Swipe Worth the Hype?

Investigating the Influence of Fast and Slow Online Dating and Success on Wellbeing

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Abstract

The current popularity of online dating apps resulted in the emergence of different kinds of apps. Recent studies found that fast, swipe-based dating apps such as Tinder, are related to decreased users' wellbeing. As a counter-reaction, but also to reduce the stigma that dating apps are only used for short-term relationships or hook-ups, 'slow' dating apps have emerged that provide the user with fewer partner suggestions to stimulate making a more deliberate decision about who they like or not. Another factor that influences users' wellbeing on dating apps, is that of having dating success. However, the influence of getting matches in particular is not yet investigated experimentally in research. Yet, it can be argued that matches do play an important role, mainly on fast dating apps. Since current literature on both topics is sparse and only correlational, this study aimed to experimentally investigate the role of fast and slow dating and dating success, in the form of matches, on wellbeing. An online experiment with a 2x2 between-subjects design was conducted in which 312 participants used a mock-up dating app. After participants used the app, their wellbeing was measured through scales of expected (online) dating success, sadness, and joviality. Results showed no main and interaction effects of type of dating app and dating success on wellbeing. These insignificant results could indicate that fast and slow dating and dating success simply do not influence wellbeing, or that effects are not found because of decisions regarding the study design and the study's conditions. Since this was the first study that investigated these factors using an experimental design and with mock-up dating apps, future studies could use this dating app prototype to do more longitudinal studies.

Keywords: online dating, wellbeing, slow dating, mobile dating applications, mock-up dating app, rejection, matches

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Investigating the Influence of Fast and Slow Online Dating and Success on Wellbeing

In recent years, online dating has become more popular than ever. The pandemic further increased online dating's popularity, as Tinder reported that 2020 brought an extraordinary number of users to their app (Tinder Newsroom, 2021). Also popular dating apps OkCupid and Bumble noticed increases in users (Fortune Editors, 2021). With these increased numbers of users in the last few years, new dating apps with different approaches and functionalities have emerged in parallel, such as apps that focus on a slower dating approach. However, traditional dating apps such as Tinder, Badoo, and Bumble currently dominate the app market, with Tinder being the leader (Orosz et al., 2016; Statista Research Department, 2022). These dating apps allow users to swipe suggested persons to the left (dislike) or right (like), after which a match is presented to both. Interactions on swipe-based dating apps are often quick, automatic, and effortless (Orosz et al., 2016), and it is expected that the decisions of users of fast dating apps are often mainly driven by the appearances derived from the profile picture(s) of the suggested persons. For this reason, such apps can be called 'fast' dating apps. On average, fast dating app users are presented with 140 partner suggestions a day (Smith, 2018).

Even though fast dating apps are very popular among online daters, literature shows that the impact of swiping can be detrimental to wellbeing. Studies even suggest that swipe-based dating app usage correlates with psychological distress and depression and lower levels of satisfaction with body and face (Her & Timmermans, 2021; Holtzhausen et al., 2020; Strubel & Petrie, 2017). Therefore, it could be questioned what the real impact of fast dating apps on wellbeing is.

With many critiques towards fast dating apps, new types of dating apps are emerging. Not only are these new apps trying to tackle the wellbeing problems of fast dating apps, they also put more emphasis on creating long-term, meaningful relationships. They try to address this issue by focusing on 'slow' dating: taking the time to make decisions of liking the other

and subsequently taking the time to get to know the other. Examples of apps that encourage this slow dating approach do this by delivering the user only one match per day (Once), by portraying extensive profiles to the user (Hinge), or by ensuring that there is no chat function but only a calendar function to plan a face-to-face date (Breeze). By providing fewer suggestions, these apps try to encourage users to take a slow and deliberate decision about liking or rejecting the suggested person.

Despite the variation in types of apps that can be more fast or slow, rejecting and being rejected is unavoidable. Success and rejection are intertwined on dating apps, and many studies already found that online romantic rejections, but also unspoken rejections such as 'ghosting', relate to decreases in wellbeing (Halversen et al., 2022; Koessler et al., 2019; LeFebvre et al., 2019; Tom Tong & Walther, 2011). Studies by Courtois and Timmermans (2018) and Strubel and Petrie (2017) describe that Tinder's algorithm and getting few matches because of the algorithm can frustrate users. However, it is not yet investigated whether getting few matches on basis of other users' decisions influences wellbeing. As most online dating apps use matches to indicate that both users have liked each other, it can be assumed that getting many matches, and therefore likes, positively influence wellbeing. The link between dating success and the type of dating app is particularly interesting, because it can be expected that if a user carefully chooses to like a suggested person, it would be perceived as more distressing when the suggested person does not like the user back. Therefore, it is interesting to investigate if there are any differences in users' wellbeing when having success (in the form of matches) through fast and slow dating.

There is not much research dedicated to these topics yet. It is therefore unknown whether there are differences in (mental) wellbeing for slow dating app users in contrast to fast dating app users, and to what extent matches influence wellbeing. However, with the forecast that there will be 280 million users of online dating services in 2024 (Statista Research Department, 2022), which is a huge number, it is important to investigate the topic

of online dating and wellbeing in more detail. Moreover, as wellbeing is positively influenced by the engagement in intimate and social relationships that take place in real life (Kansky, 2018; Kawachi & Berkman, 2001; Ryff & Singer, 2000), it is also necessary to investigate the effects on the wellbeing of romantic relationships that are formed online.

For this reason, this study uses an experiment to investigate the influence of dating app type and dating success on wellbeing. Two prototypes were created that consisted of a mock-up fast dating app with 30 partner suggestions and a mock-up slow dating app that presented four partner suggestions, of which the participant had to choose one. The success variable was presented in the two prototypes as getting or not getting (a) match(es). Participants were exposed to one of the four conditions, in which they could choose to like or dislike the partner suggestions and subsequently were exposed to (a) match(es) or not. Afterwards, participants were asked to fill in scales regarding their wellbeing. The research question that this study uses is as follows: *To what extent differs the influence that slow dating apps have on the wellbeing of users as opposed to fast dating apps, and what is the role of success in this?*

Theoretical Framework

With the rise of smartphones, downloadable apps became an important feature, nowadays ranging from health apps to games and from social media to online shopping apps. Online dating also made a shift to apps, where at the moment mobile dating apps are much more used than traditional, web-based dating services (Jung et al., 2019). Currently, the leader of mobile dating apps is Tinder, with over 75 million monthly users worldwide (Statista Research Department, 2022), followed by Badoo and Bumble with respectively 45 and 60 million monthly users worldwide (Curry, 2022). Characteristics of such mobile online dating apps are that users have profiles with which they can interact with others and that they use geolocation so that users can only see potential partner suggestions that are within a certain set mileage radius (Orosz et al., 2016).

