, mobile app dating was coded as 1
X_2 = Online and mobile app dating were coded as 0, face-to-face dating was coded as 1

Figure 2. *Exploratory Analysis of RIOI and NSI on Relationship Satisfaction Using All Groups*



X_1 = Online and face-to-face dating were coded as 0, mobile app dating was coded as 1
X_2 = Online and mobile app dating were coded as 0, face-to-face dating was coded as 1

Figure 3. *Post-hoc Analysis of RIOI and NSI on Relationship Satisfaction for Online and Mobile App Groups*

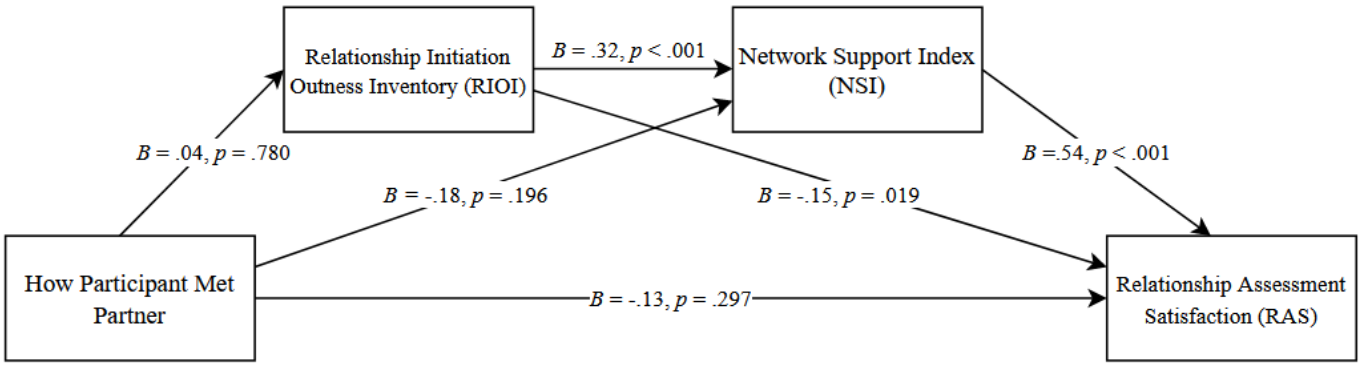


Figure 4. *Post-hoc Analysis of RIOI and NSI on Relationship Satisfaction for Mobile App and Face-to-Face Groups*

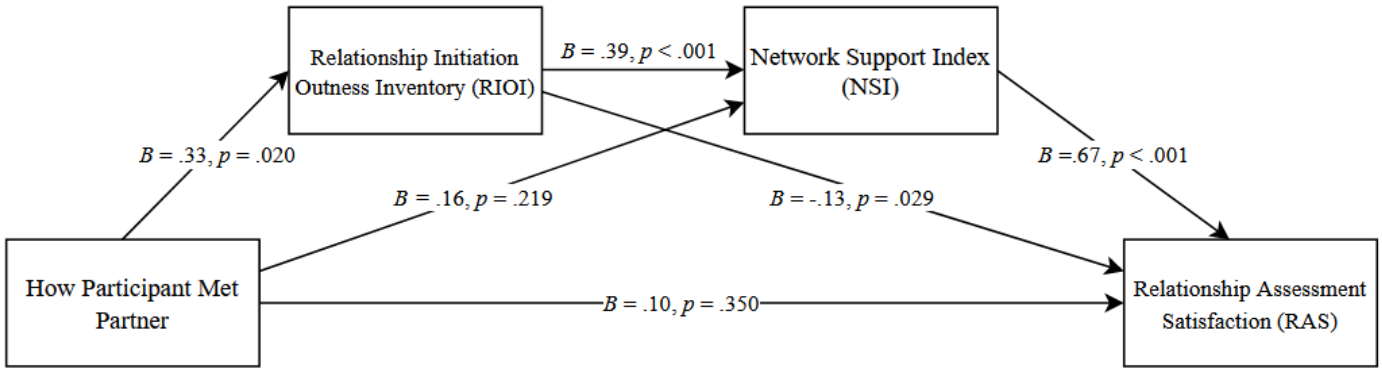
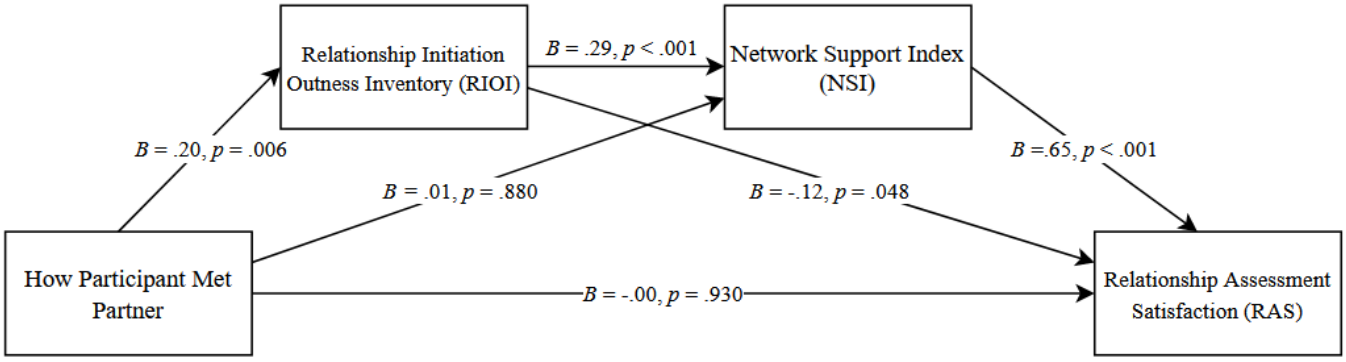


Figure 5. *Post-hoc Analysis of RIOI and NSI on Relationship Satisfaction for Online and Face-to-Face Groups*



Chapter V. Discussion

As previously stated, the purpose of this investigation was to examine if any differences existed in how a relationship was initiated and the amount of trust, social support, shame, and relationship satisfaction participants reported experiencing. It was thought the increased amount of stigma towards online and mobile app dating compared to face-to-face dating (Barkho, 2014; Cali et al., 2013; Doan, 2010) would result in individuals who used a dating service reporting less relational trust, lower levels of perceived social support, higher levels of shame, and less disclosure about how they met their partner. It was also thought these variables would influence relationship satisfaction resulting in lower relationship satisfaction for those who met their partner through a dating service compared to those who met their partner face-to-face. The sample for the present study consisted of mostly heterosexual, Caucasian individuals ranging in age from 19 to 70 with a mean age of 31.54. On average, participants knew their partner for 23.70 months and spent the majority of that time (M = 21.35 months) dating their partner. This chapter discusses the meaning of the results, limitations of the study, implications of the findings, and directions for future research.

