

Humorous at Heart: Opening Lines and Physical Attractiveness on Tinder

An Experimental Study on The Effects of Humorous Opening Lines and Physical Attractiveness on Overall Attractiveness, Intention to Reply and Intention to Date

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1. Abstract

The aim of this study is to examine the extent to which humorous and non-humorous opening lines on Tinder affect perceived overall attractiveness, intentions to reply, and intentions to date, and whether this relationship is moderated by the perceived physical attractiveness of the Tinder match. It was expected that the positive effect of humor is larger when the match is moderately attractive, compared to when the match is attractive. To test this, a 2 by 2 within-subjects experiment was conducted. Participants ($N = 243$) were exposed to four Tinder profiles (of which two with an attractive picture and two with a moderately attractive picture), each accompanied by an opening line (either humorous or non-humorous). The results indicate a positive effect of humorous opening lines on overall attractiveness, intention to reply, and intention to date, when the Tinder match is moderately attractive. When the Tinder match is attractive, humorous opening lines negatively affect overall attractiveness and intentions to reply and date. Additional exploratory analysis shows that humorous opening lines work better on men than on women. Next to this, perceived sense of humor of the Tinder match mediates the relationship between opening lines and overall attractiveness and intentions to reply and date. Although using humorous opening lines seems to not always work, this suggests that it may add to positive perceptions of a Tinder match.

Keywords: Tinder, online dating, attractiveness, opening lines, humor

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3. Introduction

During the Covid-19 pandemic, even more singles turn towards online dating apps (Owens, 2020). On Tinder, the most popular online dating app worldwide, 26 million matches are formed every day (Tinder, 2020). Tinder users either swipe right or left based on the formed impressions of the dating profiles. Only after a mutual swipe-right, Tinder users can engage in conversations (Tinder, 2020). Opening lines, also often called pick-up lines, are what someone says when starting a conversation with a potential romantic partner (Levine et al., 1994). Opening lines can ultimately be the beginning of romantic relationships (Koeppel et al., 1993; Levine et al., 1994).

Tinder users may differentiate themselves from others by using humorous opening lines, as they attract attention and have previously been linked to stronger intentions to date (Cunningham & Barbee, 2008; Senko & Fyffe, 2010). Humor does not only make social exchanges pleasant, but has also been indicated as the most important characteristic to make flirting effective (Apostolou & Christoforou, 2020). Moreover, a good sense of humor is a trait considered highly attractive in a romantic partner (Bressler et al., 2006), and it also gives an impression of the presence of other traits people find important in romantic partners, such as creativity and intelligence (Miller, 2000).

In online dating through Tinder, first impressions are based on dating profiles in which pictures of Tinder users are prominently presented, sometimes accompanied by a personal description (Hancock & Dunham, 2001). This makes visual cues, or physical attractiveness of Tinder users, an important source of information on which to decide whether to swipe right or left. Attractive online dating app users are more likely to be contacted by others than less attractive online dating app users (Zhang et al., 2018). Moreover, similar as with a good sense of humor, physical attractiveness comes with positive stereotypes regarding a person's personality and intelligence. This is also referred to as the attractiveness halo effect (Berscheid & Walster, 1974).

Clearly, forming impressions based on dating profiles and first messages takes place early on in the development of romantic relationships through Tinder. Therefore, these two factors heavily influence the impression formation process, resulting in proposed effects on attractiveness, intentions to reply and intentions to date. Due to the swipe process, Tinder users are unlikely to be a match with someone they find unattractive. Therefore, this study distinguishes between attractive and moderately attractive Tinder matches. Previous research on opening lines has focused on face-to-face communication settings, there is currently little research on opening lines in computer-mediated communication contexts such as online dating apps. In light of this, the current study aims to answer the following research question:

RQ: To what extent do humorous and non-humorous opening lines on Tinder affect perceived overall attractiveness, intentions to reply and intentions to date? And is this relationship moderated by the perceived physical attractiveness of the Tinder match?

4. Theoretical Framework

4.1. Formation of Romantic Relationships

The desire to form romantic relationships with others comes from the basic psychological need for belongingness and love (Maslow, 1943). Typically, the formation of romantic relationships comprises of different stages. These stages are explained by Knapp's (1978) relationship model – *Figure 1* – which separates these stages of relationship formation in “coming together” (i.e., escalation) and “coming apart” (i.e., de-escalation).

In the coming together phase, relationships progress from initiating, to experimenting, to intensifying, to integrating, to bonding. At the initiating stage, people meet for the first time and form impressions of one another. At the bonding stage, people are in a publicly announced romantic relationship. Relational maintenance refers to the phase at which the formed relationship is maintained by those in the relationship. In the coming apart phase, relationships move toward an end (Knapp, 1978).

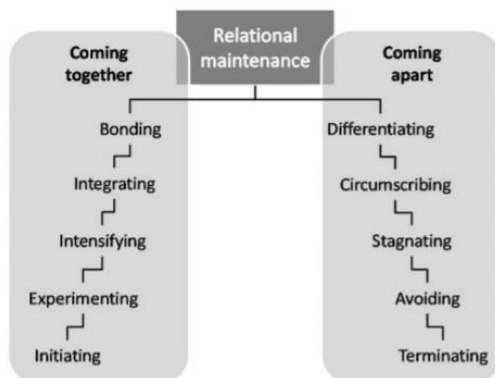


Figure 1. Knapp's relationship model (Knapp, 1978)

Although Knapp's relationship model (1978) provides insight into how romantic relationships are prototypically formed, it is dedicated to romantic relationships that are developed offline.

4.2. Online Dating

Nowadays, online dating apps have become a common way for people to find a romantic partner. Research has shown that, in the United States, online dating apps are now the most popular way for heterosexual couples to meet (Rosenfeld et al., 2019). Online dating is “the practice of using dating websites for the purpose of finding short- or long-term romantic partners” (Toma, 2015, p. 1). Mostly, the objective of online dating is to find someone to date offline (Finkel et al., 2012). Tinder is the most popular online dating app worldwide, as more than 26 million matches are formed every day (Tinder, 2020). On average, Tinder users open the app 11 times a day and swipe through dating profiles around eight minutes at a time (Bilton, 2014).

According to Finkel et al. (2012), there are three main pillars to online dating apps, namely access, communication and matching. Access refers to the fact that many potential romantic partners are now accessible through the online dating app, which may be individuals that users might have never met offline. Communication refers to the fact that online dating apps allowed for mediated communication to take place between potential romantic partners, prior to meeting offline. Matching refers to the algorithms on these dating apps that provide the logic of which dating profiles to display to which users, which can be dependent on factors such as gender, age or geographical proximity (Finkel et al., 2012).

Online dating has become a mainstream approach for singles to meet potential romantic partners. The access hypothesis proposes that online dating is especially for those that do not have much time to meet potential romantic partners offline, or that do not have an extensive social network (Toma, 2015). Although online dating apps make it easier to meet others (Valkenburg & Peter, 2007), this does not mean that using these apps is only for those that have difficulties meeting others offline. Previous research has shown that being single and using the internet are the largest predictors for online dating, implying that online dating is actually for a large audience (Toma, 2015).

The formation of romantic relationships through online dating is different from the formation of romantic relationships offline, especially at the initiating stage of Knapp's relationship model (1978). Based on dating profiles, Tinder users either swipe right when they are interested in the other person, or swipe left when they are not. In case of a mutual swipe-right, two Tinder users have a match which allows them to engage in conversations (Tinder, 2020). Online dating has also been referred to as *relationshopping*, as one study has found that users see online dating environments as shopping markets full of potential romantic partners (Heino et al., 2010).

4.3. Impression Formation on Tinder

In online dating through Tinder, impressions are formed based on dating profiles which include pictures and possibly a personal description (Hancock & Dunham, 2001). Impression formation is the process during which individuals form impressions about what others are like, including their personality and competences (Uleman & Kressel, 2013). Impressions are typically based on a combination of visual and textual cues (van der Heide et al., 2012). In an online environment, communicators are required to base predictions about others on different cues than in offline contexts, such as cues in online dating profiles and attributions of social meaning in language use (Walther, 2011).

Online dating app users decide what they include in their own dating profiles. This part of the process take place at step three of the Finkel et al. (2012) prototypical online dating process model, *Figure 2*. The solid arrow in this model depicts the most logical order of events. (Finkel et al., 2012). Online dating apps provide an online environment with reduced cues, which are static (Walther, 1996). The technological affordances of online dating apps, such as editability and asynchronicity, give users the power to selectively self-represent, by which they can guide how others perceive them (Ward, 2016). Self-presentation is the act by which people try to have control over others' impressions of them (Goffman, 1959).

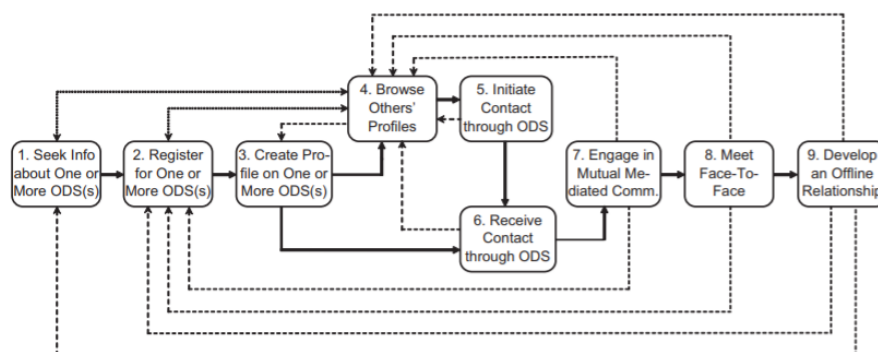


Figure 2. Outline of steps in the prototypical online dating process (Finkel, et al., 2012)

Online dating app users make conscious efforts to make a good impression on others (Toma et al., 2008) and struggle with tensions between presenting this elevated version of themselves to others and staying authentic (Ellison et al., 2006). Less physically attractive users of online dating websites were found to self-enhance more, for instance by manipulating profile pictures or other personal information such as height and age, than physically attractive users (Toma & Hancock, 2010). While emphasizing attractive traits can be an effective strategy for online dating, it is wise to stay close to reality since there is a high potential that developing online romantic relationships are continued offline (Ellison et al. (2006).

4.4. Physical Attractiveness

Physical attractiveness has long been recognized as an important factor in romantic partner selection, as it is one of the best predictors of romantic interest (Zhang et al., 2018). From the evolutionary perspective, physical attractiveness is seen as an indicator of good health, genes and reproductive abilities, which are traits considered important for partner selection (Barber, 1995). Although physically attractive individuals are overall more desirable than less attractive individuals, the perception of one's own physical attractiveness has an influence. The matching hypothesis refers to the theory that people tend to choose romantic partners who are more or less just as attractive as

they are, at least for serious relationships (Berscheid & Walster, 1974). Physical attractiveness was found more important for short-term than long-term dating (Tornquist & Chiappe 2015; Buss & Schmitt, 1993).

Pivotal in impression formation on online dating apps are perceptions of physical attractiveness. Research has shown that attractive online dating app users are more likely to get a match than those who are less attractive (Toma & Hancock, 2010). Physically attractive online dating app users are also more likely to get replies when they initiate conversations (Schöndienst & Dang-Xuan, 2011). This might also be because physical attractiveness comes with positive perceptions regarding someone's personality and competences. The attractiveness halo effect is a cognitive bias which causes physically attractive people to be perceived more positively than less attractive people (Berscheid & Walster, 1974). This leads to the following hypothesis:

H1: When a Tinder match is physically attractive, scores on (a) overall perceived attractiveness, (b) intention to reply and (c) intention to date are higher than when a Tinder match is moderately physically attractive.