A reason for so many people to engage in mobile dating apps is posed by Zytko et al. (2018) and refers to the Uses & Gratifications Theory (U&G) (Katz et al., 1973). In terms of online dating apps, small gratifications are for example push notifications that users receive when they have matches, messages, or profile views. These kinds of design elements make it for the user pleasant to keep using the app (Blythe & Monk, 2018). The U&G theory explains that people engage in media use because it brings a recursive cycle between seeking and obtaining gratification. The needs or desires that are satisfied through the use of media, in turn construct new desires and create cycles of seeking and obtaining gratification (Katz et al., 1973). In online dating apps, gratifications can lead to the feeling of receiving rewards, which in turn leads to more app usage as rewards are associated with positive feelings (Wang & Sun, 2012).

With such huge numbers of mobile dating app users, different kinds of apps emerged to satisfy users with different demands. A distinction can be made between fast and slow dating apps, which generally differ in two important aspects: the number of potential partner profiles that are suggested and the amount of information that is portrayed in each profile. More specifically, fast dating apps are focused on portraying many partner suggestions with, at first sight, little profile information: most of the fast dating apps only show the name and age of the person and the distance between both persons. A full profile, even though generally also less extensive than profiles in slow dating, is not immediately visible but can be concealed by swiping up or scrolling down. Fast dating is however not (yet) a common term when it comes to online dating but will in this study be used to mark the difference as opposed to slow dating. Slow dating apps, on the other hand, are more focused on showing less fewermore extensive user profiles of partner suggestions, that are also selected more carefully by an algorithm so that the suggested persons are expected to better 'fit' the user's preferences (Once, 2022).

Fast Dating Apps

Fast dating apps are characterized by the concept that users often make fast decisions – and without much involvement – on whether they like a suggested person (Lenton & Stewart, 2008; Orosz et al., 2016). Fast dating apps, often called Swipe-Based Dating Applications (SBDAs) (Holtzhausen et al., 2020), provide users with a service on which fast interactions in the form of swiping can be executed to form romantic or sexual relationships.

Moreover, the profiles of users on fast dating apps are often picture-dominated, portraying many pictures of the potential partner suggestion to other users. As the interfaces of these apps are primarily focused on visual features, fast decision-making is stimulated. This is because people more easily and faster process visual than textual features, and therefore are faster able to make decisions (Lurie & Mason, 2007). However, the physical attractiveness of partner suggestions is one of the first important decisive for people as well (Zhang et al., 2022). Therefore, users probably do not take much time to consider the suggested profiles, but skim through them relatively quickly and make quick decisions based on the appearances depicted in the photos. Therefore, apps with these features can be classified in the fast dating category.

For some, a benefit of fast dating apps is that they are popular and have many active interacting users (Lefebvre & Fan, 2019; Statista Research Department, 2022). Namely, the high number of users also means that such apps can present many potential partner suggestions to their users, approximately 140 a day (Smith, 2018). Earlier research illustrates that the high number of suggested profiles can be experienced as beneficial for finding a partner since people on average prefer many options to choose from (Lenton & Stewart, 2008; Patall et al., 2008). However, according to Pronk and Denissen (2020), the projection of many potential partner suggestions can also result in a 'choice overload'. In online dating, a choice overload has been shown to result in higher rejection rates and less satisfaction with partner choices when the number of potential partners increases. In this way, online dating misses the

point, as not more, but fewer romantic relationships are formed through the use of mobile dating apps (D'Angelo & Toma, 2017; Iyengar, 2011; Pronk & Denissen, 2020).

Another double-sided issue with fast dating apps is that it can be questioned to what extent the creation of meaningful and long-lasting relationships is encouraged. Earlier research found that fast dating apps such as Tinder were often used for short-term relationships and sexual hook-ups (Sevi, 2019; Sevi et al., 2018; van Hooff, 2020). The study by van Hooff (2020) indicates that there however is a demand for engaging in long-term romantic relationships, while users also want to engage in short, sexual hook-ups. This indicates that there are different motives for using fast dating apps. However, since fast dating apps such as Tinder became more and more known as short-term relationship and hook-up apps over the years (Sevi et al., 2018), several newer apps try to satisfy users that are searching for more serious, long-term relationships by bringing alternatives.

Slow Dating

These alternative dating apps take a different, more slow approach to online dating. These apps present themselves as promising alternatives to provide users with long-lasting romantic relationships (Breeze, 2022; Hinge, 2022; Once, 2022). The term slow dating emerged in 2018 when many online magazines and blogs started writing about the concept (FLAIR, 2018; Stokes, 2021; Vandendaele, 2018). These magazines explain that slow dating can be beneficial for wellbeing, as it is all about carefully suggested matches and quality over quantity, which they say is often lacking in fast dating. Some dating apps, both fast and slow, write about how users can participate in slow dating, for example by doing virtual dating before meeting in real life (Bumble, 2021; Chirinos, 2022). These articles suggest that slow dating is better for users' self-esteem and thus for their wellbeing, as opposed to fast dating apps. The given reason for this is that with slow dating, people are not judged too quickly as it is expected that people consider each partner suggestion more carefully. This is in contrast

with fast dating, where it is expected that users compare each person with all the other partner suggestions they see in the app (Vandendaele, 2018).

Apps that are focusing on presenting users with qualitative better partner suggestions are, for example, Hinge, Breeze, and Once. These apps focus on slow dating by encouraging users to first take a deliberate decision on whether they want to meet the other in real life, which they try to achieve through different strategies. For example, Hinge promotes itself by saying: "Hinge, the dating app designed to be deleted" and "Our approach: go on your last first date" (Hinge, 2022). The app strives to achieve this by focusing on specific design features that stimulate conversation making, such as detailed profiles with proven prompts, which are starters of sentences that a user can fill in to disclose personal information (Hinge, 2022). Furthermore, it is not possible to like the whole profile of a suggested person, but the user is supposed to pick one aspect of the suggested person to like, which would force users to carefully read the profile. Another app that takes a slow dating approach is Breeze, which calls itself "The online dating app for offline dates" (Breeze, 2022). The company explains that the current range of dating apps does not meet the needs of the users, since they all work according to the same swipe-match-chat process. This process can also be called a 'slot machines effect', which means that users keep trying to get matches, just as they try to win prizes with slot machines (Klincewicz et al., 2022). Breeze, therefore, does not offer endless partner suggestions, skips in-app conversations, and lets users directly plan an offline date together (Breeze, 2022). A whole different approach to slow dating is from the app Once. This app provides a slow dating approach by delivering the user only one match per day. According to Once, their algorithm gets to truly know the user and offers a tailor-made match picked for the user every day (Once, 2022). Once promotes its app by saying "There's more to people than pictures, that's why Once is the first app to define your emotional profile and match you with compatible people" (Once, 2022).