Meaning and Interpretation of Findings

Relationship satisfaction. Previous research examining relationship satisfaction between face-to-face and online daters produced mixed results with some studies reporting couples who met online had significantly higher martial satisfaction (Cacioppo et al., 2013), while others found those who met online reported lower levels of relationship satisfaction (Haack & Falcke, 2014; Paul, 2014). The present study is the first known study to compare relationship satisfaction between people who met face-to-face, online, and through a mobile dating app. This is also the first known study to examine relationship satisfaction in individuals using mobile dating apps.

Contrary to what I predicted in hypotheses 1a and 1b, no significant differences in relationship satisfaction were found between people who met their partner face-to-face, through an online dating site, or through a mobile dating app. This finding indicates that despite the perception that using online and mobile dating services is embarrassing and may not be viewed as a good way to meet a potential long term partner, people who do meet their partner through a dating service feel just as happy and fulfilled by the relationship as those who meet their partner through a face-to-face encounter.

One explanation for this finding is the potential stigma towards how people met is either not strong enough or not a significant factor in affecting relationship satisfaction. An alternative explanation is some of the variables that influence relationship satisfaction are being satisfied in unique ways by online and mobile dating services. For example, past research has identified similarity (Carter & Buckwalter, 2009; Haack & Falcke, 2014; Lutz, Bradley, Mihalik, & Moorman, 2006) and early sexual satisfaction (Fallis et al., 2016; McNulty, Wenner, & Fisher, 2016) as important variables to a relationship. Individuals who perceive higher levels of similarity between them and their partner in traits they view as important report higher levels of relationship satisfaction (Lutz et al., 2006). Some dating services, like ChristianMingle.com and JSwipe, allow users to search for other users who have a specific characteristic in common with them. Others use algorithms that help match people based on several similarities (Anderson & Emmers-Sommer, 2006; Carter & Buckwalter, 2009; Sprecher, 2012). Mobile dating services are sometimes associated with individuals engaging in sex earlier on in the relationship (Barkho, 2014; Gatter & Hodkinson, 2016; Sumter et al., 2016). The perceived stigma towards electronic dating services could be negatively affecting relationship satisfaction, but electronic dating services could be simultaneously affecting other variables like similarity and early sexual

satisfaction that are increasing relationship satisfaction, ultimately equating the outcome for different ways of meeting in a way that is consistent with a failure to find a significant effect of how someone met their partner on reported relationship satisfaction. Another possibility is that people's perceptions towards online and mobile dating services tend to change and they view the services more positively after they use them (Donn & Sherman, 2002). As people perceive the services more positively, perhaps their perception of the stigma towards them also decreases and so this does not have an effect on their relationship satisfaction. Additionally, studies that fail to produce significant results are rarely published (called the "file drawer problem"), so it is also possible the current study's findings are consistent with what other researchers have found (Rosenthal, 1979).

Trust. Differences in the amount of relational trust between individuals who met their partner face-to-face, online, or through a mobile dating app were anticipated because of how computer mediated communication affects self-disclosure (Bryce & Fraser, 2014; Nguyen et al., 2012) and because the safety concerns associated with online and mobile app dating require users of dating services to develop different ways of establishing trust in the people communicating with them (Jin & Martin, 2015; Obada-Obieh & Somayaji, 2017). Contrary to the predictions for hypotheses 2a and 2b, the present study found no significant differences in relational trust between those who met their partner online, through a mobile dating app, or face-to-face. The present study required all participants to have met their romantic partner in person at least once. It is possible relational trust related to how someone met their partner may vary early on in the relationship or prior to meeting a partner in person, but significant differences in trust decrease as a relationship progresses. Another possibility is that as individuals continue using online or mobile dating services, their comfort level with using those services increases. Users

may not have safety or trust related worries if they have already had some successful experiences meeting people through a dating service. The current study did not ask participants if they previously dated other people using the service they used to meet their current partner; thus, it was not possible with the current data to examine if increased exposure to online or mobile dating services affects trust.

Another reason for the failure to find significant differences could be the increase in communication via texting and e-mails accompanying dating services (Newport, 2014). Texting is the most common form of communication among those under 50 in the United States (Newport, 2014). The amount of time spent communicating via e-mails, social media, and texting may have normalized communicating through an electronic means rather than face-to-face. If most communication occurs through computer mediated forms regardless of how people met, their rates of disclosure and the level of trust that develops may be similar.

Relationship Initiation Outness. Previous research found people are less likely to want people to know they met their partner through an online site compared to knowing they met them face-to-face (Doan, 2010; Rosen et al., 2008). The current study confirms and extends this finding to individuals who use mobile dating apps. The present study found participants who met their partner face-to-face were significantly more open about how they met their partner than participants who met their partner though an online dating site or mobile dating app, thus confirming hypothesis 3a. This difference was found even after controlling for the length of the relationship, so having more time and opportunities to share with people how one met their partner is not explaining the difference in relationship initiation outness between the groups. The results of the pilot study and the results of the evaluation of stigma perception were consistent with the idea that more stigma may be associated with using a dating service to meet a partner

compared to meeting a partner face-to-face. Individuals are less likely to disclose something about themselves associated with stigma (Kurdek, 2005; Schrimshaw et al., 2018; Whitehead et al., 2016), so perhaps online and mobile app daters are reluctant to share they met their partner through these means because of the negative perceptions they believe people have of these dating services.

No significant differences in relationship initiation outness were found between online dating and mobile app dating. Thus, I did not find support for hypothesis 3b, which proposed online daters would score higher on a measure of relationship initiation outness than mobile app daters. The majority (70.8%) of participants in the mobile dating app group reported previously dating someone they met on an online dating site (compared to 48.1% of participants in the face-to-face group) and the majority (71.7%) in the online dating group reported also having dated someone they met through a mobile dating app (compared to 35.6% in the face-to-face group). The familiarity participants had with both types of dating services may explain why people using electronic dating services scored similarly on the measure of relationship initiation outness.

Another possible explanation for why differences were not found in relationship initiation outness between online and mobile dating app users could be because both groups of people may be coming out to the people in their life they feel will not judge them. They may be avoiding the "how did you meet?" question with people they anticipate may believe some of the stigma associated with electronic dating services. Previous research on relationship initiation outness and online dating noted individuals may feel more comfortable sharing how they met their partner to certain people in their life (like close friends) than others (like employers; Hegland, 2014; Rosen et al., 2008). Perhaps individuals using mobile dating apps feel similarly and are sharing how their relationship started with some groups of people, but not others. Literature on

the motivations for using mobile dating apps provides some support for this idea as some people feel peer pressure to use the services because others in their social circle are using them (LeFebvre, 2018; Timmermans & De Caluwé, 2017a). It would make sense for these individuals to be open about how they met their partner with their peers who are engaging in similar behaviors, but perhaps not as open with other members of their social network.

Social Support. No significant differences were found between the three groups related to perceived social support for the relationship. Thus, no support for hypotheses 4a or 4b was found. The current study found participants who met their partner face-to-face are significantly more out about how they met their partner compared to individuals who met their partner through a dating service. Prior research on disclosure and social support did not specifically examine disclosure of how one met their partner, so relationship initiation may not be an important piece of information to share in order to feel social network support for a romantic relationship. It is also possible individuals are not being asked how they met their partner and so they do not feel the need to share this aspect of their relationship. The current study found social support and relationship initiation outness were positively correlated. People may be choosing to disclose how they met their partner only when they anticipate a positive response, thus some people (like those who met their partner face-to-face) may choose to share this information while others withhold or lie about how they met their partner so that relationship initiation does not negatively affect perceived social support for the relationship (Hegland, 2014). The exploratory analysis showed those who met face-to-face and were more out about their relationship potentially benefited more from being out about how they met their partner in terms of social support for the relationship and relationship satisfaction. Additional research is needed to replicate and further explore this finding.

Shame. In the present study, I anticipated finding differences in the amount of shame participants reported related to the way in which they met their partner because of extant negative stereotypes associated with online and mobile app dating platforms. In contrast to Hegland's (2014) finding that higher amounts of shame were correlated with higher levels of stigma towards online dating, I did not find a significant difference in the amount of shame experienced by those who met their partner online, through a mobile dating app, or face-to-face after controlling for age. Additionally, no significant differences were found in the amount of shame reported by the three different groups even after controlling for participants who knew someone who used online or mobile dating services. Consequently, no support for hypotheses 5a or 5b was found. The present study used a modified version of the OAS to measure shame, which is designed to examine externalized shame rather than internalized shame. Hegland's (2014) study used a measure that asks participants how often they feel "embarrassed" or "self-conscious" (the Personal Feelings Questionnaire-2) and is not specific to being in a relationship. Hegland (2014) also did not control for age which could have affected the findings. It is possible the modified measure used in the present study did not accurately capture the shame people experience related to how they met their partner. The instructions at the top of the questionnaire asked people to keep their relationship in mind when answering the items, but people may not have paid attention to this direction. It is also possible the connection individuals are experiencing with their romantic partner may be serving as a protective factor against shame. Shame can cause people to feel unworthy of connecting with others (Brown, 2007), but being in a supportive relationship may help negate this affect.

Connections between relationship satisfaction, shame, social support, and outness. Hypothesis 6 of the present study stated relationship satisfaction would be significantly

correlated with outness about how the couple met, relational social support, and shame. The results partially supported this hypothesis; relationship satisfaction negatively correlated with shame and positively correlated with relational social support. This finding is consistent with past research. For example, past research found shame can negatively affect relationships (Hartling et al., 2004; Mereish & Poteat, 2015; Scheff 2003) and the current research supports these earlier findings as lower levels of externalized shame correlated with higher levels of relationship satisfaction in the present study. Previously, researchers found higher levels of perceived relationship support from someone's social network correlated with higher levels of relationship satisfaction (Blair & Homberg, 2008; Bryant & Conger, 1999; Sprecher & Felmlee, 1992; Taylor et al., 2012), but focused on looking at social support for individuals in same-sex (Blair & Homberg, 2008) or interracial relationships (Lehmiller & Agnew, 2006). The current study extended these finding to individuals who met their partner through online and mobile dating services.

As mentioned previously, relationship satisfaction was not correlated with relationship initiation outness in the full sample or in the mobile dating app or online dating groups. This finding contradicts Clausell and Roisman's (2009) finding that outness is correlated with higher levels of relationship satisfaction and matches Knoble and Liville's (2012) research that outness is not correlated with relationship satisfaction, but their work examined sexual orientation outness rather than being out about how one met their partner. No known prior studies specifically examined how outness about the way in which one met their partner affects relationship satisfaction. The present study found higher levels of relationship satisfaction correlated with higher levels of outness in the face-to-face group. More research is needed to examine why telling more people how one met their partner is correlated with more relationship

satisfaction for couples who meet face-to-face, but was not positively or negatively correlated with relationship satisfaction for those who met their partner through a dating service. Perhaps online and mobile app daters decided to use the service with the knowledge that they were not going to tell others how they met so this was not a variable influencing their relationship satisfaction. Previous research has noted individuals who use online dating services are less likely to disclose how they met their partner to some people in their life, but not others (Hegland, 2014; Rosen et al., 2008). It is also possible people who use electronic dating services are selectively sharing how they met to people who are more likely to be supportive, which contributes to their relationship satisfaction through their perception of social support for the relationship rather than relationship initiation outness.

Potential mediators. Based on the Baron and Kenny (1986) approach to mediation, shame, outness, and relational social support did not mediate the relationship between how someone met their partner and relationship satisfaction because a significant relationship did not exist between relationship initiation and relationship satisfaction. I found no previous studies specifically focused on how the manner in which individuals meet their partners contributes to relationship satisfaction. It is possible the null finding is consistent with previous research, but due to the "file drawer problem," the lack of relationship between ways of meeting one's partner and relationship satisfaction was unknown prior to conducting the present study (Rosenthal, 1979). Other variables, like social support and similarity, may be important to relationship satisfaction than how a couple met.

Even though there was not a direct relationship between the predictor and criterion variables, an indirect effect of how someone met their partner on relationship satisfaction via shame was found. Thus, partial support for hypothesis 7 was found. Error variance or

suppression effects can sometimes mask a connection between an independent variable and the dependent variable (Hayes, 2018). Replication is needed to confirm whether shame is somehow mediating the relationship between how someone met their partner and relationship satisfaction. More research is needed to explore the relationship between shame and the other mediators to further examine the indirect effect.

Additionally, the multiple mediation model showed an unexpected indirect path with outness negatively relating to relationship satisfaction. Given how outness negatively relates to relationship satisfaction whereas network social support positively relates to relationship satisfaction, it is possible there is a suppression effect or a confounding variable affecting the results and more research is needed to explore these relationships. For example, perhaps being outgoing causes people to be less out about how they met their partner because of the stereotype that only shy people use dating services (Anderson, 2005; Finkel et al., 2012) and being less out about how someone met their partner may decrease relationship satisfaction. At the same time, being outgoing may cause people to be more open with their social support system which in turn increases relationship satisfaction.

An exploratory multiple mediation analysis allowed the relationship between how someone met their partner and relationship satisfaction to be examined using relationship initiation outness as the first mediator (M_1) and network social support as the second mediator (M_2). The sequence of mediators provided evidence of an indirect effect of how someone met their partner on relationship satisfaction via relationship origination outness and network social support. The post-hoc analyses revealed those who met face-to-face are more open about how they met their partner and may benefit from their transparency regarding how their relationship initiated in terms of experiencing increased support for the relationship and relationship

satisfaction. Additional research is needed to replicate and further explore these findings. Perhaps a confounding variable of how relationship initiation outness was received may be influencing the relationship between relationship initiation outness and network social support. For example, if someone told their family how they met their partner and this information was met with a positive response, they may feel more support from their social network which in turn affects relationship satisfaction. Another possibility is that people who score lower on relationship initiation outness lied about how they met their partner and received a positive response because they told a story congruent with what their family and friends wanted to hear. Thus, it is also possible that not being out about how a relationship began could be associated with increased social support if sharing how one met their partner would have resulted in a negative response from loved ones. Alternatively, a pair of romantic partners could have differing opinions on whether they should share how they met with the people in their life. If one person feels comfortable talking about how they met, but their partner does not this could affect the couple's relationship satisfaction.

Limitations

Sampling Bias. Although this study has the potential to inform researchers and clinicians that the way in which a couple meets will not significantly affect relationship satisfaction, relational trust, perceived social support, or increase shame, a few limitations should be mentioned. First, the survey was only accessible through the Internet and individuals familiar with the Internet may have increased familiarity with online dating sites. Previous research found people with more exposure to online dating services tend to have a more positive view towards the services and this could have skewed the results (Donn & Sherman, 2002).

Second, there were several characteristics specific to the sample and so the results may not generalize to individuals who do not share those characteristics. The sample was limited to individuals who live in the United States as examining the preferences of individuals from different cultures was outside the scope of the study. Participants for this study also all identified as being in a monogamous relationship. Dating more than one person, at least initially, is fairly common among people who use online and mobile dating services and this could have limited the sample to a subset of those who use dating platforms (Patel, 2018). Individuals who met their partner online or through a mobile dating app were also required to have met their partner in person at some point during the relationship. Previous research has noted not all online daters physically meet the person they are dating and so the results may not extend to this subset of online daters (Smith & Duggan, 2013). The sample was also required to have met their partner within the last four years and most reported knowing their partner for about two years. Perhaps when relationships are newly initiated, how the couple met is more important and couples may be asked how they met more often as they are integrated into their partner's social circle. Thus, any possible effects that could have occurred in the first year of a relationship may be underrepresented in the study. The majority of participants identified as Caucasian, heterosexual, as a man or woman, and were fairly well educated, so the results may also not generalize to other races/ethnicities, sexual orientations, other gender identities, and those with different educational backgrounds. Additionally, the sample consisted of a wide range of ages, but those in emerging adulthood were not as well represented even though they are more likely to initiate relationships through mobile dating apps (Smith, 2016; Smith & Anderson, 2016; Timmermans & De Caluwé, 2017).

Third, there were a few significant differences found between the three groups (face-to-face, online dating, and mobile dating apps) that make it difficult to discern if the results found are due to the way the relationship was initiated or a difference between the three groups. Those who met their partner face-to-face reported knowing their romantic partner for a longer period of time than those in the online dating and mobile dating app groups. There were also significantly more men in the face-to-face group than in the other two groups.

Additionally, participants were recruited using advertisements that openly expressed an interest in learning more about romantic relationships. People interested in or opinionated about relationships may have been more likely to respond to the advertisement. The information letter as well as some of the survey questions made it clear the study was looking for people who met their romantic partner either in person, through an online dating service, or through a mobile dating app. Participants may have speculated about the purpose of the research which could have influenced their responses. For example, if people in the mobile dating app group believed the study was trying to show people who meet through a mobile dating app are only interested in casual sex, they may felt motivated to respond to items in a way that demonstrates they are in a committed, stable relationship.

Lastly, all of the participants were recruited through Amazon Mechanical Turk (mTurk.com) and so the sample consisted of individuals who complete tasks on the Internet in exchange for money. Thus, it is difficult to know how well the findings relate to individuals who do not have an active internet presence or are willing to do some work online for money. It is also possible that individuals read the inclusion criteria and lied about some of their characteristics (like the length of their relationship) so that they could receive payment for the survey. A reCaptcha question was included to prevent bots from participating and repeated IP

addresses were not used, but it is still possible some individuals answered the survey more than once utilizing different devices. Consequently, it is also possible some individual's opinions are overrepresented.

Methodological. A few methodological limitations exist that should be mentioned. An experimental design was not possible as individuals could not be randomly assigned to the way in which they met their partner. Therefore, the data collected relied on participant self-report, which is subjective and could be biased. Participants may have made some assumptions about what the study was examining and responded in what they thought was a desirable manner. Participants could also have been influenced by their own need to view themselves in a positive light (self-serving bias, Miller & Ross, 1975). No questions were asked to assess for social desirability or the perceived objective of the study. Additionally, participant responses could have been influenced by cognitive dissonance theory so they may have responded in a way that was consistent with their behavior (Festinger, 1962). The large number of questionnaires included in the study may mean participants were not attending well, tried to respond to items quickly to get paid, or may have responded to multiple mTurk surveys at once which would likely affect their attention. Although participants spent 14.08 minutes on the survey on average, the responses ranged in time from 3.63 minutes to 1.67 hours. Additionally, participants may have provided more variation on the measures if they had read the items more closely. Each construct was also examined by only a single measure. Finally, the relationship noted between shame and relationship satisfaction was correlational and so causality cannot be inferred.

Measures. Many of the measures used were modified specifically to address the research questions of this study. Although they demonstrated adequate to excellent reliability with the current sample, the measures had not undergone any testing to establish good reliability or

validity and had not been used for relationships established through online or mobile dating services previously. The Other As Shamer scale used to examine shame measured externalized shame and was not specific to relationships or internalized shame. A scale assessing for internalized shame may have captured whether participants' views of themselves were affected by the stigma they were perceiving related to the way in which they met their partner. The study also relied on the notion that more stigma exists towards meeting a romantic partner through an online or mobile dating service than exists towards meeting a partner through a face-to-face encounter. Although the study attempted to show there is more stigma towards online and mobile dating services, no validated measures of stigma towards online and mobile dating services were found.

Data. The data were not normally distributed for the variables assessing for stigma, relationship satisfaction, dyadic trust, social support, and shame. The large sample size should have been robust to the violation of normality (Kim, 2013; Ross & Shannon, 2011), but it is possible the distribution affected the results of the study. There were also several outliers found in the data. The findings of significance remained the same regardless of whether the outliers were included in the dataset or not, but the decision to include them could have influenced the results. Some of the assumptions of the statistical tests performed were violated by the dataset. Although steps were taken to correct the assumptions, this also could have affected the accuracy of the results.

Implications

As more people meet potential partners online or through mobile dating apps, it is important for mental health professionals to be aware of the way these services affect people's relationships. The results of the pilot study and the evaluation of stigma perception revealed

differences in perceptions of online dating services compared to mobile app dating services and meeting a romantic partner face-to-face. Consequently, online dating services and mobile dating apps should be treated as distinct entities when reading and conducting research related to the use of electronic dating services. Practitioners trying to obtain more information on electronic dating services should examine the sample collected and not assume that the conclusions made about online dating apply to mobile dating apps and vice versa. Mental health professionals should also be mindful of how the perception of more stigma towards online and mobile dating services could be affecting their clients. Clients often withhold information from their therapists or lie to them, which could affect the therapeutic relationship and the process of therapy (Blanchard & Farber, 2015; Farber, 2003). Clinicians should be cognizant that clients may be hesitant to discuss how they met their partner in therapy and/or with others in the client's life. Mental health professionals should aim to provide a supportive, nonjudgmental environment so clients feel comfortable opening up about how they met their partner.

Previous research noted Tinder users reported being embarrassed to admit they met their partner through the app because of the stereotype that the app helps people find a sex partner rather than a relationship (Barkho, 2014). Despite the perception that electronic dating services are for "hookups," online and mobile dating services are viable ways to meet a romantic partner that can lead to a satisfying relationship. Mental health professionals can provide clients contemplating using online and mobile dating services with the information that research has found there are no significant differences related to relationship satisfaction, relational trust, or social support compared to those who met their partner face-to-face. Clinicians should be aware of their own potential biases that may exist towards individuals who meet their romantic partner

though a dating service and advocate for reducing stigma towards online and mobile dating services.

Mental health professionals should also be aware clients may be hesitant in coming out to others in their life about how they met their partner. Previous research found some people believe their family would be disappointed in them if they dated someone online compared to someone met through a face-to-face encounter (Doan, 2010). If a client voices reluctance in sharing with others how they met their partner, therapists should explore whether this is affecting their perceptions of themselves, their romantic relationship, or their interpersonal relationships with others. Although this study did not find a significant difference in externalized shame related to how participants met their partner, it is possible individuals are internalizing some shame. It is also possible hesitation in sharing how they met could be a point of contention in the relationship if one partner is open about it and the other is not. Hegland (2014) found individuals with an online dating profile were more likely to lie about how they met their partner than those without a profile. This act of dishonesty could have negative implications for an individual's relationships if others found out about the lie. Secret keeping can also have negative effects on an individual's psychological and physical health (Wismeijer, 2011).

Future Directions

Future research is needed to examine the stigma surrounding online and mobile dating platforms and how this is affecting both the individuals who use these services as well as the relationships that result from meeting through these services. Developing a measure that examines stigma specific to online and mobile dating services may be helpful as research continues in this area. More information is also needed on what negative stereotypes people associate with online and mobile dating services since the results suggest they are being viewed

as “embarrassing” ways to meet someone and not considered a way to meet a long-term partner. Online and mobile dating services should be studied separately given how the pilot study and the evaluation of stigma perception showed people seem to be reacting differently to these ways of meeting a romantic partner.

Future research should examine if there is more stigma towards certain services compared to others. Media attention attributed to some services may be affecting how people perceive specific services rather than mobile dating apps or online dating services in general. Reactions to specific platforms like Tinder could also be affecting those users specifically (like inducing more shame). This may not have shown in the results of the present study which looked at people who met through a variety of different electronic dating services. In addition to the potential differences that may exist specific to certain dating sites and apps, it is also possible differences exist related to when people used the services. The current study recruited people who met within the last four years, but it is possible people who met through an online dating site 20 years ago when online dating was less common may have responded to the questionnaires in the study differently. Including a question regarding how participants met their romantic partner in epidemiological studies related to relationships would help researchers control for this variable in their analyses and would help with tracking how people meet romantic partners.

More research is also needed to explore why individuals using online and mobile dating services are less out about how they met their partner than those who met their partner face-to-face. Rosen and colleagues (2008) noted individuals using online dating services were more likely to tell their close friends about what their use of these services than their family members, so there may be a difference in perceived stigma with regards to the relationship individuals have with others (friendship or family member) or the age of the people they are telling. A more

nuanced look at who dating platform users are telling about how they met their partner may provide more insight into how outness is related to perceived social support for a relationship. Perhaps being out about the manner in which one met their partner to a coworker is not as important as being honest with a friend group because people value some relationships more than others.

Previous research noted individuals who perceive stigma towards their relationship tend to be less committed to their relationship (Lehmiller & Agnew, 2006) and the relationship is more likely to end (Bratter & King, 2008). Given the findings that there may still be some stigma associated with meeting a romantic partner through an online or mobile dating service, future research should examine if this is affecting commitment to the relationship or how quickly the relationship dissolves. Previous research produced mixed findings regarding the divorce rates of couples who met face-to-face or online and little is known about the divorce rates of individuals who met through a mobile dating app. More information is needed regarding what is contributing to the success and dissolvement of these relationships and how they compare to one another.

Future research could also focus on how sexual behaviors and emotional intimacy vary between the three ways of meeting as these were not examined as part of the present study, but are components of a romantic relationship. Additionally, past research identified intimacy, trust, and communication satisfaction significantly predict online relationship satisfaction (Anderson & Emmers-Sommer, 2006), but similarity does not predict relationship satisfaction in online relationships like it does for face-to-face relationships (Baker, 2002). No research was found showing what factors contribute to mobile app relationship satisfaction. More research is needed on what variables contribute to relationship satisfaction for those who use mobile dating apps.

For example, sexual satisfaction may play an important role in relationship satisfaction specific to those who use mobile dating apps.

Conclusion

In conclusion, while additional evidence is needed to further explore how people are perceiving those who meet their romantic partner through an online or mobile dating service, the current study has explored potential differences in relationships related to how the partners met. The findings add to the body of literature pertaining to online and mobile app dating services. The results suggest that despite people perceiving electronic dating services as a "more embarrassing" way to meet someone, this does not seem to affect relationship satisfaction, relational trust, perceived social support for the relationship, or shame. Individuals who met their partner through an online dating service or mobile dating app may be less open about how they met their partner compared to people who initially met their partner face-to-face. Perhaps as stigma towards meeting a partner through a dating service decreases, people will become more open about how they met.

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Appendix A: Pilot Study Discussion

The pilot study explored potential differences in the amount of stigma towards how people meet romantic partners (face-to-face, online, or through a mobile dating app). Consistent with Doan (2010) and Cali and colleague's (2013) claims that stigma towards online dating services still exist, the pilot study found more people viewed meeting a partner through an online or mobile dating service as "embarrassing" compared to meeting a partner face-to-face. Although research has not found support for many of the negative stereotypes associated with individuals who use online dating services (Gatter & Hodkinson, 2016; Kim et al., 2009; Wildermuth, 2004), it is possible people still believe some of the negative stereotypes associated with using a dating service. Future research should explore if believing these stereotypes is related to people's perception that using dating services is embarrassing.