4.5. (Initiating) Conversations on Tinder

Tinder users can engage in conversations when they have a match based on formed first impressions (Tinder, 2020), but in fact only have conversations with more or less half of their matches (Kallis, 2017). This part of the process is defined as steps five and six of the Finkel et al. (2012) prototypical online dating process model, *Figure 2*. The main purpose of conversations on online dating apps is for users to evaluate whether it is worthwhile to proceed with the relationship's development in an offline setting (Sharabi & Dykstra-DeVette, 2019). At the initiating stage of Knapp's relationship model (1978), people mainly talk about light-weighted topics, such as their demographics and daily lives. These conversations become more in-depth as relationships progress (Avtgis et al., 1998). Not all conversations on Tinder eventually lead to offline meetings

(Timmermans & Courtois, 2018). Tinder conversations are often abruptly discontinued (Zytka et al., 2014). To tempt a romantic interest in pursuing the interaction, Tinder users might use flirting, which is a common form of human interaction that involves sending signals that indicate romantic interest (White et al., 2018).

Conversations on online dating apps rely on computer-mediated communication. According to media richness theory, mediated communication lacks nonverbal cues and is therefore considered poorer than face-to-face communication (Daft & Lengel, 1986). The limited number of communicative cues available requires communicators to form impressions based on these limited cues. Social information processing theory proposes that computer-mediated communication still allows for impression formation, but it may take longer than in face-to-face communication settings (Walther, 1992). The hyper personal model stresses that relationships developed through computer-mediated communication can be very intimate, as people are intrinsically more motivated to get to know the other person than in face-to-face communication (Walther, 1996).

A previous study, in which authentic online dating app conversations were analyzed, identified the use of opening lines as the primary strategy for initiating interactions with romantic interests (Sharabi & Dykstra-DeVette, 2019). Opening lines, also referred to as pick-up lines, are often seen as part of flirting and are a means of conveying interest in a potential romantic partner during the first interaction (Weber et al., 2010). Opening lines also function as conversation starters (Sharabi & Dykstra-DeVette, 2019). Men initiate interactions more often than women (Schöndienst & Dang-Xuan, 2011; Sharabi & Dykstra-DeVette, 2019). Men are more likely to reply to first messages that have sexual references in them, whereas women are not more likely to reply when first messages have sexual references (Schöndienst & Dang-Xuan, 2011).

Previous studies on opening lines in face-to-face communication contexts distinguished three main types of opening lines, namely direct opening lines, innocuous opening lines and flippant opening lines (e.g., Kleinke et al., 1986; Senko, & Fyffe, 2010; Weber et al., 2010; Fisher et al.,

2020). Firstly, direct opening lines are straightforward attempts to initiate interactions (e.g., “I’d like to meet you and I don’t know how to do it except so say “hi.”). Secondly, innocuous opening lines are more indirect, innocent and subtle attempts to initiate interactions (e.g., “Could you tell me what time it is?”). Thirdly, flippant opening lines are cliché sentences that can be thought of prior to the interaction (e.g., “Your place or mine?”). This study concluded that direct opening lines are the most appropriate and desirable in face-to-face communication settings (Kleinke et al., 1986). These studies, however, did not study the effects of opening lines on perceptions of the sender and dating intentions.

4.6. Humorous Opening Lines

Humor seems an effective technique for starting conversations, since humorous opening lines attract attention (Cunningham & Barbee, 2008; Senko & Fyffe, 2010). Humor is an important factor for romantic attraction (Hall, 2015), and increases perceptions of credibility (Skalski et al., 2009). A good sense of humor also indicates the presence of other positive traits for a romantic partner, such as creativity and intelligence (Miller, 2000). Humorous opening lines have been linked to stronger intentions to date (Cunningham & Barbee, 2008; Senko & Fyffe, 2010). Moreover, people that express humor are found more desirable for romantic relationships (Lundy et al., 1998; Tornquist & Chiappe, 2015). Expressing humor has a positive effect on romantic attraction, but only when the other is physically attractive (Lundy et al., 1998). Positive humor use is also strongly related to relationship satisfaction (Butzer & Kuiper, 2008).

Humor can make social exchanges more pleasant and rewarding. Considering social exchange theory, according to which communicators continuously weigh the costs and benefits of a social exchange, expressions with humor can add benefits to the social exchange (Thibaut & Kelley, 1959). However, whether humorous opening lines also have these positive effects in computer-mediated communication contexts is understudied. A recently published study on opening lines on Tinder

found that message humor strengthens long-term dating intentions, but not short-term dating intentions (Dai & Robbins, 2021). This study, however, did not investigate the possible effects of using humorous opening lines on perceptions of overall attractiveness of the Tinder match. This leads to the following hypothesis:

H2: When a Tinder match uses a humorous opening line, scores on (a) perceived overall attractiveness, (b) intention to reply and (c) intention to date are higher than when a Tinder match uses a non-humorous opening line.

Although we propose a positive effect of humorous opening lines on perceptions of overall attractiveness and intentions to reply and date, this effect might depend on the level of physical attractiveness. A previous study on the effectiveness of opening lines used on men by women showed that, regardless of what opening line was used, the overall rating was positive if the woman was physically attractive (Fished et al., 2020). This can be explained by the attractiveness halo effect, which causes physically attractive people to be perceived more positively than less attractive people (Berscheid & Walster, 1974). This suggests that the content of the first message is less important for impression formation when a Tinder match is physically attractive.

When a Tinder match is moderately physically attractive, this positive effect of humor is proposedly not weakened by the attractiveness halo effect. The study by Dai and Robbins (2021) showed that humor strengthens long-term dating intentions, for which physical attractiveness is less important than for short-term dating intentions (Tornquist & Chiappe 2015; Buss & Schmitt, 1993). This suggests that using humorous opening lines would be especially effective for less attractive people. This leads to the following hypothesis:

H3: The positive effect of a humorous opening line on (a) perceived overall attractiveness, (b) intention to reply and (c) intention to date, is larger when a Tinder match is moderately attractive compared to when a Tinder match is attractive.

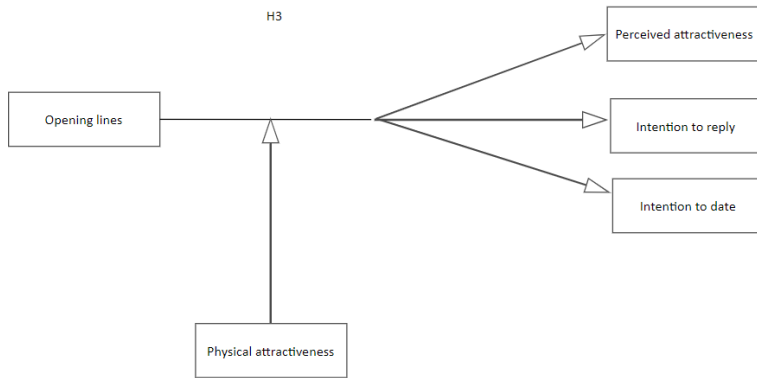


Figure 3. Conceptual model

5. Method

5.1. Participants

The participants were recruited via convenience, network and purposive sampling. Recruitment efforts were mainly performed through the social media accounts of the researcher. Even though most people in the researcher's network are Dutch, the study was performed in the English language which enabled people with different nationalities to participate. The age of the participants should approximately be between 18 and 40. In that way, the age of the participants is not too far from the estimated age of the persons in the stimuli. As this was already taken into consideration during recruitment efforts, very few participants had to be excluded ($n = 19$; i.e. only a few that were younger than 18).

A total of 243 participants took part in this study, of which 37.4% were men ($n = 91$), and 62.6% women ($n = 152$). On average, participants were 22 years old ($M = 22.18$, $SD = 3.10$). Most participants were highly educated, 52.3% have – or are currently studying to attain – a bachelor's degree from a university of applied sciences. Another 13.6% have a bachelor's degree from a university, and 22.6% have a master's degree. 7.4% have finished or are currently in secondary school, 3.3% have finished or are currently in post-secondary vocational education, and 0.4% have finished primary school. The majority of the participants had the Dutch nationality, namely 91.8% ($n = 223$), compared to 1.6% Germans ($n = 4$), 1.2% Belgians ($n = 3$), 1.2% Portuguese ($n = 3$), and 0.4% ($n = 1$) Azerbaijani, Bulgarian, Ecuadorian, Hungarian, Luxembourgish, Malaysian, Maltese, Peruvian, Swedish, and American.

Of all 243 participants, 67.5% indicated to be single ($n = 164$). Another 28.8% were in a relationship, 3.3% indicated that their relationship status was complicated and 0.4% were married. More or less half of the participants were romantically attracted to men, namely 53.3%, compared to 39.5% that were romantically attracted to women. Next to that, 7% were romantically attracted to

both men and women. Lastly, it seems that most participants have experience with Tinder or other online dating apps: 35% of the participants currently use Tinder, 44.4% have used Tinder in the past, while 2.1% of the participants indicated to currently use other online dating apps or have used other online dating apps in the past, 0.4%. From all participants, 18.1% have never used Tinder ($n = 44$).

5.2. Design

To study the extent to which physical attractiveness and humorous opening lines affect perceived overall attractiveness, intention to reply and intention to date, a 2 by 2 within-subjects experimental design was used. This design allows investigation of the effects of two independent variables, namely opening lines (i.e., humorous opening line vs. non-humorous opening line), and physical attractiveness (i.e., attractive vs. moderately attractive), on multiple dependent variables (i.e., perceived overall attractiveness, intention to reply, intention to date). Participants were exposed to a total of four different Tinder profiles, accompanied by an opening line.

5.3. Materials

The stimuli for the experiment comprises of two parts, the Tinder profiles and the screenshots of Tinder chats depicting the opening line. Both were designed to look similar to what they look like on Tinder. To enhance authenticity, names were added to the Tinder profiles. To avoid confounding variables, the names that were chosen (i.e., Tim; David; Sam; Noah; Emma; Laura; Sara; Anna) were common in both Dutch and international contexts and unlikely to have any negative connotations. *Figure 4* shows an example of the stimuli for the condition combining a photo of an attractive man with a humorous opening line. *Figure 5* shows an example of the stimuli for the condition combining a photo of a moderately attractive woman with a non-humorous opening line. All combinations of stimuli can be found in *Appendix A*.

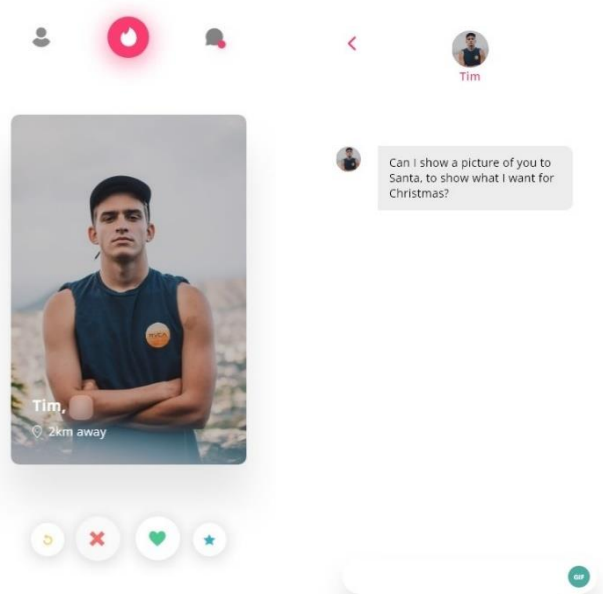


Figure 4. Example stimuli Tinder profile and chat (attractive and humorous)

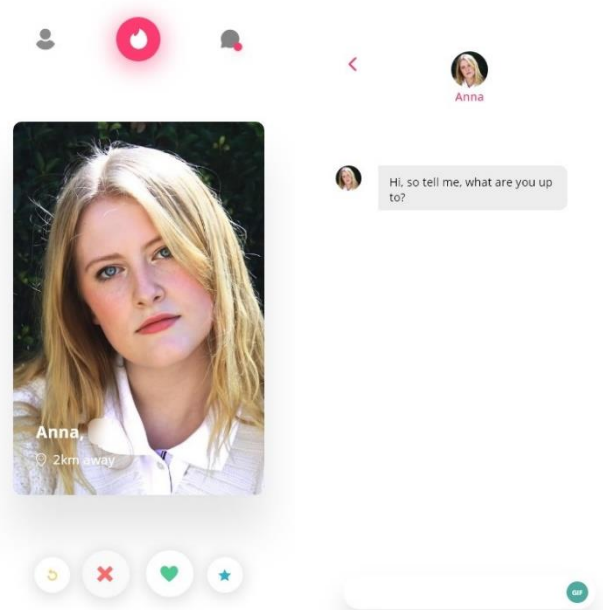


Figure 5. Example stimuli Tinder profile and chat (moderately attractive and non-humorous)

Physical attractiveness. To avoid putting too much weight on a specific picture, two attractive pictures and two moderately attractive pictures were selected for the experiment by means of a pretest. The pretest included pictures from a stock photo website, Unsplash, that allows usage and

modification for research purposes. The search term “man” yielded 34,300 search results. The first 40 pictures that had one man in it (not wearing sunglasses, looking in the camera) were included in the pretest. The search term “woman” yielded 46,400 search results. The same applied for the first 40 pictures with a woman.