With apps such as Hinge, Breeze and Once rising in downloads (respectively +10 million, +50 thousand, and +5 million downloads), it can be assumed that there is interest in the slow dating approach. Particularly since the Covid crisis, the concept of slow dating has become even more known. This could for example be explained by the fact that the risk of transmission of the coronavirus was for many a reason to practice more discernment in who they spent time with physically. Especially at the beginning of the Covid pandemic, it was more difficult to go on a casual date with someone unknown. Therefore, it could be that people took more time to get to know each other before meeting in real life, and therefore unintentionally took a slower dating approach (Zane, 2021).

Fast and Slow Decision Making

Fast and slow dating apps seem to differ in the way in which users make decisions about interest in potential partners. The decision-making process is an important factor in online dating, as most online dating apps use a certain like or swipe feature in which users must make decisions about who they like and who not. One key distinction in decision-making processes is the difference between fast and slow decision-making. This distinction can also be seen in the decision-making processes in online dating. Previous research indicated that when the number of choices in online dating profiles increased on dating apps, users evaluate profiles faster (Lenton et al., 2008). This was done by focusing on 'easy' evaluative profile elements such as age and height (Lenton et al., 2008; Lenton & Stewart, 2008).

The difference in decision-making processes in fast and slow dating connect well to the two processing modes that well-known dual processing models, such as System 1 and 2 (Kahneman, 2011), the Elaboration Likelihood Model (Cacioppo et al., 1986), and the heuristic-systematic model (Chaiken, 1980) distinguish. While the specific models vary in the way they call the processing modes and the context in which the models emerged, the general idea behind these models is that there are generally two ways to process information.

The first way of information processing and decision making is called 'system 1' (Kahneman, 2011), the 'peripheral route' (Cacioppo et al., 1986) or 'heuristic processing' (Chaiken, 1980). This processing mode is characterized by fast, automatic information processing that takes minimal cognitive effort. The decisions that are made here, are often made without much awareness or control and take place through judgemental rules. Processing here relies on heuristics, such as only looking at the appearance of a person.

The second way in which information is processed and decisions are made is called 'system 2' (Kahneman, 2011), the 'central route' (Cacioppo et al., 1986) or 'systematic processing' (Chaiken, 1980). Information processing and decision-making are considered more thoughtful and conscious, rational, and take cognitive effort. Decisions are often made with self-awareness and control and are logical and sceptical. Processes which go via this way demand much attention. According to Kahneman (2011), this way of information processing and decision-making is not common in our thinking, as it only makes up 2%. The other dual-processing models are more reserved about such statements, but do state that heuristic processing and the peripheral route are the default in our thinking, since people process in an economy-minded way and only spend cognitive resources when it is truly needed (Bohner et al., 1995).

The three models described here all give insights into the processes people go through when they process information and make decisions. It can be concluded that all three models describe two routes in their processes: one for fast decisions without much attention and one for slow decisions with more attention dedicated to the information. These models might also be more or less translated to fast and slow dating since it is plausible that the amount of visible information nudges the user into either making quick and effortless decisions or thoughtful and conscious decisions about the partner suggestions that they see on online dating apps. It is likely that when people are proposed with many profiles, they are less likely to systematically process all the given options. On the contrary, they are more likely to

process the profile choices heuristically. However, when only one suggestion is presented per day, this one profile might be processed more systematically and deliberately before a decision is made about whether to like the person or not.

Since the goal of slow dating apps is to encourage users to take deliberate and slow decisions, this is also reflected in their app designs. As earlier noted, this is done by presenting fewer people or by presenting extensive user profiles. In turn, evaluating fewer partner suggestions also means making fewer decisions. It is expected that evaluating more profile information is more time-consuming and done with more care, resulting in decisions that are made more deliberately.

Fast Dating and Wellbeing

With fast dating apps around for a couple of years now, it comes to light that using these apps can come with various problems. The previously discussed choice overload in fast dating apps can be seen as a problem, but there are other things as well in fast dating that put the wellbeing of users at risk. For example, since fast dating apps often have a 'visual dominance' (Chan, 2017) – which means that visual features such as photos and emoticons play a big role – and game mechanics such as swiping and receiving achievements or rewards for using the apps, the gamification aspects is emphasized in these apps. This could, in combination with excessive amounts of partner suggestions for users to swipe so that they can stay swiping for hours to receive matches, result in addictive behaviour (Tziallas, 2015; Zichermann & Cunningham, 2011). The addictive behaviour can, in its turn, influence the user's wellbeing. Since on slow dating apps, less emphasis is put on the visual elements of user profiles, but also fewer partner suggestions are shown to each user, it is expected that this addictive behaviour is less supported on slow dating apps.

Prior studies on the use of the fast dating app Tinder also have shown that dating behaviour and app use are negatively related to wellbeing (Coduto et al., 2020; Her & Timmermans, 2021; Hobbs et al., 2017; Holtzhausen et al., 2020; Strubel & Petrie, 2017). For

example, Tinder use can make the user feel blue and worried because it can trigger compulsive behaviour and let users compare themselves to others (Her & Timmermans, 2021), but can also result in higher levels of social anxiety, which relates to compulsive usage and loneliness (Coduto et al., 2020).

One of the reasons for the relationship between fast dating and a decrease in users' wellbeing, is because users more often reported psychological distress and symptoms of depression and anxiety, but also dangerous unhealthy weight control behaviour, such as extreme food restriction or self-induced vomiting (Tran et al., 2019). One of the possible reasons Tran and colleagues (2019) give for the increased symptoms, is that online dating apps can be compared to modern media forms such as social media. These media forms often show profiles of users that include pictures with socially accepted appearance ideals, next to commercial ads with the same ideals. Strubel and Petrie (2017) found that Tinder usage also was associated with dissatisfaction with the body since users of Tinder reported less satisfaction with their body and face appearance than non-Tinder users.

An important factor that might account for these symptoms, is that of social comparison. Proof exists of the relationship between social comparison on Social Networking Sites (SNS) and negative wellbeing (Latif et al., 2021; Radovic et al., 2017; Verduyn et al., 2020; Yoon et al., 2019), but the literature on social comparison on online dating apps is sparse. However, earlier studies indicate that users of online dating apps did compare themselves to others on online dating apps, even without being presented with a concrete comparison object such as being able to see other people's success (Her & Timmermans, 2021; Hobbs et al., 2017). However, it is not entirely clear what role social comparison plays in relation to online dating, since, for people who have their settings set so that they only see partner suggestions of the opposite sex, online dating apps do not show 'competitors'. It is therefore not known in what way users engage in self-comparing behaviour on fast dating apps. It can also be imagined that users on dating apps have the feeling that they are being

compared to others, since users are aware that there are many other people on dating apps that, for example, could have better appearances than themselves. The feeling that users are compared with others is probably more prominent on fast dating apps than on slow dating apps since fewer persons are suggested and therefore users consider fewer partner suggestions than on fast dating apps. It is therefore hypothesised that fast dating would more negatively influence wellbeing than slow dating:

H1. Interacting with a fast dating app more negatively impacts users' wellbeing, in terms of lower scores on joviality and expected (online) dating success and higher scores on sadness, than slow dating.

Being (Un)Successful on Dating Apps

One of the consequences that online dating brings, in both slow and fast dating, is that users more often have to deal with likes and matches and therefore also with success and rejection. In real-life dating, these aspects are less common since generally fewer people are encountered in real life than on mobile dating apps. On most dating apps, users can like or dislike each other, by swiping the presented suggestion to the left or right or by clicking on like and dislike buttons. Liking and matching are features that are used on both kinds of apps but are often less prominent on slow dating apps since fewer partner suggestions are shown.

Getting matches is two-sided: on the one hand, it means that someone liked you, and on the other hand it means that you liked someone. This means that getting many matches could mean that one is being liked often and popular, but this also depends on the number of likes that have been given. In line with earlier research, it can be assumed that getting few or no matches can negatively impact wellbeing and self-esteem since not getting any matches means that you are not liked back on the dating app. Not getting any matches could thus also be seen as a form of rejection, which is likely to result in lower subjective wellbeing (Hobbs et al., 2017).

Even though rejection is a difficult concept to describe, Leary and colleagues (2006) explain that rejection is a state in which a person does not consider their relationship with another person valuable or important, on a continuum of relational evaluation, since people value relationships with others in different levels. Thus, there are also differences between people in how they evaluate and desire relationships. However, earlier studies already found relationships between romantic rejection and negative wellbeing, for example through anger and aggression (Leary et al., 2006), or male hostility (Andrighetto et al., 2019).

The goal of individuals is to increase and ensure their interpersonal worth and acceptance by increasing their self-esteem, and therefore their wellbeing (Paradise & Kernis, 2002). When a person experiences great acceptance, they feel valued in society and in interpersonal interactions, resulting in higher levels of wellbeing. This could for example happen in getting many likes and matches. In turn, when a person gets rejected repeatedly, this can enhance feelings of socially and interpersonally unacceptance, leading to lower wellbeing (Leary, 2012). In addition, repeated rejection on dating apps lowers the chance of a relationship, while being in a relationship also benefits higher wellbeing (Kansky, 2018). This could mean that (repeated) rejection in the form of not being liked and not getting matches on dating apps indeed relates to a ler wellbeing, which leads to the following hypothesis:

H2. Being unsuccessful (not getting any matches) in online dating will more negatively impact wellbeing, in terms of lower scores on joviality and expected (online) dating success and higher scores on sadness, than being successful (getting matches).

Being (Un)Successful on Fast or Slow Dating Apps

Both fast dating and having no success in online dating are expected to negatively influence wellbeing. Furthermore, it is expected that the dual-processing models apply to fast and slow dating, as earlier research indicates that users of fast dating apps make fast decisions without much involvement (Lenton & Stewart, 2008; Orosz et al., 2016) and users of slow dating apps make more deliberate decisions since there are fewer options to consider (Lenton

& Stewart, 2008). Because users of slow dating apps are presented with fewer partner suggestions, it is reasonable to assume that they spend more time on each profile in contrast to users of fast dating apps, where less time spent is spent on each profile (Wu & Chiou, 2009). Spending more time evaluating the details of a profile before liking the person, also means making a slower decision. This could lead to more certainty in the decision. However, this does not only mean that every like, but also every rejection – not liking anyone – has been thought through.

It is therefore expected that it is more painful when a deliberate and conscious decision of choosing to like a person results in a rejection such as not being liked back. It can be expected that the other person also took the time to consider your profile and took a deliberate decision as well, which could strengthen the negative feeling of rejection. Subsequently, it can be assumed that this will result in lower wellbeing:

H3. Being unsuccessful in online dating will more negatively impact wellbeing, in terms of lower scores on joviality and expected (online) dating success and higher scores on sadness when the user is slow dating compared to fast dating.

Method

Design

For this study, a 2 (fast vs. slow dating) x 2 (success vs. rejection) between-subjects design was used. Through an experiment, it was investigated whether users of fast dating apps (who saw 30 partner suggestions) and users of slow dating apps (who saw four partner suggestions) differed in wellbeing outcomes, and what the role of dating success was. Dating success was manipulated in the experiment in the way that participants either received a match after they liked someone or did not receive a match and saw a screen that stated that it was not a match after each liked partner suggestion. In this way, the participants got the feeling that they were or were not liked back by the partner suggestion. The dependent variable in this study was wellbeing, which was measured through three scales: joviality,

sadness, and expected (online) dating success. In this study, participants were encouraged to interact with a prototype of a mock-up dating app, and they were able to make their own choices about whom they liked and not liked. By using mock-up dating apps, the feeling of using a 'real' app was enhanced, rather than having the feeling that participants were doing an experiment.

Preliminary to the experiment, a pretest was conducted to investigate which pictures were found attractive and if participants would like the partner suggestions. This was important since the participants in the no-match condition had to like a partner suggestion to be exposed to the rejection.

The experiment was conducted through a survey in which participants were directed to the mock-up dating app and afterwards were redirected to the survey. Participants were randomly assigned to one of the four conditions. The survey can be found in Appendix C. The study was approved by Tilburg University's Research Ethics and Data Management Committee.

Participants

Requirements to participate in this study were that the participants' age should be between 18 and 30 years since statistics explain that this is the largest age group that is active on online dating apps (GlobalWebIndex, 2020) but also since the ages of the participants more or less had to match the ages of the partner suggestions. Furthermore, it was required for participants to be single so that they could make an unbiased decision and could not (subconsciously) compare the partner suggestions to their partner. Participants were sampled in two ways: through convenience sampling via friends and family and social media (Instagram, Facebook, LinkedIn), and through participants from the human subject pool of Tilburg University. This pool mainly consists of bachelor's and pre-master students of the educational program of Communication and Information Sciences. These participants received course credits for their participation.

A total of 567 participants started the study. Of all participants, many could not be included for analysis because they did not complete the survey (n = 137), did not meet the age requirement (n = 4), did not meet the requirement that they were single (n = 99), or because they did not like any of the partner suggestions in the no-match condition (n = 15). Because they did not like any of the suggestions, they did not see a screen where they had no matches, and therefore their data were unusable. It was also checked whether there were any participants who 'straight-lined', which is filling in the same answer on every question, but none were found. Eventually, the data of 312 participants were analysed.

All these 312 participants were between 18 and 30 years old (M = 22.9, SD = 2.62). Furthermore, 62.2% of them self-indicated as female (n = 194) and 37.8% as male (n = 118). Of all participants, 57.4% indicated to feel most attracted to men (n = 179), 37.2% to women (n = 116), and another 5.1% (n = 16) indicated to feel attracted to both men and women. One participant preferred not to say to which gender they felt most attracted to. Of all participants, 13.8% had attained secondary school (n = 43), 3.5% completed or were currently involved in intermediate vocational education (n = 11), 54.2% in a bachelor's degree either at a university of applied sciences or at a university (n = 169), and 28.5% in a master's degree, post-master or a PhD at a university (n = 89).

Materials

In this study, two different prototypes with two manipulations were used. A prototype can be described as an early sample or model of a product. In this case, the prototypes consisted of a mock-up mobile dating application (see below and Appendix B for examples). The fast dating app consisted of 30 partner suggestions, which could be swiped to the right (like) or left (reject). There were 30 female partner suggestions for participants that indicated being attracted to females, and 30 male partner suggestions for participants that indicated being attracted to males. For participants that indicated that they were attracted to both females and males, one of the mock-up dating apps with either female or male partner

suggestions was assigned. The profiles of the partner suggestions were simple, including just a photo (see **pretest**) and a name to make sure that participants had not much information and therefore were stimulated to make fast decisions. To prevent potential confounds, no additional information, such as a profile owner's age, was added to the profiles. After each swipe, to the left or right, participants got to see a screen which stated whether they had a match (when in the match condition) or not (when in the no-match condition). When participants were finished evaluating all 30 partner suggestions, a screen was shown with the number of matches. In the no-match condition, this screen clearly stated that participants did not have any matches.

Figure 1

The Prototype of the Mock-up Dating App in the Fast Dating Condition

Note. The first image is the main page of the fast mock-up dating app. The second image is after the participant swiped the partner suggestion to the right when the participant was in the match condition. The third image is also when the participant swiped the partner suggestion to the right, but when the participant was in the no-match condition.

The slow dating mock-up dating app contained four partner suggestions, and there were again two kinds of mock-up dating apps: one with four female suggestions and one with four male suggestions. Participants had to scroll down to see the whole profile and had to click the next button to see the next suggestion. After each profile was inspected, participants

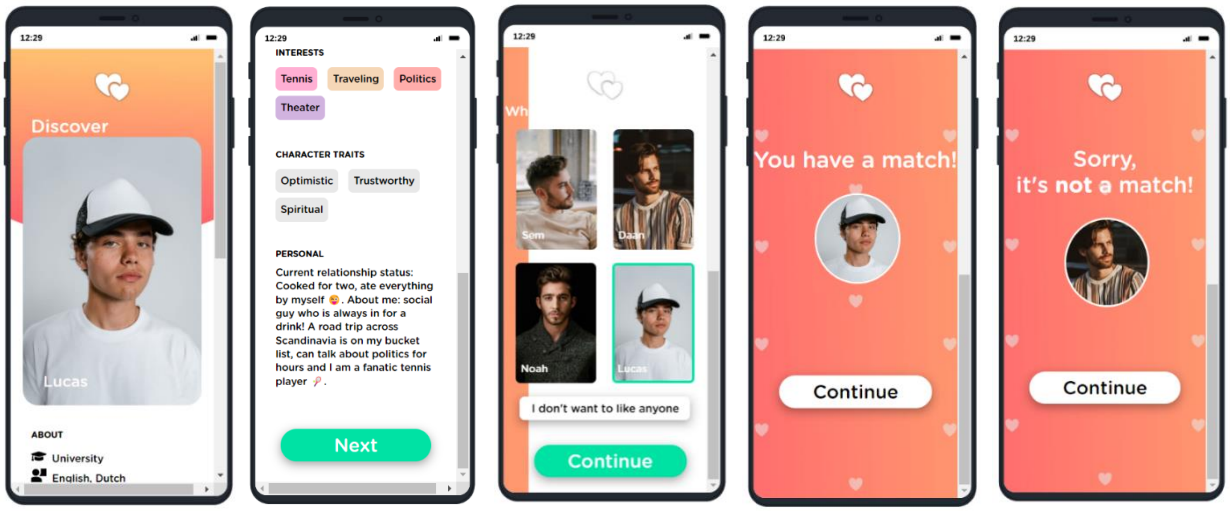
saw a screen with four photos, one of each of the partner suggestions. Participants could choose to like one of the partner suggestions or could click on a button that stated "I don't want to like anyone". Then, participants directly saw a screen that stated that it either was or was not a match.

The profiles in the slow dating condition were more elaborate, with more information portrayed per profile. The profiles contained the following elements: a photo, name, an 'about' section with education and languages, interests, character traits and a 'personal' section with a personal quote or statement. Four photos from the pretest were selected: the two most attractive photos and two moderate photos, one for each profile. The character traits were chosen from an extensive list, from which the most liked ones were chosen (Anderson, 1968), since Lewandowski and colleagues (2007) state that positive personality traits are related to attractiveness. For the 'personal' section, different affiliative quotes from an earlier study on humour in online dating profiles were chosen[1]. Furthermore, the 'about' section included novel metaphors and concrete self-disclosure, as earlier research indicated that this could help for more originality and therefore score high on positive dimensions such as attractiveness (van der Zanden, 2021).

Figure 2

[1] Study by Fenne Koenraadt: https://arno.uvt.nl/show.cgi?fid=157290

The Prototype of the Mock-up Dating App in the Slow Dating Condition



Note. The first image is the main page of the slow mock-up dating app. The second image is the extended profile that the participant had to scroll through. The third image is where the participant had to choose to like one of the four partner suggestions. The fourth image is the screen participants got to see when they were in the match condition. The fifth image is the screen participants got to see when they were in the no-match condition.

Pretest

A pretest was conducted to investigate the attractiveness of the partner suggestions in the mock-up dating apps. This was important since it was needed that participants perceived the partner suggestions as attractive and therefore the rejection would be experienced negatively. Furthermore, it was important that participants in both conditions at least liked one of the partner suggestions, to expose them to either success (a match) or rejection (no match). Therefore, the suggested persons had to be generally 'attractive' people. For the pretest, a total of 80 pictures of faces (40 women and 40 men) were judged by 81 participants (other than those from the main study).

Participants were aged between 19 and 31 years (M_{age} = 24.29, *SD* = 2.78). Of the pretest participants, 68.3% were female (*n* = 56) 30.5% were male (*n* = 25). Moreover, 65.9% of participants indicated to feel attracted to males (*n* = 54), 28.0% to females (*n* = 23), and 4.2% to both males and females (*n* = 4). Of all participants, 35.4% were currently single (*n* =

29), 52.2% were in a relationship (n = 42), 7.3% were married (n = 6), and 4.9% indicated that it was complicated (n = 4).

The pretest was conducted through Qualtrics, and the pictures of the faces were retrieved from websites which made the photos freely available (unsplash.com and pexels.com). After the participants of the pretest were informed about the study, they were presented with 40 pictures one by one of either males or females based on their indicated sexual preference. After seeing the picture, participants had to indicate to what extent (on a scale from 1 to 10) they thought the person in the picture was attractive and if they would like the person when they would encounter him or her on a dating app. This was done by two buttons of a heart shape and a cross shape, to enhance the feeling of interacting with a dating app.

Results showed that on average, participants gave a score of 5.54 on the attractiveness of the persons in the photos (SD = 1.27). The female photos scored between 4.67 (photo with the lowest mean) and 7.96 (photo with the highest mean). This was higher than the male photos, which scored between 2.95 (photo with the lowest mean) and 7.71 (photo with the highest mean). On average, the male photos were also rated less attractive (M = 5.12, SD = 1.28) than the female photos (M = 6.41, SD = 0.62). This corresponded almost completely with the ranking in likes and dislikes the photos got, so photos that were perceived as highly attractive also were liked the most if they were encountered on a dating app.

Eventually, the top ten less liked photos were not used for the profiles of the fast dating app condition. A complete overview of photos sorted on attractiveness score can be found in Appendix A. The ten photos that were deleted after the pretest are included in the red frame.

Measures

Three different measures were used in this study, all focusing on another dimension of wellbeing. The first two measures, joviality and sadness, were taken from the PANAS-X scale

by Watson and Clark (1994). In addition, the third measure of expected (online) dating success was used. This measure is an adapted version of the Dating Adjustment scale by Herold (1973) that intends to measure the degree to which a student is confident about his or her dating abilities, difficulties with getting dates and satisfaction with dating experience. The scale originally has 21 items, of which five were used in this study. The included items also were adjusted from 'dating' to 'online dating'. All three scales were measured on a 5-point-scale (1 = slightly or not at all to 5 extremely). Expected (online) dating success was measured with three items (e.g., "I lack confidence in my ability to get matches on online dating apps"). The reliability of the scale was not high with a Cronbach's α of .63 (M = 3.36, SD = 0.86). Sadness was measured with five items (e.g. "At this moment, I feel: - Sad"). Reliability was good for this scale, Cronbach's α = .88 (M = 1.78, SD = 0.81). Lastly, joviality was also measured with five items (e.g. "At this moment, I feel: - Happy"). For joviality, the reliability of the scale was excellent, Cronbach's α = .91 (M = 3.21, SD = 0.88).

Procedure

The experiment was conducted through an online survey via Qualtrics in which one section of the mock-up dating app was portrayed as a separate extension. However, participants did not have to go to another website to use the app. A recruitment text was written and sent, in which the participants were asked to participate if they were single and between 18 and 30 years old. Participants were encouraged to do the study on a mobile phone to enhance the feeling of using a real dating app.

The experiment started with a welcome screen in which participants were greeted and informed about the study, after which they were asked to give informed consent. Then, demographic questions were asked: participants' age, gender, sexual preference, level of education and relationship status. When participants indicated that they were outside the age window of 18-30 or if they indicated that they were not single, they were directed to the end of the survey. Furthermore, participants were asked to fill in two scales that were related to

internal attribution and self-esteem. These scales were not used for this study, but for another study that uses the same experiment.[2]

In the next step, participants were informed about the mock-up dating app, and it was explained how they could interact with it through swiping or liking partner suggestions. Then, participants were randomly assigned to one of the four conditions for the mock-up dating app, taking into account their sexual preference. They could enter the mock-up dating app by clicking on a button, but they did not have to leave the Qualtrics surrounding. All materials in the fast mock-up dating app, names, pictures and display order, were randomized. In the slow mock-up dating app, only the order display of the profiles was randomized. The randomizations were done to prevent confounds of participants being more motivated at the start. After participants were finished evaluating the partner suggestions, they were shown the end screen with the number of matches they got.

Then, participants were redirected to the Qualtrics survey in which they answered statements related to wellbeing. Here, participants had to answer to what extent they agreed with five items of three scales: sadness, joviality, and expected (online) dating success. Afterwards, participants filled in the manipulation check questions. These questions were placed in the survey to ensure that participants expected, comprehend, and reacted as expected to the manipulation of interest. Another goal of the manipulation check, mainly the question that asked about the matches, was to make participants aware of the fact whether they had matches or not had matches. Furthermore, it was asked to what extent participants found their matches or liked partner suggestions attractive, to check whether the sample of partner suggestions on average was found highly attractive.

Therefore, it was asked how many partner suggestions (four or 30) the participant had seen. It was also asked whether participants got any matches. If they answered with yes, it

[2] The experiment of this study was conducted in cooperation with master student Rachèl Korver. Rachèl used the fast dating results, as well as the self-esteem internal attribution results. Those are not used in this study.

was asked how many matches they got and to what extent they generally thought the matched suggestions were attractive. If they answered no, it was asked if they at least liked one of the partner suggestions, and if so, to what extent they generally thought the suggestions were attractive.

The last step of the experiment was the debriefing. Here, it was explained that participants reached the end of the experiment. The participants were thanked for their participation and were given full disclosure.

Statistical Analysis

Statistical analyses were performed using Statistical Package for Social Sciences (SPSS version 27). For testing the hypotheses and to answer the research question, a factorial Multivariate Analysis of Variance (MANOVA) was conducted with the type of dating and success as independent variables (IVs) and the three wellbeing variables (i.e., expected (online) dating success, sadness, and joviality) as dependent variables (DVs). A MANOVA was used since doing multiple analyses at once lowers the chance of a Type 1 error instead of using multiple ANOVAs. To conduct the factorial MANOVA, the preliminary assumptions were tested first.

Results

Before conducting the MANOVA, the data from the mock-up dating app has been analysed. On average, male participants in the fast dating condition liked more partner suggestions (M = 14.30, SD = 6.67) than the female participants in this condition (M = 8.02, SD = 5.32). In the slow dating condition, only three participants did not like any of the four partner suggestions (2 male, 1 female), while the other 127 participants did like one of the partner suggestions.

Manipulation Check

In the manipulation check questions, it was asked whether participants saw 30 or four partner suggestions and whether they got any matches. From the data, it can be seen that

many participants indeed indicated right which condition they had. However, 16 participants indicated that they saw four partner suggestions when in fact they saw 30. One participant indicated that he or she saw 30 partner suggestions when in fact he or she saw four. Moreover, five participants indicated that they did get any matches when in fact they did not get any matches and seven participants indicated that they did not get any matches, while they in fact did get matches. This could mean that participants either went through the survey without reading the question or just made a mistake.

The participants were also asked to what extent they found the partner suggestions or their matches attractive. On average, in fast dating, participants indicated that they found their suggestions a little bit more attractive when they got matches (M = 7.81, SD = 0.91) than when they did not get matches (M = 7.75, SD = 1.08). For slow dating, participants also indicated that they found their suggestions a bit more attractive when they got matches (M = 8.10, SD = 1.41) than when they did not get matches (M = 7.70, SD = 0.97). Overall, the scores for attractiveness were high, which means that the manipulation had been successful.

Assumptions

Unfortunately, SPSS does not have any normality tests for multivariate analysis of variance. Therefore, a univariate test (Kolmogorov-Smirnov) was conducted to check whether the data were normally distributed. Almost all data was not normally distributed, as most p-values for the dependent variables were < .001. Only the scores in the condition of slow dating and rejection (not getting any matches) on the DV expected (online) dating success were normally distributed as the p-value was .72. However, the sample size was large (over 20 participants per condition) and therefore MANOVA is fairly robust against departures from multivariate normality. The other assumptions were all met.[3]

[3] Other assumptions are an appropriate sample size, check for outliers, linearity, homogeneity of regression, multicollinearity and singularity, homogeneity of variance-covariance matrix (Box's Test of Equality of Covariance Matrices was not significant, p = .503), and homogeneity of error variances (Levene's Test of Equality of Error Variances was not significant on all dependent variables).

Multivariate Analysis of Variance

Results of the MANOVA yielded that overall, there were no statistically significant differences between the groups of fast and slow dating or between success and rejection on the combined dependent variables. Pillai's Trace was interpreted for the results since this test is more robust to the violation of assumptions such as normality. For type of dating app, the result was not significant, Pillais' Trace = 0.023, $F(3, 306) = 2.36$, $p = .072$. The multivariate test also pointed out that there were no significant differences in wellbeing between participants that had success (received matches) or not (not received matches), Pillais' Trace = 0.010, $F(3, 306) = 1.03$, $p = .382$. Furthermore, no significant result was found in the interaction of type of dating and success in relation to participants' wellbeing, Pillais' Trace = 0.03, $F(3, 306) = 0.333$, $p = .803$.

Type of Dating

The first hypothesis posed that fast dating would more negatively impact users' wellbeing, in terms of lower scores on joviality and expected (online) dating success and higher scores on sadness, than slow dating. The results of the MANOVA showed no main effect of type of dating on the three dependent variables together. More specifically, scores on expected (online) dating success in the slow dating condition ($M = 3.33$, $SD = 0.85$) were comparable to those in the fast dating condition ($M = 3.39$, $SD = 0.87$), $F(1, 308) = 0.42$, $p = .516$. Scores on sadness were also comparable between the fast ($M = 1.77$, $SD = 0.81$) and slow dating condition ($M = 1.80$, $SD = 0.82$), $F(1, 308) = 0.12$, $p = .727$. Lastly, scores on joviality in the slow dating condition ($M = 3.33$, $SD = 0.83$) were higher than those in the fast dating condition ($M = 3.12$, $SD = 0.90$), $F(1, 308) = 4.05$, $p = .045$. This means that there was a significant difference between fast and slow dating on joviality. However, the effects of dating type on the other dependent variables, expected (online) dating success and sadness were both not significant. The means, standard deviations, and the number of participants per condition can also be found in table 1.

The reason that these results are inconsistent with the result of the multivariate analysis is that now all wellbeing variables are considered apart from each other, while in the multivariate analysis they are treated as one. Therefore, the wellbeing variables apart could give a significant result while they would not give this result when they are grouped. However, since only one significant result is found regarding joviality in the univariate tests and no significant results have been found in the multivariate analysis, it can be said that hypothesis one is rejected.

Table 1

Means and Standard Deviations of Each Condition

	Fast dating (N = 179)		Slow dating (N = 133)			
	Success (N = 90)	Rejection (N = 89)	Success (N = 71)	Rejection (N = 62)	Total success (N = 181)	Total rejection (N = 151)
Expected (online) dating success	3.40 (0.84)	3.38 (0.89)	3.41 (0.84)	3.24 (0.86)	3.40 (0.84)	3.32 (0.88)
Sadness	1.72 (0.77)	1.82 (0.86)	1.78 (0.80)	1.82 (0.85)	1.75 (0.78)	1.82 (0.85)
Joviality	3.21 (0.87)	3.03 (0.92)	3.40 (0.89)	3.24 (0.77)	3.30 (0.88)	3.12 (0.86)

Dating Success

The second hypothesis posed that being unsuccessful (not getting any matches) in online dating would more negatively impact wellbeing, in terms of lower scores on joviality and expected (online) dating success and higher scores on sadness, than being successful (getting matches). No significant results have been found in the MANOVA for the independent variable success on the dependent variables expected (online) dating success: $F(1, 308) = 0.84$, $p = .359$, sadness: $F(1, 308) = 0.55$, $p = .457$ and joviality: $F(1, 308) = 2.82$, $p = .094$.

Nevertheless, a closer inspection of the means of both groups on the dependent variables separately reveals some small differences between both groups in the expected direction. Namely, the scores on expected (online) dating success were a bit higher in the success condition (M = 3.40, SD = 0.84) than in the rejection condition (M = 3.32, SD = 0.88). Scores on sadness were a bit lower for the success condition (M = 1.75, SD = 0.78), but still comparable to the rejection condition (M = 1.82, SD = 0.85). Lastly, scores on joviality in the success condition (M = 3.30, SD = 0.88) were a bit higher than those in the rejection condition (M = 3.11, SD = 0.86). However, the groups do not differ significantly from each other, which is why hypothesis two should be rejected.

Interaction Between the Type of Dating and Dating Success

The third hypothesis stated that being unsuccessful (i.e., no matches) in online dating would more negatively impact wellbeing, in terms of lower scores on joviality and expected (online) dating success and higher scores on sadness when the user was slow dating compared to fast dating. However, no significant interaction effects were found, with all F's > 0.01 and all p's > .44. Therefore, hypothesis three should be rejected.[4]

Discussion

This study aimed to investigate whether the type of dating app and having dating app success influenced users' wellbeing. To do so, an online experiment took place in which 312 participants interacted with a mock-up dating app. Participants either interacted with a fast (i.e., 30 suggested profiles) or slow dating app (i.e., four suggested profiles) and either had success on the app (i.e., matches) or did not and were rejected (i.e., no matches). Afterwards, participants had to indicate their current wellbeing through scales of expected (online) dating success, sadness, and joviality.

[4] An additional analysis has been conducted to check if there were any significant results for gender on the wellbeing variables. However, there were no significant differences between males and females on wellbeing: Pillais' Trace = 0.008, $F(3, 302) = 0.841$, $p = .472$, there was no interaction effect between gender and dating type: Pillais' Trace = 0.005, $F(3, 302) = 0.524$, $p = .666$, and there was also no interaction effect between gender and success: Pillais' Trace = 0.004, $F(3, 306) = 0.384$, $p = .764$.

General Findings

The first hypothesis, stating that interacting with a fast dating app would more negatively impact users' wellbeing than slow dating, was only partially supported by the data. Results show that participants in the slow and fast dating scored similarly on sadness and expected (online) dating success, while participants in the slow dating condition scored significantly higher on joviality than participants in the fast dating condition. The latter finding indicates that participants who used the slow dating app indeed were more happy, joyful, cheerful, enthusiastic, and energetic than participants who used the fast dating app.

The finding that only joviality was higher in the slow condition is not enough to say something about users' wellbeing. This does not accord with the expectation that fast dating leads to lower subjective well-being because of a choice overload (D'Angelo & Toma, 2017; Iyengar, 2011; Pronk & Denissen, 2020) or through increasing odds of social comparison and validation-seeking behaviour (Her & Timmermans, 2021; Holtzhausen et al., 2020; Strubel & Petrie, 2017). However, this study investigated the differences in wellbeing as opposed to slow dating apps, which present the user with fewer partner suggestions to ensure that users compare themselves less with others, but also spend less time on the apps and therefore try to counteract the emergence of compulsive usage (Chirinos, 2022; Stokes, 2021; Vandendaele, 2018).

The second hypothesis, which stated that being unsuccessful in online dating would more negatively impact well-being than being successful, was not supported by the data. Even though there seemed to be some small differences in the expected direction between the group of participants who received matches and the group who did not receive matches on the three dependent variables, these differences were insignificant. This is inconsistent with earlier findings, which stated that getting few matches can frustrate users (Courtois & Timmermans, 2018; Strubel & Petrie, 2017). However, this result could not completely account for this study since it compared matches or no matches. Furthermore, not getting matches also means

not being liked by others on dating apps. According to Hobbs and colleagues (2017), for many people, this could feel like a rejection, which means that matches can be a form of social validation regarding desirability. Moreover, it was already shown that romantic rejection can be related to decreases in wellbeing (Andrighetto et al., 2019; Leary et al., 2006; Leary, 2012).

Given the insignificant results for H1 and H2, it may not be surprising that also no support was found for the third hypothesis, which stated that being unsuccessful in online dating would more negatively impact wellbeing when the user used the slow dating app compared to the fast dating app. These insignificant interaction effects were not in line with expectations that when participants took more time to assess each partner suggestion in the slow dating condition, not getting a match would have 'hit' harder. This was expected based on the combination of multiple studies that found that on fast dating apps, users make fast decisions without much awareness of each partner suggestion while on slow dating apps this is probably more since fewer options are presented (Lenton & Stewart, 2008; Orosz et al., 2016). Together with the literature of Hobbs and colleagues (2017), stating that rejection on dating apps can negatively impact wellbeing, it was expected that these two factors interacted with each other.

Possible Explanations

Since the insignificant results on all three hypotheses are inconsistent with preliminary findings on the topic of fast dating and wellbeing, it is interesting to look for possible explanations. However, it is important to take into account that this is one of the first studies that (experimentally) investigated the influence of different types of dating apps and having dating success through matches on wellbeing.

A possible reason for the insignificant results could be that earlier studies found a relationship with decreased wellbeing in particular in relation to compulsive usage of fast dating apps (Coduto et al., 2020; Her & Timmermans, 2021), while participants in this study

only used a mock-up dating app for a few minutes. Compulsive usage of mock-up dating apps was therefore not possible in this study. Therefore, since previous studies state that in particular compulsive usage of dating apps relates to wellbeing, this study was not able to investigate this relationship and thus it is not clear whether the same results would be found when participants interact with a dating app and get rejected over a longer period of time.

A second explanation could be that participants perhaps did not feel that they were the ones considering the partner suggestions but also did not feel that they were the ones that were being considered on the app. Therefore, it could be the case that the current study does not find these results as the mock-up dating app in this study did not have the option to create a user profile, which could mean that participants did not have the feeling that they interacted with the mock-up dating app as it was with their own profile. It could have been the case that, because participants did not have to create a profile prior to using the app, they did not see the rejection as a personal attack, but rather as something that was done for the sake of the experiment. It is recommended that future studies would use a mock-up dating app with the option that participants can create their own profile, so that the feeling that they are the ones who receive the matches or not will be enhanced. In this way, the use of mock-up dating apps would have more advantages.

Especially for the insignificant results of the second hypothesis, a possible reason could be that participants experienced the rejection as a 'part of the game' of dating apps. It could well be that people are already aware of the chances of rejection when they install a dating app and know that this is something common on dating apps. Furthermore, this feeling perhaps even was stronger since participants knew that they were involved in an experiment. Therefore, it could also be that participants used the knowledge that they were participating in an experiment as a coping strategy. A possibility could be that participants' first thoughts after the rejection or success were negative or positive, but then the realization of participating in an experiment mediated the effect.

Especially for the third hypothesis, a possible explanation could be that participants in the fast and slow dating conditions both experienced not getting any matches as negative. In the fast condition, participants who were rejected were exposed to the 'no match' screen each time they liked a partner suggestion. Since, on average, the participants in the fast-match condition liked 10.47 partner suggestions, they saw this 'no match' screen ten times. Therefore, it could be imagined that this repetitive rejection also impacted participants' wellbeing and that this moderated the difference in results between wellbeing and rejection in both fast and slow dating. However, no main effect was found for dating success, so on both fast and slow dating, dating success had no influence.

Implications and Suggestions for Future Research

Even though this study did not have significant results, there are still important implications that can be added to the literature. A first implication of this study is that it is one of the few studies, if not the first, that used an experimental design to investigate the relationships between online dating and wellbeing. Many previous studies in the field were survey studies (Coduto et al., 2020; Her & Timmermans, 2021; Holtzhausen et al., 2020; Strubel & Petrie, 2017), that indicated only correlations between online (fast) dating and wellbeing. With this study, therefore, causal relationships can be made since an experiment was used, with the conclusion that fast dating and being unsuccessful on dating apps do not more negatively influence wellbeing than slow dating and having success. Moreover, this is, as far as known, the first study that experimentally investigated the success of dating apps through having matches. Earlier studies on online dating and wellbeing particularly investigated rejection through messages or ghosting (Halversen et al., 2022; Koessler et al., 2019; LeFebvre et al., 2019; Tom Tong & Walther, 2011), while none investigated matches on online dating apps. However, many apps currently use the mechanism of matches, so it is an important feature to investigate.

Second, a methodological implication of the study is that mock-up dating apps have been used which heightened the ecological validity. The use of an interactive dating app made it more likely that participants experienced the app as real compared to a more standard experimental setup. The experimental setup of this study and the use of mock-up dating apps offers valuable avenues for further research.

Two possible explanations for the insignificant results can be considered: first, the findings that the wellbeing of dating app users was not influenced by the type of dating app and dating app success could mean that there simply is no effect of these variables on wellbeing. This could mean that these aspects of dating apps are not as important for influencing wellbeing as was thought based on prior literature (Coduto et al., 2020; Her & Timmermans, 2021; Hobbs et al., 2017; Strubel & Petrie, 2017).

Secondly, the insignificant results could also be the result of the decisions that are made regarding the study's set-up. For example, the finding that dating success did not influence participants' wellbeing in this study, contradicts previous research in the field which concluded that being successful on dating apps certainly did influence participants' wellbeing (Courtois & Timmermans, 2018; Hobbs et al., 2017; