STRATEGIC INTERFERENCE AND TINDER USE: A MIXED-METHOD EXPLORATION
OF ROMANTIC INTERACTIONS IN CONTEMPORARY CONTEXTS

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DEDICATION

I dedicate this dissertation to my mother, Suzanne Purvis, who has showed me unconditional love throughout my life. I also dedicate this dissertation to my partner Alexandre Vaquer, who has been my daily source of support and sanity over the last five years. I would not have made it through without you both.

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ABSTRACT

Research has suggested that men and women have different orientations towards mating strategies (Buss & Schmitt, 1993), with men more likely than women to orient towards short-term mating strategies (Hyde, 2005). This dissimilarity may cause men and women to have different goals in romantic situations. Strategic interference refers to the conflict that arises when two sexes encounter these different goals within romantic or sexual contexts (Buss, 1989). Men and women often solve strategic interference through sex-linked forms of deception, with the goal to increase reproductive fitness (Buss, 1989). This means that men and women sometimes deceive potential partners about their sexual goals in ways that they believe will appeal to the sex to which their romantic partner belongs. The following three studies explored whether these gender differences and encounters with strategic interference are still prevalent in the age of new dating technologies. Study one investigated whether users of the online dating app *Tinder* are more likely to encounter deception around sex-linked forms of strategic interference than are online dating website users or those who date offline, and it also examined whether these experiences vary between men and women. Study one also analyzed whether gender, sexual double standards, and strategic interference predicted romantic and sexual satisfaction with a specifically recalled romantic interaction. Study two explored how Tinder use primes gender-typical mate preferences and mating orientation. Finally, study three analyzed Internet forum posts on a Tinder-themed website to develop a qualitative picture of the real-world experiences of Tinder users. These studies revealed whether men and women truly undergo different experiences on the dating market and whether these experiences are influenced by the type of dating platform that an individual chooses.

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Introduction

Sexual strategies theory suggests that men and women often have divergent mating goals and approaches (Buss & Schmitt, 1993). However, many critics of evolutionary psychology have claimed that differences between men and women are overstated (Hyde, 2005; Hyde 2007). In addition, because of the rapid development of technology, many questions remain regarding the applicability of sexual strategies theory within modern contexts. One technology that may be shaping sexual strategies is the online dating app, *Tinder*. Initial studies have found that Tinder may prime users to engage in a "feedback loop," in which men and women adopt increasingly gender-stereotypical mating goals and strategies (Tyson, Perta, Haddadi, & Seto, 2016). This may increase their likelihood of encountering sexual conflict, otherwise known as strategic interference. The studies presented in this dissertation tested the robustness of sexual strategies theory in modern contexts. Specifically, these studies explored: a) whether the Tinder dating app is associated with higher rates of deception and strategic interference as compared to other dating platforms, and b) if Tinder interface's priming effects. Additionally, these studies examined whether there are significant differences in romantic outcomes between male and female users across different dating platforms using qualitative analysis.

Romantic Interactions in Contemporary Contexts

The manner in which people meet romantic partners has undergone significant changes as the Internet and mobile phones have developed. Global Internet penetration is increasing at an exponential rate each year. In just 10 years, the number of Internet users worldwide has doubled, with over 46% of the human population reporting access to the Internet through either a fixed broadband connection or mobile device (Internet Live Stats, 2016). While many people fear that

Internet usage reduces the frequency and quality of offline human interactions, a growing body of research has suggested that social media use actually boosts an individual's number of offline friendships (Wang & Wellman, 2008). Social media use is also associated with an increased likelihood of finding a romantic partner, especially for those from minority sexual groups (Rosenfeld & Thomas, 2012). As a result, Internet use has become such an integral aspect of people's lives that it may no longer be useful to analyze the "online" and "offline" worlds as two distinct realms (Veenhof, Wellman, Quell, & Hogan, 2008).

As the Internet is becoming a central ground for individuals to find information, form friendships, and maintain social connections, people are also going online to explore love and sex. Online dating has quickly become one of the most popular ways in which individuals meet romantic partners, and its popularity is predicted to continue to grow for years to come (Sautter, Tippett, & Morgan, 2010). Over the past 10 years, online dating has become the fastest growing way for unmarried couples to meet (Rosenfeld & Thomas, 2012). In fact, 27% of adult heterosexuals met their significant other online, while the figure is nearly 70% for homosexuals (Rosenfeld & Thomas, 2012).

In America, online dating has become increasingly de-stigmatized, with around 59% of Americans stating that they believe online dating is a "good way to meet people" (Smith & Anderson, 2016). Currently, 15% of all adult Americans report having used some sort of online dating site in the past (Smith & Anderson, 2016). For many Americans, online dating may offer solutions to a host of barriers that once faced previous generations. For example, users of online dating sites report that online dating reduces the fear of rejection (Kreager, Cavanagh, Yen, & Mo Yu, 2014). Additionally, individuals can engage in online dating from the comfort of their own homes and without the pressure that may accompany an in-person interaction. In fact,

studies have demonstrated that users of such sites feel freer to share personal information about themselves online than in person (Whitty & Carr, 2006).

Social connections are often formed between people who live or work near to one another, and this maxim is known as the proximity principle (Newcomb, 1960). It often leads to homogamy (LeVay & Baldwin, 2012), which occurs when an individual's friends or significant other is of the same race, class, and background as himself or herself. Online dating is unique in that it allows individuals to transcend proximal boundaries, and subsequently, homogamy. Online dating sites present qualities such as a user's appearance, availability, and shared interests as the primary criteria for date selection (Hitsch, Hortaçsu, & Ariely, 2010), which may increase the likelihood of romantic connections forming between two people from different towns, racial groups, or class backgrounds. Sexual minorities, older individuals, and other groups who may not have a wide pool of available partners can also benefit from online dating, as it increases their number of potential romantic partners (Rosenfeld & Thomas, 2012).

While online dating offers many advantages for individuals hoping to arrange romantic partnerships, mobile technology is progressing at a pace that may make traditional online dating websites obsolete. In fact, smartphone penetration in the U.S. is at 80%, while mobile use now comprises over 65% of all global Internet traffic (comScore, 2016). As such, dating apps specifically designed for mobile use will likely continue to gain in popularity.

Tinder. Tinder is one of the most downloaded dating apps in the world. Nearly 26% of dating app users indicated that they currently use Tinder, followed by Plenty of Fish (19%) and OkCupid (10%; Priceonomics, 2016). Currently, Tinder has been downloaded over 100 million times, with 1 million of those downloads representing Tinder's "premium service," which offers users unlimited swipes (Chang, 2016). Tinder is currently immensely popular on college

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campuses. One study conducted at a major U.S. university found that 96% of its respondents had used Tinder at one point (Hildebrandt, 2015).

Tinder is unique in several ways. While many other online dating platforms require users to complete lengthy personality tests, sign up for a costly monthly service, or fill out a complete profile before engaging with other users, Tinder is relatively barrier-free in comparison. To begin, users download the app from either the iOS or Android online marketplace. The basic service is free, but a premium service offering extra features is available for $9.99 per month. Once activated, Tinder automatically links to the user's Facebook profile. Tinder then extracts the user's Facebook profile photos and populates the user's profile with photos of his or her choosing. Users also have the option of completing a short self-description, known as the "bio." After the user's profile has been completed, a series of photos from other users in the immediate geographical area appear on his or her mobile screen one at a time. Users then drag their finger across the screen to the right if they "like" the potential mate and would like the opportunity to message him or her, and to the left if they do not. If the other person also "swipes right," a "match" is created. At this point, both users receive a notification, and they are then permitted to use the messaging feature to contact each other. One of the most compelling elements of this interface is that unlike most other dating websites, Tinder makes no effort to match its users, except on the basis on user-selected age and GPS-determined location. There are no algorithms that place similar users together and no personality tests that compare users' scores. As such, Tinder is very different from any other dating service, and it provides a very unique, unfiltered look at mating behaviors (Tyson et al., 2016).

As Tinder offers little in the way of matching technology as compared with online dating sites, the question emerges as to why it is so popular. First of all, Tinder has a game-like

interface that may be particularly attractive to users. While currently there have been no

scientific studies conducted to explore the addictive properties of Tinder, major magazines have

published articles by several journalists, detailing their excessive Tinder use (Hamilton, 2016;

Rega, 2015). The app's game-like quality is so pervasive that one recently developed app called

Matchr allows users to turn their Tinder matches into collectable playing cards (Abrams, 2016).

As users must swipe through many photos, hoping that the next swipe could bring the cognitive

award of making a match, Tinder's interface represents a variable-ratio reward schedule. Such a

scheme encourages individuals to continue engaging in a particular behavior (in this case,

swiping), because they do not know which instance of that behavior will provide a reward. This

is the same reward schedule used for slot machines and other kinds of gambling, and it is known

to provide a steady behavioral response (Pearce, 2013). The feeling that the next profile will be

the "winner" keeps many individuals engaged in the app. One Tinder user with whom we spoke

for a separate study clarified that despite previous disappointments, he "most definitely"

intended to continue using Tinder, because "the allure of swiping right or left is evilly satisfying"

(Wainana, E., personal communication, July 31, 2016).

However enjoyable Tinder may be, males and females have largely different experiences

with the app itself. Estimates from GlobalWebIndex have suggested that nearly 62% of Tinder

users are male (McGrath, 2016). While a male-skewed sex ratio has previously been associated

with males adopting more female-typical mating strategies to compete for fewer women

(Guttentag & Secord, 1983), this effect has not been observed for Tinder (Tyson, et al., 2016).

This absence could be due to the fact that the app was specifically designed to obscure any sex-

ratio skew, creating an illusion that there are many available women using the app and looking

for a potential romantic partner. In addition, as previously mentioned, Tinder allows users to

quickly browse through potentially hundreds of photos per day, selecting potential partners entirely on the basis of looks, age, and location. This may obscure the actual asymmetrical sex ratio for Tinder users and prime males to adopt more male-typical mating strategies. On the other hand, it could simply be that Tinder's interface is sufficiently enjoyable to overcome the effects of an operational sex ratio. In other words, males may continue to use Tinder in concert with their preferred mating orientation simply because the app itself is well-suited for that mating strategy. Indeed, research has indicated that when using Tinder, men "right swipe" many more profiles than do women, with 33% of men stating that they "casually like most profiles," as compared to 0% of women (Tyson et al., 2016).

For women, Tinder does not obscure the asymmetrical sex ratio. Instead, it may amplify that ratio. Since research on Tinder is a relatively new field, some initial data regarding user experiences has come from amateur experiments. In an experiment conducted by the website *Elite Daily* (Wood, 2015), two fake Tinder profiles (one male and one female) were created. These two individuals were the same age, and independent judges rated them as similarly attractive. If men and women were behaving in a relatively analogous manner on the app and using it in similar numbers, the experiment's designers hypothesized that they should receive roughly the same number of matches and messages in 24 hours. This was not the case, however. After just one day, the female profile had over 700 matches and nearly 400 messages. The male, on the other hand, only had 269 matches and 28 messages. This asymmetry suggested a skew in male and female Tinder users' sexual strategies. Specifically, men employed more immediate, "wide-net" mating strategies, and women more carefully screened and assessed potential mates. Other studies have indicated a deep asymmetry in users' motivations for using Tinder, with 49%

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of men indicating that they use Tinder to find short-term sexual partners versus 15% of women (Tyson et al., 2016).

A recent study by Tyson et al. (2016) collected the first comprehensive dataset detailing how users interact through Tinder. The researchers created Tinder profiles and "injected" them into major metropolitan cities to gather data on how people were actually interacting via the app. They left these profiles active on Tinder for 6 months and created software that automatically "swiped right" on every profile within 100 miles of their geographic location. This generated tens of thousands of likes and thousands of matches, which allowed the researchers to then analyze the frequency and type of messages sent to both the male and female profiles. The results highlighted disparities between the sexes in terms of mating behavior.

Tyson et al. (2016) found that males and females differed in their likelihood of "matching," (i.e., two people both "swiping right" on each other's profile). While females matched with 10.5% of the photos that they selected, only .6% of males matched. Out of the .6% of males who matched, 86% of those matches were from other men. In other words, the researchers' male profile had an approximately .2% chance of matching with a female.

Sumter, Vandenbosch, and Ligtenberg (2017) conducted a survey gathering adult Tinder users' motivations for using the app. They found that males were significantly more likely than females to use Tinder to find casual sexual partners. Interestingly, the researchers also found that individuals who used Tinder for that reason were more likely to follow through with an offline meeting. This suggests that for women seeking short-term mating opportunities, Tinder may be an effective option. In a separate study, Tyson et al. (2016) distributed a qualitative survey to 131 frequent Tinder users. While 49% of male users indicated that they used Tinder for short term sexual encounters, only 15% of female users reported the same. These findings follow a body of

research that has found that males are more oriented towards short-term mating strategies (Buss & Schmitt, 1993). As such, they are more likely than females to use the Internet to find potential sexual partners (Baumgartner, Valkenburg, & Peter, 2010).

While men appear to be "swiping right" at much higher rates than women, this does not mean that women are having an easier time finding suitable mates. Women appear to be much more engaged Tinder users than males (Tyson et al., 2016). In other words, men may "swipe right" more often, but they actually send fewer messages to women once they have matched. In fact, women were over twice as likely as males to send a message to their match (Tyson et al., 2016). This is most likely because 33% of males have stated that they "casually like most profiles," as compared to 0% of women (Tyson et al., 2016). As such, they may be less invested in responding to matches than women.

If males did decide to send a message to a match, they were more likely to do so right away, with 63% of male messages sent within 5 minutes of matching, versus 18% of female messages. For males, these messages were not just sent quickly; rather, they were also brief in terms of content. The median male message length was just 12 characters (e.g., "How are you?"), while the median message length for females was over 10 times that figure, at around 122 characters per message (Tyson et al., 2016).

This may mean that since males seem to be less invested in the messages they send, they are also less invested in pursuing an ongoing conversation. In addition, males may simply enjoy interacting with the dating app's interface, even when they are unwilling or uninterested in pursuing real-world connections. This may lead to disappointment for females who have spent a considerable amount of time screening potential matches, carefully selecting male users, and then sending longer messages to men who are less likely to respond.

This initial body of research has indicated that women and men may be engaging in different mating strategies while using Tinder. Males swipe right more often, for more profiles, and more indiscriminately, with less demonstrated intention of pursuing conversation as compared to females. On the other hand, females send fewer messages to fewer men. These are longer in length and come after more of a delay, suggesting a high-screening mating strategy. As such, Tinder use may prime males to engage in male-typical mating strategies, while simultaneously priming females to engage in female-typical mating strategies. Such a scenario has been found to potentially result in a "feedback loop," in which the sexes adopt exaggerated gender-typical mating strategies, and orientations (Tyson et al., 2016). These mating strategies are supported by predictions outlined by sexual strategies theory (Buss & Schmitt, 1993), which will be described later in the chapter.

Tinder users may have different outcomes as compared to users of online dating websites. Tinder is different from online dating websites, because it does not offer any matching software that places similar users together. Potential matches are generated entirely on the basis of the geographic location and age preferences set by users themselves. This creates a novel environment, in which users must use a digital platform to sort through potential matches on their own. Due to the online disinhibition effect, which causes Internet users to behave in ways that may not be acceptable to their surrounding society (Suler, 2004), users may feel free to select mates using the most basic of cognitive shortcuts.

If there are more male Tinder users compared to female Tinder because Tinder facilitates male-typical mating strategies, it would be logical to hypothesize that dating apps and websites that facilitate female-typical mating strategies would have more female users. This does appear to be the case. Only three online dating apps have more female users than male users. These are

Christian Mingle (58.6% female), Coffee Meets Bagel (57.3% female), and eHarmony (55.2% female; Priceonomics, 2016). These three apps advertise long-term relationships and use matching algorithms to carefully curate potential matches. They advertise themselves as better suited for female-typical mating strategies (long-term, high level of screening), and it thus appears that they do, in fact, attract more female users. While no empirical studies have quantified research answering questions about male and female satisfaction levels across these different apps, their user bases' operational sex ratios offer insights into sex-linked preferences.

More so than most online dating websites, Tinder has been linked to "short-term" mating strategies (Sales, 2015). However, recent research has found that males are much more likely than females to cite short-term sexual encounters as a motivation for using both Tinder and online dating sites, with no significant difference between the two platforms (Gatter & Hodkinson, 2016). As such, motivations may be similar across apps, while the interface may change actual behaviors. For example, researchers have found that an excessive number of options in online-dating formats causes individuals to focus more on appearances (Yang & Chiou, 2010). As such, Tinder may increase users' reliance on appearance-based criteria, thanks to its rapidly presented photo stream of potential matches.

While Tinder is different from online dating websites, online dating is also different from offline dating. Online dating is thought to broaden the pool of potential matches, which can lead to more diverse relationships (Dutton, Helsper, Whitty, Buckwalter, & Lee, 2008). In particular, this might benefit individuals who struggle to find romantic partners in their offline environments (Rosenfeld & Thomas, 2012). However, online dating creates its own unique set of barriers and complications as compared to offline dating. For example, Finkel et al., (2012) have suggested that online dating's side-by-side, judgment-based format may not be able to present

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other important and nuanced traits that can only be experienced in an offline context. For example, a user might have an online profile with a short bio mentioning a low-paying job. That user might have a sharp sense of humor, however, that can only be appreciated in person. In terms of an individual's likelihood of experiencing strategic interference, Finkel et al. (2012) have pointed out that online dating may encourage individuals to concoct fantasies about who and what their potential partner is on the basis of his or her online presentation. These fictions can lead to conflict when meeting offline. Indeed, research has indicated that individuals often experience feelings of disappointment regarding their online dates, most likely because the dating platform failed to provide an interaction that mirrored a real-world scenario, thus increasing the likelihood of misconceptions and idealized images (Frost, Norton, & Ariely, 2006). Additionally, researchers have found that women were more disappointed within online dating than were men (Frost et al., 2006).

While there may be differences in outcomes across the three dating platforms, there do not appear to be sizable dissimilarities in terms of the types of people who use them. Research has demonstrated that motivations and intentions are the same across dating platforms, with no statistically significant differences between users, with the exception of age in which Tinder users are younger than other online dating website users (Gatter & Hodkinson, 2016). As such, we did not predict significant user base differences for the three dating platforms that would prohibit the use of between-subjects design.

Sexual strategies theory. Contemporary love and intimate relationships may be related to the internal cognitive architecture that developed as we evolved adaptations in our ancestral environments (see Gray Garcia, 2013). This does not mean that we are "hardwired" to behave in a certain way. Rather, humans have developed a set of highly flexible cognitive structures in

reaction to changing environmental realities over millions of years (Shackelford, Goetz, Liddle, & Bush, 2012). Many of these adaptations have increased humans' reproductive fitness through a process known as sexual selection (Darwin, 1859). Most of human existence was spent in hunter-gatherer societies (Pinker, 2003). It is thought that around 11,500 years ago, humans began domesticating animals for food and moving towards agriculture, marking the first shift away from hunter-gatherer societies (Richerson & Boyd, 2001). While the Earth has undergone rapid changes due to industrialization, permanent evolution across a populous species is a slow process, and estimates have suggested that it takes 1 million years to evolve substantially different physical traits (Uyeda, Hansen, Arnold, & Pienaar, 2011). For this reason, evolutionary psychologists have suggested that it is unlikely that our hunter-gatherer ancestors had greatly different phenotypes from present-day human populations (Uyeda et al., 2011)

In addition, the realities of modern life are not necessarily vastly different in principle from ancestral life. For example, humans still have to select (and be selected) by mates, work for food, and create and manage community and social bonds. In fact, those cognitive structures formed and maintained by ancestral environments may be continuously shaping our reality. For example, Tinder may not be "redefining" modern love and sex, but rather offering an interface that is appealing to more primitive cognitive shortcuts. The following three studies tested if these shortcuts subsequently influence sexual behavior.

Sexual strategies theory (Buss & Schmitt, 1993) consists of nine testable hypotheses regarding heterosexual male and female sexual choices. These hypotheses predict that because males and females have encountered different barriers to reproductive success throughout human history, each sex has developed unique adaptations to overcome these problems. Evolutionary psychologists have suggested that these differences may be related to the numeric and qualitative

differences between male and female sex gametes (Bateman, 1948). Men produce millions of sperm in a single day, while women have a set amount of ova—which totals about half that number—over a lifetime, and they can only produce offspring within a finite fertility window. This difference has additional repercussions with regard to parental investment, as females have a larger reproductive burden as compared to men, due to the demands of gestation, childbirth, and nursing. This makes short-term mating more risky for women than for men, as the former are likely to be left with the bulk of the physical burden of childbirth and childrearing (Trivers, 1972). According to parental investment theory (Trivers, 1972), the sex that has a greater direct investment in parenting children will subject potential mates to a more extensive screening and selection process. In fact, human males and females have gametes that reflect this reproductive reality: Females have fewer, more nutrient-dense ova, and males have an abundant supply of low-nutrient sperm. As such, sexual strategies theory predicts that males will be more oriented towards short-term mating, and females will be more oriented towards long-term mating.

However, if males and females only engaged in these two divergent mating strategies, the human race would not have experienced such consistent reproductive success. It appears that men and women may express a preference for different mating strategies, but not across all situations, and not always in practice. Sexual strategies theory predicts that men and women will alternate between short-term and long-term mating strategies depending on conditions in their environment (Buss & Schmitt, 1993; Gangestad & Simpson, 2000). For example, while men are much more likely than women to desire a variety of sexual partners (Bailey et al., 1994), most males simply do not meet women's criteria for short-term mates (Gangestead & Simpson, 2000). Therefore, most males may benefit more from a long-term mating strategy in which they dominate one female's entire reproductive life (Buss, 2003). Women, then, may over select

certain males for short-term mating who have indicators of high-quality genes (Buss & Schmitt, 1993).

Men who have these high-quality genes may be more likely to engage in short-term mating strategies (see Buss, 2005). An analysis of the popular online dating site OkCupid revealed that the most attractive men sent the most messages to the most people (The Deep End, 2016). Interestingly, attractive men were messaged 11 times more often than were less attractive males (Rudder, 2009). As such, the most attractive men are sending and receiving more messages than less attractive men, a pattern of behavior that may indicate short-term mating strategies. In turn, this may facilitate strategic interference between the sexes, since a relatively large number of women message the few men who just so happen to possess the particular set of qualities that would make short-term mating a better approach to reproductive fitness than long-term mating. As such, women may be sending messages to men that are more likely to be engaging in short-term mating strategies.

Sexual strategies theory's prediction that males are more oriented towards short-term mating strategies than are females is one of the most replicated sex differences in psychology (Hyde, 2005). Compared to males, females are more likely to require an emotional or financial investment before intercourse (Buss, 2003), more likely to use passive techniques to prolong romantic encounters (Clark, Shaver, & Abrahams, 1999), more likely to "hook-up" in a casual sex scenario with someone they already know versus with a stranger (Garcia & Reiber, 2008), and more likely to regret a recent casual sexual encounter (Townsend & Wasserman, 2011). Moreover, if they do engage in short-term mating strategies, they are more likely to use a short-term relationship as a means to screen for a long-term relationship (Greiling & Buss, 2000). In addition, women are more likely to engage in short-term mating strategies for shorter periods of

time before re-orienting back towards long-term mating (Townsend, 1998). Tinder use also reflects this disparity. As previously mentioned, 49% of male Tinder users have stated their primary motivation for using Tinder was to find casual short-term partner versus the 15% of women who have reported the same (Tyson et al., 2016). As such, strategic interference seems especially probable in the Tinder interface.

Furthermore, sexual strategies predicts that for heterosexual males, reproductive success depends upon finding accessible and fertile female partners (Buss & Schmitt, 1993). Males may find that Tinder helps them to overcome the problem of finding potential female mates. Buss (1994) found that heterosexual men respond to obtaining access to multiple female mates by more short-term mating strategies. In fact, an interaction with an attractive woman can also prompt males to assume short-term mating preferences, an effect that is not seen in heterosexual women interacting with an attractive male (van Straaten, Engels, Finkenauer, & Holland, 2008). Applying these findings to Tinder use, that app might prime the perception of access to multiple available women, in turn encouraging males to orient towards short-term mating.

Women are more likely than men to receive numerous "matches" through Tinder (Tyson et al., 2016). This may prime women to feel as though men vastly outnumber women on that dating platform, which is, in fact, true (McGrath, 2016). This effect is further amplified by the fact that men appear to "swipe right" more often than women, making it much more likely for a woman to match with a potential male partner than for a male to match with a female (Tyson et al., 2016). As such, Tinder has a skewed operational sex ratio, which may directly impact sexual strategies. Studies have demonstrated that when women are made aware that a particular environment contains more men than women, they orient more towards long-term mating strategies (Guttentag & Secord, 1983). In contrast, when men are made aware that there are more

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women than men in a particular environment, they orient gravitate towards short-term mating strategies to a greater degree (Guttentag & Secord, 1983). As such, both sexes may believe that there is an operational sex ratio skewed in their favor, increasing the likelihood that both will engage in more gender-stereotypical mating strategies.

It is important to note that this does not mean that all men desire and seek partners for short-term mating scenarios, while females only desire long-term partners. In fact, Buss and Schmitt (1993) have found that men and women who indicate an interest in long-term mating display largely comparable mating psychologies. This means that these individuals are largely looking for similar long-term partners, most often someone who is kind and understanding (see Buss & Schmitt, 1993). It is not until the *desires* related to short-term mating are examined that we see the largest sex differences (Hyde, 2005). As such, Tinder may prime different desires and preferences between the genders.

Because Tinder may provide an interface well-suited for male-stereotypical mate selection criteria without the burden of social rejection, it may be a unique environment to view sexual strategies theory without its usual social constraints. Moreover, if Tinder is urging males and females towards opposite ends of the mating orientation spectrum, the following studies explored how these conflicts are—or are not—experienced in real-world contexts.

Strategic interference theory. According to strategic interference theory, the more that males pursue short-term mating strategies while females simultaneously pursue long-term mating strategies in heterosexual scenarios, the more likely it is that conflict will emerge (Buss, 1989). This is supported by parental investment theory, which suggests that conflicts arise when men and women both pursue their optimal mating strategy (Trivers, 1972). Males and females' preferred mating strategies may differ because of the fundamental difference in reproductive cost

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(Trivers, 1972) and the divergent structures and functions of their sex gametes (Bateman, 1948). Men and women may thus encounter strategic interference because of the large differences in how male and female bodies experience reproduction (Shackelford et al., 2012), and as such, males and females have different goals related to reproductive fitness (Buss & Schmitt, 1993; Symons, 1971).

According to Buss (1995), strategic interference can be understood as imposing costs between the sexes. Males' short-term mating strategies lead to costs for females, in that short-term mating may reduce a woman's likelihood of procuring ongoing resources for herself and her offspring. For males, females' long-term mating strategies, in which sex is withheld until resources are provided, come at the cost of seeking additional sexual encounters with other females.

While it appears that both sexes accrue "costs" due to these differing mating strategies, women appear to amass more costs than males, and most of these come specifically from the male desire to pursue multiple mates (Buss, 1995). Both men and women may misrepresent their mating goals to find mates more effectively. This is often known as deception (Haselton, Buss, Oubaid & Angleitner, 2004). If an individual realizes his or her mate does not have the traits that were advertised, negative responses will occur, which assist the individual in identifying and avoiding future negative encounters with strategic interference (Buss, 1989).

Indeed, just as males and females have different mating strategies, they appear to also differ in their negative response to various deceptions. Women are more likely to experience negative responses when they feel that they have been deceived regarding their mate's status, resources, or pre-existing relationships (Haselton et al., 2005). Males, on the other hand, are more likely to experience negative responses in reaction to a female deceiving them about her

willingness to have sex (Hasleton et al., 2005) or the quality of her appearance (Buss & Barnes, 1986). Since a female's reproductive fitness can increase with access to a long-term relationship with resources available on an ongoing basis, deceptions concerned with these dimensions are direct barriers to greater reproductive fitness. For males, access to sexual partners constitutes the primary barrier to reproductive fitness (Symons, 1979), and so deceptions in that domain cause the most negative responses for males.

Research has suggested that heterosexual males have developed the ability to detect cues for female sexual exploitability and that they find women who display these cues to be more attractive (Goetz, Easton, Lewis & Buss, 2011). Males are also more likely to present themselves as enjoying more status in the workplace and greater access to more resources than they actually have, and they also have a higher probability of exaggerating their politeness and vulnerability (Tooke & Camire, 1991). Females, on the other hand, are more likely to deceive about their fertility through physical presentation of fertile traits accented with makeup or through plastic surgery (Trivers, 2011).

Modern dating technologies bring these conflicts into focus in a unique way. As was just described, Tinder may encourage users to engage in more gender-typical mating strategies (as predicted by sexual strategies theory), thus resulting in more conflict (as predicted by sexual interference theory). However, heterosexual males and females may be taking deliberate steps to conceal their actual mating strategies through deception around sex-linked forms of strategic interference. Such deception consists of any act of concealing one's true characteristics or status related to a dimension that is highly valued by the opposite sex.

Since mate quality deception is higher in large, anonymous populations (Mulder et al., 2009), and because Tinder has been linked to priming more gender-stereotypical mating

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orientations (Tyson et al., 2016), Tinder may be especially prone to deception around sex-linked forms of strategic interference. That said, the question remains as to whether it is fair to exclusively examine men and women's sexual behaviors in evolutionary contexts. The below section presents the corresponding cultural perspective, which also exerts a strong influence on males and females' dating behavior within contemporary dating markets.

Social role theory. Research has suggested that males and females are not actually very different. According to a meta-analysis conducted by Canary and Hause (1993), males and females were found to have nearly identical communication behaviors across several dozen studies. However, asymmetry between male and female experiences in contemporary society in terms of employment compensation, political representation, and other outcomes suggests that deep differences between the genders may remain. Across the world, men currently tend to have more power and resources than do women (Buss & Malamuth, 2006), to the point that there are no known historical or contemporary societies in which women dominate men (Goldberg, 1977). Throughout human history, women have rarely, if ever, had more power and resources than men (Tannahill, 1992). As compared to women, men are proportionally better represented in politics (U.N. Women, 2016), business leadership (Catalyst, 2016), and the creation and development of films and TV shows (Lauzen, 2015). In addition, they are more likely to hold senior positions in higher academics (IPEDS, 2013).

According to social role theory (Eagly, 1987), societal expectations differ along gender lines, which create distinct social roles for males and females. Society's expectations are often different for males and females, and the media, communities, and even nuclear families replicate these models. For example, through observation, children may observe their mother, rather than their father, to be the one who cooks dinner each night. The mother may do so, because her

social environment has communicated this expectation to her. Eventually, the children form a schema in which women are more likely to cook and men are more likely to not cook. As such, the children may themselves pursue cooking if they are female or choose not to if they are male. Additionally, these children may respond negatively if they see someone performing a role that does not fit with their schema, which adds to the socialization process. This means that social role theory does not hazard to guess why this disparity between male and female roles originally emerged but rather states that it does, in fact, exist, perpetuating further adherence to social roles through individuals' observation of current inequalities (Eagly, Wood, & Diekman, 2000).

According to social role theory, males and females may observe the behavior around them, create a schema of appropriate "female" and "male" behavior, and act accordingly. For example, a paper by Crick and Dodge (1994) described a model of social information processing. They found that a young child behaving in gender-non-conforming ways will experience high social adjustment difficulties. This may cause ongoing social punishment for not adhering to gendered social norms. As such, social role theory predicts that both males and females, from a very young age, are encouraged by their environments to behave in manners that replicate previously displayed gender roles. Because deviation from these roles is often met with social punishment, individuals tend to adhere to these roles.

Contemporary sex roles for males and females in modern dating contexts may also perpetuate different expectation for men and women different. Journalist Peggy Orenstein's book, *Girls and Sex,* describes how that author interviewed hundreds of young women across the United States to explore their experiences of sex. Common themes in the book were the internalization of media objectification, sexual shame, and confusion about pursuing sexual pleasure or sexual chastity. For example, one young woman that Orenstein interviewed stated,

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"In my gender class I'm all, 'That damned patriarchy' [...] but at night it all goes to shit. The only thing I care about is: 'Does this skirt make my ass look good?'" (p.123). In addition, many women talked about experiences of "owing" men in instances where they had been the recipients of resources. For example, one college-aged female stated, "Every girl knows that when you walk into a fraternity house, your most valuable asset is your sex appeal. Everyone knows you have to imply you'll have sex with guys to get them to give you alcohol, drugs, rides, whatever'" (p.116).

The themes expressed by the women that Orenstein interviewed reflect many of the predictions of social role theory. For example, social role theory predicts that females' social role is more passive than that of males (Eagly, 1987). Indeed, females engage in more sexually compliant behavior than do men (Impett & Peplau, 2010) and are more likely to base their relationships off of what they see in TV and films (Morrison & Westman, 2001). This, in turn, reinforces a power dynamic in which males are encouraged to be the aggressors and agents of power within romantic relationships. This may be perpetuated in media. A recent analysis of several dozen movies over the past several decades were found to have dialogue largely be dominated by men (Anderson & Daniels, 2016). Eaton and Rose (2011) recently published a 35-year review of contemporary dating advice books to assess progress towards gender equality in contemporary interpersonal and cultural social scripts. Their findings indicated there has been little to no change in gendered sex roles over the past 35 years. As such, women's social role as the passive recipient in romantic and sexual interchanges is still actively reinforced. In their review, Eaton and Rose (2011) gathered several telling quotes from contemporary advice books, such as the 2008 book, *Why hasn't he called? How guys really think and how to get the right one interested in you*, which states, "…there is a very fine line between getting him to ask you out

and asking him out yourself. We don't want you to do the latter. The man should still be the aggressor" (p. 101).

Due to asymmetrical sex roles between men and women that may cause more negative responses in women, I hypothesized that females would be more likely than males to experience both deception and negative responses around strategic interference. In other words, modern dating systems may still be biased against women, thus increasing the likelihood of negative experiences in modern romantic contexts. How these multiple messages are interpreted and experienced may largely depend on socialized attitudes an individual endorses.

Sexual double standards. Double standards between men and women are attitudes and/or expectations for a single behavior that differ based upon the gender of the person engaging in the behavior. Men and women potentially encounter different expectations within sexual contexts. According to sexual script theory (Gagnon & Simon, 1973), these divergent expectations tightly control male and female sexual behavior. In America, studies have suggested that sexual scripts differ between men and women, with males expected to be the assertive and "seeking" sex in sexual contexts, and women the passive "gatekeepers" (Plante, 2014).

In one of the first large-scale studies on young people's attitudes towards sex in America, sociologist Ira Reiss (1967) interviewed thousands of participants and found that in general, women were expected to behave in more sexually conservative ways than were men. Some studies have noted that sexual double standards are fading and that more egalitarian attitudes are taking their place (Peplau, Rubin, & Hill, 1977). More contemporary research has claimed that sexual double standards still exist but in more subtle ways, such as through implicit biases rather than explicit biases (Crawford & Popp, 2003). In fact, recent research has suggested that the true power of sexual double standards is actually the perception of their existence. Milhausen and

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Herold (1999) found that women, on average, held largely egalitarian attitudes towards sexuality but perceived other women as having much stronger sexual double standards than was actually the case. Recent research has revealed that women are more likely to feel judged for a having a casual sexual encounter than are men (Kettrey, 2016). However, most college-aged students do not appear to hold explicit sexual double standards. A study by Allison and Riseman (2013) sampled thousands of students to find that only around one-third of participants held sexual double standards. Interestingly, these double standards varied between males and females, with 28% of males endorsing "traditional" sexual double standards (i.e., women should not pursue casual sex as much as men) and 16% of women supporting "reversed" sexual double standards (i.e., men should not pursue casual sex as much as females).

Even though most people do not endorse sexual double standards, the ones who do may be particularly powerful in perpetuating these beliefs. In a survey of college students, Allison and Risman (2013) found that fraternity members were especially likely to hold these sexual double standards. Due to the popularity of Greek culture on American college campuses, these attitudes may be especially influential in such environments. Additionally, sexual double standards may still exist for more uncommon sexual behaviors, such as engaging in three-person sexual encounters (Jonason & Marks, 2009). This gap may point towards remaining differences in expectations for male and female behavior.

Endorsing sexual double standards predict many subsequent beliefs and behaviors. High adherence to sexual double standards has also been linked to unprotected sex intentions (Danube, Norris, Stappenbeck, Cue Davis, George, Zawacki, Morrison, & Abdallah, 2016), harsher judgments of women with sexually transmitted infections (Smith, Mysak, & Michael, 2008), and lower sexual satisfaction for women relative to men (Iglesias, et al., 2009; Sanchez, Fetterolf, &

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Rudman, 2012). Additionally, females who hold more gender-stereotypical sex roles are less likely to react to behavioral cues of danger (Franklin, 2008).

These findings highlighted the importance of measuring participants' endorsement of sexual double standards, and to explore whether that support predicted different romantic and sexual outcomes. These attitudes towards sexual double standards were assessed using the Scale for the Assessment of Sexual Standards Among Youth (SASSY; Emmerink, Vanwesenbeck, van den Eijnden, & ter Bogt, 2015).

Present Research

In study one, Tinder users, online dating website users, and non-users of any dating technologies were compared in a between-subjects design to explore their likelihood of experiencing deception over the past year within romantic dating contexts. Since deception is often an indicator of strategic interference, the goal was to establish whether levels of strategic interference varied for users by dating platform and gender in romantic interactions. I predicted that female Tinder users would report higher rates of sex-linked forms of deception around strategic interference than users of online dating websites or non-users of dating technologies. I also predicted a significant interaction with gender, implying that female Tinder users would be the more likely than male Tinder users to experience sex-linked forms of deception around strategic interference.

For the second part of study one, I created a predictive model for romantic satisfaction in a recently recalled "first date" and a separate predictive model for sexual satisfaction for those who indicated they had participated in a sexual encounter during a recently recalled first date. I predicted that when individuals reflected on their last in-person first date, participants who endorsed sexual double standards and reported experiencing strategic interference would report

lower rates of romantic and sexual satisfaction than would users of other online dating platforms. I also predicted a significant interaction between platform and gender, suggesting that female Tinder users would be significantly less likely than male Tinder users to experience romantic and sexual satisfaction.

For study two, I tested the priming effects of using the Tinder dating app. Participants were randomly assigned to either an experimental or control condition after being administered pre-tests. Scores from a subsequent post-test, which followed an experimental prime, were used to measure if exposure to Tinder changes participants' mate preferences, mating orientation (short-term or long-term), and willingness to engage in casual sex. I predicted that using Tinder as an experimental prime would cause both males and females to exhibit more gender-typical mate preferences and mating orientations than would the control prime.

For study three, I explored real-life experiences with the dating app Tinder, as well as its association with strategic interference. This was accomplished by coding and analyzing posts made on the popular public online forum, "Reddit," where individuals regularly share their Tinder experiences in an anonymous format. I predicted that incidents of strategic interference would be associated with negative experiences on dates arranged with the app, with women reporting both more strategic interference and more negative responses to romantic encounters than would men.

Study 1: Romantic Outcomes and Dating Platform Use

Study one was a survey divided into four parts. The goal of the first part of the study was to explore if individuals experienced more deception around sex-linked forms of strategic interference on Tinder than on online websites and in offline dating scenarios, and it also assessed whether the likelihood of experiencing this deception varied by gender. These questions were explored by comparing reported deception around sex-linked forms of strategic interference over the past year across three groups of people in a between-subjects design. These participant groups were: Tinder users, online dating website users, and participants who were actively dating without any dating technology (offline). In part two of the survey, I investigated if sexual double standard endorsement, gender, dating platform use, and strategic interference predicted satisfaction with a recently recalled "first date." I also analyzed potential interactions with gender and platform use. I then replicated this predictive model to predict sexual satisfaction for those participants who had reported having had a sexual encounter on their most recent first date. Finally, in part four, I analyzed participant's open-ended responses to questions regarding their motivations for going on a date, their experiences with their preferred dating platform, and their overall satisfaction with that dating platform.

Methods

Participants

The participants were 254 American individuals between the ages of 18 and 34 (41.7% female, 58.3% male). In terms of participants' ethnic backgrounds, the largest share of respondents was comprised of Caucasians (71.3%, $n = 181$), followed by African-Americans (9.8%, $n = 26$) and Hispanics (5.9% $n = 15$). The sample was mostly heterosexual (82.7%, $n = 210$). The average age of the participants was 27.4 years old, with the majority of participants

falling within the 30- to 34-year-old age range ($n = 96$). The existing literature had demonstrated

that Tinder users are younger than online dating website users (Gatter & Hodkinson, 2016). To

determine the replicability of these findings, a one-way, between-groups analysis of variance

(ANOVA) tested for significant differences between age and platform use. There were

significant differences between platform use and age ($F[2, 256] = 7.032$, $p < .001$). However, a

Tukey's post-hoc analysis demonstrated that online dating website users were significantly

younger than both Tinder users ($p < .006$) and offline users ($p < .004$), which was not supported

by previous research that found Tinder users were younger than online dating website users

(Gatter & Hodkinson, 2016). Tinder users and offline users were not significantly different in

age ($p < .980$). See Table 1.1 for further details on the sample's demographics.

Table 1.1
Study 1 Participant demographics

	Frequency	Percentage
Age		
18-21	19	7.4
22-25	72	28.1
26-29	69	27
30-34	94	37
Ethnicity		
American Indian or Alaska Native	5	1.9
Asian Indian	2	.8
African-American	26	9.8
Caucasian	181	71.3
Filipino	5	1.9
Hispanic	15	5.9
Japanese	2	.8
Korean	2	.8
Other Asian	6	2.3
Vietnamese	5	1.9
Not Listed	5	1.9
Sexual Orientation		
Bisexual	25	9.4
Heterosexual	210	82.7
Homosexual	12	4.7
Not Listed	7	2.3

Age of participants by platform

Dating Platform	M	SD
Tinder	26.95	3.95
Dating Website	28.69	3.67
Offline	26.70	4.08
Total	27.41	4.01

Participants aged 18-to 34-years-old were recruited through the crowdsourcing website, Amazon Mechanical Turk (mTurk), and asked to complete a survey in exchange for $.75. The recruitment materials stated that only individuals who had been "actively dating"—defined as having been on at least one in-person date (i.e., a meeting arranged with romantic intentions) within the last year—were invited to participate. The compensation was increased from $.50 to $.75 after several participants in a pilot test of the survey stated that they felt the compensation was too low for the length of time that it took to complete the survey.

The website mTurk is a crowd-sourced online database of individuals who take online surveys in exchange for a small financial compensation. Samples from mTurk have been found to be more ethnically and socioeconomically diverse than social media or campus samples (Casler, Bickel, & Hackett, 2013), and they appear to have the same rates of participant error as campus or community samples (Necka, Cacioppo, Norman, & Cacioppo, 2016). Furthermore, mTurk appears to be just as reliable as lab samples (Behrend, Sharek, Meade, & Wiebe, 2011).

Sampling within the dating population was stratified: 100 Tinder users, 100 online dating website users, and 100 offline users were recruited. This was accomplished by setting a quota for the number of respondents from each platform category and posting an advertisement with the screening criteria on mTurk. Participants were asked, "Which of the following three dating platforms did you use the most over the past year?" and were given the following options from which to choose: Tinder, online dating website(s), and offline dating. After review, 46 responses

were excluded from the analysis. The majority of these responses were removed because the participants had completed the survey despite being outside of the required age range (18-34), meaning that they had disregarded several screening questions prior to beginning the survey. One possible flaw of mTurk is that the financial incentive encourages participants to complete surveys for which they are not qualified. This may also suggest participants weer lying about their age, although there could be no definitive conclusions drawn. Several other responses were removed because their answers in the fill-in-the-blank section suggested that the respondent had not understood the question due to language barriers or had purposefully skipped that section. Thus, these types of responses were removed from further analysis.

As such, the final sample contained 254 participants. There were 78 participants who used Tinder, 87 who used online dating websites, and 89 who used offline dating methods. While roughly the same number of men and women took the entire survey, there were differences in the number of men and women within each dating platform. Specifically, in the Tinder condition, there were nearly three times as many males as females (see Table 1.2). This may corroborate previous findings suggesting that there are more men than women on Tinder (McGrath, 2016) and may be further evidence that the Tinder interface is more appealing in nature to men than to women. Women only outnumbered men in the website condition.

Table 1.2
Gender by Dating Platform

Dating Platform	Male	Percentage	Female	Percentage	Total
Tinder	58	74.36	20	25.64	78
Dating Website	38	43.68	49	56.32	87
Offline	52	58.43	37	41.57	89
Total	148	100	106	100	254

Design

Dating experiences Survey: part 1, reported deception. The first analysis was a 2 (gender) X 3 (dating platform) between-subjects design. In each group (Tinder users, online dating website users, and offline users), the outcome was measured using self-reported encounters with deception, as measured by the adapted Relationship Experiences Inventory.

Dating experiences survey: part 2, predicting romantic satisfaction. This section expanded part one by asking participants to focus on their last in-person romantic meeting arranged through their respective dating platforms. Part two compared various romantic and sexual outcomes of this last reported first date across the three groups (Tinder users, online dating website users, and offline users) to predict romantic satisfaction. This model used gender, sexual double standard endorsement, dating platform use, and reported strategic interference to predict romantic satisfaction scores.

Dating experiences survey: part 3, predicting sexual satisfaction. Since not all participants reported having participated in sex during their most recent first date, model two was only run for those participants who had noted that they had a sexual encounter during their most recent first date. In total, 57 of the 254 users (22.44%) indicated that they had engaged in sex during their most recent first date. Model two used gender, sexual double standard scores, dating platform, and strategic interference to predict sexual satisfaction scores.

Dating experiences survey: part 4, open-ended answers. Lastly, questions were asked requesting short-answer responses to describe participants' most recent fist date in general terms, explain their reasons for having selected that particular person for the date, and share general impressions about dating behavior in the context of their preferred dating platform. These responses were analyzed to better understand common themes regarding strategic interference and dating platform use between men and women.

Measures

Following a short demographic form, the online survey was divided into four parts. Part one utilized an adapted and abridged version of the Relationship Experiences Instrument (REI; Haselton et al., 2005; see Appendix B) to assess the approximate frequency of encounters with deception around sex-linked forms of strategic interference within the past year on the user's preferred dating platform.

Part two used the SASSY (Emmerink et al., 2015; see Appendix D) to explore whether endorsing sexual double standards predicted negative romantic experiences. Part two also assessed encounters with strategic interference via a short, 3-item scale adapted from strategic interference theory, as outlined by Buss (1989; see Appendix C). As such, part two used gender, SASSY, and strategic interference scores to predict romantic satisfaction, as measured by the Global Measure of Sexual Satisfaction (GMSEX; see Appendix E).

Part three was only completed by those individuals who indicated that they had participated in a sexual encounter during their most recent first date. The GMSEX was again employed in that section, but to measure sexual satisfaction instead of romantic satisfaction (see Appendix F).

Part four was comprised of a series of open-ended questions seeking to determine the extent of male- and female-typical mating strategies encountered in modern dating contexts (see appendix G). This section also sought to subjectively ascertain the degree to which such strategies did (or did not) result in deception around sex-linked forms of strategic interference. Please note these measures were counterbalanced within each part. The survey was structured as follows:

Part One
- Demographic information

- Adapted REI over the past one year (Haselton et al., 2005)

Part Two

- Strategic interference items (SI items)
- SASSY (Emmerink, et al., 2015)
- GMSEX – romantic encounter (Lawrance & Byers, 1995)

Part Three

- GMSEX – Sexual encounter (Lawrance & Byers, 1995)

Part Four

- Open-ended qualitative questions

Relationship experiences instrument. Strategic interference causes negative responses in men and women when they encounter it in different sex-linked dimensions (Buss, 1989). For example, men are more likely than women to indicate more negative responses in relation to deception around sexual availability, and women are more likely than men to indicate more negative responses in relation to deception around resource availability (Hasleton et al., 2005). As such, the above examples are sex-linked forms of strategic interference. Haselton et al. (2005) created an instrument to assess participants' experiences in previous relationships regarding instances of deception around sex-linked forms of strategic Interference. Deception around sex-linked forms of strategic interference is a helpful way of noting instances of strategic interference, because deception has coevolved alongside mating strategies as a way to increase reproductive fitness, and when deception is encountered, it stands out strongly in one's memory (Buss, 1989). In part one of this survey, the likelihood of deception around sex-linked forms of strategic interference was used as a proxy for strategic interference itself. While this instrument was designed to assess deception around sex-linked forms of strategic interference experienced across all romantic relationships, the prompt's wording indicated that participants should respond to the items in the context of all romantic relationships *within the past year on one particular dating platform*. Haselton et al. (2005) found that the Cronbach's alpha for the REI was over .80 every item on the scale that was used in the adapted and modified version in this study. This

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scale has been proven to be cross-culturally reliable for American and European populations (Haselton et al., 2005). While it has 32 items in total, this study only utilized 15 of them, only including items that were specifically related to the proposed causes of strategic interference, as first described by Buss (1989).

Participants completed the adapted REI in part one of the survey to assess the prevalence of deception around sex-linked forms of strategic interference within one dating platform over the course of one year. Participants responded to the REI items by answering either "yes" or "no" to questions related to strategic interference. Examples of such questions include: "Has anyone you've interacted with on Tinder/an online dating website/without the help of dating technologies led you to believe he or she was younger than he or she actually was?" and or "Has anyone you've interacted with on Tinder/an online dating website/without the help of dating technologies exaggerated his or her social status?" After indicating either "yes" or "no," the participants were then asked, "Can you estimate a rough percentage of how many times this has occurred across all of your romantic interactions using [dating platform] over this past year?" However, this portion of the survey generated low response rates. While the survey was set to force either "yes" or "no" responses, the portion of the questions where participants were asked to fill in the estimated percentage of occurrences was not forced. As such, a very small portion of the individuals who indicated "yes" actually included an estimated percentage. Thus, the estimation of percentage of encounters that included deception was dropped from the final analyses. Instead, the total yes/no tallies were summed and used as a unidimensional measure of likelihood of deception across the three platforms from 0-15.

Strategic interference items. In part two of the survey, participants were asked to reflect on their most recent first date arranged through their respective dating platforms. Since the REI

is only valid for assessing deception around sex-linked forms of strategic interference, and even then, only over a longer time frame, the scale was reduced and modified to three simple items to analyze experiences during a concrete event. Since no scale currently exists for directly measuring strategic interference, these items were created to assess the two major indicators of strategic interference: deception and goal incongruence. Item one asked participants, "Think about when you and the other person were arranging this initial meeting. Then, move the scale to a point between 0 and 10 to indicate the relationship length you most desired would come out of this meeting: 0 (*one-time encounter*) and 10 (*life-time partnership*)." While future research should establish if these items measure strategic interference, I believe the simplicity of these items will broadly indicate the presence of strategic interference.

Item two repeated this question, except it asked the participants' about their beliefs concerning the other person's intentions regarding the meeting, "Think about when you and the other person were arranging this initial meeting. Then, move the scale to a point between 0 and 10 to indicate the relationship length you think *the other person* most desired would come out of this meeting." The difference between these two scores was one-half of the total score for the strategic interference items. The higher the score, the higher was the level of goal incongruence, indicating strategic interference.

The other half of the strategic interference score consisted of the score for the following deception item, and was added to the goal incongruence item: "During the date, did you feel as though this person presented his or her intentions accurately? Please rate this below on a scale of 0 to 10. 0 (he or she completely represented his or her intentions accurately) and 10 (he or she did not at all present is or her intentions accurately)." The range of the two items added together was 0-25. The lower the score, the less deception the participant reported. As such, the

assessment of experienced strategic interference was comprised of both the goal incongruence and deception items, with lower scores indicating less strategic interference. A unidimensional scale for assessing strategic interference within a single discrete event does not exist, and so these items were designed to indicate whether or not strategic interference occurred during the first date.

Scale for the assessment of sexual standards among youth. Sexual double standards suggest that men and women should often adhere to different social-sexual roles, in which males are powerful and sex-seeking while females are sexually passive and approach sex with caution and restraint (Sanchez, Fetterolf, & Rudman, 2012). The SASSY measures the degree to which an individual endorses this belief system (Emmerink et al., 2016). This measure has updated language used in previous sexual double standards scales that was thought to be outdated (Bordini & Sperb, 2013), and it includes items developed to better capture the contextual nature of modern-day sexual double-standards (Emmerink et al., 2016).

The SASSY is a unidimensional measure with 19 items, and respondents indicate their level of agreement or disagreement with those items using a 6-point Likert scale. For example, participants are asked to indicate how much they agree with statements such as, "I think cheating is to be expected more from men than from women," and, "Men and women want completely different things in sex." We changed the original scale's use of the words "boys" and "girls" to "men" and "women." While the scale was originally designed for measuring adolescent attitudes, it has achieved reliable and valid results when assessing emerging adult attitudes (Emmerink et al., 2016). The items in the SASSY were designed to measure how much an individual's attitudes diverge regarding male versus female sexual behavior. This scale has been found to have high levels of consistency, with a Cronbach's alpha of .90 (Emmerink et al., 2016). Scores

are calculated by adding the values across all 19 items with higher scores indicating a stronger endorsement of sexual double standards. Since sexual double standards are linked with negative emotional outcomes (Sanchez et al., 2012), it was predicted that higher SASSY scores would predict lower levels of both romantic and sexual satisfaction.

Global measure of sexual satisfaction. The GMSEX is a simple 5-item survey designed to assess self-reported sexual satisfaction (Lawrance & Byers, 2005). While this scale was created to measure sexual satisfaction, it can also provide a more robust picture of romantic satisfaction than can a 1-item Likert scale alone. As such, the GMSEX was used (1) to measure romantic satisfaction with a recently recalled first date, and, if applicable, (2) to measure satisfaction with a sexual experience experienced during that first date (See appendix F). Using the GMSEX, participants rated their most recent first date overall and, if applicable, their subsequent sexual encounter. The GMSEX asks participants to rate a romantic or sexual experience on 5 different 7-point response scales developed to assess complex and nuanced responses to sexual interactions. For example, it asks participants to rate the experience using the following scale: 0 (bad), 3 (neutral), and 6 (good). In addition, participants also rate the experience as 0 (worthless) 3 (neutral) or 6 (valuable). The overall satisfaction score was computed additively and was also predicted on the basis of a participant's gender, SASSY score, strategic interference score, and type of dating system used. In previous studies the scale was found to be highly consistent ($\alpha = .96$) and reliable after a two-week follow-up ($\alpha = .84$; Lawrance & Byers, 2005).

Open ended response items. Participants were asked several questions to provide context and subjective information regarding a recently recalled first date. These questions were

designed to assess overall satisfaction with the first date as well as to better understand

participant opinions regarding dating technologies.

Procedure

An advertisement for this survey was uploaded to the requester dashboard on the mTurk

Website, under the name "Modern Dating Experiences Survey." This advertisement allowed

potential participants to see a short description of the survey, as well as to review its

requirements. The advertisement explained that only individuals between the ages of 18-34 could

participate. This particular age group was selected, because studies have suggested that around

80% of Tinder users are within that age bracket (Statista, 2016b). Limiting the sample to this age

range hopefully mitigated between-group differences. Individuals also needed to have been

actively dating within the last year to participate. "Actively dating within the last year" was

defined as having gone on at least one in-person date within the last 365 days. The text on the

survey advertisement stated that participants who met these criteria could click on the link on the

screen to be directed to the consent form (see Appendix A). Participants who agreed to

participate were then presented with the following question: "Which of the following dating

platforms have you used *most frequently* over the past year?" The options presented were (1)

Tinder, (2) online dating website(s), and (3) offline dating. Based on the participant's selection,

they were then automatically directed to the rest of the survey with terminology specifically

suited for the particular dating platform.

After completing a demographic questionnaire, participants then were asked to reflect on

their dating experiences on the dating platform that they indicated using the most frequently over

the past year. To measure and compare deception across the three groups, participants were

asked to indicate if they had ever experienced deception via the Relationship Experiences

Instrument's 15 items (Haselton et al., 2005). Participants selected "yes" or "no" for each item to indicate whether they had indeed experienced such deception. They were then asked to reflect on their most recent in-person first date arranged through their preferred dating platform. Participants were then presented with the following counterbalanced scales:

To measure strategic interference, participants were given the 3 strategic interference items described in the *Measures* section, while sexual double standard endorsement was measured via the SASSY (Emmerink, et al., 2015). To measure romantic satisfaction with their most recent first date, participants were given the GMSEX (Lawrance & Byers, 1995) but asked to exclusively consider their romantic satisfaction. Gender, platform use, SASSY scores, and strategic Interference scores were then used to predict the likelihood of romantic satisfaction, as measured by the GMSEX.

Participants who indicated that they had a sexual encounter during their last reported first date were again given the GMSEX (Lawrance & Byers, 1995) but asked to only consider their sexual satisfaction with the sexual encounter during that first date. Gender, platform use, SASSY scores, and strategic interference scores were then used to predict the likelihood of sexual satisfaction, as measured by the GMSEX.

Lastly, participants were asked to respond to a series of open-ended questions related to their attitudes towards their dating platform and overall experiences with that platform. Moreover, open-ended questions collected more details regarding the events during the participants' most recent first date. At the end of the survey, participants were asked to enter a randomly generated mTurk code into the dashboard of the mTurk webpage where they had first clicked on the link to participate in the survey. This final step verified their completion of the survey and ensured that participants' compensation was appropriately delivered.

Results

Dating Platform and Experiences with Deception by Gender

It was predicted that Tinder users would experience more deception around sex-linked forms of strategic interference over the past year than would users of online dating websites or offline daters. It was also predicted that gender would have a significant interaction with dating platform use (Tinder, online websites, and offline), with female Tinder users anticipated to be more likely to experience deception than male Tinder users. This was assessed with a two-way ANOVA test on the effect of two independent variables (gender, dating platform) on the likelihood of recalled strategic interference over the past year, as measured by the adapted REI (Haselton, et al., 2005).

Table 1.3

Means and Standard Deviations for Effects of Dating Platform use and Experienced Deception

Dating Platform	Deception		
	M	SD	N
Tinder (overall)	4.51	3.60	78
Male	4.34	3.69	58
Female	5.00	3.37	20
Dating Website	4.69	3.91	87
Male	4.03	4.24	38
Female	5.20	3.59	49
Offline	3.91	3.50	89
Male	3.55	3.57	53
Female	4.40	3.36	37
Total	148	100	254

This hypothesis was partially supported. As expected, there was a significant difference between the three dating platforms ($F[5, 254] = 9.288$, $p < .001$, $\eta^2 = .977$), suggesting that the different dating platforms were associated with divergent levels of reported deception. Because Scheffé post-hoc tests are often conducted for different sized samples, this test was conducted. This test revealed a significant difference between Tinder and offline participants ($p = .002$), as

well as between online dating website users and offline users ($p < .001$). However, there was no difference between Tinder users and online website users in reported deception ($p = .945$). As such, Tinder users and online website users were significantly more likely to report having experienced deception than were offline users, although the former two groups did not exhibit significant differences between one another. Additionally, the results did not support the hypothesis predicting a significant interaction effect of between gender and dating platform on the likelihood of experiencing deception ($F[2, 254] = .155$, $p = .856$, $\eta^2 = .074$). This suggests that there were not significant differences between men and women in terms of their likelihood of experiencing deception across the three dating platforms.

Tinder users and online dating website users had roughly the same likelihood of experiencing deception in romantic interactions, regardless of gender. These two groups were much more likely to experience such deception than were individuals who did not report the use of a dating technology.

Table 1.4
Two-Way ANOVA for Reported Deception by Dating Platform and Gender

Factors	Df	SS	MS	F
Gender	2	211.499	105.749	9.288***
Dating Platform	1	39.196	39.196	3.443
Gender x Platform	2	1.769	1.769	.155
Residual	248	2823.47	11.385	

$* p < .05$, $**p < .01$, $***p < .001$

Figure 1.1
Two-Way ANOVA for Reported Deception by Dating Platform and Gender

Estimated Marginal Means of Deception
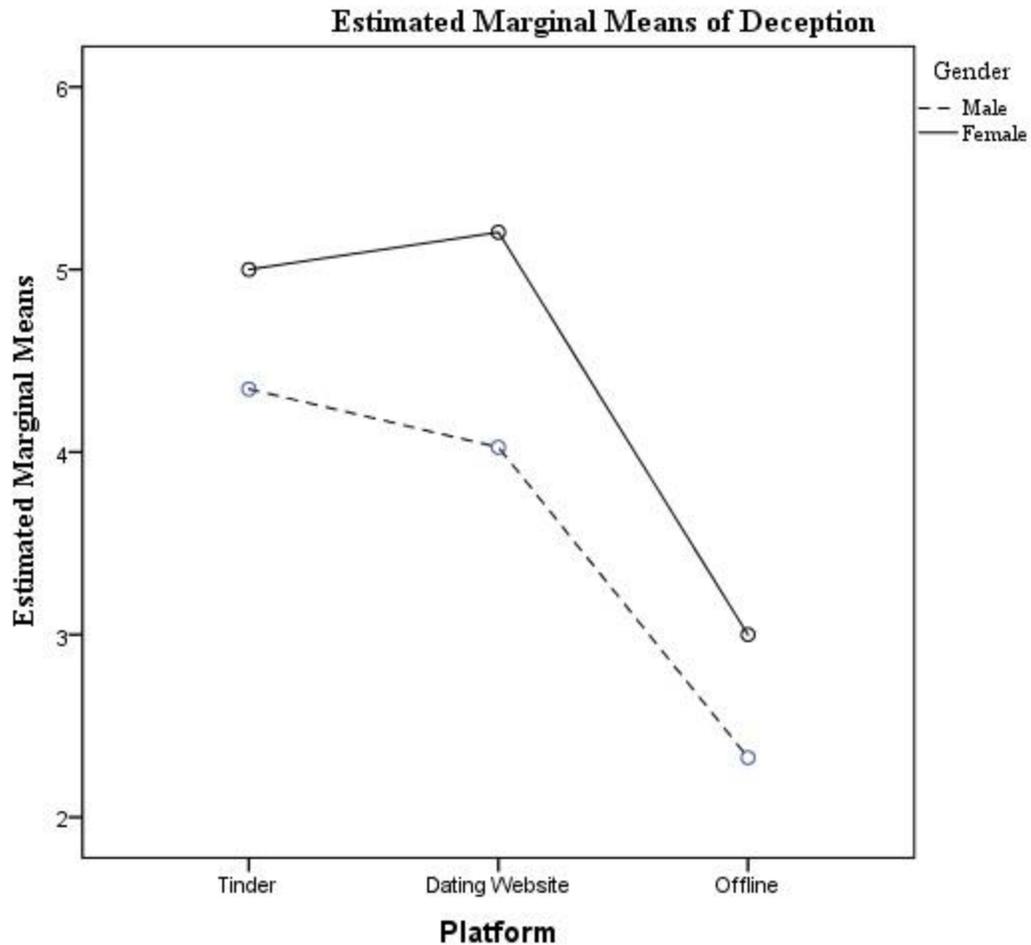
Predicting Romantic Satisfaction

For section two, correlation and multiple regression analyses were conducted to examine how gender, endorsement of sexual double standards, reported strategic interference, and dating platform affected romantic satisfaction with the most recently recalled first date. It was predicted that gender, platform use, stronger endorsement of sexual double standards, and higher levels of reported strategic interference would predict lower levels of reported romantic satisfaction. An interaction between gender and platform use was also predicted, with female Tinder users anticipated to report significantly lower levels of romantic satisfaction than male Tinder users. The original hypothesis was thus supported. The linear combination of predictors was significantly related to the overall reported quality of a recent first date ($F[5, 248] = 10.951$, $p < .$

001). The four predictors (gender, platform, SASSY, and strategic interference) explained 18.1%

of the variance. When predicting romantic satisfaction, this model generated an error of

approximately 6.23 points on the 35 point GMSEX scale.

As can be seen in Table 1.5, strategic interference had significantly negative regression

weights, indicating that participants who experienced higher rates of strategic interference

reported lower overall romantic quality during their date ($\beta = -.396$, $p < .001$). Gender, sexual

double standards, and dating platform did not contribute to the multiple regression model. This

suggests that encounters with strategic interference had a stronger negative impact on romantic

interactions than did gender, the type of dating platform used to arrange the date, and the extent

to which the individual endorsed sexual double standards. The predicted interaction between

gender and platform was not significant, suggesting that men and women did not have

significantly different rates of reported romantic satisfaction across the three dating platforms.

Table 1.5
Means, Standard Deviations, and Regression Analysis Summary for Factors Predicting Romantic
Satisfaction with a Recently Recalled First Date

Variable	Mean	SD	Correlation with Quality of First Date	b	β
Gender	.42	.494	-.049	-.160	-.012
Sexual Double Standards	97.06	.494	.039	.008	.027
Strategic Interference	5.618	3.389	-.411	-.796***	-.396***
Online Dating Website	.340	.475	.110	.091	.006
Offline	.350	.478	.007	1.589	.111
Gender x Dating Website	.192	.395	-.053	.066	.592
Gender x Offline	.146	.353	.127	.404	.021

*$p < .05$, **$p < .01$, ***$p < .000$

Predicting Sexual Satisfaction

For section three, the hypothesis regarding sexual satisfaction mirrored the earlier

prediction concerning romantic satisfaction. It was expected that female Tinder users who more

strongly endorsed sexual double standards and experienced higher rates of strategic interference

would have lower rates of sexual satisfaction as compared to women or men who (1) used other dating platforms besides Tinder (2) strongly endorsed sexual double standards, and (3) reported lower rates of strategic interference.

To conduct this analysis, participants who indicated that they had sex on the first date were extracted from the dataset. In total, 57 participants reported having engaged in a sexual encounter on their most recent first date. Before conducting the multiple regression analysis, we wanted to explore if condition (Tinder, online dating website, or offline) was associated with a participant's likelihood of engaging in sex on the first date. To that end, a one-way ANOVA was conducted to test if there was a significant difference across the three dating platforms in term of users' likelihood of engaging in sex on the first date. The results were not significant ($F[2, 253] = .975$, $p = .379$), suggesting that dating platform use was not associated with the likelihood of engaging on sex on the first date. As such, there were no statistically significant differences between men and women's likelihood of engaging in sex on the first date across the three platforms.

Unlike the model predicting romantic satisfaction, the model predicting sexual satisfaction was not significant ($R^2 = .195$, $F[5, 51] = 1.696$, $p = .132$). This suggests that dating platform use, gender, strategic interference, and endorsement of sexual double standards did not predict a participant's likelihood of experiencing greater sexual satisfaction. However, endorsement of sexual double standards did independently contribute to on the likelihood of indicating sexual satisfaction ($\beta = .302$, $p = .033$), which was not a predicted result.

Table 1.6
Means, Standard Deviations, and Regression Analysis Summary for Factors Predicting Sexual Satisfaction with a Recently Recalled First Date

Variable	Mean	SD	Correlation with Sexual Satisfaction	b	β

Gender	.33	.476	-.021	1.052	.086
Sexual Double Standards	115.684	22.403	.263	.079	.302*
Strategic Interference	5.474	3.241	-.178	.231	-.161
Online Dating Website	.26	.444	-.212	-3.078	-.234
Offline	.333	.476	.011	-2.311	-.188
Gender[1] x Online	.140	.350	-.174	-1.671	-.100
Gender x Offline	.105	.320	.131	3.402	.180

*$p < .05$, **$p < .01$, ***$p < .001$

Additional Analysis

In order to explore the possible relationship with sexual double standard scores and romantic outcomes, a 2 (sex) x 3 (dating platform) two-way ANOVA was conducted. There was not a significant interaction effect between gender and dating platform on sexual double standard endorsement ($F[2, 254] = .197$, $p = .822$). The main effect of dating platform use on sexual double standard endorsement was also not significant, though marginal ($F[2, 254] = 2.720$, $p = .068$). A Scheffé post-hoc test was conducted to better understand possible differences in sexual doubles standard endorsement across dating platforms. This revealed a significant difference in endorsement of sexual double standards between Tinder users and online dating users ($p = .003$), as well as between Tinder users and offline dating users ($p = .017$). There was no significant difference between users of online dating and offline dating in terms of their likelihood of endorsing sexual double standards ($p = .896$). Additionally, there was a main effect for gender ($F[1, 254] = 11.413$, $p < .001$). As such, Tinder users were more likely to endorse sexual double standards than were online website users and offline users, and men were more likely to endorse sexual double standards than were women across the three dating platforms.

Figure 1.2
Two-Way ANOVA for Reported Sexual Double Standard Endorsement by Dating Platform and Gender
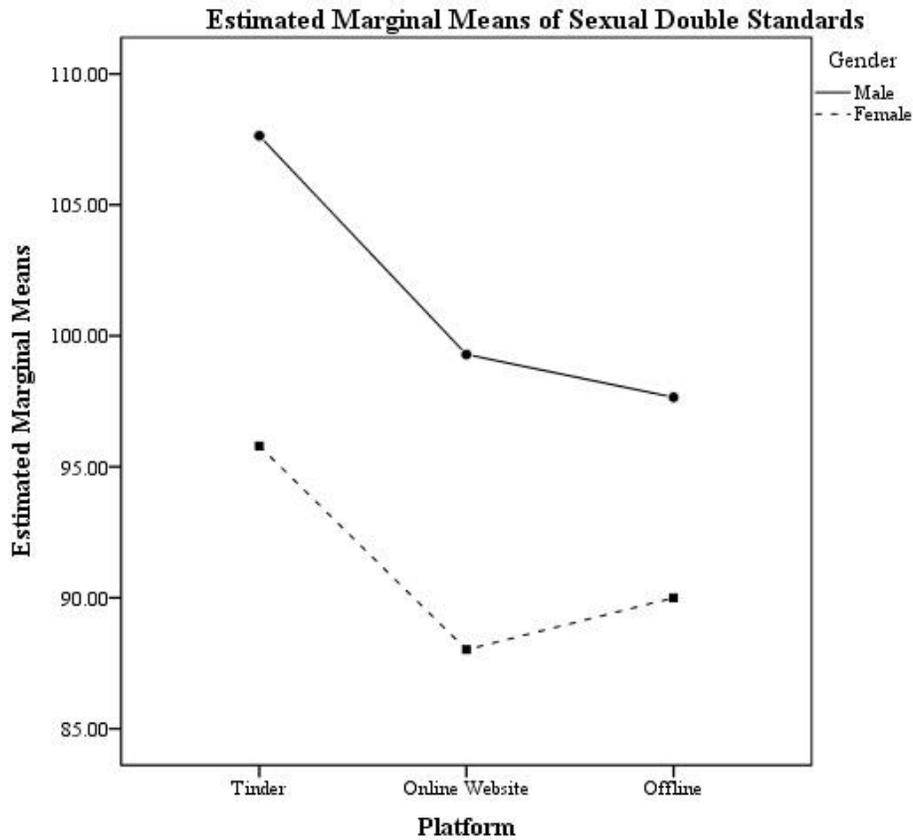
Open-Ended Answer Responses

At the end of the survey, participants were asked to utilize a short-answer format to express their thoughts and opinions of their most recent first date. The questions in this section were meant to contextualize why individuals agreed to go on a date with a potential mate, what occurred during that date, and what were their overall attitudes towards toward their particular dating platform.