Participants ($N = 22$) of the pretest were exposed to pictures depending on their indicated sexual preference. The participants romantically attracted to men ($n = 10$) saw 40 pictures of men, the participants romantically attracted to women ($n = 10$) saw 40 pictures of women, and the participants romantically attracted to both men and women ($n = 2$) saw 40 pictures of men and 40 pictures of women. The participants rated how physically attractive they found the person in the photo, on a ten-point Likert scale (1 = very unattractive; 10 = very attractive). The full pretest can be found in *Appendix C*.

The pictures for the experiment were selected based on the mean scores and the medians. The mean scores for the 40 pictures of men ranged between 2.42 ($SD = 2.64$) and 7.58 ($SD = 1.24$). The two highest mean scores were 7.58 ($SD = 1.24$) and 7.42 ($SD = 1.38$), and these were thus selected for the experiment. The two moderately attractive pictures of men had means of 5.00 ($SD = 2.22$) and 4.92 ($SD = 2.61$), which are close to the mean of all means ($M = 4.91$, $SD = 1.50$) and the median of 5. A t -test showed a statistically significant difference in the scores on perceived physical attractiveness between the attractive pictures of men ($M = 7.50$, $SD = 1.15$) and the moderately attractive pictures of men ($M = 4.96$, $SD = 2.26$), $t(11) = 4.79$, $p = .001$.

The same was done to select the two attractive and moderately attractive pictures of women. The mean scores for the 40 pictures of women ranged between 4.50 ($SD = 1.57$), and 7.67 ($SD = 0.78$). The two highest mean scores were 7.67 ($SD = 0.78$) and 7.58 ($SD = 1.24$), and these were thus selected for the experiment. The two moderately attractive pictures of women had means of 6.50 ($SD = 0.80$) and 6.42 ($SD = 1.24$), which are close to the mean of all means ($M = 6.37$, $SD = 0.57$) and the medians of 6.5 and 6. A t -test showed a statistically significant difference in the scores on

perceived physical attractiveness between the pictures of attractive women ($M = 7.63$, $SD = 0.80$) and the pictures of moderately attractive women ($M = 6.46$, $SD = 0.86$), $t(11) = 3.92$, $p = .002$.

Opening lines. In the experiment, participants were exposed to a total of four gender neutral opening lines, of which two were humorous and two were non-humorous. As verbal humor seems highly context-related (Mitchell et al., 2010), a sample of different opening lines was drawn instead of making a humorous and non-humorous version of the same sentence. To avoid confounding variables, these opening lines were selected with the requirement of similarity on aspects such as length – all had between eight and fifteen words. A pretest was conducted to determine which opening lines were used in the experiment, which is further elaborated on below.

The pretest included 16 opening lines that were collected through the Tinder subtopic on Reddit¹, in which everything related to Tinder is posted – including screenshots of Tinder conversations that Reddit users find worth sharing. This guarantees that the opening lines are actually used on Tinder, which enhances the ecological validity of the experiment. To ensure that the sample of opening lines for the pretest is diverse, the categories of opening lines as defined by prior studies that study opening lines in face-to-face contexts (Kleinke et al., 1986; Senko, & Fyffe, 2010; Weber et al., 2010; Fisher et al., 2020) were used as a framework. Including a diverse sample of categories of opening lines in the pretests helps define which categories of opening lines are perceived as humorous. The pretest included three direct introduction opening lines, three direct compliment opening lines, five innocuous opening lines and five flippant opening lines.

Participants ($N = 21$) of the pretest were exposed to 16 opening lines one by one, in randomized order to avoid sequence effects. For each opening line, the participants rated how funny they found the opening line, on a ten-point Likert scale (1 = not funny at all; 10 = very funny). The full pretest can be found in *Appendix D*.

¹ <https://www.reddit.com/r/Tinder/>

The opening lines for the experiment were selected based on the mean scores and the medians. The mean scores for the opening lines ranged between 1.58 ($SD = 1.17$) and 5.05 ($SD = 2.39$). The two opening lines that were perceived as least funny, and which were thus selected as the opening lines for the non-humorous condition, were “*Hi, how is your day going this far?*” ($M = 1.58, SD = 1.17$) and “*Hi, so tell me, what are you up to?*” ($M = 1.84, SD = 1.12$), and were close to the medians of 1 and 2. The opening lines that were perceived as most funny were “*Can I show a picture of you to Santa, to show what I want for Christmas?*” ($M = 5.05, SD = 2.39$) and “*Do you live in Scandinavia? Because you shine as bright as the northern lights.*” ($M = 5.00, SD = 2.47$), and were close to the medians of 6 and 5. A t -test showed a statistically significant difference in the scores on perceived humor between the humorous opening lines ($M = 5.03, SD = 2.06$) and the non-humorous opening lines ($M = 1.71, SD = 1.07$), $t(18) = 6.83, p < .001$.

5.4. Procedure

The experiment is conducted through survey software program Qualtrics. The full experiment can be found in *Appendix E*. The first page of the experiment consists of some information about the study, explaining what participation in the study entails. If participants agreed to participate in this study by clicking on the “I consent” button, they first had to answer some questions regarding their sociodemographic characteristics, including age, nationality, educational level, gender, and sexual orientation. Next, they were asked to answer two general questions, regarding their relationship status and Tinder use.

Then, the experiment started. Participants were asked to imagine that they use Tinder and have a new match. The match reaches out by sending a message. The participants were exposed to a total of four combinations of Tinder profiles including a picture, which was accompanied by an opening line. The combinations were shown in randomized order to avoid sequence effects. Whether they saw profiles with opening lines of men or women was determined based on the indicated sexual

preference of the participants. Participants who indicated to feel romantically attracted to both men and women were also presented with four profiles, of which two were of men and two were of women. Participants romantically attracted to both genders were randomly assigned to one of two lists. For each Tinder profile, participants answered twelve Likert-type statements on perceived overall attractiveness, intention to reply, intention to date, and perceived sense of humor. After all four profiles with opening lines were assessed, participants were thanked and debriefed.

5.5. Measures

Perceived overall attractiveness. Perceived overall attractiveness was measured based on the McCroskey and McCain (1974) Measurement of Interpersonal Attraction Scale. This scale originally consists of three subscales, namely social attraction, physical attraction, and task attraction. For the purpose of this study, only the subscales from social and physical attraction were taken into account, and the scale items were slightly modified to fit the aim of the current study. The scale consists of six items, three from the social attraction subscale (e.g., “I think he/she could be a friend of mine.”), and another three from the physical attraction subscale (e.g., “I find him/her very attractive physically.”). The scale was measured on a seven-point Likert-type scale (1 = strongly agree; 7 = strongly disagree), and was found reliable ($\alpha = .77$).

Intention to reply. Intention to reply was measured based on Warshaw’s and Davis’ (1985) behavioral expectation scale. The authors defined behavioral expectation as “the individual’s estimation of the likelihood that he or she actually will perform some specified future behavior.” (Warshaw, & Davis, 1985, p. 215). The scale was constructed to fit the aim of the current study. The scale was measured on a seven-point Likert-type scale (1 = strongly agree; 7 = strongly disagree), and it consists of three items (e.g., “It is likely that I would reply to the message”). The scale was found reliable ($\alpha = .93$).

Intention to date. Intention to date was measured based on Foster's, Witcher's, Campbell's, and Green's (1998) definition of romantic attraction, "a desire to be romantically involved with the target." (p. 90). Although romantic attraction is measured in the overall attractiveness dependent variable, this existing scale is still believed to be a good fit to measure intention to date. As an example of a measurement item, the authors mention: "How much would you like to date the target?" (p. 90). This scale was later used for many other studies, including one by Campbell (1999), and it was modified to fit the aim of the current study. The scale was measured on a seven-point Likert-type scale (1 = strongly agree; 7 = strongly disagree), and it consists of three items to (e.g., "I would like to date him/her). The scale was found reliable ($\alpha = .80$).

Perceived sense of humor. The measurement of perceived sense of humor was based on Thorson's, and Powell's Multidimensional Sense of Humor Scale (1991). This scale originally consists of 24 items measured on a five-point Likert scale. Two of these 24 items were selected for the current experiment and these were slightly adapted to fit the aim of this study. The scale was measured on a seven-point Likert-type scale (1 = strongly agree; 7 = strongly disagree), and it consists of two items (e.g., "I think he/she has humor). The scale was found reliable ($\alpha = .95$).

For all measures, the items were later recoded for data analysis purposes – except for the scale items that are negations. For all further analyses, the recoded scale was used, in which 1 refers to strongly disagree, and 7 to strongly agree. All scale items can be found in *Appendix A*.

5.6. Statistical Analyses

The statistical analyses for the experiment were performed using IBM SPSS Statistics version 26. To test the hypotheses, a multivariate analysis of variance (MANOVA) with physical attractiveness and opening sentences as independent variables, and overall attractiveness, intention to reply, and intention to date as dependent variables, was performed. Before conducting the analysis, the dataset was restructured so that each observation of a Tinder profile with accompanying opening line was

listed as a separate case in the dataset. This means that the dataset comprises of four observations (i.e., cases) per participant. Since the observations are not independently sampled, the participant number was included as a covariate in the analysis.

In addition, two types of explorative analyses were performed. A MANOVA was run to check whether the effects of opening lines differed depending on participant's gender. Moreover, mediation analyses were performed with the PROCESS v3.4 extension (Hayes, 2013; model 4) to investigate whether perceived sense of humor functions as a mediator of the relationship between opening lines and overall attractiveness, intention to reply, and intention to date.

6. Results

6.1. Manipulation Checks

Physical attractiveness. The results of the *t*-test showed that profile owners with attractive pictures were rated as more physically attractive ($M = 5.44$, $SD = 1.11$) than profile owners with moderately attractive pictures ($M = 4.50$, $SD = 1.38$), $t(924.64) = 11.71$, $p < .001$, 95% CI [0.78, 1.10], $d = 0.75$.

Opening lines. The results of the *t*-test showed that humorous opening lines led to higher ratings of perceived sense of humor ($M = 4.71$, $SD = 1.39$) than the non-humorous opening lines ($M = 3.87$, $SD = 1.18$), $t(945) = 10.12$, $p < .001$, 95% CI [0.68, 1.00], $d = 0.65$. This is not a direct manipulation check, as the perceived sense of humor scale measures the sense of humor of the person in the Tinder profile, but not specifically the level of humor of the opening line.

6.2. MANOVA

For the MANOVA, the dependent variables should be normally distributed for each condition. For the dependent variable perceived overall attractiveness, there are issues with the skewness in all conditionsⁱ, and there is an issue with the kurtosis in one conditionⁱⁱ. For the dependent variable intention to reply, there are issues with the skewness in three conditionsⁱⁱⁱ, and issues with the kurtosis in three conditions^{iv}. For the dependent variable intention to date, there are with the skewness in two conditions^v, and issues with the kurtosis in two conditions^{vi}. For the MANOVA, the variances in the dependent variables should be equal across all level of the independent variables. There are issues with the assumption of homogeneity of variance for perceived overall attractiveness ($F(7,963) = 6.34$, $p < .001$), intention to reply ($F(7,963) = 7.32$, $p < .001$), and intention to date ($F(7,963) = 2.29$, $p = .026$). Considering the fact that the MANOVA is fairly robust against these violations, and this study's sample size, the results should still be reliable. The MANOVA showed

no significant effect of the covariate, participant number, on the dependent variables ($\Lambda = 0.997$, $F(3,960) = 1.03$, $p = .380$).