The pilot study also found more people rated meeting a partner through a mobile dating app as embarrassing than the number of people who rated meeting a partner through an online dating service as embarrassing. More stigma may exist towards individuals who use mobile dating apps to meet others compared to those who use online dating sites. One possible reason for this finding could be related to how mobile dating apps work compared to online dating services. Many mobile dating apps enable users to quickly sort through large numbers of potential romantic interests in short periods of time because they tend to be picture based. Users are able to "swipe" through these profiles and choose whether or not to express interest in another person in a manner of seconds. In contrast, online dating services often ask users to fill out lengthy questionnaires or create a more detailed profile providing other users with more information about the individual to consider when deciding whether to express interest. As a result of these differences, some people may view mobile dating app users as shallow, only

interested in physical appearance, or not serious about relationships (Barkho, 2014; Timmermans & De Caluwé, 2017). The present study provides some support for this idea as significantly more participants viewed "dating apps or sites that involve "swiping" on pictures" as embarrassing than the number who viewed "dating apps or sites that involve creating a profile" as embarrassing.

Another possible reason for why using mobile dating apps may be perceived as more embarrassing could be related to the perception that mobile dating app users are more interested in engaging in sexual activity than forming a long-term relationship (Gatter & Hodkinson, 2016; Sumter et al., 2016; Timmermans & DeCaluwé, 2017a; Ward, 2017). The pilot study confirms that people associate different ways of meeting a romantic partner (in person, through online dating sites, or mobile dating apps) with different types of relationships (i.e., a casual hookup compared to a long-term partner). Consistent with previous research (Barkho, 2014; LeFebvre, 2018), people perceive mobile dating apps as being used to seek a casual hookup while meeting a partner in person was viewed as a good way to meet a long-term partner. Additionally, significantly more people placed the "dating app or sites that involve "swiping" on pictures" description in the "casual hookup" category, while online dating tended to be placed in the "date" category. Some people are judgmental of casual sex (Kettrey, 2016) and there can be pressure, particularly on women, to not be open about their sexuality (Trinh, 2016). If people are associating certain dating services with casual sex, it is possible that knowing someone is using a dating service (and therefore, presumably, is having casual sex) is eliciting a negative reaction from others and could be contributing to some of the stigma towards mobile app dating services.

There are several limitations to the pilot study that should be considered. Participants "dragged and dropped" the different ways of meeting someone into categories, which could have

resulted in an error for participants who found this way of responding difficult. Additionally, even though the top five dating services were chosen, some of the services presented to participants were not well known to the sample. For example, the majority of the sample (59.1% and 65.6% respectively) were unfamiliar with "Zoosk" (an online dating service) and "Hinge" (a mobile dating app). Perhaps using more widely advertised services like Christian Mingle or FarmersOnly.com instead of the most popular services would have increased the number of participants who recognized a potential way to meet someone. A third limitation is some online dating sites are also mobile dating apps, so the distinctions between online and mobile dating services may not have been clear to participants. Despite these limitations, the results of the pilot study indicate people perceive ways of meeting a partner in person differently than they perceive online and mobile dating services, and perceive meeting through online and mobile dating services differently as well. More research is needed to explore if these differences in perception towards these services affects those who use them or the relationships that result from meeting through these services.

Appendix B: Inclusion Criteria Screening

1. ReCaptcha "I am not a robot" question

2. How old are you?: _____

3. Are you currently in a romantic relationship? _____ yes ____ no

4. How many people are you currently dating/in a relationship with? ___

5. If you are in a relationship, please think about when you first met your partner and estimate how long (in months) you have known them.

This key may help:

1 week = 0.25 months	2 weeks = 0.50 months	3 weeks = 0.75 months
1 year = 12 months	1.5 years = 18 months	2 years = 24 months
2.5 years = 30 months	3 years = 36 months	3.5 years = 42 months
4 years = 48 months	4.5 years = 54 months	5 years = 60 months

Just enter a number.
_____ months

6. Have you physically met the person you are dating? ____ yes ____ no

7. In which country do you currently reside? _____ (dropdown list of countries presented)

8. Where were you raised? _____ (dropdown list of countries presented)

9. How did you meet your current partner?
   - I'm not currently in a relationship.
   - In person
   - Through a mobile dating app like Tinder or Bumble
   - Through an online dating service like Match.com or eHarmony
   - Other (examples would include through e-mail, a listserv, etc.): _____

10. (Only presented if participants choose "through an online dating service" on #8) Which dating service did you use to meet your current partner?

- Adult Friend Finder
- AsianDating.com
- BlackPeopleMeet.com
- CatholicMatch.com
- Chemistry
- Christian Mingle
- eHarmony
- Elite Singles
- FarmersOnly.com
- FriendFinder.com
- Gene Partner
- JDate
- Match.com
- Muslima.com
- OurTime.com
- Plenty of Fish (POF)

- Scientific Match
- Silver Singles
- Zoosk
- Other: _____

9. (Only presented if participants choose "through a mobile dating app" on #8)
Which app did you use to meet your current partner?

- Badoo
- Bumble
- Clover
- Coffee Meets Bagel
- Grindr
- Happn
- Her
- Hinge
- Huggle
- Jack'd
- JSwipe
- The League
- OkCupid
- Scruff
- Tinder
- Other: _____

9. (Only presented if participants choose "in person" on #8)
Where did you meet your current partner?

- In a bar/club
- Blind date
- Grew up together
- At the gym
- Introduced by someone else (by a coworker, family member, friend, etc.)
- Through a religious organization
- At school
- At a social gathering
- Speed dating event
- At work
- Other: _____

11. (Only if participants choose "introduced by someone else" on #9)
Who introduced you to your current partner?

- Coworker
- Mutual friend
- Parent
- Relative
- Sibling
- Other: _____

Please think about your current relationship and the way in which you met your partner as you respond to each set of questions. If you are married, please also think about the time you spent dating as you respond to the questions.

Appendix C: Brief Stigma Check

Please use the sliders below to indicate your response.

1. How much stigma do you think there is when you meet someone through an **online dating** website like Match.com or eHarmony?

   _____

   0 (no stigma) 10 (a lot of stigma)

2. How much stigma do you think there is when you meet someone through a **mobile dating app** like Tinder or Coffee Meets Bagel?

   _____

   0 (no stigma) 10 (a lot of stigma)

3. How much stigma do you think there is when you meet someone you're interested in dating **in person**?

   _____

   0 (no stigma) 10 (a lot of stigma)

Appendix D: Demographic Questionnaire

1. Please indicate your gender (please mark all that apply):
    - Genderfluid
    - Man
    - Nonbinary
    - Transgender
    - Woman
    - Other: _____

2. Please indicate your race/ethnicity (please mark all that apply):
    - African American or Black
    - American Indian or Alaska Native
    - Asian
    - Biracial, Multiracial, or Multiethnic: _____
    - Caucasian or White
    - Hispanic or Latina/o/x
    - Native Hawaiian or Other Pacific Islander
    - Other: _____

3. How old are you?: _____

4. What is your sexual orientation?
    - Bisexual
    - Demi/Asexual
    - Gay/Lesbian
    - Heterosexual/Straight
    - Pansexual
    - Other: _____

5. Please indicate your martial status:
    - Divorced
    - Engaged
    - Married
    - Never married
    - Remarried
    - Separated
    - Widowed

6. What is the highest level of education you have completed (check one)?:
    - Middle (“junior high”) or primary school
    - General Education Diploma (GED)
    - High school diploma
    - Vocational school
    - Some college
    - Degree from a 2-year college
    - Degree from a 4-year university
    - Some graduate school
    - Graduate degree

7. What is your present religion, if any?
    - Agnostic
    - Atheist
    - Buddhist
    - Catholic
    - Christian (Baptist, Evangelical, Lutheran, Protestant, etc.)
    - Hindu
    - Jehovah's Witness
    - Jewish
    - Mormon
    - Muslim
    - Spiritual
    - Other:
    - Prefer Not to Say

8. How many people are you currently dating? ____

9. Please estimate the number of months you have **known** your current partner. If you are dating more than one person, please answer for the partner you kept in mind while completing this survey.

    This key may help:

1 week = 0.25 months	2 weeks = 0.50 months	3 weeks = 0.75 months
1 year = 12 months	1.5 years = 18 months	2 years = 24 months
2.5 years = 30 months	3 years = 36 months	3.5 years = 42 months
4 years = 48 months	4.5 years = 54 months	5 years = 60 months

    _____ months

10. Please estimate the number of months you have been **dating** your current partner. If you are dating more than one person, please answer for the partner you kept in mind while completing this survey.

    This key may help:

1 week = 0.25 months	2 weeks = 0.50 months	3 weeks = 0.75 months
1 year = 12 months	1.5 years = 18 months	2 years = 24 months
2.5 years = 30 months	3 years = 36 months	3.5 years = 42 months
4 years = 48 months	4.5 years = 54 months	5 years = 60 months

    _____ months

11. Please indicate the race/ethnicity of your **current partner** (please mark all that apply):
    - African American or Black
    - American Indian or Alaska Native
    - Asian
    - Biracial, Multiracial, or Multiethnic
    - Caucasian or White
    - Hispanic or Latina/o/x
    - Native Hawaiian or Other Pacific Islander
    - Other: _____

12. Please indicate the gender of your **current partner** (please mark all that apply):
    - Genderfluid
    - Man
    - Nonbinary
    - Transgender
    - Woman
    - Other: _____

13. How did you meet your current partner?
    - I'm not currently in a relationship.
    - In person
    - Through a mobile dating app like Tinder or Bumble
    - Through an online dating service like Match.com or eHarmony
    - Other (examples would include through e-mail, a listserv, etc.): _____

14. How often do you get to see your current partner in person? Please choose the response that best describes your situation. (only presented if "I'm not currently in a relationship" or "In person" are not chosen)
    - We've never met in person.
    - We've met in person once.
    - We've met in person 2 or 3 times.
    - We've met in person 4 or 5 times.
    - We've met in person 6 to 10 times.
    - We meet in person a few times a year.
    - We meet in person every 2 or 3 months.
    - We meet in person about once a month.
    - We meet in person about once a week.
    - We meet in person multiple times a week.
    - We see each other in person every day.
    - Other: _____

15. Have you ever dated someone you met in person? ___ yes ___ no

16. For the purposes of this study, online dating refers to using an account created on a website like eHarmony or Match.com to find a romantic partner.

    Have you ever tried online dating? ___ yes ____ no

17. For the purposes of this study, "mobile app dating" refers to using an app on a smartphone like Bumble or Tinder to find a romantic partner.

    Have you ever tried mobile app dating? ___ yes ___ no

18. Do you know anyone who has dated someone they met in person? ___ yes ___ no

19. Do you know anyone who has dated someone they met online? ___ yes ___ no

20. Do you know anyone who has dated someone they met through a mobile dating app?
    ___ yes ___ no

21. (If yes to #15) Please indicate where you met the person you dated. If you have dated more than one person you met in person, please choose all that apply.
    - o In a bar/club
    - o Blind date
    - o Grew up together
    - o At the gym
    - o Introduced by someone else (by a coworker, family member, friend, etc.)
    - o Through a religious organization
    - o At school
    - o At a social gathering
    - o Speed dating event
    - o At work
    - o Other: _____

22. (If yes to #16) Please indicate which sites you have used. If you have used more than one online dating site, please choose all that apply.
    - o Adult Friend Finder
    - o AsianDating.com
    - o BlackPeopleMeet.com
    - o CatholicMatch.com
    - o Chemistry
    - o Christian Mingle
    - o eHarmony
    - o Elite Singles
    - o FarmersOnly.com
    - o FriendFinder.com
    - o Gene Partner
    - o JDate
    - o Match.com
    - o Muslima.com
    - o OurTime.com
    - o Plenty of Fish (POF)
    - o Scientific Match
    - o Silver Singles
    - o Zoosk
    - o Other: _____

23. (If yes to #16) When you were subscribed to an online dating site, did you pay for the service?
    ___ yes
    ___ no
    ___ I paid for some of the sites I used, but not all of them.
    ___ I only used the "free trial" period of the service.
    ___ Someone else paid for the service for me.

24. (If yes to #16) When you viewed other people's online dating profiles, what did you focus on the most?
    - o Pictures of the person
    - o Basic information listed (age, ethnicity, location, interested in/seeking, etc.)
    - o The content they posted (an "about me" story, etc.)
    - o Other: _____

25. (If yes to #17) Please indicate which apps you have used. If you have used more than one mobile dating app, please choose all that apply.
    - o Badoo
    - o Bumble

- Clover
- Coffee Meets Bagel
- Grindr
- Happn
- Her
- Hinge
- Huggle
- Jack'd
- JSwipe
- The League
- OkCupid
- Scruff
- Tinder
- Other: _____

26. (If yes to #17) When you were using a mobile dating app, did you pay for the service?
    ___ yes
    ___ no
    ___ I paid for a special feature on the app, but not to use the service itself.
    ___ I paid for some of the apps I used, but not all of them.
    ___ Someone else paid for the app for me.

27. (If yes to #17) When you viewed other people's mobile app dating profiles, what did you focus on the most?
    - Pictures of the person
    - Basic information listed (age, ethnicity, location, interested in/seeking, etc.)
    - The content they posted (an "about me" story, etc.)
    - Other: _____

Appendix E: Description of Tasks to be Posted on MTurk.com

Task 1:

Title: Are you in a relationship with someone you met through an online dating site? Answer a 15-20 minute survey on relationships!

Description: We are collecting information about romantic relationships. Participants must be in a relationship with someone they met through an online dating site. Survey should take 15-20 minutes. Participants must be from the United States.

Keywords: survey, demographics, relationships, online dating

Are you currently in a relationship with someone you met through an online dating site? Please consider taking our survey! The survey should take about 15-20 minutes and you will be compensated $2.00 your participation.

To be eligible for this survey, you must meet the following criteria:

- You must reside in the United States
- You must be at least 18 years old
- You must currently be in a monogamous, romantic relationship
- You must have initially met your romantic partner through an online dating site like Match.com or eHarmony
- You must have met up with your romantic partner in person
- You must have met your romantic partner less than four years ago

At the end of the survey, you will receive a unique code to enter into the box below to receive compensation for participating in our study. **Make sure to leave this window open as you complete the survey.** Individuals who do not pass the attention checks or complete the questions will be removed from the study.

Please click the link below for more information and to access the study. You may only take the survey one time. When you are finished, you will return to this page to paste the code into the box.

Survey link: https://auburn.qualtrics.com/jfe/form/SV_3OxOSuzXdsEAewt

Task 2:

Title: Are you in a relationship with someone you met through a mobile dating app? Answer a 15-20 minute survey on relationships!

Description: We are collecting information about romantic relationships. Participants must be in a relationship with someone they met through a mobile dating app. Survey should take 15-20 minutes. Participants must be from the United States.

Keywords: survey, demographics, relationships, mobile app dating

Are you currently in a relationship with someone you met through a mobile dating app? Please consider taking our survey! The survey should take about 15-20 minutes and you will be compensated $2.00 for your participation.

To be eligible for this survey, you must meet the following criteria:

- You must reside in the United States
- You must be at least 18 years old
- You must currently be in a monogamous, romantic relationship
- You must have initially met your romantic partner though a mobile dating app like Tinder or Bumble
- You must have met up with your romantic partner in person
- You must have met your romantic partner less than four years ago

At the end of the survey, you will receive a unique code to enter into the box below to receive compensation for participating in our study. **Make sure to leave this window open as you complete the survey.** Individuals who do not pass the attention checks or complete the questions will be removed from the study.

Please click the link below for more information and to access the study. You may only take the survey one time. When you are finished, you will return to this page to paste the code into the box.

Survey link: https://auburn.qualtrics.com/jfe/form/SV_3OxOSuzXdsEAewt

Task 3:

Title: Are you in a relationship with someone you met in person (at work, at school, etc.)? Answer a 15-20 minute survey on relationships!

Description: We are collecting information about romantic relationships. Participants must be in a relationship with someone they met in person (at work, at school, at a social, etc.). Survey should take 15-20 minutes. Participants must be from the United States.

Keywords: survey, demographics, relationships, dating

Are you currently in a relationship with someone you met in person? “In person” could include meeting your partner at work, at school, at a social gathering, or being introduced by a friend or family member. Please consider taking our survey! The survey should take about 15-20 minutes and you will be compensated $2.00 your participation.

To be eligible for this survey, you must meet the following criteria:

- You must reside in the United States

- You must be at least 18 years old
- You must currently be in a monogamous, romantic relationship
- You must have initially met your romantic partner in person (like at school or through work as opposed to meeting them through an online dating service or mobile dating app)
- You must have met your romantic partner less than four years ago

At the end of the survey, you will receive a unique code to enter into the box below to receive compensation for participating in our study. **Make sure to leave this window open as you complete the survey.** Individuals who do not pass the attention checks or complete the questions will be removed from the study.

Please click the link below for more information and to access the study. You may only take the survey one time. When you are finished, you will return to this page to paste the code into the box.

Survey link: https://auburn.qualtrics.com/jfe/form/SV_3OxOSuzXdsEAewt

Appendix F: Information Letter

DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.

INFORMATION LETTER

For a Research Study on Romantic Relationships

You are invited to participate in a research study to find out more information about romantic relationships. The study is being conducted by Katherine O'Neil under the direction of Dr. Annette Kluck in Auburn University's Department of Special Education, Rehabilitation, and Counseling. You are able to participate in the study if you are at least 18 years of age, were raised in the United States and currently live here, and are currently in a monogamous, romantic relationship with a partner you met either in person, through an online dating service, or through a mobile dating app within the last four years. You also must have met your romantic partner in person at some point during your relationship.

What will be involved if you participate? If you decide to participate in this research study, you will be asked questions about your current relationship, your past dating experiences, and how you feel others perceive you. Your total time commitment will be approximately 15-20 minutes. Failure to answer all questions or pass attention checks will result in dismissal from the study.

Are there any risks or discomforts? We cannot guarantee privacy in regards to the surrounding area that you take this survey; therefore, we recommend that you take this survey in an area in which others cannot see your computer screen. There are no other anticipated risks of this study beyond possible discomfort answering questions about your current relationship and past dating habits. If you do encounter discomfort with this survey, please remember that you can stop at any time.

Are there any benefits to yourself or other? There are no direct benefits for yourself or others for participating in this study, but the results will help further our knowledge and understanding of romantic relationships.

Will you receive compensation for participating in this study? Participants will be compensated with $2.00 for completing all questions in the study and passing all attention checks. Attention checks are questions embedded throughout the study designed to assess whether participants are reading and following the directions as requested.

Are there any costs? There are no costs to you for participating in this study.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, please exit out of your browser. Surveys that are not completed will not receive compensation. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with

Auburn University, the Department of Special Education, Rehabilitation, and Counseling, Katherine O'Neil, or Annette S. Kluck, Ph.D.

Your privacy will be protected. Any information obtained in connection with this study will remain anonymous. Information obtained through your participation may be published in a professional journal and presented at a professional conference. To best ensure confidentiality, please be sure to close your browser when finished.

If you have questions about this study, please contact Katherine O'Neil by e-mailing keo0017@auburn.edu or Dr. Annette Kluck by e-mailing ask0002@auburn.edu. You may also print this screen to keep for your records.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or Institutional Review Board by phone (334) 844-5966 or e-mail IRBadmin@auburn.edu or IRBChair@auburn.edu.

The Auburn University Institutional Review Board has approved this document for use from March 12, 2019 to March 11, 2020. Protocol # 19-083.