Tinder users. Despite the higher rates of deception over the last year reported in the quantitative portions for Tinder and online website users, very few Tinder users mentioned feeling deceived by their most recent first date in the short-answer portion of the survey. In fact, the only 7.4% of Tinder users stated that they felt their dates had inaccurately represented

themselves in their online photos versus their real-life presentation. Only 2.7% of the recalled

first dates were described as negative. The majority of the dates described were neutral:

> I thought he was cute, so I figured I would give him a shot. It was normal, like meeting a
> friend, which was awkward considering we were supposed to be going on a date, but I
> still went along with it and decided to give him a shot. he[*sic*] was nice, he paid for
> dinner, we talked about things and work and whatnot, and then we walked around
> Disneyland before leaving and splitting up. (Female, 27)

> Coming into it, I was pretty nervous because it was essentially a blind date. We went for
> dinner. I only had a picture to base off of who I was looking for, so I was uncertain.
> However, when she walked in, I could instantly recognize her. She didn't look quite like
> her picture, but it was very similar. We had some basic conversation, and it didn't really
> go beyond that. We weren't getting together as well as we did online. She seemed fidgety
> the whole time, and I could tell she was uncomfortable. We called it a night, and it didn't
> go beyond that. (Male, 22)

Only 7.4% of Tinder users stated that the reason that they went on their most recent date

arranged through that app was because they wanted a short-term casual sex encounter. In fact,

there were multiple instances in which participants mentioned that they were using the site for a

casual sexual encounter, but found something more long-term:

> We did not 'hook up' on our first date and seemed to have a genuine emotional
> connection. Generally, I was using Tinder to hook up but I found a serious romance
> through it. (Male, 28)

In college Tinder was something to spark sexual relations. After college I wanted to

utilize it as a dating platform. This [first date] was unique because this developed into a

long term relationship. (Male, 24)

Almost all of the short-answer responses indicated that the participant's motivation for

meeting his or her most recent first date was because the person seemed interesting, or because a

connection seemed to be present between them. Most users seemed to casually approach dates

arranged through Tinder, and did not mention strict criteria for agreeing to meet offline:

He was good looking, around the same age as me and hard working. We talked about

Tinder and our dating experiences. The exchanges were pleasant and he expressed an

interest in me. We met at a coffee shop. He coincidentally picked my favorite one which

gave me a good first impression. (Female, 33)

She was attractive, looked kinda fancy. She initiated the conversation. We had typical

discussions and then found out we lived one block away from each other. The initial

interchanges were pleasant, she thought I had sex with one of her friends. We

got along decently with our text messages. We had talked for a few days then she agreed

to come over. (Male, 24)

Many users' response to the question, "Why did you agree to meet this person?"

suggested that they were interested in both short-term and long-term dating. In fact, most

responses suggested that when individuals met romantic partners through Tinder, they were

open-minded about the nature of the relationship that might transpire.

I thought she was very beautiful and also somewhat humble, which was different from

the other women I had seen online. I was immediately attracted to her face and body. I

wanted to see if she was as beautiful in person as her photos. We met at a local bar in the city. We were both immediately completely comfortable with each other and within 20 minutes, dancing and kissing. (Male, 33)

We talked a lot at first, it was mostly about books and common interests, he was good with advice about job ideas and dealing with family drama. He was sweet and it was just a comfortable conversation. I thought they sounded nice and a meal sounded like a reasonable amount of time I wanted to spend with them, I liked our conversations and thought that it could turn into more. (Female, 29)

Interestingly, while most Tinder users seemed to have approached their most recent first date without explicit expectations concerning the nature of the relationship that might follow, when asked to give their overall opinion of the app, 37% of Tinder users stated that they thought it was mostly used to find casual sex. This suggests that while the primary motivation for using the app was not short-term mating, many people still perceived Tinder as a "hook-up" app, even if they themselves did not use it as such. In fact, none of the participants who indicated that they had sex on their most recent first date mentioned any kind of regret for having done so. Moreover, the participants did not describe any first dates during which their romantic partner had engaged in deception to bring about a sexual encounter. As such, it appears that perceptions of the app diverged from what majority of the participants actually experienced on their last recalled first date. For example, one 24-year-old female participant wrote, "I think that Tinder has become a waste of time. Nobody is ever serious on there and even when they say they want a relationship they are just looking for hookups. It is not the place to find a new relationship," despite sharing that her most recent first date was a successful one and that she planned to continue to see that particular person romantically.

Tinder users also indicated that they had an "off-and-on" relationship with the application. Only 36.7% of those who had used Tinder over the past year indicated that they still actively utilized it. The remaining participants had either stopped using the app altogether or only used it occasionally. When users were asked to state whether and why they were still using Tinder, many of the participants stated that they often activated their accounts for brief periods of time before signing off again:

It's a very easy interface. I just don't understand the point of finding "matches" and then never ever conversing. It almost seems that the potential of finding someone better on the next swipe inadvertently makes you miss out on a pretty meaningful meet I am on and off. I get frustrated with it. I currently am not. But that changes weekly. (Male, 32)

I don't use it too often. But it can be helpful. You have to be careful but I think you have to be that way with most dating applications. If i[sic] have time to go out or feel like meeting someone, than I will flip through and see if there are new members. (Female, 32)

Figure 1.3
Percentage of Participants who Used Tinder Over the Past Year to Find Romantic Partners who Currently Have an Active Tinder Account
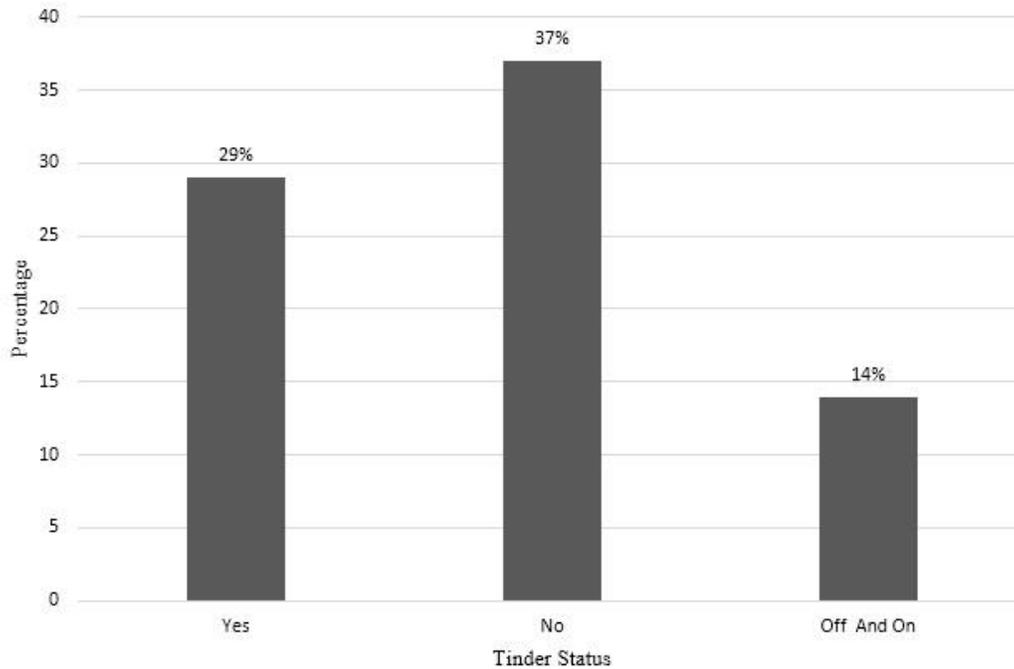
Taken together, these responses suggest that many people engaged with Tinder inconsistently, had open-minded expectations regarding the nature of the relationships arranged through the app, and tended to have average first dates. Frustration with the app appeared to stem from the expectation that everyone uses it primarily to arrange casual sexual encounters, even though very few of the users in this study indicated that was their primary motivation for using the app, or their subsequent experience with it. Other frustrations included a lack of potential matches, too many spammers, and disappointing outcomes for recent dates. Very few people described events that suggested that they had encountered strategic interference in the form of deception or goal incongruence during their most recent first date. Overall, it seemed that Tinder users felt somewhat apathetic about the app but continued to use it, because the interface is engaging and the app is currently popular.

Online dating website users. Users of online dating websites reported using 16 different such websites to arrange their most recent first date. Many of these online dating websites also offer an app version of their services, which may further explain why many of the quantitative

results failed to detect significant differences between online dating website users and Tinder

users. The most popular dating website was OkCupid, followed by Match and PlentyOfFish.

These three sites made up 77% of all online dating website users, suggesting that while there

may be many dating websites catering to specific niches or preferences, most individuals used

one of these three sites for finding potential romantic partners.

Figure 1.4
Reported Online Dating Websites Used to Arrange Most Recent First Date
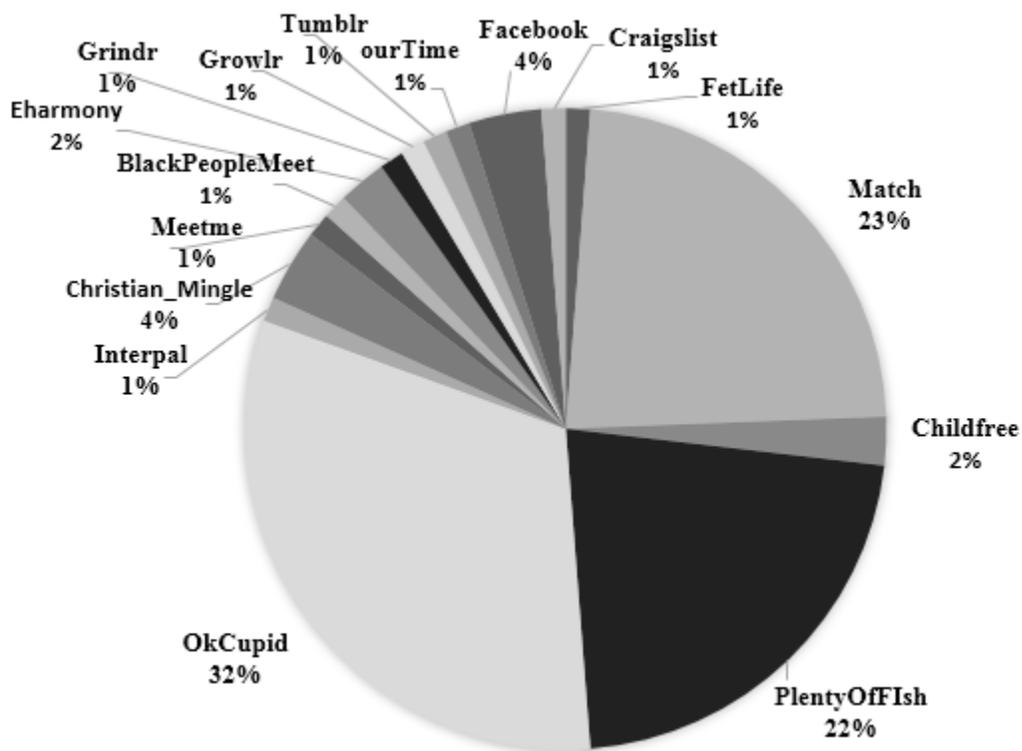
Online dating website users' open-ended responses did not appear to be considerably

different from those of Tinder users. Only 4.5% of dating website users reported feeling deceived

by their romantic partner during their last most recent first date. Interestingly, many of the users

who indicated that they had experienced deception did not consider that duplicity to be

inherently negative:

I was sitting in Union Station and he came around the corner, that was when I saw him

for the first time. He was more overweight than I thought he was and I was surprised by

that, and I could see he was very nervous so I comforted him to put him at ease. I was not

very nervous and was more focused on making him feel safe. We hugged and he was

shaking from nerves, after we finished the hug we broke apart and we both laughed.

(Female, 28, Tumblr)

We had a quick initial meeting. We met a bar close to where we both live. That had food

and drinks that we mentioned we both liked. She was attractive and seemed mainly like

in her pictures. She was a little heavier and out of shape than she appeared online. But,

that wasn't a problem. I still liked her. We had a good conversation and we had

chemistry. We started flirting and then started kissing. When we left the bar, we made out

some more. We both seemed like we wanted to have sex, but we resisted. I got a strong

signal from her that it would be better to wait, even though she had her legs wrapped

around me several times. So, we called it a date and we continued to date after that.

(Male, 34, OkCupid)

Similar to the Tinder users, few online dating website users indicated that their most

recent first date was negative, with only 12.5% of users describing a date that was negative in

nature:

He's very nice, he's just kind of an idiot. He likes car racing and that was ALL he talked

about. He doesn't understand politics, literature - anything other than car racing. It was a

very boring date. (Female, 31, Match.com)

We met in a public area for coffee. She was late. She seemed not as friendly as our

messages. I bought her coffee and she perked up. She was distracted on her phone the

whole time. Made me feel kinda useless and like a fool. Figured she was talking to other

guys. I tried to get her attention with topics that she was interested in before, but she was still distracted. Once I finished my drink, we parted ways. She didn't even smile or pretend she was interested in me. (Male, 27, OkCupid)

The outcomes described for online dating websites and Tinder users were very similar in nature, suggesting that participants may view Tinder as more of an extension of online dating websites than as a replacement for them. No participant mentioned using online dating websites for finding short-term casual sex, but they did seem to have a similarly casual approach towards arranging offline meetings as did Tinder users. Online website users did occasionally mention experiencing deception, but most users seemed to be somewhat conditioned to online profiles not perfectly matching the person's real-life presentation. Therefore, they did not usually indicate that they felt frustrated by inaccurate representations.

Taken together, these findings suggest there may not be many differences regarding intentions and experiences between Tinder users and online dating website users. Tinder's reputation appeared to represent the largest difference across the dating platforms.

Offline users. While not all offline users indicated how they met the person with whom they went on their last recalled first date, those who did often said the arrangement was made through a friend. In many ways, such arrangements mirrored the connections made through online dating, except that for offline users, the link was facilitated by a social contact. Users described scenarios in which a friend suggested that they meet another single acquaintance, shared their pictures, and then gave the two potential romantic partners one another's contact information. From there, users described engaging in text messages or phone calls before meeting each other:

She was a friend of a friend. I was told that she was single, and attractive, and that she

was in the dating scene. I was also told we had a lot in common. We spoke a few times

on the phone, and exchanged photos. We both agreed that we should meet in person.

(Male, 30)

Other ways that people described meeting was at work or through random encounters

while going about daily activities:

We both sat down at a local Starbucks, and I paid for her and my lattes. We just started

talking about what we enjoy doing in life, what was our occupation?[*sic*] what we are we

looking for in a relationship?,[*sic*] and etc. It was nothing more than that. We both were

really kind with one and another, and we just overall had a pretty good time. (Male, 30)

Some users also blurred the definition of truly meeting "offline" romantic partners.

Several participants mentioned seeing someone on Facebook or other social media that they

found attractive and was as a friend of a friend. This then encouraged them to request more

information about this person through a mutual friend, which then started the previously

mentioned process of sharing photos and contact information through that mutual friend. One

user, who had also used Tinder in the past, did not find much of a difference between using

dating apps and using friends to arrange dates, saying, "[Dating without online technology] was

about the same as using Tinder or any other dating app, only we knew a bit about each other

through our mutual friend" (Male, 30).

Other users spoke harshly about online dating and tended to view it negatively. Their

responses indicated that online dating had a negative stigma:

I think finding someone offline is always a much better option. Unless you're socially

awkward, speaking to someone in person gives you a real feel of what they are like and

lets you know if you'll even be able to talk to them. Also online you never know how

many people someone is actually talking to. I usually don't have a problem finding

someone in person and meeting new people. I have an approachable face and I am very

kind so I can have pleasing conversations with strangers and get to know them better over

time. Online dating to me is like a last resort thing if I just can't seem to talk to someone

in person. (Male, 23)

Discussion

Part one of the survey partially supported the prediction that Tinder users would be more

likely than other dating platform users to report having experienced deception over the past year.

Tinder users and online dating website users were both equally likely to experience higher levels

of deception as compared to those who did not use any dating technology. This is most likely

because the primary source of deception reported was regarding presented appearance in an

online profile versus actual appearance offline. Since offline users were never presented with an

online dating profile picture before meeting their romantic partners, they did not encounter this

deception. Other forms of deception regarding status, resources, or social prestige were simply

not reported across the three platforms.

There were no significant differences between Tinder users and online dating website

users in regard to reported deception, and no significant interaction effect between gender and

dating platform on reported encounters with deception. As such, it appears that men and women

who use either Tinder or online dating websites are more likely to experience deception than are

men and women who do not use any kind of dating technology. This suggests that Tinder and

online dating websites may not have different effects on users in terms of experienced deception,

although dating technology overall may increase the likelihood of deception. While Tinder's

interface is different than those of online dating websites, it may not cause any additional

deception relative to other online formats.

In part two of the survey, participants recalled their most recent first date arranged

through the dating platform they indicated using the most frequently over the past year. The

hypothesis that gender, endorsement of sexual double standards, platform use, and strategic

interference would predict romantic satisfaction was supported. However, only strategic

interference significantly contributed to the model. This suggests that strategic interference is the

strongest predictor of romantic satisfaction, regardless of gender, sexual double standards

endorsement, or dating platform. This finding implies that dating technology is not necessarily

leading to higher rates of strategic interference but that when it is encountered, it negatively

impacts the overall quality of the romantic encounter. Interestingly, in the short-answer portion

of the survey, most users across all three dating platforms did not discuss having experienced

frequent or profound levels of strategic interference. Most dissatisfaction with romantic

encounters appeared to be due to poor manners, lack of a connection, or miscommunication.

Additionally, most users across all three dating platforms indicated that they were open-minded

regarding the kind of relationship that might transpire from their date, suggesting that men and

women's mating orientations are highly flexible and contextual.

In part three of the survey, participants who indicated that they had a sexual encounter during

their most recent first date were asked to report their satisfaction with the encounter. The

hypothesis that gender, endorsement of sexual double standards, platform use, and strategic

interference would predict sexual satisfaction was not supported. However, there was a main

effect for sexual double standard endorsement and sexual satisfaction. An exploratory two-way

ANOVA between gender and platform use on endorsement of sexual double standards was not

significant, but a post-hoc analysis found significant differences in sexual double standard endorsement among Tinder users, online dating website users, and offline users. This finding suggests that Tinder users might be more likely to endorse sexual double standards than non-Tinder users. The fact that our Tinder group was disproportionately male might explain this effect. Since men are more likely to endorse sexual double standards than are women (Allison & Risman, 2013), this gender imbalance may have influenced this result. Future studies would need to control for this effect.

The open-ended portion of the survey did not reveal large differences across the three dating platforms in terms of the quality of first date or the likelihood of experiencing strategic interference. Overall perceptions about Tinder seemed to imply that many people consider it a "hook-up" app, despite most of the respondents stating that they themselves did not use it find short-term partners. In fact, none of the respondents described a first date during which they felt pressured to engage in a short-term sexual encounter. Additionally, many participants explained that they were now in a relationship with the last person they had dated from Tinder. In fact, while Tinder's interface gives the impression that it is best suited for short-term dating, most users described engaging in prolonged text messaging or messaging through the app prior to meeting. Offline arrangements followed a similar trajectory, in which many users were matched with a potential partner through a friend who then facilitated an exchange of photos and contact information between the two interested parties. Afterwards, texting or calling took place until both parties felt there was adequate interest on both ends to justify meeting for a date.

As such, interactions on all three dating platforms appeared to follow the same pattern: initial attraction or interest, messages or phone calls, and the arrangement of a date in a public place. Outcomes across the three platforms appeared to be roughly similar. Offline users often

stated that they felt online dating increases the likelihood of being deceived, and they also

suggested that online dating is for individuals who are less social.

It may be that Tinder's "feedback loop" primarily exists in the digital space in which it

was originally detected (Tyson et al., 2016). Males and females may be engaging in gender-

stereotypical behavior in terms of swiping and initial messaging. Once a connection is

established between two interested individuals on the app, however, it does not appear that the

subsequent encounter is largely different than those resulting from online dating websites or

offline formats. Very few Tinder users indicated that they used the app primarily for short-term

sexual encounters, despite many people perceiving the app as geared toward that type of

behavior. As such, it appears that most people who use Tinder do so for the same reasons that

they use online dating websites or offline encounters. Namely, "we had a lot in common, so we

decided to meet and see if it would lead to something more" (Male, 22, Tinder user).

Limitations

This study was limited by both the size and quality of the data. To make more reliable

predictions, this survey should be distributed across multiple sites to a larger sample of

participants. Additionally, 46 participants' data had to be excluded from the analysis, because

those respondents had not followed the screening instructions and were outside of the indicated

age range. Other limitations included suspicions that some individuals took the survey multiple

times (Qualtrics data found multiple results came form the same or unusually similar ip

addresses), strong language barriers that made it unlikely that certain participants understood the

questions, and participants skipping questions altogether to finish quickly and receive their

compensation. In addition, several responses came from the same physical location, suggesting

that respondents might have used specialized software to take the survey multiple times to

receive the compensation more than once. In addition, some participants did not appear to be American despite Qualtrics reporting that the survey was taken within the U.S.A. This is may be a growing issue with mTurk participants, in which software is used to indicate they are within the U.S.A. when in fact they are not (Kahan, 2013) Future researchers may prefer to distribute this survey on college campuses or through a platform that more rigorously controls for quality.

This study's sample only included 20 female Tinder users, and so this category in particular would benefit from additional recruitment in a future survey. This small sample made it difficult to draw conclusions regarding gender differences on the app. Future research should greatly expand the sample to prevent any asymmetry between gender and app usage from threatening the validity of the study.

Study 2: The Priming Effects of Tinder

Participants in study two completed an online survey assessing their mate preferences, desire for short or long-term mating and their willingness to engage in casual sex. Participants were then randomly placed participants into two conditions: Tinder and control. Participants in the Tinder condition signed on to and utilized their Tinder app for 5 minutes, and participants in the control condition swiped through a series of neutral photos of building, inanimate objects, and the interior of various rooms on an experimenter's tablet. Afterwards, participants were given the same measures as in their pretest. This was to test if the participants in the Tinder condition changed what traits they prefer in a mate, their preference for long or short-term mating, and their willingness to engage in casual sex after interacting with the app compared to the control group. The goal of study two was to experimentally test the "feedback loop" that previous research has found, where males and females engage in more gender-typical mating strategies in observed interactions on Tinder (Tyson et al., 2016). This feedback loop was hypothesized to be caused by participants perceiving a skewed operational sex ratio in which many available partners appeared to be in their dating environment. In other words, this study explored if using Tinder has priming effects that impact subsequent mating behavior. These effects were analyzed with 2 x 2 ANCOVA controlling for pre-test scores run separately on five dependent variables: mate preference (looks, resources, intelligence) and mating orientation (relationship length and willingness to engage in casual sex).

Priming Effects of Skewed Operational Sex Ratio

Sexual behaviors often change when individuals perceive a skewed operational sex ratio where there are more members of the opposite-sex gender than same sex (Guttentag & Secord, 1983). In environments where there are more men than women, females are more likely to self-

report higher levels of promiscuity (Schmitt, 2005) and are more likely to be sexually active and less likely to be in a committed relationship (Uecker & Regnerus, 2010). This change in sexual behavior is thought to be caused by females competing for fewer males by shifting sexual strategies to male-preferred behaviors (Guttentag & Secord, 1983). Since Tinder may prime males to perceive a skewed sex ratio in which there are many available females in their immediate environment, males may rely more on short-term criteria when assessing possible mates on Tinder. This behavior may also be true for homosexual males since Tinder provides a stream of photos of potential male partners, suggesting there are many romantic options in the immediate environment. Males regularly rate good looks as criteria for short-term mating (Buss & Schmitt, 1993). As such, it is predicted that males in the Tinder condition will be more likely than those in the control condition to rate attractiveness as an important trait in a partner, and this effect will not be seen in women (hypothesis 1).

Studies also suggest that when males are in the presence of attractive females, they orient more to short term mating strategies (van Straaten et al., 2008). Since Tinder provides users with a stream of images of available women, this may prime a change towards short-term mating preferences. Alternatively, in environments where there are more women than men, females indicate a preference for long-term mating (Guttentag & Secord, 1983), become more interested in cues of commitment (Buss, 2003), and have earlier rates of marriage (South & Trent, 1988). Since the operational sex ratio of Tinder is skewed with a higher percentage of men than women (McGrath, 2016), and because male behavior on the app suggests men are swiping right at higher rates than women, thus increasing the chance of receiving a match for women and not for men (Tyson et al., 2016), it is predicted men in the Tinder condition will indicate a preference for short-term relationships in their post-test versus pre-test scores (hypothesis 2), and that women in

the Tinder condition will be more likely to indicate a preference for long-term relationships in

their post-test versus their pre-test scores (hypothesis 3) as compared to the control group. In

addition, it is predicted that women will indicate a lowered desire to engage in casual sex inn

their post-test versus their pre-test compared to a control group (hypothesis 4) while males will

indicate an increased desire to engage in casual sex in their post-test versus pre-test scores

compared to a control group (hypothesis 5).

Lichter Anderson and Hayward (1995) found that women in areas with less men are more

likely to prefer a male partner of high status and resources. Since Tinder may prime women to

feel that they are outnumbered by men, it was predicted that women in the Tinder condition

would be more likely to rate resources as an important trait in a potential mate in their post-test

versus their pre-test than women in the control condition (hypothesis 6).

Women consistently rate intelligence as an important trait in both short-term and long-

term mates (Prokosh, Coss, Scheib, Blozis, 2008). However, males show decreased value in

intelligence for short-term mates (Buss & Schmitt, 1993). Because Tinder may prime males to

orient towards short-term strategies, it is predicted that males in the Tinder condition will show a

lower preference for an intelligent partner in their post-test versus their pretest scores compared

to the control condition (hypothesis 7). This effect was not predicted for females.

Method

Participants

Participants were recruited through direct advertising and through the Psychology student

recruitment tool known as SONA at the University of Hawai'i at Mānoa. Part one of the survey

was online, and any individual over the age of 18 could participate in exchange for extra credit as

arranged by students' professors. Participants who indicated during part one of the survey that

they had an active Tinder account were automatically invited to participate in part two of the

study, which was conducted on-campus for $10 in compensation. In total, 382 participants

participated in part one of the study, and 54 individuals participated in both part one and part

two. Since study two was concerned with how an experimental prime affected participants

between a pre-test and post-test, only the 54 participants who completed both portions of the

survey were further analyzed. The sample was predominantly female (68.5%, $n = 37$; 31.5%, $n =$

17: male) and heterosexual (72.2%, $n = 39$). In total, 3.7% ($n = 2$) of the population was

homosexual, and 24.1% ($n = 13$) was bisexual. The average age was 22.96. The most common

ethnicity was Caucasian (33.3%, $n = 18$), followed by those with multiple race identity (22.2%, n

$= 12$). More participants were randomly assigned to the experimental condition (62.6%, $n = 34$)

than the control condition (37.06%, $n = 20$). See Table 2.1 for more information regarding

participant ethnic identity and information regarding participant condition membership.

Table 2.1
Participant Demographics

	Frequency	Percentage
Age		
18-21	27	50
22-25	15	27.78
26-29	7	12.96
30+	5	9.25
Ethnicity		
American Indian or Alaska Native	1	1.9
Asian Indian	2	3.8
African - American	1	1.9
Caucasian	18	33.3
Chinese	3	5.6
Filipino	2	1.9
Hispanic	3	5.6
Japanese	2	1.9
Korean	1	1.9
Multiple Races	12	22.2
Other Asian	2	2.3
Vietnamese	1	1.9
Not Listed	6	2.3

Sexual Orientation		
Bisexual	13	24.1
Heterosexual	39	72.2
Homosexual	2	3.7

Design

Study two was a two (participant gender) by two (condition) by two (time) mixed design. Participant's scores in a pre-test and post-test were analyzed to test the effects of an experimental prime on five separate dependent variables: mate preference (looks, resources, intelligence) and mating orientation (relationship length and willingness to engage in casual sex). Participants were randomly assigned to either the Tinder condition or the control condition using the online randomizer tool "Research Randomizer" (https://www.randomizer.org/). See Table 2.2 for the distribution of gender within the two conditions.

Table 2.2
Gender by Condition

Dating Platform	Male	Percentage	Female	Percentage	Total	Percentage
Tinder	10	18.5%	24	44.4%	34	62.9%
Control	7	12.96%	13	24.1%	20	37.06%
Total	17	31.46%	37	68.5%	54	100%

Measures

Participants completed identical pre-test and post-test measures, only with different filler questions inserted to obscure the repeated-measures design. These measures included the Mating Preferences Questionnaires (MPQ) (Buss, 1989b), and two Mating Orientation Items adapted from Buss and Schmitt (1993). These measurements were given before and after the experimental manipulation.

Mating preferences questionnaires. Hyde (1939) developed a scale to assess mate preferences on college campuses, which found that males and females have divergent mate

preferences, especially for short-term romantic partners. This scale has since been modified and expanded into two questionnaires, which are meant to be scored together (see Appendix K). Part one is the Mate Preferences Scale (MPS) by Buss and Barnes (1986). Part one has participants rank their preferred traits in a mate from 1-13. Part two in the Mate Preferences Questionnaire is the Factors in Choosing a Mate Questionnaire (FCMQ) by Buss (1989b), which has participants rate the desirability of 18 traits on a four point scale. The Mate Preferences Scale has good internal consistency with a Cronbach's alpha of .73 (Buss & Barnes, 1986) and the combined questionnaires have good external validity showing reliable significant results across 37 disparate cultures (Buss, 1989b).

Only target items were analyzed. These target items were looks, resources, and intelligence. These items are target items because these items have statistically different outcomes between male and females in mate preferences (Buss 1989b). As such, they represent sex-linked mate preferences.

Mating orientation and willingness to engage in casual sex. Participant's mating orientation was assessed by asking what length of relationship they desired on a 1-10 scale. This scale was organized from 1 (one time relationship only) to 10 (life-long commitment; See Appendix L). Participants were also asked to indicate their willingness to engage in sex on the first date. This was rated on a 7-point Likert scale from 0 (never willing) to 0 (always willing). Like the other measures, these items were given to the participants before and after the experimental prime. Differences in these scores were used to assess changes in mating orientation and willingness to engage in casual sex.

Stimuli. Participants for part two of the study were randomly assigned to either the Tinder condition or the control condition. The Tinder condition participants interacted with their

Tinder app for five minutes before completing the post-test measures. The control condition

swiped through a series of neutral photographs taken from the Geneva Affective Picture

Database (Neutral set; Dan-Glauser & Scherer, 2011) and the Natural Scenes Collection (campus

building set; Burge & Geisler, 2011). These images have been tested for their neutral properties.

Two sets were selected because pre-tests demonstrated that participants moved through the entire

Geneva Affective Picture Database (neutral set) in two minutes instead of five. Combining the

two sets allowed for users to view each picture one time during the five-minute experimental

manipulation as evidenced in a pre-test session conducted with research assistants.

Procedure

This study was approved by the UH Mānoa Institutional Review Board after a full-board

review. All participants over the age of 18 were invited to participate in part one of the study,

which was an online survey through Qualtrics. After completing an agreement to participate

form (see Appendix H), participants completed a short 10-15 minute survey. This survey

consisted of the mating preferences questionnaire, the mating orientation and willingness to

engage in casual sex item, along with other measures that were not target items and meant to

obscure the purpose of the study. These measures were counterbalanced to control for any

priming effects caused by the order of the measures. Participants who had an active Tinder

account and indicated that they were interested in part two of the study were automatically

presented with an invitation to part two at the end of the survey. Participants at this time were

directed to an online booking tool hosted at the website "youcanbook.me" where they could

select a day and time to participate in part two. A team of seven research assistants were trained

to run participants with the appropriate protocols during several lab meetings. All research

assistants memorized an experimental script that was recited for every participant (see Appendix

J). Participants were randomly assigned into the two conditions as they signed up via the youcanbook.me appointment tool. All research assistants had access to the list of participants and their assigned condition, but they did not know the purpose of the study.

The experiment took place on campus in a private lab room. Only the participant and one research assistant was present at any given time. Participants were instructed to sit at a table, at which point the experimenter sat across from the participant and reviewed the consent to participate form (see Appendix I). After the participant signed the agreement to participate form, the experimenter began reciting the experimental script. This script explained to participants in the experimental condition that they would be interacting with their Tinder account for a total of five minutes. Participants were told to interact with the app exactly as they would normally. It was explained that during these five minutes, the experimenter would be behind a partition where they could not see, monitor, or record the participant during this time.

Participants in the control condition were given an Apple ipad mini tablet that was pre-loaded with the neutral photographs. Participants were instructed to swipe through these photographs by dragging their finger left across the screen. It was explained that participants could look at the images for as little or as long as they desired. For both conditions, participants were told to wait until the experimenter went behind a partition in the lab and said "you may begin" to commence using their Tinder app or swiping through the photos.

After five minutes, the experimenter stated "please stop and sign off your Tinder account" or "please stop swiping and put the tablet back on the table." The experimenter then emerged from behind the partition and informed the participant that they would be completing some additional forms on the computer in the lab. The experimenter then opened a link to a survey on Google Forms that had already been digitally signed with their participation number.

Google Forms was used because this survey tool allows for the same ip address to complete the survey multiple times, which was necessary given all participants completed the post-test on the same computer.

The survey contained the same measures as the pre-test survey, only with additional filler questions and measures meant to obscure the purpose of the study (e.g. a personality test and free-response questions describing themselves to potential mates). The experimenter was behind the partition while participants completed the post-test measures. In several instances, participants asked the experimenter to clarify certain questions. All experimenters were trained to respond, "please respond to the question as naturally as you can given the information on the screen." The post-test measures were counterbalanced to counteract possible priming effects across the two measures. Once the participant completed the survey and pressed the "submit" button, the participant alerted the experimenter that they were finished. At this point, the experimenter came out from the partition, handed the participant the $10 compensation, and thanked them for their time.

Results

Hypothesis 1 explored if participants' ratings for physical looks as an important trait in a potential mate differed by gender and condition between pre-test and post-test scores. This was tested with a two-way 2 (gender) x 2 (condition) ANCOVA while controlling for pre-test scores. This hypothesis was not supported. There was no main effect for condition (F[1,44] = .018, p = 894, η^2 = .000), gender (F[1,44] = .285, p = .596, η^2 = .006), or an interaction between gender and condition (F[1,48] = .515, p = 477, η^2 = .012). As such, there appeared to be no significant differences between men and women in either the experimental or control condition in relation to rating physical looks as important in a potential mate.

Hypothesis 2 explored if males in the Tinder condition were more likely to change their relationship preference to short-term mating compared to a control group. Hypothesis 3 explored if women in the Tinder condition were more likely to change their relationship preference to long-term mating compared to a control group. Neither hypotheses were supported. There was no significant change for condition ($F[1,49] = .139$, $p = .711$, $\eta^2 = .003$), gender ($F[1,48] = .138$, $p = .711$, $\eta^2 = .003$), or gender x condition ($F[1,48] = 2.42$, $p = .126$, $\eta^2 = .009$) between pre-test and post-test scores. As such, gender and condition had no effect on relationship length preference between pre and post-test scores.

Hypothesis 4 explored if males in the Tinder condition were more likely to indicate a willingness to engage in casual sex compared to a control group, and hypothesis 5 explored if females in the Tinder condition were more likely to indicate a lower willingness to engage in casual sex between pre-test and post-test scores compared to a control group. Neither hypothesis was supported. There was no main effect for condition ($F[1,48] = .414$, $p = 894$, $\eta^2 = .009$), gender ($F[1,48] = .008$, $p = .596$, $\eta^2 = .000$), or an interaction between gender and condition ($F[1,48] = .244$, $p = .477$, $\eta^2 = .005$). As such, there was no apparent difference between gender or condition in relation to likelihood to have sex on the first date between pre and post-test scores compared to the control group.

Hypothesis 6 explored if women in the Tinder condition were more likely to value intelligence in a potential partner in post-test scores compared to the control condition. This hypothesis was not supported. There was no main effect for condition ($F[1,44] = .757$, $p = .389$, $\eta^2 = .017$), gender ($F[1,44] = .954$, $p = . .334$, $\eta^2 = .021$), or an interaction between gender and condition ($F[1,48] = .276$, $p = .602$, $\eta^2 = .006$) on intelligence ratings. As such, there did not appear to be significant differences between gender and condition in relation to likelihood to

value intelligence in a partner between pre-test and post-test scores compared to the control group.

Hypothesis 7 explored if women in the Tinder condition were more likely to value resources in a potential partner in post-test scores compared to the control condition. This hypothesis was also not supported. There was no main effect for condition ($F[1,44] = .078$, $p =.781$, $\eta^2 = .002$), gender ($F[1,44] = .710$, $p = .404$, $\eta^2 = .016$), or an interaction between gender and condition ($F[1,48] = 2.147$, $p = .150$, $\eta^2 = .047$). As such, there were no significant differences between gender and condition in relation to endorsing resources as an important trait in a romantic partner between pre-test and post-test scores compared to the control group.

Table 2.3
Pre-Test and Post-Test Mean Scores and Standard Deviations as a Function of Experimental Condition and Gender

	Pretest		Posttest – Overall		Posttest – Tinder		Posttest – Control	
Dependent Variable	M	SD	M	SD	SD	SD	M	SD
Attractiveness	8.22	2.65	8.53	2.65	8.41	2.51	8.76	2.97
Male	8.24	3.4	9.14	3.77	8.56	3.54	10.2	4.38
Female	8.21	2.50	8.29	2.07	8.35	2.08	8.17	2.12
Relationship Length	5.69	3.31	6.2	2.65	6.38	2.86	5.90	2.27
Male	5.76	3.98	6.53	3.00	7.5	3.31	5.14	1.95
Female	5.65	3.01	6.05	2.49	5.92	2.59	6.31	2.39
Casual Sex	2.79	2.03	2.80	1.99	2.49	2.00	3.15	1.98
Male	3.71	1.93	3.59	1.97	3.4	2.07	3.86	1.95
Female	2.36	1.96	2.43	1.92	2.25	1.91	2.76	1.92
Intelligence	6.88	2.3	7.22	2.19	7.43	2.41	7.14	2.13
Male	6.59	1.87	7.39	2.37	7.33	2.78	7.6	1.81
Female	7.02	2.49	6.94	1.85	7.39	2.25	6.67	1.87
Resources	9.35	2.6	10.63	10.63	10.47	2.25	10.94	2.82
Male	9.88	2.52	10.47	2.26	11.89	2.36	10.8	2.59
Female	9.11	2.63	10.94	2.82	9.91	2.00	11	3.02

Additional Analysis

In order to explore if there were any differences between gender or condition, 2 (gender) x 2 (condition) two-way ANOVAs were conducted on each pretest and posttest dependent

variable. None of these analyses were significant. These analyses were then reduced to one-way ANOVAs comparing gender on pretest and posttest scores. Only one analysis was significant, which was between gender and willingness to have sex on a first date. This analysis was significant on pretest scores (F[1,51] = 5.494, p = .023) and posttest scores (F[1,51] = 4.145, p = .047). This suggests there are differences between males and females and likelihood to indicate a willingness to engage in sex in a first date setting. It did not appear this difference was effected by the experimental prime.

Discussion

This experiment found no differences between pre-test and post-test scores in either gender or condition. This may support the hypothesis that differences between men and women are overemphasized (Hyde, 2005; Hyde, 2007). Interestingly, the means of men and women's mate preferences, preferred relationship length, and likelihood to engage in casual sex were all very similar in both pre-test and post-test settings. While previous studies have found males to rate attractiveness as more important than females (Buss & Schmitt, 1993) this sample found virtually no difference in the rating means between the two genders in the pre-test (males: M = 8.24, M = females: 8.21) or post-test (males: M = 9.14, females: M = 8.29). The same is true for intelligence pre-test (males: M = 6.59, females: M = 7.02) and post-test (males: M = 7.39, females: M = 6.94). Importance of resources was also not gendered in the pre-test (males: M = 9.88, females M = 9.11) or post-test (males: M = 10.47, females: M = 10.94).

The only significant difference between males and females was demonstrated in the willingness to have sex on the first date scores. This suggests that, as previous literature has suggested, the largest gender difference appears to be in hypothetical willingness to engage in

casual sex (Hyde, 2005). This willingness does not necessarily translate into behavior, and these results suggest it is not sensitive to priming by an interface such as Tinder.

Other predications based on gender stereotypical mate preferences were not significant. This suggests that gender stereotypical mate preferences may be just that—stereotypes. Men and women in this sample did not appear to have any differences in what they sought after in a mate, and these preferences did not appear to be sensitive to the Tinder prime. These results support growing evidence for gender similarity over gender dissimilarity (Hyde, 2005, 2007) and suggest that evolutionary gendered preferences and mating orientations may not be applicable in blanket application to contemporary contexts.

Limitations

This study was affected by a low sample size. Participants may have been dissuaded to participate by the nature of the experiment. Participants may not have wanted to disclose that they are online dating users, or felt unsure of what the in-person portion of the experiment would entail. In addition, many participants expressed interest in participating, but had recently deactivated their Tinder account. Study one supported the finding that many Tinder users engage with the app cyclically, and may sign on and off for varying periods of time. As such, the sample was further limited to participants who happened to be engaged with the app during the time of the study. Future studies may need to extend to multiple campuses, or to use the Tinder app itself in order to recruit for more participants.

Another limitation to this study was that the sample was disproportionally female, with a disproportionate amount of participants assigned to the experimental rather than the control condition. The disproportionate amount of female participants was unusual in that other studies examining Tinder experiences have had too many males, a disparity that is reflected in actual

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gender demographics of app users (McGrath, 2016). This may have been caused by oversampling students from Psychology courses, which are often disproportionally female (Cynkar, 2007). A more representative sample may be achieved by increasing recruitment outside of Psychology classes.

Another limitation to this study was that the use of a personal Tinder account could not control for confounding variables. Because experimenters did not monitor how participants were interacting with their Tinder app, it is possible that participants were responding to other social media or text notifications that were sent to their phone during the experiment. This may have decreased priming effects of the app. For participants in the control condition, it was also unknown if the participant had been interacting with their app prior to entering the experiment, which may have unknowingly primed control participants. In addition, participants were told to interact with their app as naturally as possible. However, there are many different activities a user of Tinder can engage in within the app. Some participants may have been swiping through photos during the experiment, and others may have been engaging in messaging with one or more other individuals. As such, this may have had effects on the priming capabilities of the app itself. This could be ameliorated in the future with the development of a "fake Tinder" app in which all participants engage in the exact same pattern of activity with an interface that is similar to that of Tinder.

This study was further limited by the nature of the scales used in the pre-tests and post-tests. In attempting simplicity, the scales measuring mate preference and mating orientation had only one or two items. As such, these scales may have not contained enough items to fully assess the target factor. For example, willingness to engage in casual sex may be better measured with a more nuanced and multi-item scale. Future studies may incorporate expanded scales to assess

willingness to engage in casual sex such as the sociosexual orientation inventory (Simpson & Gangestad, 1991). This inventory contains subscales that may better capture different dimensions that indicate willingness to engage in casual sex besides simply self-report regarding willingness to engage in sex on the first date.

Study 3: Tinder Experiences from the Tinder Subreddit

The incredible technological growth of the past 20 years means that individuals are more connected to one another than ever before (see Christakis & Fowler, 2006). Research has indicated that most social media users share information online in order to socialize and connect with others (Lee & Ma, 2012). As such, many individuals utilize Internet forums to share information regarding specific issues, experiences, or interests in an anonymous format. Researchers have found that Internet forums operate like "virtual focus groups," in which collections of individuals with a shared trait or common interest can discuss their thoughts and experiences within an anonymous space (Moloney, Dietrich, Strickland, & Myerburg, 2003). Many of these Internet forums are public, and users frequently feel that their identity is protected by their avatar or screen name. Consequently, research using Internet forums has become a powerful way to gain an understanding of individuals' experiences without violating their privacy (Holz, Kronberger, & Wagner, 2012). This can be especially true for sensitive topics that are taboo to discuss in public spaces (Holz et al., 2012). Internet forums regarding sex and dating may thus be well-suited for this kind of research.

Study three consisted of an analysis of 280 posts from the "Story Time" thread from Reddit's Tinder sub-forum (known as the "Tinder subreddit") that were posted over a six-month period in 2016. These posts were examined to better understand Tinder users' experiences with real-world encounters arranged through the app. The goal of the study was to explore how nine different factors (male gender, female gender, substance use, sexual encounter on first date, no sexual encounter on first date, encounter with deception, goal congruence, goal incongruence, and "ghosting") were related to six different themes (desire for a second date, one-time encounter, overall romantic satisfaction, overall romantic dissatisfaction, sexual satisfaction,

sexual dissatisfaction) in posts describing a recent in-person first date arranged through Tinder. "Ghosting" was a term used by many posters and referred to the events where a romantic partner abruptly ended all electronic communication following a first date. It was hypothesized that deception and goal incongruence would be related to negative romantic and sexual outcomes, and this effect was anticipated to be more pronounced for women than for men.

The Tinder subreddit's Story Time thread constitutes a place where individuals can anonymously share their personal experiences with the dating app. Other Tinder users then use anonymous screen names to interact with the original poster, often offering encouragement or advice. All of the posts are visible to the public, and viewing them does not require individuals to create a Reddit account or interact with the posters in any way. Most posters included their gender alongside their posts. The data was assessed using a combination of inductive and deductive content analysis techniques, and correspondence analysis identified major themes related to modern Tinder usage and the role of strategic interference in offline Tinder dating scenarios.

Methods

Participants

The first 50 posts from January February, May, June, September, and October that met the requirement of describing an in-person first date in posts at least two-sentences in length were collected resulting in 300 sampled posts. Twenty of these posts were subsequently removed, either because they discussed romantic encounters that had not been exclusively arranged through Tinder, or because they referenced multiple encounters that were difficult to differentiate from each other (e.g., "5 potential guys: 2 flakes, 1 unexpectedly messy "breakup," 1 overly attached text bae, 1 IRL meet"; Female, January, 2016). These posts had been included

in the original sample, because they met the initial criteria of consisting of more than two sentences and describing an offline encounter arranged through Tinder. However, after subsequent lab meetings, the team of research assistants determined that these posts were too ambiguous to analyze. As such, they were excluded from the analysis. In total, the final sample contained 280 posts. The sample was primarily composed of males (73.9%, $n = 207$), with females comprising the remaining 26.1% ($n = 73$). As such, the Story Time thread was largely male-dominated. While participants did not usually disclose their sexual orientation, the posts rarely described homosexual dates. As such, almost all of the posts described heterosexual romantic encounters. While some participants indicated their location, most did not. Nonetheless, the content of the posts suggested that most participants were American. Post content suggested that the remaining participants were from Canada, the United Kingdom, Australia, New Zealand, and, possibly, other European countries. Most of the posts did not contain any other demographic information, and so further analysis concerning individual differences between posters was not possible.

Design

This study compared the relationships between fixed factors (expressed gender, substance use, sexual encounter on first date, no sexual encounter on first date, encounter with deception, goal congruence, goal incongruence, and "ghosting") with major themes (desire for a second date, one-time encounter, overall satisfaction, overall dissatisfaction, sexual satisfaction, sexual dissatisfaction), as described in the Tinder subreddit, via content analysis and a correspondence analysis of a contingency table. The relationship between the frequency with which each factor was mentioned and the frequency with which theme was mentioned in the same post was then depicted in a two-dimensional graph. A content analysis was conducted, so as to better

understand the context in which participants were experiencing their offline first dates arranged via Tinder.

Analysis Materials

Reddit is often referred to as "the front page of the Internet," and it serves as a central meeting place where individuals can aggregate social media posts from across the web, share news stories, post pictures and make comments ("FAQ," 2016). For individuals that want to discuss their experiences or thoughts on a particular topic, Reddit also hosts one of Internet's largest collections of forums, which are known as *subreddits*. These subreddits are connected beneath the larger Reddit mainframe, offering users an opportunity connect with others on the basis of specific interests and themes. There are currently over 900,000 subreddits ("New subreddits by date," 2016), and these focus on topics such as news, politics, movies, and music.

The Tinder subreddit currently has over 320,000 subscribers, making it the largest known Tinder forum on the web ("Tinder," 2017). The Tinder subreddit is populated on a daily basis with posts featuring screenshots of uncomfortable or humorous interchanges between Tinder users; "profile workshops," where users make suggestions for improving one another's Tinder profiles; and general questions regarding successful usage of the app.

Figure 3.1
Front Page of the Tinder Subreddit with Pinned Story Time Thread
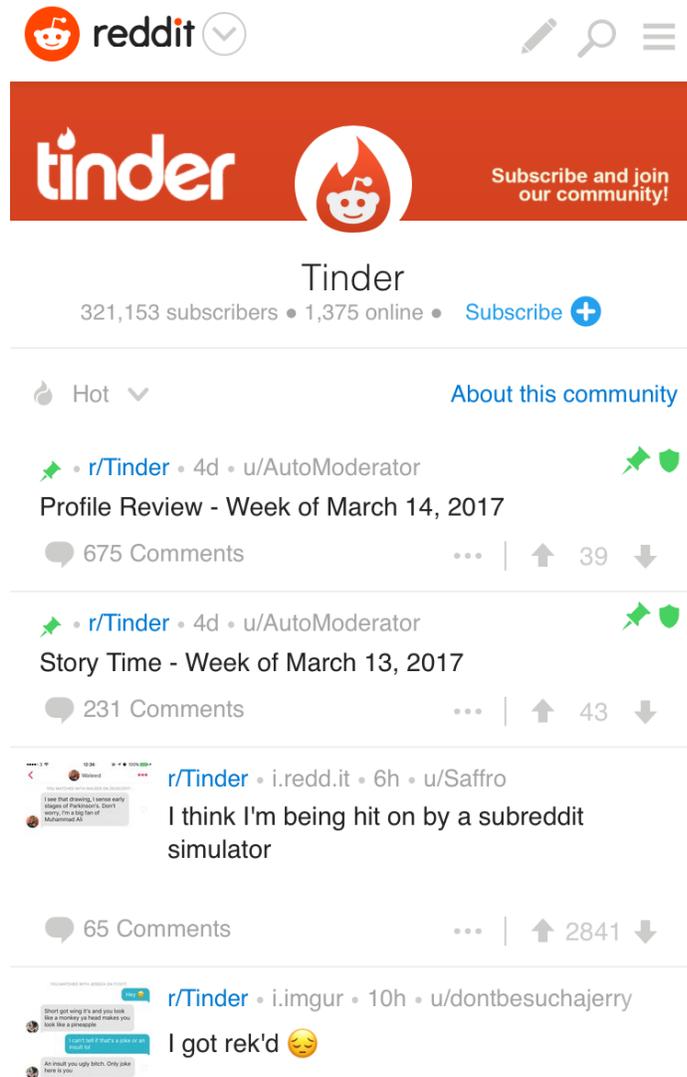
For example, a recent post entitled, "Would it be appropriate to use Tinder to strictly meet friends of the opposite sex" ("Coastise," October, 2016) was on the front page of the Tinder subreddit. Each post creates a new "thread," in which other users can comment, share advice, or post their own photos beneath the original post. As such, at any given time, the Tinder subreddit has hundreds of thousands of "threads," each containing comments—which can number in the hundreds—related to the initial user's post. Within these larger threads, smaller threads are formed when a poster responds to a specific comment on the original post. As such, one post in

the Tinder subreddit can give rise to hundreds of smaller threads, which often break out into tangential discussions, debates, or even arguments.

The Tinder subreddit also features "pinned posts" at the top of the main page. Pinned posts are always located at the top of the forum, while subsequent posts are listed on the basis of when the last comment was made. One of these pinned posts is the "Story Time" thread. In fact, it is so popular that it is updated every week with a new title (i.e., "Story Time – Week of August 16, 2016"). Within this weekly thread, users share their most recent experiences with meeting— or trying to meet—potential romantic partners through Tinder. Each week, users share around 150 stories or comments describing specific interactions, experiences, and sexual encounters, often in great detail. Users then comment on these occurrences, offering advice or support for the original poster. For example, the below text is an excerpt from one user's post about a satisfactory date with a young woman he met on Tinder:

> To wrap it up, she spent the night, we woke up the next morning, had sex again and then I cooked her breakfast and she went home. Shes[sic] coming back this Thursday for round 3. We agreed to being exclusive but she doesn't want a serious relationship because of some personal issues she has but Im[sic] cool with that, taking it slowly and building trust over time. For now, we are just casually dating each other, exclusively I guess. I finally did it I guess :D." (Male, October, 2016)

Figure 3.2
Screenshot of the Story Time Thread in the Tinder Subreddit

Procedure

Each week, approximately 150 stories are shared in the Story Time thread, and the average story length is one or two paragraphs. The first 50 posts that (1) described a first date arranged through Tinder and (2) were more than two sentences in length were sampled each month during January, February, May, June, September, and October of 2016. Posts that mentioned more than one first date were separated into separate units of analysis and counted as separate posts. For example, a single poster published this post, which was then separated into two units of analysis:

[Poste one]In the past 7 days I have hit a new high for Tinder dates, four in a week, and some of these have caused me to ask a few questions you might be able to answer.

First a bit about me, I am going to College, live in a College town, marathon runner and I am short, 5'4" (which might affect the dates).

Girl/Date #1 Matched several times, from deleting and re-creating accounts but finally meet up for some coffee and had a good enough time to schedule hanging out again. Tried to bring the date back to my place but she said she wanted to get to know me more first. I didn't go in for a kiss even though I felt the vibe so I am regretting that a bit still.

[Post two]Girl/Date #2 Oddest date out of the bunch. Again coffee, we talked for a while and had a solid time but I kept getting a friend vibe. When we parted ways it was very obvious that we wouldn't see each other again and never even went for a hug goodbye. (Male, January, October, 2016)

As previously mentioned, 20 posts were excluded, because they mentioned multiple dating platforms, or encounters in such an ambiguous manner that it was impossible to separate them into individual units of analysis. The participants did not usually volunteer their ages and locations, but nearly every sampled post listed the author's gender as either male or female. Even when a poster omitted that information, the content of the post usually made it clear. All of the posts were extracted and re-populated in a word document, and the participants' user names were removed before the research team coded them. Posts that were shorter than two sentences were not analyzed, regardless of their content.

In the end, our research team agreed upon nine "factors" and seven "themes." Factors were theoretical or observational categories based on discrete traits (male, female) or discrete events (had sexual encounter, did not have sexual encounter, goal congruence, substance use,

deception, "ghosting"). Themes were classified as those theoretical and observational categories that were related to attitudes (desire for a second date, one-time encounter, overall satisfaction, overall dissatisfaction, sexual satisfaction, sexual dissatisfaction). For each factor and theme category, a researcher assigned each post a value of "1," indicating that the post described that category, or "0," meaning that the post did not describe that category (see Appendix M). These frequencies were then entered into separate spreadsheets that were organized by month and rater. The interrater reliability was calculated for each month. Then, the data was then entered into contingency tables, in which the factors and themes were cross-tabulated and assessed using correspondence analysis. This resulted in a graphical representation illustrating the relationships between the factors and themes. It also visualized the relationship between strategic interference and various factors and themes connected to romantic interactions arranged through Tinder.

Results

Descriptive Statistics

Each post was read and coded by two different trained judges after two in-person training sessions. Moreover, each judge was also emailed a summary of the coding guidelines, and a coding sheet was also provided (see appendix K). The interpreter reliability was calculated for each month to ensure the internal validity of the ratings. The Cronbach's alpha exceeded .8 in each month, with the exception of February, which had a Cronbach's alpha of 0.62. This result might be due to the fact one of the February raters was absent during one of the two training meetings. Future studies could boost the interrater reliability by increasing the amount of training offered to all potential raters.

Posts were typically one paragraph in length, but some were much longer—often a whole page or more. In total, 495,104 words were read and analyzed. Frequencies were analyzed

between factors and themes. Overall, 1,718 factors and themes were coded in the 280 posts.

Most participants described events that were positive in nature, with 55.4% (n = 155) of the

participants stating that they experienced overall satisfaction with their first date. Only 24.6% (n

=69) of the posters were not satisfied with their first date. The remaining 20% (n = 56) described

dates that were neither positive nor negative, or else they did not discuss their feelings in enough

depth for the raters to categorize them.

Activates that described any genital contact with the hands, mouth, or another person's

genitals were coded as a sexual encounter. Most posters (56.8%, n = 151) described first dates

that did not include a sexual encounter. However, 43.2% (n = 121) of the posts did describe a

sexual encounter. The percentage of posts that described a sexual encounter was roughly the

same for both men and women, with 29.6% (n = 83) of males' posts and 30.6% (n = 38) of

females' posts describing such an encounter. As such, major gender differences were not

detected in terms of a participant's likelihood of posting about a sexual encounter. In addition,

only 10.9% (n = 11) of the posts that described sexual activity indicated dissatisfaction with that

encounter. This suggests that most of the individuals who engaged in a sexual encounter were

sexual satisfied, regardless of gender.

Figure 3.3
Frequency of Factors Mentioned in 280 posts in the Tinder Subreddit
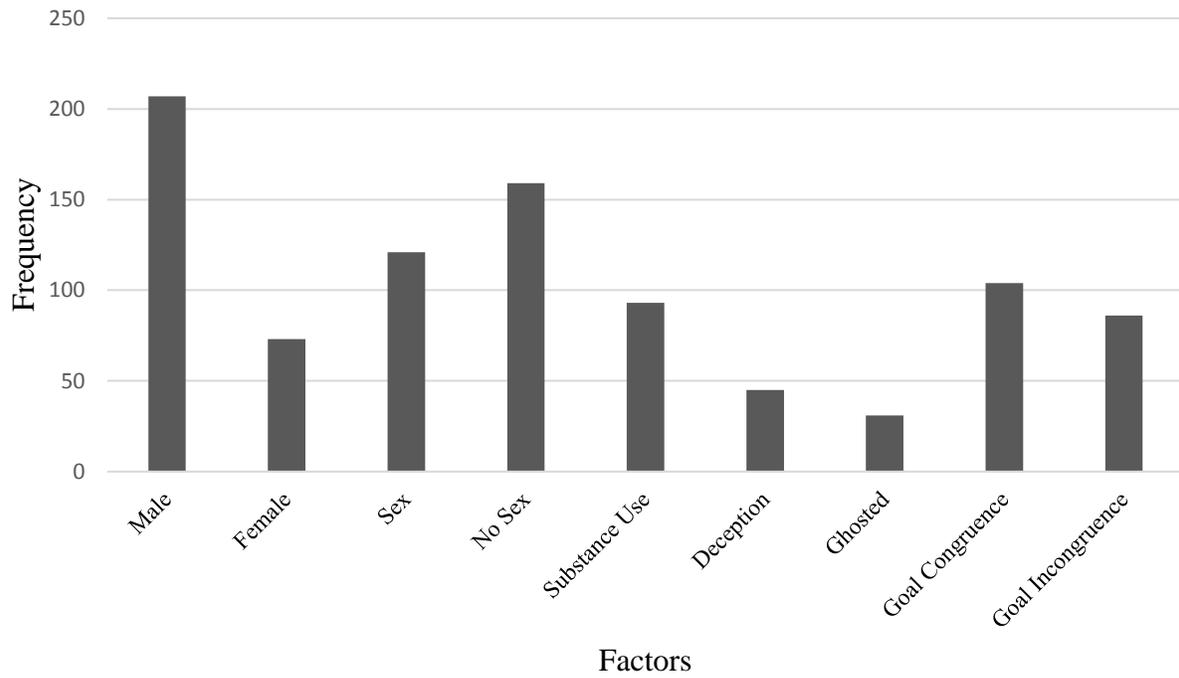
Figure 3.4
Frequency of Themes Mentioned in 280 posts in the Tinder Subreddit
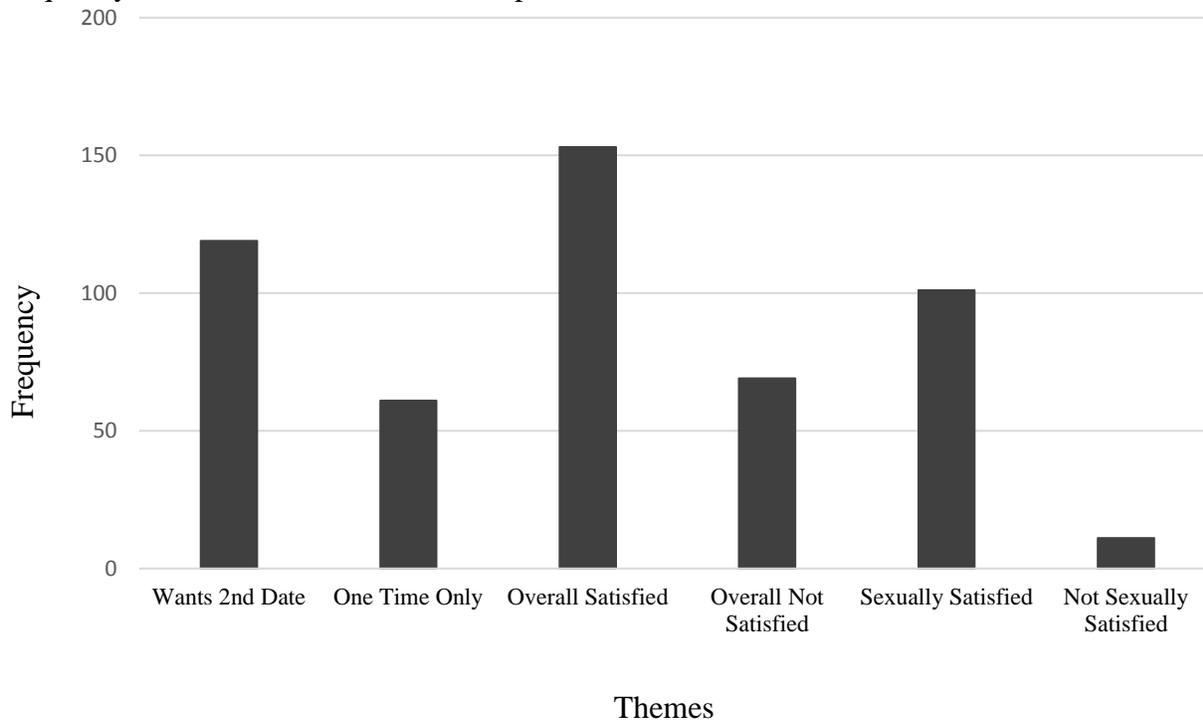
Deception and goal incongruence were used as proxies for strategic interference. Overall, reported deception was low, with only 16.1% ($n = 45$) of the posts describing an encounter with deception. The most common form of deception concerned a gap between how the participant's date appeared in real life versus in his or her profile picture. No posts described deception regarding an exaggerated access to resources or social or professional prestige. In two posts, the authors described attempted robberies, during which their dates engaged in deception in an effort to steal money. One post described a meeting during which the author was tricked into attending a sales event that he had been told would be a date. 30.7% ($n = 86$) described encountering goal incongruence, meaning that the poster felt that he or she had different goals for the encounter than did his or her date. For example, one person may have wanted a long-term relationship, but the other just wanted a one-time encounter. A slightly higher number of posts described goal congruence (37.1%, $n = 104$), with participants indicating they felt they had the same goals for the first date as did their romantic partner. This suggests that most of the posters did not encounter strategic interference during their recent initial romantic encounter arranged through Tinder. As such, 42.5% ($n = 119$) of the posters indicated that they wanted to continue to date the person they described in their post, with only 21.8% ($n = 61$) of the posters expressing no intention of pursuing a second date. This implies that most Tinder users are actively pursuing ongoing relationships rather than one-time sexual encounters.

Correspondence Analysis

The purpose of correspondence analysis is to present categorical data that has been quantified and then graphically displayed in a low-dimensional space (Clausen, 1998). This type of analysis is especially appropriate for data organized into inductively developed categories (Clausen, 1998), as it can visually clarify the relationships among them (Holtz, Kronberger &

Wagner, 2012). Since some of the categories in this analysis were inductive (goal incongruence and deception) and based on strategic interference (Buss, 1989) and sexual strategies theory (Buss & Schmitt, 1993), correspondence analysis was selected as a method of analysis.

For study three, the 15 factors and themes that were generated through inductive and deductive coding were entered into a 2-way contingency table and then subjected to correspondence analysis. In correspondence analysis, the term "inertia" is used to indicate the degree to which categories are spread from the "centroid," which is calculated by dividing the total column frequencies by the sum of the coded categories (in this case, 1,718 factors and themes). Categories that are not close to this average will appear far from the centroid, while those that are similar will appear close to the centroid. Categories that are associated with one another will be in close proximal distance to each other when plotted on a two-dimensional graph, while those that are not linked to each other will be further apart.

The correspondence analysis demonstrated that dimension 1 accounted for 83% of the variance in factors and themes, dimension 2 accounted for 14.4% of the variance in factors and themes, and dimension 3 only accounted for 2.5% of the variance. These three dimensions could sufficiently explain the total inertia, although figure 3.4 only includes the more dominant first and second ones. Figure 3.4 illustrates the relationships between the factors and themes, as described in the 280 posts, via a symmetrically normalized graphical display of row and column points.

Figure 3.5
Correspondence analysis of matrix cross-tabulating between factors and themes
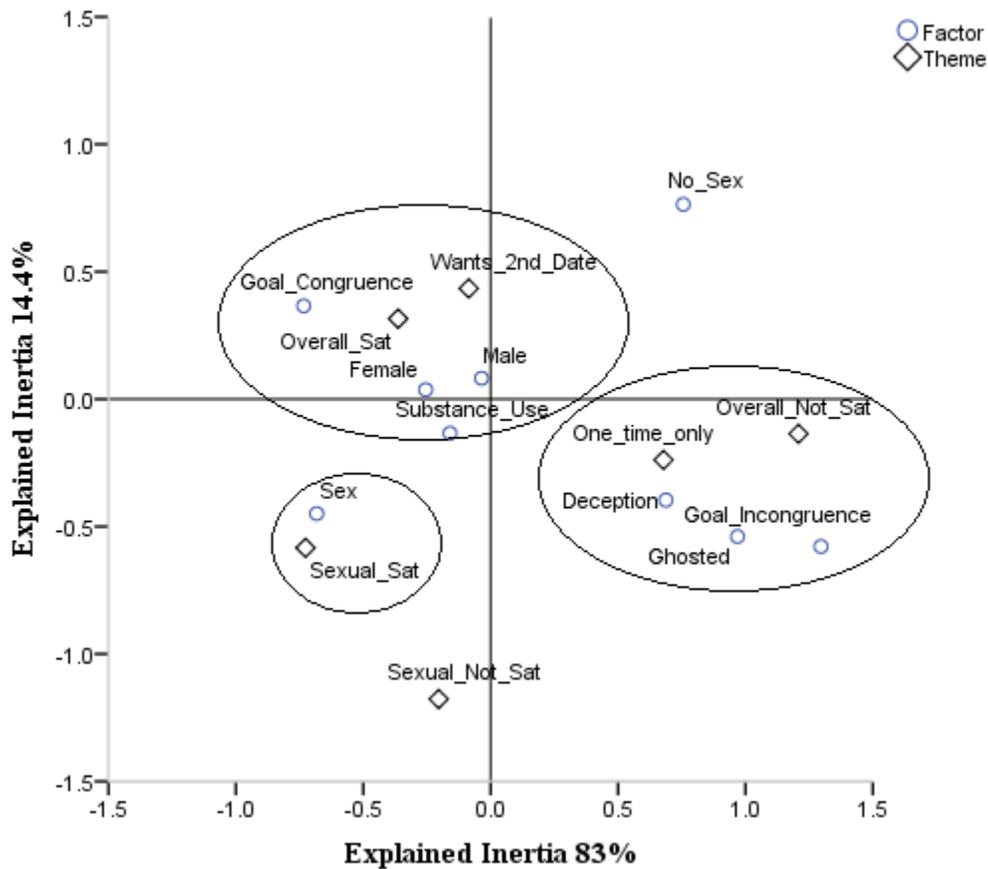
Goal congruence and substance use were clustered together with the themes of overall satisfaction with the date. In other words, individuals who engaged in some kind of substance use and had similar goals for the romantic encounter were more likely to feel satisfied with the date and want to participate in a subsequent romantic encounter. Both genders were included in this cluster, indicating an overall higher likelihood of positive events being described in the analyzed Tinder posts versus negative events, with no major differences between men and

women. In short, the results did not reveal any major detectable differences in first date outcomes between men and women.

Encountering deception or goal incongruence, experiencing a sudden end to communication via "ghosting," were clustered with themes of overall dissatisfaction with the date and a lack of interest in pursuing a second date. This finding supported the original hypothesis that strategic interference as measured by goal incongruence and deception, would predict lower levels of overall romantic satisfaction.

Sex and sexual satisfaction were tightly clustered. This suggests that most individuals who described a sexual encounter indicated that it was sexually satisfying. Participants who described a sexually unsatisfying encounter were not clustered with other factors or themes. As such, the factors and themes did not seem to be predictors of either sexual satisfaction or dissatisfaction. Sexual satisfaction and dissatisfaction did not appear to be related to overall satisfaction with the date, which may have implications regarding the role of sex in first date encounters. Additionally, the likelihood of having sex or not having sex does was apparently unrelated to any other factors or themes. This suggests that strategic interference might predict overall date quality, as well as the desire for a subsequent date, although it does not necessarily predict one's likelihood of having sex during an initial romantic encounter. Further analysis is required to establish reliable predictors for first date sex (or the lack thereof) and subsequent satisfaction with that encounter.

Table 3.1.
Contingency Table of Factors and Themes Found on the "Story Time" Threads on the Tinder Subreddit

	Themes						
Factors	Wants 2nd Date	One Time Meeting	Overall Satisfied	Overall Not Satisfied	Sexually Satisfied	Sexually Not Satisfied	Active Margin
Male	86	43	112	55	71	71	374
Female	34	14	43	14	30	30	139
Had Sex	56	22	89	11	96	96	284
Did Not Have Sex	63	39	60	58	0	0	220
Substance Use	38	29	53	19	44	44	185
Deception	14	23	16	22	13	13	89
Ghosted	9	12	7	18	6	6	54
Goal Congruence	66	14	95	2	62	62	242
Goal Incongruence	19	33	13	52	10	10	131
Active Margin	385	229	488	251	332	332	1718

Table 3.2
Profiles and masses for factors and themes found on the "Story Time" threads on the Tinder Subreddit

Factors	Row Profiles						Total	Row Masses
	Wants 2nd Date	One Time Meeting	Overall Satisfied	Overall Not Satisfied	Sexually Satisfied	Sexually Not Satisfied		
Male	.230	.115	.299	.147	.190	.019	1.00	.218
Female	.245	.101	.309	.101	.216	.029	1.00	.081
Had Sex	.197	.077	.313	.039	.338	.035	1.00	.165
Did Not Have Sex	.286	.177	271	.264	.000	.000	1.00	.128
Substance Use	.205	.157	.286	.103	.238	.011	1.00	.108
Deception	.157	.258	.180	.247	.146	.011	1.00	.052
Ghosted	.167	.212	.130	.333	.111	.037	1.00	.031
Goal Congruence	.273	.058	.393	.008	.256	.012	1.00	.141
Goal Incongruence	.145	.252	.099	.397	.076	.031	1.00	.076
Average row profile	.224	.133	.284	.146	.193	.019	1.00	

Factors	Column Profiles						Total	Average Column Profile
	Wants 2nd Date	One Time Meeting	Overall Satisfied	Overall Not Satisfied	Sexually Satisfied	Sexually Not Satisfied		
Male	.223	.188	.230	.219	.214	.212		.218
Female	.088	.061	.088	.056	.090	.121		.081
Had Sex	.145	.096	.182	.044	.289	.303		.165
Did Not Have Sex	.164	.170	.123	.231	.000	.000		.128
Substance Use	.099	.127	.109	.076	.133	.061		.108
Deception	.036	.100	.033	.088	.039	.030		.052
Ghosted	.023	.052	.014	.072	.018	.061		.031
Goal Congruence	.171	.061	.195	.008	.187	.091		.141
Goal Incongruence	.049	.144	.027	.207	.030	.121		.076
Column masses	.224	.133	.284	.146	.193	.019		

Content Analysis

Members of online Internet forums often form virtual social communities, in which members are expected to adhere by unspoken rules and contracts (Rheingold, 1993). In the Tinder subreddit, most posts to the "Story Time" thread described events that were either very positive or very negative in nature. As such, one unspoken rule of the forum may be that users should only share extremely positive or extremely negative stories, or users might be expected to exaggerate details of their encounters arranged through Tinder. Several research assistants vocalized a concern during the lab meetings that were held throughout the coding process that this particular population of participants was either exaggerating about encounters, or that the Tinder subreddit attracts users that are more likely to have particularly dramatic romantic encounters. Indeed, posters who described more exciting events were more likely to receive additional comments or questions in response to their original post. Below is an example of the encouragement that one poster received for posting a detailed explanation of a recent sexual encounter:

Figure 3.6
Example of Encouragement on the Tinder Subreddit
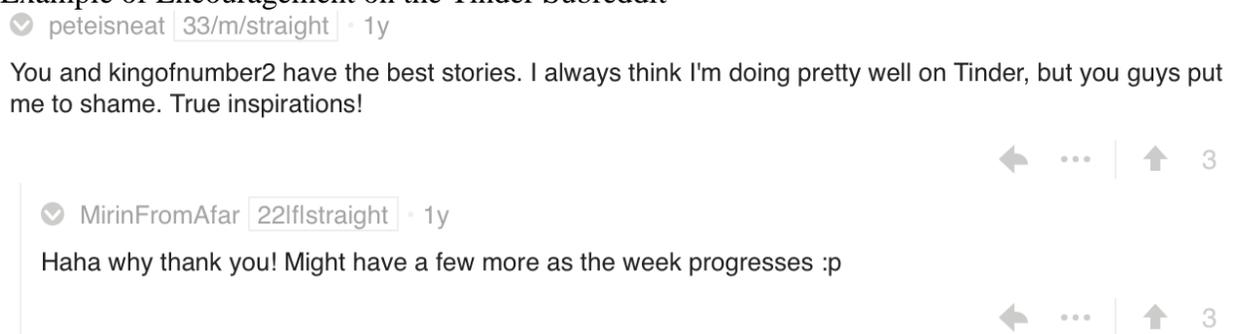
However, most posts were positive in nature, suggesting that despite any exaggeration, participants were generally enjoying their Tinder encounters. Participants new to Tinder did not

appear to have experienced any trepidation about using the app, and many were surprised at how quickly downloading the app led to offline encounters: "19yo virgin, match WED, meeting the girl SAT, banging TUE, seeing her again THU, then she goes away skiing leaving me alone with my thoughts" (Male, January, 2016).

Most offline encounters arranged through Tinder followed a similar pattern. Participants described swiping right on a photo; subsequently receiving a match notification; engaging in texting or phone calls; and then arranging an in-person encounter, usually within a few days or a week. While this pattern facilitated participants' ability to engage in short-term mating strategies, the majority of the posters who had positive first dates indicated that they wanted to see that person again. This was also true for participants who were engaging in casual sex without commitment—many in this situation planned to continue to see the same person for additional sexual encounters:

> I figure it's already midnight, so what the heck. Kids fall asleep before the movie ends, we retire to the bedroom for a couple hours of foreplay/teasing until we end up having sex. Take a couple hour nap, sneak out at 5 AM without waking the living room full of kids. She's busy and not looking for anything serious, so will likely see again. (Male, September, 2016)

Many participants appeared to view positive sexual encounters as a foundation for either a more serious long-term relationship or future sexual encounters without commitment. It did not appear that women were any more or less likely than males to desire an ongoing sexual relationship:

> My first Tinder experience was pretty fast and eventful. A while ago I had recently gotten out of a long relationship and frankly I was bored so I downloaded Tinder. Started

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swiping and got a few matches. Some guy messages me and we start chatting about

Game of Thrones cause that's what I was watching and mentions we should watch it

together and pretty much asks to come over that night. Mind you, this is all literally in the

first day I downloaded Tinder. I kind of said what the hell why not even though we barely

had a conversation, he came over at like 11pm and he brought pizza. We chatted and ate

pizza and watched Game of Thrones and soon enough, we're making out and going for it.

We had sex multiple times and crashed at like 7am. Didn't even have Tinder downloaded

for one whole day but whatever. It was pretty fun. Guy came over like every night for a

week after that I swear. Tinder, for me, was pretty much what I thought it was. (Female,

May, 2016)

Other women discussed encounters that were purely sexual, expressing no intention of

meeting with the person again. Women did not appear to discuss these encounters using

language any less direct language than that of the male participants, nor did they appear more

likely than men to experience feelings of shame about recent casual sexual encounters:

I hadn't slept with someone since June or May so I decided to hook up w[sic] someone. I

matched with a bunch of guys on tinder and wrote to some of them but they either didn't

reply or were just weird. I was almost giving up when a really hot guy wrote to me. He

was 34 (I'm 22) but I decided to go for it anyway. He brought pizza and we had a good

conversation actually! He asked me to show him the flat which led us to the bedroom.

Ok so wow!!! I've always been in to[sic] rough sex but haven't tried it too much since no

one I've slept with has been in to it but this guy was. […] So yeah it was fucking

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awesome. Still masturbating over it haha. Probably never gonna see him again because

it's too far away :/. (Female, September, 2016)

Tinder users were not especially likely to encounter deception, but when they did, it was

often associated with negative outcomes. Most of the described deception concerned disparities

between a date's in-person appearance and profile picture. Female participants often noted that

their date misrepresented his height, weight, or skin quality, while male participants frequently

noted that their female date was heavier than she appeared to be in her photo, and this was

frequently linked with negative outcomes.

> She asks spur of the moment on Tuesday night if I can meet up then for a drink. I go to
>
> meet up with her around 10, and immediately notice she's about 40 pounds heavier than
>
> her photos would suggest (on a little frame, so it's significant to her body shape). If I
>
> squinted I could kind of tell how she took those photos, but man, it just was barely the
>
> same girl. Immediately I noticed she's trashed. Slurring, being loud, doing weird voices,
>
> spinning around on her bar stool. It[sic] becomes apparent that we actually have nothing
>
> in common. She knows nothing about the hobbies we were supposed to have in common,
>
> to the point where I assume she had to have been googling to keep up in conversation. I
>
> down my drink so I can deal with what's happening in front of me, she downs hers
>
> because…well I assume that's just her style. (Male, October, 2016)

However, as was the case in study one, deception about one's physical appearance was

not always judged harshly. Many Tinder users mentioned that they had previously used other

forms of dating technology. Thus, that this particular population might be especially aware that

profile pictures do not always match a date's in-person presentation. One poster stated, "She was

a bit bigger than in the picture but I like her body type a lot" (Male, September, 2016). In fact, there were many posts indicating that the individual was more attractive in real life than in photos:

> I showed up early and I luckily got to watch this stunning girl walk into the bar, turns out that her pictures don't do her justice at all. We ended up staying there for 4 hours talking and drinking throughout the night. (Male, February, 2016)

While the majority of posts in the Tinder subreddit indicated that participants had not experienced deception, many users did experience goal incongruence. In such posts, participants described either themselves or the romantic partner as wanting subsequent dates, while the other did not want to see them again. It did not appear that either gender was more likely than the other to experience this goal incongruence. Often, participants noticed this goal incongruence when they were "ghosted" after the date, with the other person cutting off all communication without offering a significant explanation:

> We were texting late on the night of April 11th when I asked her out [for another date] and she did not immediately respond. I just assumed she feel[sic] asleep since it was after midnight on a work night so I did not think anything of it. 3 weeks later my text still has no reply but she watches my 2 minute snap story everyday still. The Michael Jordan crying meme was created for situations like this. (Male, May, 2016)

"Ghosting" appeared to be a source of strife for many participants. In particular, participants often explained scenarios in which they thought a date had been successful but were surprised when they returned from the date only to find that they had been "unmatched" on Tinder. Unmatching is a Tinder feature that allows users to disable messaging between

themselves and another person. Users generally employ the unmatching feature when they no longer want someone to contact them. Many participants described realizing that they had been "unmatched" as a passive way of being told that the other person did not want to see them again

> I come back from work, check tinder and see she's not in my conversations anymore. I'm thinking that's weird, if she unmatched me same day, considering how good we hit it off. (Male, October, 2016)

> I check Tinder to message her goodbye only to find she's already unmatched me. :-(It's not like we would really have a chance of having a relationship since I was only in town for a short time. But she was a very nice person and I at least wanted to say goodbye. (Male, February, 2016)

While ghosting and unmatching appeared to cause emotional strife, having a dissatisfying date also caused many participants to feel frustration. However, for most of the dates that were described as negative, the reason was not deception or goal incongruence. Instead, in most such cases, the two individuals simply failed to feel a connection or find commonalities, or else the participant considered his or her date's behavior to be rude.

> Turned out to be arguably the most boring experience of my life. Made shitty small talk for half an hour at a restaurant until I flagged down the waiter, paid the bill, and then attempted a variety of ways of getting my ass the fuck out of there. Back to the drawing board. (Male, May, 2016)

> I just had a horrible date with the seven years older than me surgeon. He tore me down the entire night, calling me arrogant, ("not confident, THERE'S A DIFFERENCE"), after revealing that I had issues with men only wanting me for sex he said "I mean you do

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exude a sexual charisma and you have a bit of a slutty appearance" and generally just

took everything I liked about myself and made it bad. (Female, January, 2016)

Of the 280 posts, only two described a situation in which deception was used in an

attempt to steal money from the participants. In one case, deception was used to trick a

participant into attending a sales event:

So I pitch up there and phone her because the place is pretty big. She directs me to a

parking lot with a couple of buildings. As I get there, I see a bunch of other dudes

arriving (red flag no. 1) and just her waiting and greeting them […] got duped into a

shitty seminar with 20-30 other tinder expectants instead of a date. (Male, January, 2016)

As such, most participants appeared to face little actual danger or risk from using Tinder.

This may be because most of the dates were planned in public spaces, potentially preventing

unsafe situations from arising.

Discussion

Overall, the content and correspondence analyses indicated little to no gender differences

regarding experience with the Tinder app. Female participants were just as likely as male

participants to describe sexual encounters, and they employed similar language to do so.

Deception was uncommon, although it was associated with negative outcomes, as predicted.

Female participants did not mention any instances of deception regarding gender-stereotypical

traits, such as access to resources or prestige, suggesting these qualities may be less valuable in

the contemporary dating market than hypothesized. Rather, the only deception that females

mentioned pertained to appearances. Males were also likely to cite physical appearance as the

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primary source of deception. Moreover, such deception often coincided with negative romantic outcomes.

Goal incongruence, in which one only person wanted to see the other again, was fairly common. It was often communicated passively through ghosting or unmatching on the app. Men and women appeared to be equally likely to engage in ghosting and unmatching, or to be the victim of these behaviors. For both genders, goal incongruence appeared to be the largest source of strife in regards to utilizing the app.

Negative dates appeared to be primarily the result of differences in personalities, interests, or accepted behaviors. Most participants described negative dates as stemming from conversations that went poorly, excessive substance use, or rude comments. Deception and goal incongruence did not appear to be the primary causes of these negative encounters. However, the correspondence analysis found that deception and goal incongruence were associated with overall dissatisfaction with the app. Furthermore, the content analysis suggested that while deception about physical appearances prompted an initial negative reaction on the part of participants, in most cases, it was that person's subsequent behavior that caused the participants to indicate that the date had gone poorly. It could be that the earlier deception caused these participants to evaluate their date's ensuing behavior more negatively.

Most of the described dates were positive, with participants indicating that they wanted to see the other person again. Participants appeared open having the first date lead to a variety of future relationship types. As was the case in study one, participants claimed that they were open-minded regarding the kind of relationship that would transpire from their recent first date. Many described a desire for an ongoing sexual relationship with no commitment, while many noted

that they wanted a long-term committed relationship with their recent first date. There were no detectable differences between men and women regarding the preferred relationship length. Both genders appeared to have flexible intentions and goals regarding the app, lending support to the pluralist model of sexual strategies theory (Gangestad & Simpson, 2000), which states that men and women regularly shift between short-term and long-term mating strategies (see also Buss & Schmitt, 1993), which may be a way in which males and females navigate around strategic interference.

The forum users did not appear to endorse sexual double standards. Women posted openly, and in great detail, regarding their romantic and sexual encounters. Moreover, other posters did not seem to judge a participant's romantic or sexual experiences on the basis of gender. Rather, posters seemed to encourage both males and females to describe their encounters in great detail. This suggests that sexual double standards may be less pervasive than previously believed. Another potential explanation is that the anonymous nature of the forum obscured users' endorsement of such double standards. Additionally, it could be that the individuals most likely to post on this particular public forum are less likely to endorse sexual double standards.

On the whole, Tinder users did not have a high likelihood of experiencing strategic interference, and there were no detectable differences between the genders in terms of romantic outcomes. Men and women appeared equally likely to engage in a sexual encounter on the first date, enjoy that experience, and use the app for both long-term and short-term mating strategies. As such, Tinder users seem to be having positive experiences with meeting romantic partners though the app, with Tinder facilitating a wide range of romantic goals.

The Tinder subreddit seemed to function as a supportive virtual community, with over 300,000 posters regularly sharing personal romantic and sexual encounters, advice, and opinions. Comments on posts in the Story Time thread were almost always inquisitive, supportive, or encouraging. Outside of the Story Time thread, numerous other threads allow posters to ask questions, post screenshots of their own profiles for feedback, or even meet other Tinder users in their area for offline encounters. As such, the Tinder subreddit appears to be a positive virtual space in which Tinder users can create social connections and receive feedback and support from their peers.

Limitations

As previously mentioned, posts on the forum were often extremely negative or positive in nature. Consequently, the participants could have been exaggerating, or there could have been a sample bias if individuals with particular traits were more likely to post their stories on a public Internet forum. Compared to study one, participants in this study appeared to have had much more positive experiences with their most recent first date than did the randomly sampled Internet population. In the first study, participants generally described neutral encounters. In addition, the participants in study three were much more likely to indicate that they had participated in a sexual encounter on the first date, which may support the theory that they were exaggerating or only sharing stories about dates that ended with a sexual encounter. The Story Time thread appeared to be male-dominated, and males are more frequently socially rewarded for having sex than are women (Rudman, Fetterolf, & Sanchez, 2013), which might have further encouraged males to post about sexual encounters in this particular forum. A future study should thus directly distribute a survey to Tinder subreddit users. Such data would paint a more accurate

picture of demographic differences, and it would allow researchers to explore individual

differences between this particular population of Tinder users and a random sample of Tinder

users in a general Internet study.

General Discussion

Studies one through three applied predications of sexual strategies theory (Buss & Schmitt, 1993), strategic interference theory (Buss, 1989) and social role theory (Ealgy 1987) to contemporary contexts. If sexual strategies predicts different expectations and outcomes between men and women in the dating market, and if asymmetries in the social settings of that dating market presented possible burden towards women, it was predicted that men and women would regularly encounter strategic interference in contemporary romantic contexts, with females experiencing more negative outcomes than men. This was hypothesized because women had reported more negative responses from strategic interference than men (Haselton et al., 2005). It was additionally predicted that the dating app Tinder, which initial research suggested was priming more gendered behavior in monitored interactions on the app (Tyson et al., 2016), would increase conflict and deception in offline encounters and these negative impacts would be disproportionally experienced by women compared to men. These findings were generally not supported by the preceding three studies.

In study one the hypothesis that female Tinder users would be the most likely to experience deception was partially supported. Study one did not find any differences between males and females and likelihood of experiencing deception. This goes against previous findings suggesting men misrepresent themselves online along more dimensions than women (Hall, Park, Song, & Cody, 2010). However, there were significant differences between users of online dating technologies (Tinder and online dating website users) and those who don't use any dating technology at all: Tinder and online dating website users were more likely to encounter deception than those who did not use any dating technology at all. Additional analysis demonstrated that Tinder users were also more likely to endorse sexual double standards than

online dating website and offline users. This result was not originally predicted, but could suggest that individuals who use Tinder may be more likely to expect women to behave in more sexually conservative ways than men. Additional studies may consider incorporating sexual double standard endorsement in future studies of Tinder users.

In addition, when participants in study one were asked to reflect on their last first date, sexual double standard scores, gender, dating platform and strategic interference significantly predicted romantic satisfaction. The primary contributor to this model, however, was strategic interference. This suggests that higher levels of strategic interference predicted lower romantic satisfaction. As such, encountering strategic interference in a romantic encounter significantly predicts negative romantic outcomes regardless of gender or dating platform use. These findings suggest that Tinder is not contributing to higher rates of strategic interference in contemporary dating markets, and that there are no perceivable gender differences in encountering strategic interference across different dating platforms. Buss (1989) predicted that women have more negative responses to strategic interference than men, which may be because findings suggest more strategic interference occurs because of male's desire to pursue multiple mates (Buss, 1995). However, this was not replicated within study one. Both men and women appeared to be equally likely to rate a first date lower if strategic interference was encountered. Strategic interference did not, however, predict lower sexual satisfaction outcomes for those who indicated having sex on the first date. This suggests sexual satisfaction may not be impacted by strategic interference the same way that impacts romantic satisfaction.

Content analysis of study one demonstrated that Tinder users had the perception that the app was primarily for short-term mating scenarios, despite very few of the participants indicating that they themselves used it for those exclusively short-term goals. This suggests that there may

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still be a stigma for using the app that Tinder is intended for short-term mating scenarios. However, the majority of participants were using the app with flexible expectations in regard to the type of relationship they were pursuing. This finding supports pluralism of sexual strategies (Gangestad & Simpson, 2000), which emphasizes that males and females change mating strategies based on highly contextual factors. It appeared both men and women were open to a variety of different romantic scenarios, and that they rapidly adapted their mating goals according to the situation. As such, this may be why our studies failed to replicate strongly gendered differences across participants—strategies and goals varied more by situation than gender.

Study two failed to find differences in gender or assigned condition. In study two, males and females had nearly identical pretest and posttest scores indicating similar preferences for intelligence, resources, relationship length, and attractiveness in a potential partner. The only significant difference between genders was detected in the likelihood to engage in sex on the first date, which suggested that males were more likely to indicate a willingness than females. This finding supports the gender similarity hypothesis by Hyde (2005), which suggests that male and female interests and behaviors on the dating market are vastly similar except for males' expressed desire for more short-term partners than women. Participants' posttest scores failed to change after interacting with a personal Tinder account, which suggests the interface of Tinder may not have the predicted priming effects, or that future experimental studies should develop a stronger prime. Since there were no priming effects found after use of the app, study two failed to support the prediction that Tinder use may cause a "feedback loop" that leads to higher rates of strategic interference between potential romantic partners.

Study three analyzed a popular Internet forum for Tinder users known as the Tinder subreddit to better understand real-world experiences with the app. Overall, the majority of posters on the Tinder subreddit described dates that were positive in nature, and they also expressed positive feelings regarding use of the app overall. While the Tinder subreddit itself was largely dominated by men, women were just as likely to share about sexual experiences as male participants, and were just as likely to express positive experiences with the sexual encounter as male participants. These experiences were never observed to be subjected to criticism, suggesting that the Tinder subreddit does not reflect strong endorsement of sexual double standards. Participants in study three appeared to have more positive experiences with Tinder than participants from study one. This could be because Tinder users who are enjoying the app may be more likely to join an Internet community about that app, and as such, the randomly sampled population from study one had less polarizing experiences.

Study three found that strategic interference as measured by goal incongruence and deception was associated with negative romantic outcomes. This was similar to the findings in study one. Also similar to study one was the finding that sexual satisfaction was not related to strategic interference. Sexual satisfaction and dissatisfaction in study three were not related to any other themes or events (besides the event of having sex), suggesting that sexual satisfaction may have difference predictive factors than overall romantic satisfaction.

Study three contradicted previous findings that men are more likely to have a negative response regarding deception about attractiveness than women (Buss & Barnes, 1986). In study three, the only form of deception female posters reported was deception about quality of looks, and content analysis revealed that this deception was just as likely to cause negative responses in

women as it did in men. As such, the gendered categories of mate preferences outlined by sexual strategies theory (Buss 1989) may not be completely applicable to contemporary dating markets.

Conclusion

Across all three of these studies, there was very little evidence to suggest men and women are having different expectations or encountering largely different experiences in the modern dating market. These studies support research that suggests men and women behave similarly far more than they behave differently (Canary & Hause, 1993). While sexual strategies theory does suggest both men and women engage in both short-term and long-term mating strategies interchangeably (Gangestad & Simpson, 2000), the large body of evolutionary psychology literature suggests a dichotomy between male and female preferences and behaviors in the dating market (see Buss, 2005). These findings suggest that males and females may regularly encounter strategic interference in romantic contexts. However, these preceding three studies generally did not support these findings. Across all studies, men and women appeared to have similar preferences, experiences, and encounters through the online dating app Tinder.

Across all three studies, participants appeared to have flexible mating strategies and goals, and exhibited a high level of comfort with using Tinder to achieve those particular goals. Overall, it appeared most of our participants approached dating through the Tinder app as a way to find some sort of connection—whether it be short term or long term. As such, Tinder does not appear to be changing mating strategies, behaviors, or mate preferences. Instead, it appears to simply be making it easier for individuals to pursue different experiences in the modern dating market, regardless of gender.

Appendix A: Consent Form and Demographic Information for Study One

AGREEMENT TO PARTICIPATE IN
Strategic interference and Tinder use in millennials: A mixed-method investigation of male and female romantic interactions in the modern world

Researchers:
Jeanette Lee Purvis, Student Investigator: (808) 927-8149
Elaine Hatfield, Principal Investigator: (808) 956-6276

My name is Jeanette Purvis. I am a graduate student at the University of Hawaii (UH). As part of my degree program, I am conducting a research project examining behavior in modern dating markets. The purpose of my project is to better understand millennial user's experiences when trying to find a romantic partner. I am asking you to participate in this project because you are between 18-34 years old and have been active in the dating market within the past year.

Project Description - Activities and Time Commitment: If you decide to take part in this project, you will be asked to fill out a demographic questionnaire and brief survey. Most responses will be multiple choice, however, there will be a few questions where you may add an open-ended response. Completing the survey will take approximately 15-20 minutes. Approximately 300 individuals will participate in the survey portion of this research project.

Benefits and Risks: There will be no direct benefit to you for taking part in this project. The findings from this project may help better understand dating and research related to Social Psychology. Potential risk: You may be asked to recall and discuss recent romantic encounters, including sexual encounters. If you are not comfortable discussing this, or if you believe this may trigger upsetting responses, it is recommended that you do not agree to participate in the study.

Confidentiality and Privacy: I will not ask you for any personal information, such as your name or address. Please do not include any personal information in your survey responses.

Voluntary Participation: You can freely choose to take part or to not take part in this survey. There will be no penalty or loss of benefits for either decision. If you do agree to participate, you can stop at any time.

Questions: If you have any questions about this study, please call or email me, the principal investigator, at 808-927-8149 or jpurvis@hawaii.edu. You may also contact the project

supervisor, Dr. Elaine Hatfield, at (808) 956-6276 or elainehatfield582@gmail.com. If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu. If you feel that this survey has caused any psychological or emotional distress, it is recommended that you immediately contact the UH counseling service at (808) 956-7927

I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.

I agree to participate [   ]
I do not agree to participate [   ]

Demographic Information
Please answer the following questions about yourself:

1. What is your age in years? _____

2. What is your gender?
○   Female
○   Male
○   Transgendered
○   Not listed (please specify)

   _____

○   Prefer not to disclose

3. What race do you most closely identify with? (Please check all that apply)
○ American Indian or Alaska Native
○ Non-Hispanic White
○ Black or African American
○ Asian Indian
○ Hispanic or Latino
○ Chinese
○ Filipino
○ Japanese
○ Korean
○ Vietnamese
○ Asian not listed (Please print race below. For example, Hmong, Laotian, Thai, etc.)

   _____

○ Native Hawaiian
○ Samoan
○ Pacific Islander not listed (Please print race below. For example, Fijian, Tongan, Chuukese, etc.)

_____

○ Prefer not to say

5. What is your religious preference?
○ An Orthodox church such as the Greek or Russian Orthodox Church
○ Protestant
○ Roman Catholic
○ Christian Scientist
○ Jewish
○ Muslim
○ Seventh-Day Adventist
○ Mormon
○ Atheist
○ Agnostic
○ None of the above (please specify)

_____

○ Prefer not to say

Which of the following methods did you use *most* to find potential romantic partners within the past year?
[ ] Tinder
[ ] Online Dating website (please specify which one)
[ ] No online services—"offline" dating.

Appendix B: Relationship Experiences Instrument (REI)

Below is a list of things men and women sometimes do in relationships. We would like to know whether someone who you have met on Tinder/Online Website/Met Offline has ever behaved in any of these ways toward you *in the past year*. For each example, select either "yes" or "no, it did not." If it did happen to you, indicate approximately what percentage of times this has occurred across all interactions with potential mates *on Tinder/Online Website/Met Offline over the past year*.

You may not know the answer to all of these questions. If you *strongly believe* that someone has engaged in one of these deceptions, consider it as a "yes." If you *strongly believe* that someone has *not* engaged in a particular deception, consider it a "no." Remember, this scale only includes individuals you have interacted with on Tinder/Online Website/Offline, or started a relationship with on Tinder/Online Website/Met Offline.

Considering online your interactions over the past year on Tinder/Online Website/Met Offline, has anyone you've interacted or met with ever:

1) Led you to believe he or she was older than he or she actually was
   ○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
   ○ No

2) Led you to believe he or she was younger than he or she actually was
   ○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
   ○ No

3) Concealed that he or she was already in a serious long-term relationship when he or she became involved with you
   ○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
   ○ No

4) Led you to believe that he or she was more desirable to members of the opposite sex than he or she actually was
   ○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
   ○ No

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5) Faked an orgasm when he or she had sex with you
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

6) Led you the believe he or she was more ambitious than he or she actually was
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

7) Misled you about his or her intelligence so that you would believe he or she was smarter than he or she actually was
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

8) Exaggerated his or her social status
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

9) Exaggerated his or her occupational status or prestige
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

10) Misled you by indicating that he or she wanted a long-term commitment when he or she actually did not
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

11) Led you to believe he or she had intentions of developing a long-term relationship with you after you became sexually involved with him or her; when he or she actually did not
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

12) Led you to believe that he or she had stronger feelings for you than he or she actually did in order in order to have sex with you
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

13) Led you to believe he or she had more money than he or she actually had
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

14) Led you to believe that he or she would have sex with you, but then refused to do so
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

15) Led you to believe he or she was better looking than he or she actually was
○ Yes (please indicate the approximate percentage of times this occurred over the last year out of all your offline romantic interactions within the past year): _____
○ No

_____

Scoring:
REI: Deception around Sex-Linked Forms of Strategic Interference -
All items were added together for one continuous variable. Percentages were not analyzed as most participants did not complete that portion of the survey.

Interpretation: The higher the scores, the more frequently deception around sex-linked forms of Strategic Interference were encountered

Appendix C: Strategic Interference Items

1) Think about when you and the other person were arranging this initial meeting. Then, move the scale between 0 and 10 to indicate the relationship length you most desired would come out of this meeting.
0 = A one-time encounter
10 = Life-time partnership

2) Think about when you and the other person were arranging this initial meeting. Then, move the scale between 0 and 10 to indicate the relationship length you think *the other person* most desired would come out of this meeting
0 = A one-time encounter
10 = Life-time partnership

3) During the date, did you feel as though this person presented his or her intentions accurately? Please rate this below on a scale of 0 to 10.
0 = He or she completely represented his or her intentions accurately
10 = He or she did not at all present is or her intentions accurately

Scoring
Overall Strategic Interference Score - Add the values from:
      Strategic Interference: Difference between the values from questions 4 & 5 and
      Deception around Strategic Interference: Summation between the values from questions 8
      and 9

Interpretation: The higher the scores, the more Strategic Interference encountered during the meeting

Appendix D: Scale for the Assessment of Sexual Standards Among Youth

Please read the following statements and indicate on the scale below how much you *disagree* or

agree with the statement.

1) Once a man is sexually aroused, a woman cannot really refuse sex anymore.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

2) Women like men who take the lead in sex.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

3) I think that a woman who takes the initiative in sex is pushy.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

4) I think it is more appropriate for a man than for a woman to date different people at the same time.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

5) Women should act in a more reserved way concerning sex than men.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

6) I think it more appropriate for a man than for a woman to have sex without love.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

7) A man should be more knowledgeable about sex than a woman.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

8) I think sex is less important for women than for men.

1	2	3	4	5	6
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree

9) I think it is normal for men to take the dominant role in sex.

2	3	4	5	6
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree

10) I think sexually explicit talk is more acceptable for a man than for a woman.

1	2	3	4	5	6
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree

11) Sometimes a man should apply some pressure to a woman to get what he wants sexually.

1	2	3	4	5	6
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree

12) It is more important for a woman to keep her virginity until marriage than it is for a man.

1	2	3	4	5	6
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree

13) Men are more entitled to sexual pleasure than women.

1	2	3	4	5	6
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree

14) It is not becoming for a woman to have unusual sexual desires.

1	2	3	4	5	6
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree

15) Sex is more important for men than for women.

1	2	3	4	5	6
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree

16) It is more important for a woman to look attractive than it is for a man.

1	2	3	4	5	6

| Completely | Mostly | Slightly | Slightly | Mostly | Completely |
| Disagree | Disagree | Disagree | Agree | Agree | Agree |

17) Men and women want completely different things in sex.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

18) I think cheating is to be expected more from men than from women.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

19) I think it is important for a man to act as if he is sexually active, even if it is not true.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

20) I think it is more appropriate for a man than for a woman to masturbate frequently.

1	2	3	4	5	6
Completely	Mostly	Slightly	Slightly	Mostly	Completely
Disagree	Disagree	Disagree	Agree	Agree	Agree

Scoring: Total score = all items.

Interpretation: The higher the score, the more sexual-double standards the individual holds

Appendix E: Global Measure of Sexual Satisfaction – Romantic Satisfaction

Please rate the first date on the following dimensions:

Bad   Neutral   Good
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Unpleasant   Neutral   Pleasant
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Negative   Neutral   Positive
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Unsatisfying   Neutral   Satisfying
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Worthless   Neutral   Valuable
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Scoring

Romantic Satisfaction -
Scores from GMSEX added together for total romantic satisfaction score

Interpretation: The higher the scores, the more satisfied the individual was with the romantic encounter

Appendix F: **Global Measure of Sexual Satisfaction – Sexual Satisfaction**

Please rate the sexual encounter on the following dimensions:

Bad   Neutral   Good
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Unpleasant   Neutral   Pleasant
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Negative   Neutral   Positive
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Unsatisfying   Neutral   Satisfying
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Worthless   Neutral   Valuable
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6

Scoring
Sexual Satisfaction -
Scores from GMSEX added together for total sexual satisfaction score

Interpretation: The higher the scores, the more satisfied the individual was with the sexual encounter

Appendix G: Open-Ended Response Items

Take a moment to recall your last experience meeting someone from Tinder/Online Website/Offline in an offline, romantic format and answer the following questions. In other words, recall your last "first date" encountered through Tinder/Online Website/Offline.

1) Please describe your initial impressions based on his or her picture/profile/first sight

2) Please describe your initial messages/conversation. What were the initial interchanges like? What did you talk about?

3) Why did you agree to meet/go on a date with this person?

4) Please describe the first meeting below. Description should be at least a paragraph long and include how you were feeling throughout the meeting, the actions of the other individual, and what you did during the meeting

5) Was this meeting unique compared to any other meetings that you have had through Tinder? Why or why not?

6) Describe your overall opinion of using Tinder to meet potential romantic partners.

7) Do you currently use Tinder? Why or why not?

Scoring:
Look for themes relating to Strategic Interference and romantic and sexual satisfaction

Appendix H: Agreement to Participate, Study Two, Part One

Aloha! My name is Jeanette Purvis and you are invited to take part in a research study. I am a graduate student at the University of Hawai'i at Mānoa in the Department of Psychology. As part of the requirements for earning my graduate degree, I am doing a research project. The purpose of my project is to better understand modern experiences with online dating. I am asking you to participate if you are at least 18 years old.

Project Description – Activities and Time Commitment: If you decide to take part in this project, you will be asked to fill out an online survey that lasts about 10-15 minutes to complete. The questions in this survey are mainly multiple choice. However, there will be a few questions where you may add an open-ended response. The survey is accessed on a website to which I will provide you with a link. I expect that around 400 people will take part in this project.

Some individuals will be invited to participate in part two of this study, which will take place at least one week after the completion of this survey. If you are invited for the in-person part of this experiment, your invitation will appear immediately at the close of this online research study, accompanied with more information on how to sign up for the second portion of the experiment. This experiment will be held in a lab on campus, and will require brief utilization of an online dating application, in which none of your activity is recorded. This portion should take approximately 15-20 minutes to complete. Compensation for part two of the study will be $10.

Benefits and Risks: There will be no direct benefit to you for taking part in this project. The findings from this project may help create a better understanding of modern dating experiences on new dating applications. There is no known risk to you for participating in this project. However, if you feel anxiety or emotional trouble during or after completing this survey, please contact the UH counseling center at (808) 956-7927.

Confidentiality and Privacy: I will not ask you for any personal information, such as your name or address. However, if you were not directed to this study via SONA, and your professor has arranged for you to receive extra credit for participation in this study, please enter your student ID and your course name and number below

Student ID: _____

Class Name and Number: _____

Please note this information will not be connected to your answers in the survey. It will only be used to communicate in aggregate form to professors which students who have participated in the online portion of the survey so extra credit may be given.

Voluntary Participation: You can freely choose to take part or to not take part in this survey and the in-person experiment in case you are invited. There will be no penalty or loss of

benefits for either decision. If you do agree to participate, you can decide to stop at any time and still receive your compensation.

Questions: If you have any questions about this study, please call or email me at (808) 956-6679, or jpurvis@hawaii.edu. You may also contact my advisor, Dr. Elaine Hatfield at (808) 956-6276 or elaineh@hawaii.edu If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at (808) 956-5007 or uhirb@hawaii.edu.

Compensation: You may be given extra credit for participation in this survey, as arranged by your individual professors. If you are not currently enrolled in a course that has arranged extra credit for your participation in this project, there will be no compensation for participating in part one of the study.

If you are invited to participate in part two of the survey, you will be given $10 cash compensation for participation, regardless of class enrollment.

To Access the Survey: Please go to the following web page: [Link here]. You should find a link and instructions for completing the survey. Going to the first page of the survey will be considered as your consent to participate in this study. If you are invited to participate in part two of the study, you will receive a message at the end of your survey that will direct you to a sign-up screen for the in-person experiment, which will require a second consent form to be reviewed and signed.

Please indicate below if you would be interested in being invited to part two of this experiment. Indicating your interest below does not guarantee invitation, nor does it require that you participate.

[ ] No I am NOT interested in being invited to part two of this experiment
[ ] Yes, I AM interested in being invited to part two of this experiment.

Please print a copy of this page for your reference.

Appendix I: Agreement to Participate, Study Two, Part Two

Aloha! My name is Jeanette Purvis and you are invited to take part in a research study. I am a graduate student at the University of Hawai'i at Mānoa in the Department of Psychology. As part of the requirements for earning my graduate degree, I am doing a research project. The purpose of my project is to evaluate modern experiences on online dating applications. I am asking you to participate because you indicated that you are currently single and an active user of the dating application *Tinder*.

Activities and Time Commitment: If you participate in this project, you will be asked to log into your Tinder account and spend five minutes interacting with people through your account. During this time, the experimenter will be behind a partition, and will not be able to observe or record your activity on the application. After five minutes has passed, you will be asked to complete a short series of surveys on the computer in the lab. Again, the experimenter will be behind a partition and unable to see observe your survey responses. These responses will be completely anonymous. After you complete the survey on the computer, the experiment will end and you may leave. Your participation will take 20-25 minutes. Only you and I will be present during the experiment. You will be one of about 100 people in this study.

Benefits and Risks: There will be no direct benefit to you for participating in this project. The results of this project may help to better understand experiences with the online dating app Tinder. I believe there is little risk to you in participating in this research project. You may become stressed or uncomfortable. If you do experience these feelings, you can take a break. You can also stop participating in the study at any time, and still receive your compensation. Additionally, if you feel anxiety or emotional trouble during or after completing this survey, please contact the UH counseling center immediately at (808) 956-7927

Privacy and Confidentiality I will keep all study data secure in a locked filing cabinet in a locked office/encrypted on a password protected computer. Only my University of Hawaii advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawaii Human Studies Program has the right to review research records for this study. When I report the results of my research project, I will not use your name. I will not use any other personal identifying information that can identify you. I will use pseudonyms (fake names), and will report my findings in a way that protects your privacy and confidentiality to the extent allowed by law.

Voluntary Participation: Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you.

Compensation:
You will receive $10 in cash compensation for participation in this research project. All participants, regardless of how they were recruited (i.e. SONA or non-SONA), will receive this compensation.

Questions: If you have any questions about this study, please call or email me at (808) 956-8414 or jpurvis@hawaii.edu. You may also contact my advisor, Dr. Elaine Hatfield at (808) 956-6276 or elaineh@hawaii.edu If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

If you agree to participate in this project, please sign and date the following signature page and return it to the experimenter.

Please keep the section above for your records.

Signature(s) for Consent:

I give permission to join the research project entitled, *Modern Experiences with Online Dating Applications, Part Two*

Name of Participant (Print): _____

Participant's Signature: _____

Signature of the Person Obtaining Consent: _____

Date: _____

Mahalo!

Appendix J: Experiment Script

For ALL participants, say the following:

"Thanks for coming in to participate in our experiment. This here is your agreement to participate form. As you will see, you are agreeing to participate in an experiment that is about modern experiences with online dating applications. Take a moment to look over the form and if you agree to participate, please sign the back form. Would you like to keep a copy of your consent for your records?"

Cut off the bottom portion of the form and give them the first page and a half if they say YES. If they say NO, simply take the consent form and place it into the folder on the desk.

For condition A participants, say the following:

"Now that you have signed your consent form, we will begin the experiment. This is a study exploring user experiences with the dating application, Tinder. For part one of this study, you are going to log into your Tinder account on your phone, and you will interact with the app exactly as you would at home or when you're by yourself. I will not monitor, record, or look at your interaction with the app at this time. I will be behind this partition and will not be able to see what you are doing. You will do this for 5 minutes. If you run out of swipes or other activities to engage in, look through old messages or engage with your own profile or settings. Anything as long as you stay engaged in the app for the entire 5 minutes. After these five minutes are up, I will come out from the partition and ask you to log-out of your account. At that point, we will begin part two. Do you understand? Ok. You may log-in to your account. I will start the timer as soon as I sit down on the other side of the partition."

For condition B participants, say the following:

"Now that you have signed your consent form, we will begin the experiment. This is a study exploring user experiences with the dating application, Tinder. For part one of this study, you are going to look at a series of photos on our experimenter's tablet. [Show them the tablet]. For five minutes, you will swipe through a series of photos located in the "photos" section of the device. Please note you will have an entire 5 minutes to look at these photos, so you do not have to rush. Look at the photos as you would any other picture. Swipe at your own speed. I will not record or monitor you in any way during this time. When the five minutes are up, I will come out from behind the partition, and we will begin part two of the experiment. Do you understand? Ok. You may begin swiping. I will start the timer as soon as I sit down on the other side of the partition."

Press start on the stopwatch. During this time, try to stay as quiet as possible. Do not type into the main computer or your own laptop (noises can be distracting and mess with the experiment). It is recommended you bring your own books or articles to read, or browse your phone

Part two of the experiment (same for all participants)
1. Tell the participants to stop swiping. Participants from condition A can put away their phones. You can take the tablet from Participants from condition B.

2. Ask the participants to sit in front of the Mac computer. Open the shortcut on the desktop that says "Survey."
3. Tell the participant:
   a. "In part two of this experiment, you will complete a series of questionnaires. Keep moving through the survey, responding honestly to the questions, until the survey give you a completion message. At that point, say, 'I'm finished.'

End of the Experiment
1. When the person says, "I'm finished," thank them for their participation and take $10 out of the envelope on the desk. Give the participant $10 and say "Thank you for participating in this experiment. Here is your compensation. You are now free to leave. If you have additional questions about the study, you can reach out to the investigators listed on your consent form."

Appendix K: Mating Preferences Questionnaire

Part One:
Marital status (please circle): single   dating   engaged   married   divorced

Please evaluate the following factors in choosing a mate. If you consider it

> Indispensable, give it…………………3 points
> Important, but not indispensable……...2 points
> Desirable, but not very important……..1 point
> Irrelevant or unimportant……………..0 points

_____ (1) Good cook and housekeeper

_____ (2) Pleasing disposition

_____ (3) Sociability

_____ (4) Similar educational background

_____ (5) Refinement, neatness

_____ (6) Good financial prospect

_____ (7) Chastity (no previous experience in sexual intercourse)

_____ (8) Dependable character

_____ (9) Emotional stability & maturity

_____ (10) Desire for home and children

_____ (11) Favorable social status or rating

_____ (12) Good looks

_____ (13) Similar religious background

_____ (14) Ambition & industriousness

_____ (15) Similar political background

_____ (16) Mutual attraction—love

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_____ (17) Good health

_____ (18) Education & intelligence

Part Two:

Instructions. Below are listed a set of characteristics that might be present in a potential mate or marriage partner. Please rank them on their desirability in someone you might marry. Give a "1" to the most desirable characteristic in a potential mate; a "2" to the second most desirable characteristic in a potential mate; a "3" to the third most desirable characteristic; and so on down to "13" for the 13th most desired characteristic in a potential mate.

Rank These 13 Characteristics From Most (1) to Least (13) Desired in a Mate

_____Kind & understanding

_____Religious

_____Exciting personality

_____Creative & artistic

_____Good housekeeper

_____Intelligent

_____Good earning capacity

_____Wants children

_____Easygoing

_____Good heredity

_____College graduate

_____Physically attractive

_____Healthy

Scoring: Intelligence, attractiveness, and earning capacity are added together from both part one and part two for three different dependent variable values

Interpretation: The higher the scores, the more gender-typical the mate preference. Change in these scores indicates a move away or towards gender-typical mating preferences

Appendix L: Mating Orientation Items

Please respond to the following questions or prompts:

1) Please indicate on the below scale the length of relationship you currently desire.

0 = One-time encounter only, 10 = Life-time commitment

1	2	3	4	5	6	7	8	9	10

2) Please indicate on the scale below how willing you are to have sex on the first date.

0 = Never willing, 6 = Always willing

1	2	3	4	5	6

*In the online survey, the participants were able to slide an indicator along the scale to make selection

Appendix M: Coding Sheet for Tinder Subreddit Analysis

- Gender
  - Female: 1
  - Male: 0
- Sexual Orientation (Assume based on relationship described)
  - Straight: 0
  - Everything else: 1
- Meeting
  - An in-person meeting: 0
  - Messaging without meeting (no further analysis, just quotes): 1
  - General descriptions of a relationship (no further analysis, just quotes): 2
  - Questions or comments about Tinder use in general (no further analysis, just quotes): 3

Section B - Factors

*Mark "1" in every category that is mentioned in the post. If it is not mentioned, enter "0"

- *No Sexual Encounter:* No event described in which mouth, hands or genitals made contact with other person's genitals
- *Sexual Encounter:* Describes event in which mouth, hands, or genitals made contact with other person's genitals
- *Substance Use:* Described drinking or doing drugs
- *Deception*: Inaccurate representation of traits or goals (looks, availability, intentions, resources, status)
- *Ghosting:* An event in which all communication abruptly ended with no explanation
- *Goal Congruence:* Described having the same relationship goals as the other person
- *Goal Incongruence:* Described having different relationship goals as the other person

Section E - Satisfaction

*Mark "1" in every category that is mentioned in the post. If it is not mentioned, enter "0"

- *Overall Satisfaction:* Describes being satisfied with the interaction
- *Overall Dissatisfaction:* Describes being not satisfied with the interaction
- *Overall Sexual Satisfaction:* Describes sexual encounter as being satisfying
- *Overall Sexual Dissatisfaction:* Describes sexual encounter as not being satisfying
- *Desire for 2nd Date:* Says they went on, or plan on going, to a second date
- *One Time Encounter:* Only met one time with no concrete plans for a second meeting

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