Table 1

Means and standard deviations per condition for all dependent variables.

	Attractive		Moderately attractive	
	Non-humorous	Humorous	Non-humorous	Humorous
Overall attractiveness	5.23 (0.79)	4.87 (1.10)	4.43 (0.97)	4.63 (1.14)
Intention to reply	5.14 (1.21)	4.77 (1.63)	4.10 (1.46)	4.35 (1.66)
Intention to date	4.81 (1.13)	4.48 (1.41)	3.66 (1.30)	4.11 (1.43)
Perceived sense of humor	3.97 (1.10)	4.84 (1.36)	3.78 (1.26)	4.58 (1.41)

Hypothesis 1 proposed that Tinder matches with an attractive picture scores higher on overall attractiveness, intention to reply, and intention to date than Tinder matches with a moderately attractive picture. The MANOVA showed a significant effect of picture attractiveness on overall attractiveness, $F(1,966) = 64.56$, $p < .001$, partial $\eta^2 = 0.06$, intention to reply, $F(1,966) = 57.71$, $p < .001$, partial $\eta^2 = 0.06$, and intention to date, $F(1,966) = 79.98$, $p < .001$, partial $\eta^2 = 0.08$. Tinder matches with an attractive picture were perceived as more attractive ($M = 5.05$, $SD = 0.97$) than Tinder matches with a moderately attractive picture ($M = 4.53$, $SD = 1.06$). Moreover, Tinder matches with an attractive picture generated stronger intentions to reply ($M = 4.96$, $SD = 1.44$) than Tinder matches with a moderately attractive picture ($M = 4.22$, $SD = 1.57$). Tinder matches with an

attractive picture generated stronger intentions to date than Tinder matches with a moderately attractive picture. Thus, Hypothesis 1 is supported.

Hypothesis 2 proposed that when a Tinder match uses a humorous opening line, scores on overall attractiveness, intention to reply, and intention to date, are higher than when a Tinder match uses a non-humorous opening line. The MANOVA did not show a positive effect of humorous opening lines on perceived overall attractiveness, $F(1,966) = 1.58, p = .209$, intention to reply, $F(1,966) = 0.42, p = .517$, and intention to date, $F(1,966) = 0.44, p = .508$. Tinder matches that use a humorous opening line were not perceived as more attractive ($M = 4.75, SD = 1.13$) than Tinder matches that use a non-humorous opening line ($M = 4.83, SD = 0.97$). Moreover, Tinder matches that use a humorous opening line did not generate stronger intentions to reply ($M = 4.56, SD = 1.66$) than Tinder matches that use a non-humorous opening line ($M = 4.62, SD = 1.44$). Tinder matches that use a humorous opening line did not generate stronger intentions to date ($M = 4.29, SD = 1.43$) than Tinder matches that use a non-humorous opening line ($M = 4.24, SD = 1.34$). Thus, Hypothesis 2 is not supported.

Hypothesis 3 proposed that the positive effect of a humorous opening line on perceptions of attractiveness, intention to reply and intention to date would be stronger when a Tinder match is moderately attractive than when a Tinder match is attractive. The MANOVA showed a significant interaction effect of physical attractiveness and opening lines on overall attractiveness, $F(1,966) = 18.25, p < .001$, partial $\eta^2 = 0.02$, intention to reply, $F(1,966) = 10.22, p = .001$, partial $\eta^2 = 0.01$, and intention to date, $F(1,966) = 20.87, p < .001$, partial $\eta^2 = 0.02$. Simple effects analyses were performed to further interpret this interaction effect.

Results of simple effect analyses for overall attractiveness showed that when a Tinder match is attractive, using humorous opening lines leads to lower ratings on overall attractiveness ($M = 4.87, SD = 1.10$) than using non-humorous opening lines ($M = 5.23, SD = 0.79$), $F(1,967) = 15.28, p < .001$, partial $\eta^2 = 0.02$. On the contrary, when the Tinder match is moderately attractive, using

humorous opening lines leads to higher ratings on overall attractiveness ($M = 4.63$, $SD = 1.14$) than using non-humorous opening lines ($M = 4.43$, $SD = 0.97$), $F(1,967) = 4.52$, $p = .034$, partial $\eta^2 = 4.65$. This interaction effect is also illustrated in *Figure 6*. This suggests that using humorous opening lines only affects perceptions of overall attractiveness positively when the Tinder match is moderately attractive, but not when the profile owner's picture is attractive.

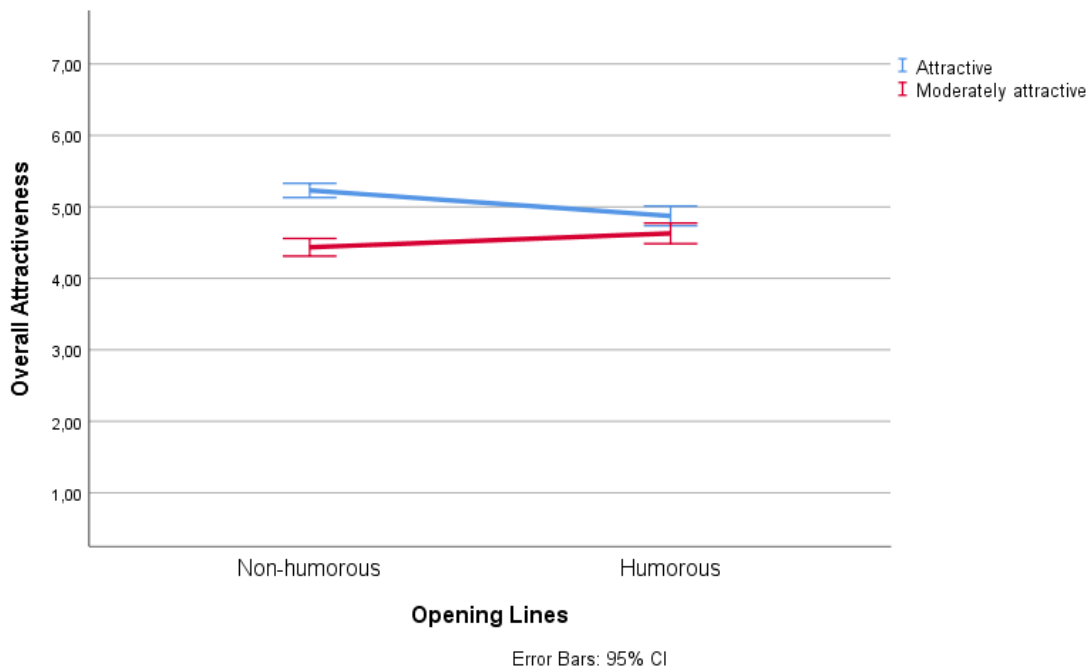


Figure 6. Line graph of the interaction effect of opening lines and physical attractiveness on overall attractiveness

Results of simple effect analyses for intention to reply showed that when a Tinder match is attractive, using humorous opening lines leads to lower ratings on overall attractiveness ($M = 4.81$, $SD = 1.13$) than using non-humorous opening lines ($M = 5.14$, $SD = 1.21$), $F(1,967) = 7.40$, $p = .007$, partial $\eta^2 = 7.59$. When the Tinder match is moderately attractive, using humorous opening lines does not lead to significantly higher ratings on intention to reply ($M = 4.35$, $SD = 1.66$) than using non-humorous opening lines ($M = 4.10$, $SD = 1.46$), $F(1,967) = 3.23$, $p = .072$. This effect is also illustrated in *Figure 7*.

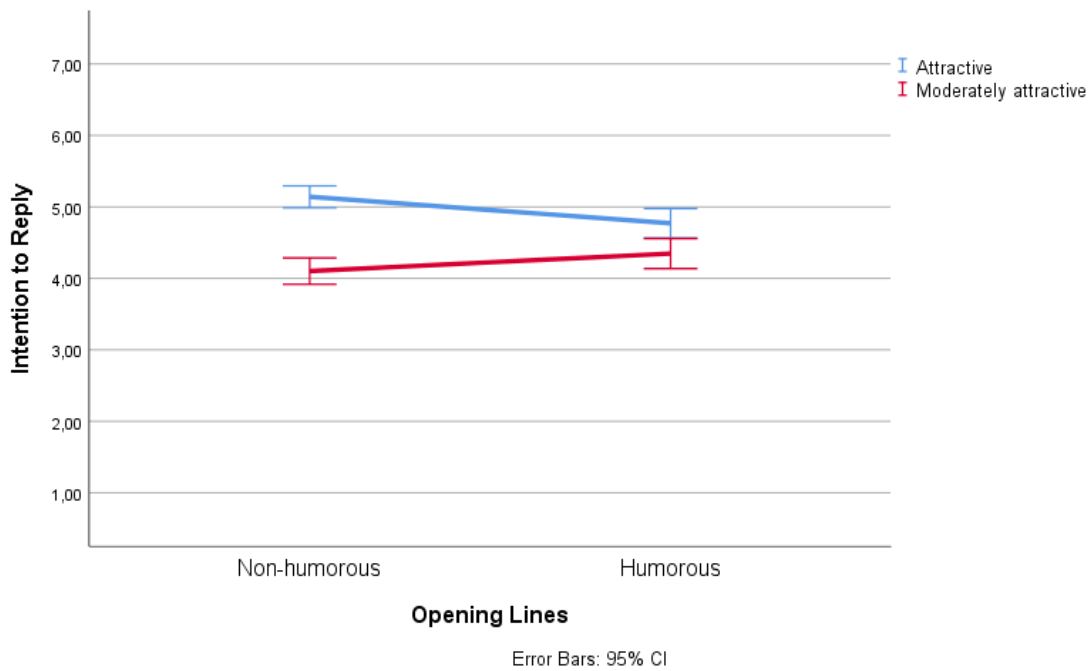


Figure 7. Line graph of the interaction effect of opening lines and physical attractiveness on intention to reply

Results of simple effect analyses for intention to date showed that when a Tinder match is attractive, using humorous opening lines leads to lower ratings on intention to date ($M = 4.48$, $SD = 1.41$) than using non-humorous opening lines ($M = 4.81$, $SD = 1.13$), $F(1,967) = 7.64$, $p = .006$, partial $\eta^2 = 7.84$. When the Tinder match is moderately attractive, using humorous opening lines leads to higher ratings on intention to date ($M = 4.11$, $SD = 1.43$) than using non-humorous opening lines ($M = 3.66$, $SD = 1.30$), $F(1,967) = 13.67$, $p < .001$, partial $\eta^2 = 0.01$. This interaction effect is also illustrated in *Figure 8*. This suggests that using humorous opening lines only strengthens intentions to date when the Tinder match is moderately attractive, but not when the profile owner's picture is attractive.

To conclude, the interaction effects are different than was hypothesized. Therefore, hypothesis 3 is not supported.

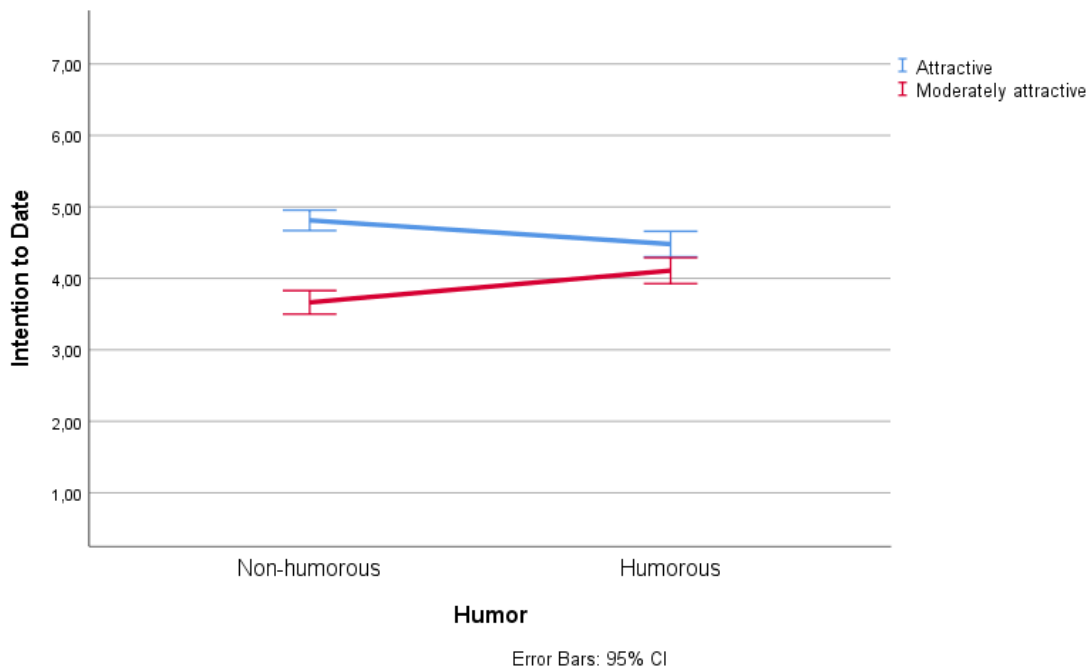


Figure 8. Line graph of the interaction effect of opening lines and physical attractiveness on intention to date

6.3. Additional Analyses

An additional analysis was carried out to investigate whether the effects of opening lines on overall attractiveness, intention to reply, and intention to date, differ among men and women (i.e., the gender of the receiver of the message with the opening line). To do so, another MANOVA was ran, with opening lines and gender as independent variables.

Although the MANOVA showed that using a humorous opening line does not positively affect perceptions of overall attractiveness, and intentions to reply and date (contra H2), a significant interaction effect of opening lines and gender was found on overall attractiveness, $F(1,966) = 14.34$, $p < .001$, partial $\eta^2 = 0.01$, intention to reply, $F(1,966) = 12.05$, $p = .001$, partial $\eta^2 = 0.01$, and intention to date, $F(1,966) = 6.24$, $p = .013$, partial $\eta^2 = 0.01$. Simple effects analyses were performed to further interpret this interaction effect.

Results of simple effect analyses for overall attractiveness showed that when the receiver of the message is a man, using humorous opening lines leads to higher ratings of overall attractiveness ($M = 5.20$, $SD = 0.97$) than using non-humorous opening lines ($M = 4.96$, $SD = 1.01$), $F(1,967) = 4.92$, $p = .027$, partial $\eta^2 = 5.06$. On the contrary, when the receiver of the message is a woman, using humorous opening lines leads to lower ratings of overall attractiveness ($M = 4.48$, $SD = 1.13$), than using non-humorous opening lines ($M = 4.76$, $SD = 0.94$), $F(1,967) = 10.98$, $p = .001$, partial $\eta^2 = 0.01$. This interaction effect is also illustrated in *Figure 9*. This suggests that using humorous opening lines only affects perceptions of overall attractiveness positively when sent to men, but not to women.

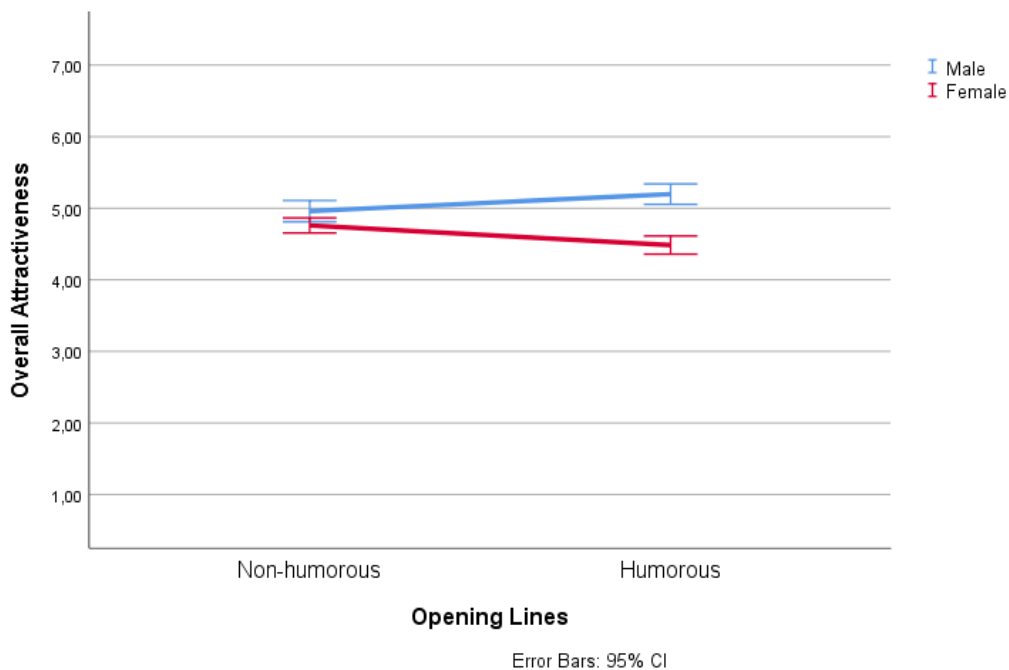


Figure 9. Line graph of the interaction effect of opening lines and gender on overall attractiveness

Results of simple effect analyses for intention to reply showed that when the receiver of the message is a man, using humorous opening lines leads to higher intentions to reply ($M = 5.45$, $SD = 1.23$), than using non-humorous opening lines ($M = 5.09$, $SD = 1.27$), $F(1,967) = 5.37$, $p = .021$, partial $\eta^2 = 5.52$. On the contrary, when the receiver of the message is a woman, using humorous

opening lines leads to lower intentions to reply ($M = 4.03$, $SD = 1.65$), than using non-humorous opening lines ($M = 4.34$, $SD = 1.46$), $F(1,967) = 7.14$, $p = .008$, partial $\eta^2 = 7.33$. This interaction effect is also illustrated in Figure 10. This suggests that using humorous opening lines only affects intentions to reply positively when sent to men, but not to women.

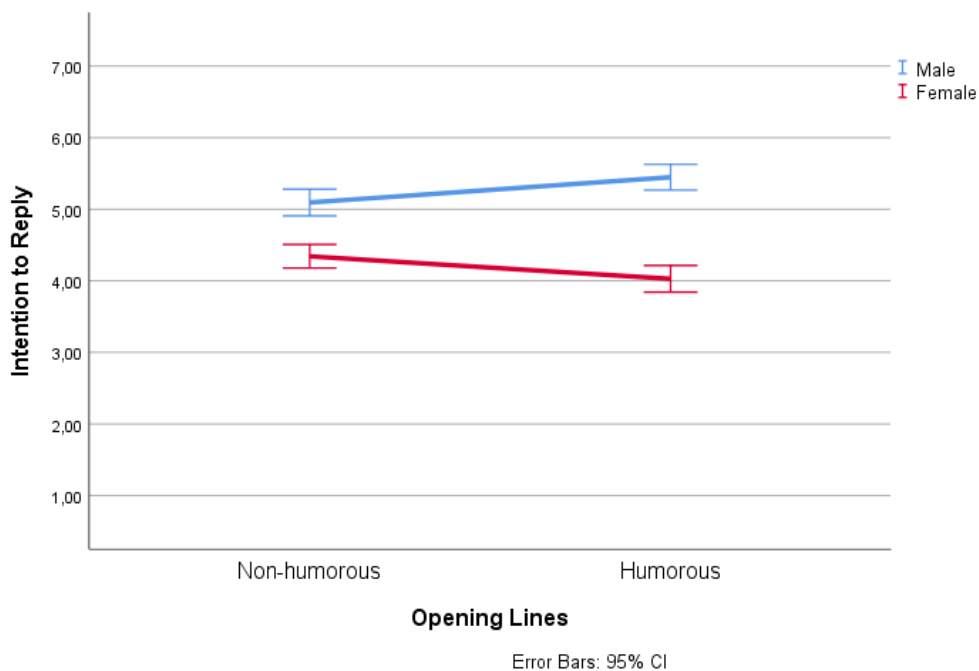


Figure 10. Line graph opening lines and gender on intention to reply

Results of simple effect analyses for intention to date showed that when the receiver of the message is a man, using humorous opening lines leads to higher intentions to date ($M = 5.01$, $SD = 1.23$), than using non-humorous opening lines ($M = 4.69$, $SD = 1.28$), $F(1,967) = 5.61$, $p = .018$, partial $\eta^2 = 5.77$. On the contrary, when the receiver of the message is a woman, using humorous opening lines leads to very slightly lower intentions to date ($M = 3.86$, $SD = 1.37$), than using non-humorous opening lines ($M = 3.97$, $SD = 1.31$). However, this difference was not statistically significant, $F(1,967) = 1.04$, $p = .308$. This effect is also illustrated in Figure 11.

To conclude, these results show a gender difference between perceptions of overall attractiveness and intentions to reply and date between humorous and non-humorous opening lines. The results suggest that humorous opening lines work well on men, but not on women.

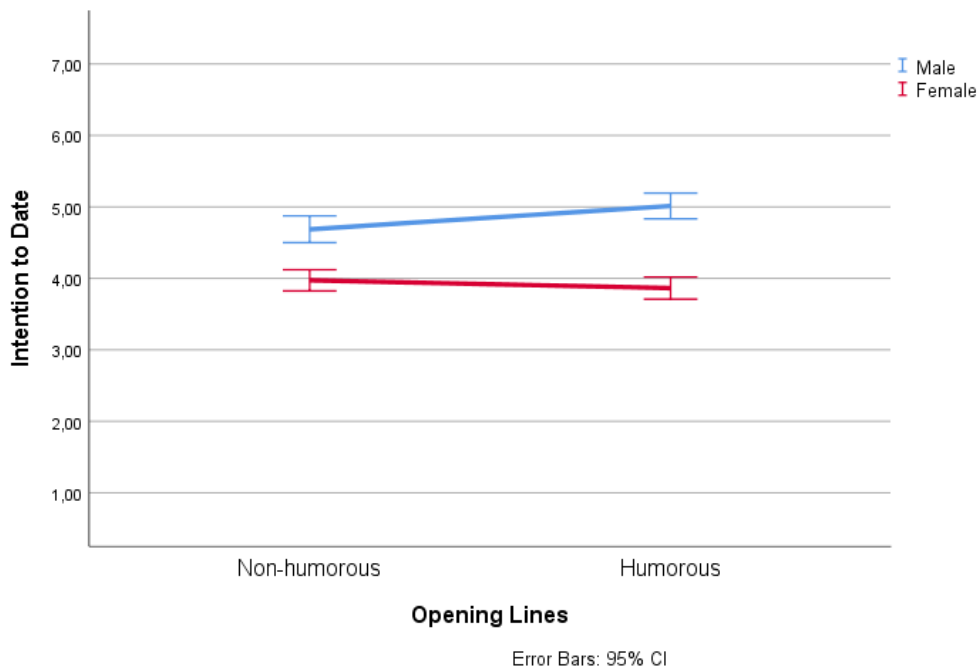


Figure 11. Line graph opening lines and gender on intention to date

Next to this, simple mediation analyses were performed to investigate whether the relationship between humorous opening lines and overall attractiveness, intention to reply, and intention to date is mediated by perceived sense of humor. For each of the three dependent variables, a separate mediation analysis was performed with model 4 of the PROCESS v3.4 extension by Andrew F. Hayes. All assumptions were met.

The analysis showed that humorous opening lines are a significant predictor of perceived sense of humor, $b = .84$, $SE = .08$, $p < .001$. Perceived sense of humor partially mediated the relationship between humorous opening lines and overall attractiveness, $b = .34$, $SE = .04$, BCa CI: [0.260, 0.416], intention to reply, $b = .54$, $SE = .06$, BCa CI: [0.427, 0.668], and intention to date, $b = .39$, $SE = .03$, BCa CI: [0.300, 0.485]. After controlling for the mediator perceived sense of humor, opening lines is still a significant predictor of overall attractiveness, $b = -.42$, $SE = .06$, $p < .001$, intention to reply, $b = -.61$, $SE = .09$, $p < .001$, and intention to date, $b = -.34$, $SE = .08$, $p < .001$. This suggests that the use of humorous opening lines positively affects perceived sense of humor, which in turn

positively affects overall attractiveness, intentions to reply, and intentions to date. This partial mediation effect is also illustrated in *Figure 12*.

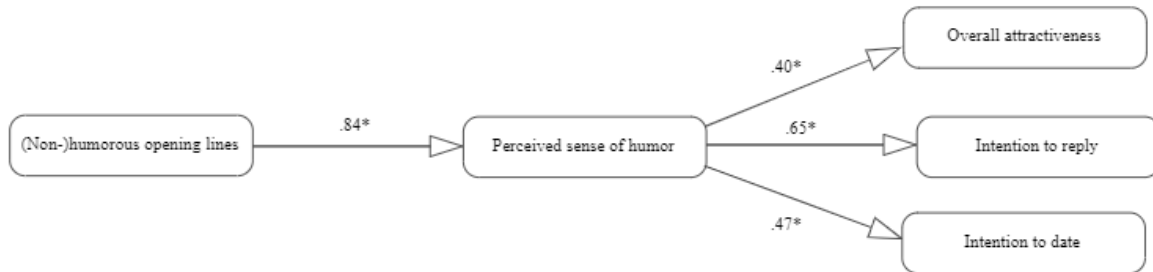


Figure 12. Results of the three mediation analyses displaying perceived sense of humor mediating (a) overall attractiveness, (b) intention to reply, and (c) intention to date. The coefficients represent the unstandardized coefficients.

7. Discussion

The current study is one of the first attempts to study the use of opening lines in online dating contexts, along with two previous studies of which one was only recently published (Sharabi & Dykstra-DeVette, 2019; Dai & Robbins, 2021). It has added to the existing body of literature on strategies to initiate conversations with romantic interests, especially because it has extended opening lines research to computer-mediated communication settings, namely online dating app Tinder.

An experiment was conducted to investigate whether the positive effect of a humorous opening line on perceived overall attractiveness, intention to reply and intention to date is larger when a Tinder match is moderately attractive than when a Tinder match is attractive. Picture attractiveness (attractive vs. moderately attractive picture) and opening lines (humorous vs. non-humorous opening line) were manipulated. MANOVA's were performed to analyze the results.

7.1. Findings

In accordance with the first hypothesis, scores on overall attractiveness, intention to reply, and intention to date, were higher when a Tinder match has a physically attractive picture than when a Tinder match has a moderately attractive picture. This confirms the findings of an extensive body of research emphasizing the importance of physical attractiveness for romantic interest, which show that higher levels of physical attractiveness correspond with higher levels of romantic attraction (e.g., Zhang et al., 2018; Toma, & Hancock, 2010; Schöndienst, & Dang-Xuan, 2011). Moreover, it is in line with a recently published study which found that perceived physical attractiveness, and positive traits such as intelligence, of the person in the online dating profile are strong predictors for dating intentions (Dai & Robbins, 2021).

In contrast with the second hypothesis, this study shows that humorous opening lines do not lead to higher scores on overall attractiveness, intention to reply, and intention to date, than non-

humorous opening lines. This is in line with the study by Dai and Robbins (2021), which also found no main effect of message humor on short-term dating intentions. However, they did find that long-term dating intentions were stronger when the message was humorous. Although the MANOVA did not show a main effect of humorous opening lines on the three dependent variables, the simple mediation analysis did find a direct effect of the humorous opening lines.

The third hypothesis proposed that the positive effect of a humorous opening line on overall attractiveness, intention to reply, and intention to date, would be stronger when a Tinder match has a moderately attractive picture compared to when a Tinder match has an attractive picture. Although an interaction effect was found, the direction of this interaction effect was different than expected. We found that when a Tinder match is moderately attractive, humorous opening lines positively affect impression formation, whereas it negatively affects impressions and intentions when a profile owner's picture is attractive.

An additional analysis showed that where humorous opening lines positively affect perceptions of men, they negatively affect women's perceptions of attractiveness, dating intention, and intention to reply. Another additional mediation analysis showed that perceived sense of humor of the Tinder match mediated the relationship between humorous opening lines and each of the three dependent variables. In such a way that a humorous opening line leads to higher scores on perceived sense of humor, which, in turn, leads to higher scores on overall attractiveness, intention to reply, and intention to date.

7.2. Theoretical Implications

This study has several theoretical implications. First, the results of this study suggest that humor in opening lines alone does not directly affect perceptions of overall attractiveness, intention to reply, and intention to date. Using humorous opening lines does not guarantee success on online dating apps, rather it is dependent on other factors, such as perceptions of a Tinder match, physical

attractiveness and gender. The relationship between humorous opening lines and the three dependent variables is partially mediated by perceived sense of humor. This indicates that humorous opening lines per se do not always have positive effects on overall attractiveness and intentions to reply and date, but they do affect perceptions of a Tinder match, e.g., sense of humor.

Second, The effectiveness of a humorous opening line seems to depend on the attractiveness of a profile picture. This suggests that humor may not always be effective (for everyone), but varies dependent on the attractiveness of the picture: a humorous opening lines only prevails when a Tinder match is moderately attractive. Apparently, Tinder users are influenced by the picture in the dating profile for the interpretation of opening lines. This gives more insight into how impression formation in online dating contexts works. It suggests that visual cues, as in pictures, have a large influence on the perceptions of textual cues that Tinder users are exposed to at a later stage. This could mean that people have higher expectations for Tinder users with attractive pictures. Considering the positive perceptions that go along with physical attractiveness (Berscheid & Walster, 1974), Tinder users might expect their attractive match to have an appealing personality and a good sense of humor. Perhaps the humorous opening lines are not perceived as humorous due to these high expectations. On the other hand, it could mean that people value humorous opening lines more when used by people with moderately attractive pictures, because they are expected to compensate for their lower level of physical attractiveness.

Third, especially Tinder users that are romantically attracted to women should feel hesitant to use humorous opening lines, as non-humorous opening lines are found more effective than humorous opening lines when used on women. Considering that the humorous opening lines in this experiment were flippant opening lines, it may be that these work less well on women. A previous study has found that men are more likely to use flippant opening lines than women (Sharabi & Dykstra-DeVette, 2019). It could be that women are thus more familiar with these flippant opening lines and do not find them very original. It could also be that men are less critical towards opening lines,

because they find it refreshing that they do not have to start the conversation. A previous study has shown that men more often start conversations in online dating contexts than women (Sharabi & Dykstra-DeVette, 2019; Schöndienst & Dang-Xuan, 2011). Another study on the effectiveness of opening lines used on men by women showed that, regardless of the opening line, the overall rating was positive if the woman was physically attractive (Fished et al., 2020). Clearly, men heavily base impressions of women on their physical attractiveness, to the extent at which humorous opening lines the positive effects on women as they do on men. In that sense, we can conclude that women are more critical towards opening lines than men.

7.3. Limitations and Future Research

This study has some limitations and suggestions for future research. Due to the experimental design of this study, participants did not have a swipe process as they would when they would use Tinder in real-life. Although the pretests defined which pictures were used as stimuli for the attractive and moderately attractive conditions, it is uncertain whether the participants of the experiment would have swiped right in real-life. Future studies could perform an experiment during which participants are exposed to different Tinder profiles with pictures. For each Tinder profile, participants choose whether they swipe left or swipe right. When they swipe right, they are exposed to the opening line. In that way, the experiment would include the swipe process similar as in real-life Tinder use.

Instead of manipulating the same opening line into two variants for this experiment, different opening lines were used for the different conditions because verbal humor seems highly context-related (Mitchell et al., 2010). Therefore, it cannot entirely be excluded that there are other factors that have caused the difference in the three dependent variables. It could be that the humorous opening lines are perceived as more shallow and difficult to respond to, whereas the non-humorous opening lines seem more serious displays of interest in getting to know a potential romantic partner.

The different types of opening lines were also not exactly the same in length, because this was difficult to achieve when sampling opening lines that can actually be used in online dating contexts. A previous study has shown that women prefer to receive longer messages, whereas men prefer shorter ones (Schöndienst & Dang-Xuan, 2011). Therefore, the length of the opening lines could also be of influence. In future research, a between-subjects design could allow for the manipulations for the different conditions to be similar in the sense that the same sentence is altered into two variants. In that way, any confounding factors can be ruled out with more confidence. However, this would make the design more susceptible to individual differences between participants. If future studies were to replicate the current study's findings with a different experimental design, overall confidence in the findings is enhanced.

The opening lines that were selected for the humorous opening lines condition, based on the results of the pretest, were both flippant opening lines. Flippant opening lines might be perceived as clichés. The highest mean score for the opening lines in the pretest was 5.05 ($SD = 2.39$), on a scale from 1 to 10. Although the two humorous opening lines selected for the experiment were the most humorous from the entire sample of opening lines, they were not very humorous. Moreover, there might be other forms of humorous opening lines that are used. Future studies could distinguish these other categories of humorous opening lines by analyzing real-world data. Taking a qualitative approach, researchers could analyze authentic online dating app conversations and distinguish categories of (humorous) opening lines. Perhaps the effects of other forms of humorous opening lines are different. We presume that humorous opening lines might work better when it is related to something personal on the other Tinder user's profile. Besides that, humor can also be expressed through sharing GIFs or songs through Tinder, which has not been studied before.

Although this study has provided insight into effects of humorous opening lines on perceptions of attractiveness and intentions to reply and date, it remains unclear how interactions progress after this first message. Future research could be longitudinal in the sense that they could investigate how

intimate relationships develop past the first message. These studies could map the types of responses that follow after an opening line. It could be that humorous opening lines also trigger humorous responses. Ultimately, it would also be interesting to investigate how the use of humor in Tinder conversations is related to the further development of the relationship, such as the point at which modality switching takes place.

Future studies could also take cultural background with regards to gender norms into consideration. This study has found a gender effect, which could indicate that the effectiveness of certain opening lines is related to gender norms. Considering that the great majority of the participants were Dutch, the sample of this study is quite homogeneous. Studying cultural background with regard to gender norms was beyond the scope of the current study. However, it could be an interesting angle for future research. We would presume that in other cultures, in which emancipation of women is less present, opening lines sent by women are rarely perceived positively. Future studies could make a comparison between two cultures that have different gender norms, to investigate whether the effects found in the current study would replicate in such cultures.

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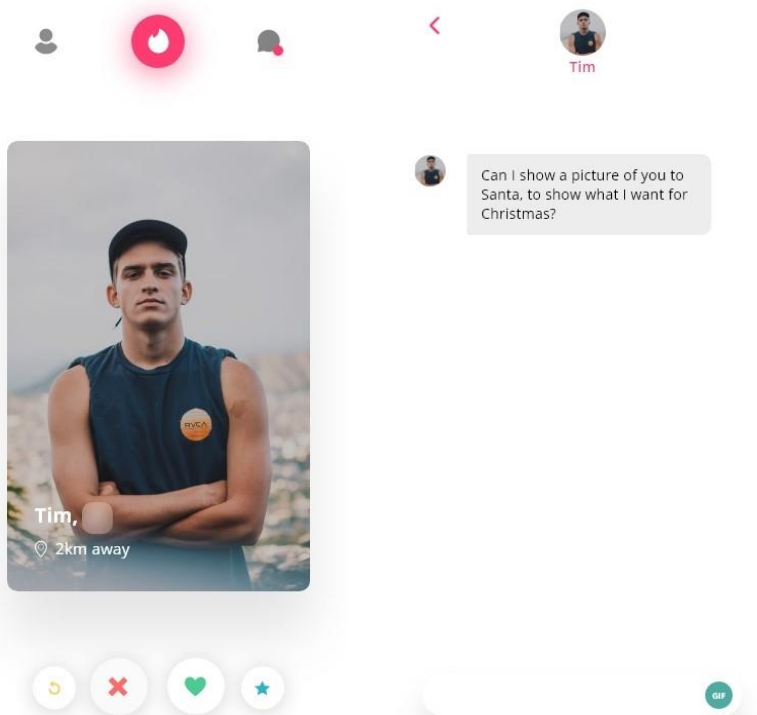
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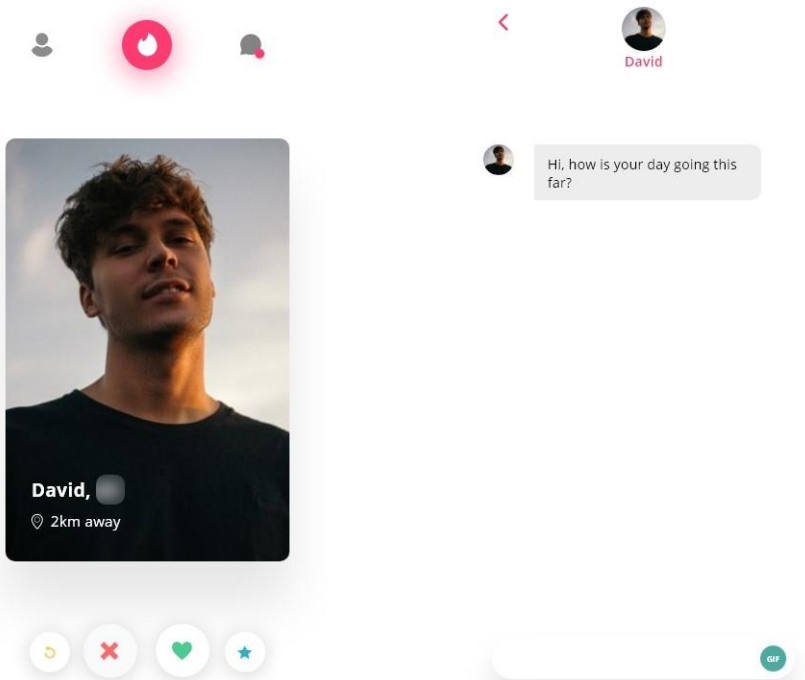
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9. Appendix A. Combinations of Stimuli

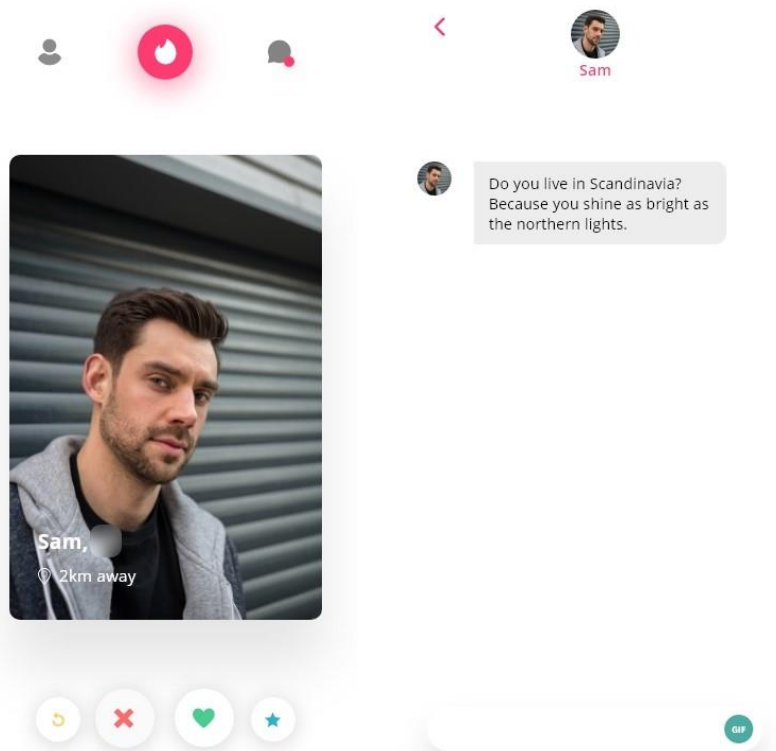
Attractive man x humorous opening line



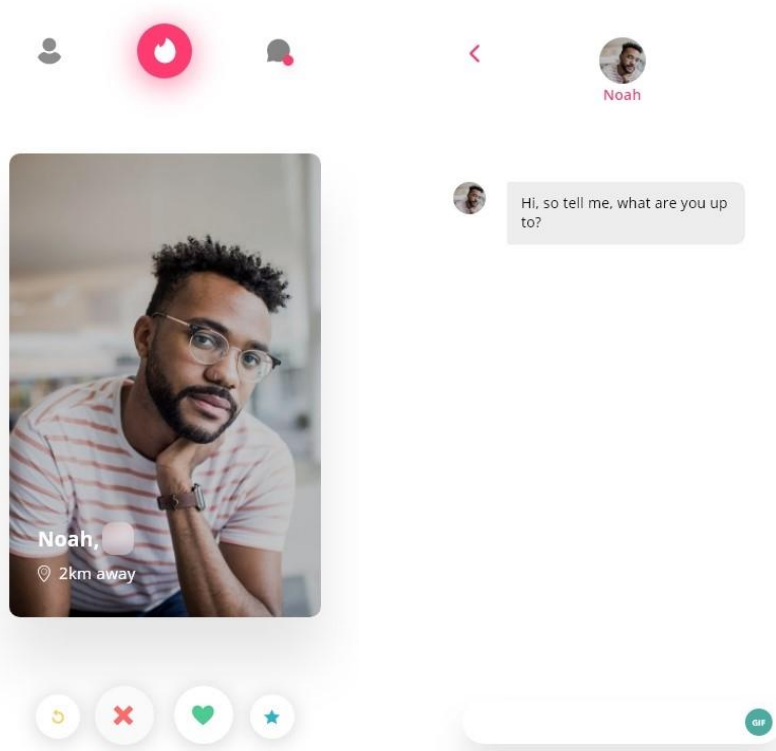
Attractive man x non-humorous opening line



Medium attractive man x humorous opening line



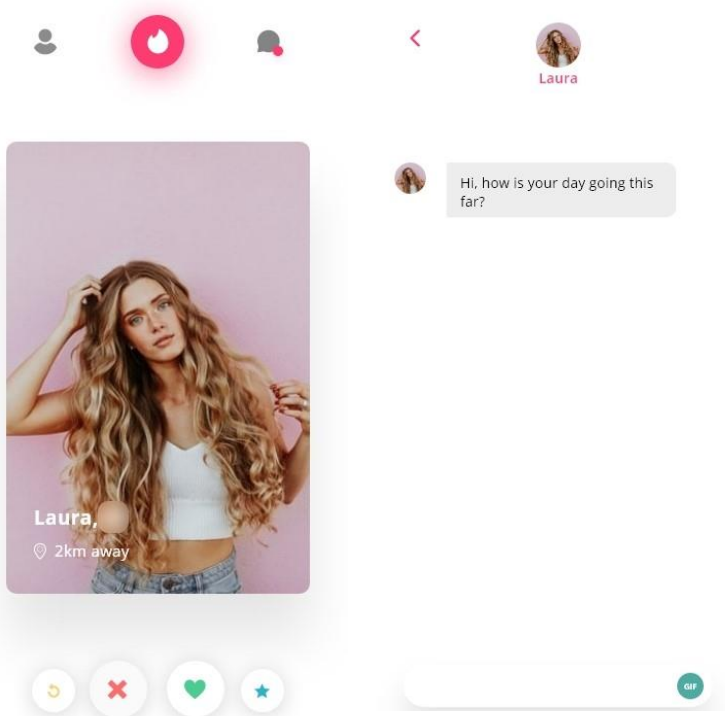
Medium attractive man x non-humorous opening line



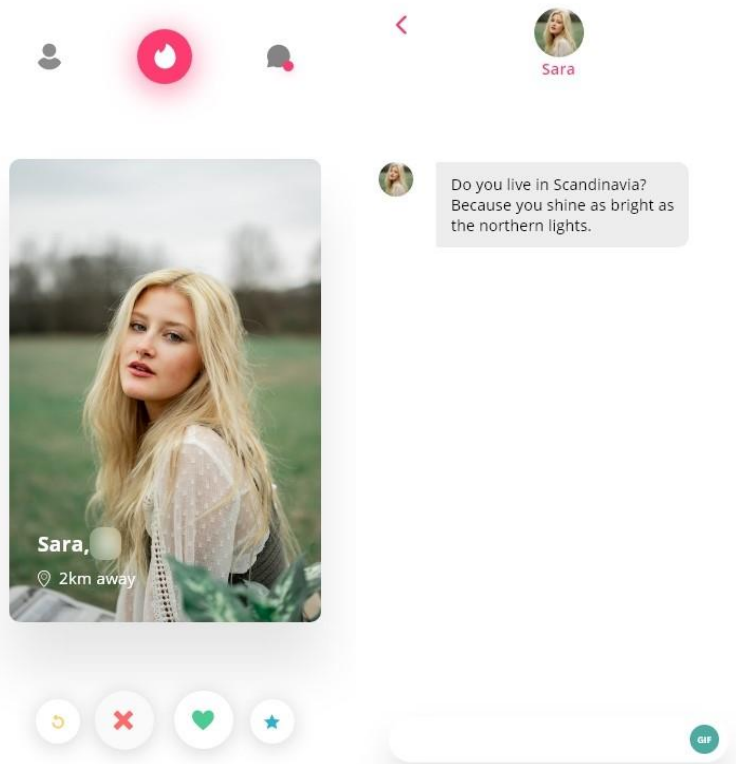
Attractive woman x humorous opening line



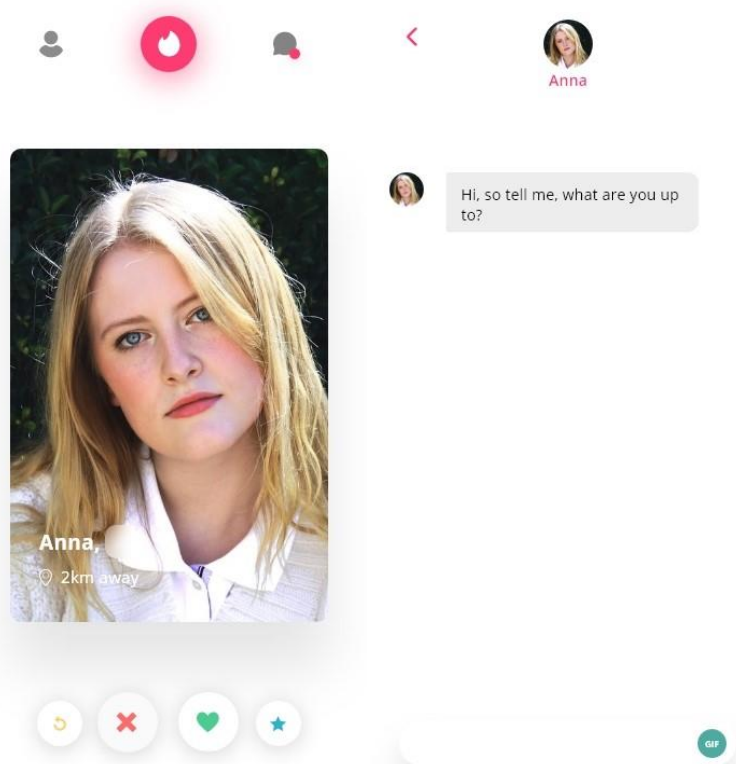
Attractive woman x non-humorous opening line



Medium attractive woman x humorous opening line



Medium attractive woman x non-humorous opening line



10. Appendix B. Measures

Scale perceived overall attractiveness

	Item number	Item
Social attraction	1	I think he/she could be a friend of mine
	2	I think this person is pleasant to spend time with.
	3	I do not think this person and I could be friends.
Physical attraction	4	I find him/her very physically attractive
	5	I think he/she is handsome/cute
	6	He/she is not very good looking

Scale intention to reply

Item number	Item
7	It is likely that I would reply to his/her message
8	I would be excited to respond to his/her message
9	I would look forward to interacting with him/her

Scale intention to date

Item number	Item
-------------	------

10	I would like to date him/her
----	------------------------------

11	I would not swipe right on him/her (i.e. like him/her on Tinder)
----	--

12	I would find him/her desirable as a dating partner
----	--

Scale perceived sense of humor

Item number	Item
13	I think he/she has humor.

14	I think he/she is funny.
----	--------------------------

11. Appendix C. Pretest Physical Attractiveness

Dear participant,

I invite you to participate in this study about opening lines on Tinder. This study is part of a master's thesis, conducted at Tilburg University, School of Humanities and Digital Sciences. Please carefully read the information below. If you have any questions, do not hesitate to contact the researcher, Zoë Verwers (z.r.verwers@tilburguniversity.edu).

What does this study entail?

The purpose of the master's thesis is to investigate opening lines on Tinder, and the role of attractiveness in this. Online dating apps such as Tinder have become a common way for people to find a romantic partner. Although there is some prior research with regard to opening lines, this has not been investigated yet with regard to online dating apps.

The thesis, which is constructed, conducted, and completed during one semester (end of August until beginning of January 2021), comprises of a survey-based experiment.

What does participation in this study entail?

The part of the study you are about to participate in is a pretest which takes you approximately 10 minutes to complete. There are no (dis)advantages or consequences to your participation.

Information about participation

Participation is entirely voluntary. You have the right to decline to participate and withdraw from the research, even when your participation has begun. This has no negative consequences, and you do not have to justify withdrawing your participation. You have the right to request access to and rectification, erasure, restriction of or object to the processing of the personal data. For more information, please visit www.tilburguniversity.edu/privacy. The data is anonymous and will be treated confidentially. Only the researcher and the university supervisor have authority to access the collected data. The data will be stored for at least 10 years.

Thank you for considering participation in this study. With any questions please contact Zoë Verwers (z.r.verwers@tilburguniversity.edu).

Do you agree to participate in this study?

- Yes, I give consent (1)

- No, I do not give consent (2)

What is your age?

- Under 18 (1)
- 18-24 (2)
- 25-34 (3)
- 35-44 (4)
- 45-54 (5)
- 55-64 (6)
- 65-74 (7)
- 75-84 (8)
- 85 or older (9)

In which country do you currently live?

→ Country drop down list

What gender do you identify with?

- Male (1)
- Female (2)
- Other, namely... (3)
- Rather not say (4)

What gender are you romantically attracted to?

- Men (1)
- Women (2)
- Both (3)
- Rather not say (4)

How physically attractive do you find the man in the picture? (times 40)

- 1 (=very unattractive) (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (=very attractive) (10)

How physically attractive do you find the woman in the picture? (times 40)

- 1 (=very unattractive) (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (=very attractive) (10)

You have reached the end of this study. Thank you!

It would be very kind if you could participate in a second so-called pretest. This will only take approximately 10 minutes. Click on the following link to be directed to the second survey:
https://tilburghumanities.eu.qualtrics.com/pretest2_openinglines

If you have any questions regarding this study, please contact the researcher, Zoë Verwers (z.r.verwers@tilburguniversity.edu).

12. Appendix D. Pretest Opening Lines

Dear participant,

I invite you to participate in this study about opening lines on Tinder. This study is part of a master's thesis, conducted at Tilburg University, School of Humanities and Digital Sciences. Please carefully read the information below. If you have any questions, do not hesitate to contact the researcher, Zoë Verwers (z.r.verwers@tilburguniversity.edu).

What does this study entail?

The purpose of the master's thesis is to investigate opening lines on Tinder, and the role of attractiveness in this. Online dating apps such as Tinder have become a common way for people to find a romantic partner. Although there is some prior research with regard to opening lines, this has not been investigated yet with regard to online dating apps.

The thesis, which is constructed, conducted, and completed during one semester (end of August until beginning of January 2021), comprises of a survey-based experiment.

What does participation in this study entail?

The part of the study you are about to participate in is a pretest which takes you approximately 10 minutes to complete. There are no (dis)advantages or consequences to your participation.

Information about participation

Participation is entirely voluntary. You have the right to decline to participate and withdraw from the research, even when your participation has begun. This has no negative consequences, and you do not have to justify withdrawing your participation. You have the right to request access to and rectification, erasure, restriction of or object to the processing of the personal data. For more information, please visit www.tilburguniversity.edu/privacy. The data is anonymous and will be treated confidentially. Only the researcher and the university supervisor have authority to access the collected data. The data will be stored for at least 10 years.

Thank you for considering participation in this study. With any questions please contact Zoë Verwers (z.r.verwers@tilburguniversity.edu).

Do you agree to participate in this study?

- Yes, I give consent (1)

- No, I do not give consent (2)

What is your age?

- Under 18 (1)
- 18-24 (2)
- 25-34 (3)
- 35-44 (4)
- 45-54 (5)
- 55-64 (6)
- 65-74 (7)
- 75-84 (8)
- 85 or older (9)

In which country do you currently live?

→ Country drop down list

What gender do you identify with?

- Male (1)
- Female (2)
- Other, namely... (3)
- Rather not say (4)

What gender are you romantically attracted to?

- Men (1)
- Women (2)
- Both (3)
- Rather not say (4)

Hi, how is your day going this far?

How funny do you find this opening line?

- 1 (= not funny at all) (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (= very funny) (10)

The same question was also asked for the following opening lines:

- Hi, how are you living your life through Corona?

- Hi, so tell me, what are you up to?
- I had to tell you how cute you are.
- So tell me, are you as interesting as you look?
- Hi, you've made my day with your smile.
- You seem familiar, do you live around here?
- What was the last thing you learned that surprised you?
- What do you prefer? Pancakes, French toast, or waffles?
- If you could travel anywhere in the world tomorrow, where would you go?
- What is the best alcoholic drink you ever had?
- Isn't it cold outside? Let's make some body heat.
- Do you have any raisins? No? Well then, how about a date?
- Can I show a picture of you to Santa, to show what I want for Christmas?
- Do you live in Scandinavia? Because you shine as bright as the northern lights.
- Are your parents bakers? Because you sure are a cutie pie.

You have reached the end of this study. Thank you!

If you have any questions regarding this study, please contact the researcher, Zoë Verwers (z.r.verwers@tilburguniversity.edu).

13. Appendix E. Experiment

Dear participant,

I invite you to participate in this study about opening lines on Tinder. This study is part of a master's thesis, conducted at Tilburg University, School of Humanities and Digital Sciences. Please carefully read the information below. If you have any questions, do not hesitate to contact the researcher, Zoë Verwers (z.r.verwers@tilburguniversity.edu).

What does this study entail?

The purpose of the master's thesis is to investigate opening lines on Tinder, and the role of attractiveness in this. Online dating apps such as Tinder have become a common way for people to find a romantic partner. Although there is some prior research with regard to opening lines, this has not been investigated yet with regard to online dating apps.

The thesis, which is constructed, conducted, and completed during one semester (end of August until beginning of January 2021), comprises of a survey-based experiment.

Information about participation

The experiment you are about to participate in takes approximately 15 minutes to complete. There are no (dis)advantages or consequences to your participation. Participation is entirely voluntary. You have the right to decline to participate and withdraw from the research, even when your participation has begun. This has no negative consequences, and you do not have to justify withdrawing your participation. You have the right to request access to and rectification, erasure, restriction of or object to the processing of the personal data. For more information, please visit www.tilburguniversity.edu/privacy. The data is anonymous and will be treated confidentially. Only the researcher and the university supervisor have authority to access the collected data. The data will be stored for at least 10 years.

Thank you for considering participation in this study. With any questions please contact Zoë Verwers (z.r.verwers@tilburguniversity.edu).

Do you agree to participate in this study?

- Yes, I give consent (1)

- No, I do not give consent (2)

What is your age?

What is your nationality?

→ Country drop down list

What is the highest level of school you have completed? If you are still in school, please indicate what level you are currently doing.

- Primary school (1)
- Secondary school (high school) (2)
- Post-secondary vocational education (in Dutch: MBO) (3)
- Bachelor's degree from a university of applied sciences (in Dutch: HBO) (4)
- Bachelor's degree (5)
- Master's degree (6)
- Rather not say (7)

What gender do you identify with?

- Male (1)
- Female (2)
- Other, namely... (3)
- Rather not say (4)

What is your current relationship status?

- Single (1)
- In a relationship (2)
- Engaged (3)
- Married (4)
- Divorced (5)
- It's complicated (6)
- Rather not say (7)

Do you currently use Tinder?

- Yes (1)
- No, I have never used Tinder (2)
- No, but I have used Tinder in the past (3)
- No, but I currently use other online dating apps (4)
- No, but I have used other online dating apps in the past (5)
- Rather not say (6)

What gender do you feel most romantically attracted to?

- Men (1)

- Women (2)
- Both (3)
- Rather not say (4)

Imagine that you are using Tinder and you have a match. Your match sends you a message.

In the next part of this study, you are asked to answer statements based on the profile of the match, and the message you have received.

Please look at the following Tinder profile and message from your match, and answer the statements on the next page (times 4).

I would not swipe right on him/her (i.e. like him/her on Tinder). (5)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>					
I would find him/her desirable as a dating partner. (6)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>					
Strongly agree (1)	Agree (2)	Somewhat agree (3)	Neither agree nor disagree (4)	Somewhat disagree (5)	Disagree (6)	Strongly disagree (7)
I think he has humor. (1)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>					
I think he is funny. (2)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>					

You have reached the end of this experiment. Thank you for your time!

For this study, participants were asked to imagine that they were using Tinder and came across certain Tinder users' profiles and opening lines.

The aim of this experiment was to study how humorous and non-humorous opening lines affect perceived overall attractiveness, intention to reply, and intention to date - and how this relationship is

affected by physical attractiveness.

It is expected that when a Tinder conversation partner is physically attractive, scores on overall perceived attractiveness, intention to reply, and intention to date are higher than when a Tinder conversation partner is less physically attractive. Moreover, it is expected that humorous opening lines result in higher scores on perceived overall attractiveness, intention to reply, and intention to date, compared to non-humorous opening lines. Lastly, I investigate whether the positive effect of a funny/flippant opening line on perceived overall attractiveness, intention to reply, and intention to date is larger when a Tinder conversation partner is less attractive compared to when the Tinder conversation partner is very attractive.

If you have any questions regarding this study, please contact the researcher, Zoë Verwers (z.r.verwers@tilburguniversity.edu)

ⁱ Condition attractive photo and non-humorous opening line ($z\text{-score}_{\text{skewness}} = -5$); condition attractive photo and humorous opening line ($z\text{-score}_{\text{skewness}} = -4.06$); condition moderately attractive photo and non-humorous opening line ($z\text{-score}_{\text{skewness}} = -2.73$); condition moderately attractive photo and humorous opening line ($z\text{-score}_{\text{skewness}} = -3.20$).

ⁱⁱ Condition attractive photo and non-humorous opening line ($z\text{-score}_{\text{kurtosis}} = 4.27$)

ⁱⁱⁱ Condition attractive photo and non-humorous opening line ($z\text{-score}_{\text{skewness}} = -8.54$); condition attractive photo and humorous opening line ($z\text{-score}_{\text{skewness}} = -4.74$); condition moderately attractive photo and humorous opening line ($z\text{-score}_{\text{skewness}} = -2.04$).

^{iv} Condition attractive photo and non-humorous opening line ($z\text{-score}_{\text{kurtosis}} = 7$); condition moderately attractive photo and non-humorous opening line ($z\text{-score}_{\text{kurtosis}} = -2.86$); condition moderately attractive photo and humorous opening line ($z\text{-score}_{\text{kurtosis}} = -3.25$).

^v Condition attractive photo and non-humorous opening line ($z\text{-score}_{\text{skewness}} = -2.73$); condition attractive photo and non-humorous opening line ($z\text{-score}_{\text{skewness}} = -3.82$).

^{vi} Condition moderately attractive photo and non-humorous opening line ($z\text{-score}_{\text{kurtosis}} = -2.32$); condition moderately attractive photo and humorous opening line ($z\text{-score}_{\text{kurtosis}} = -2.35$).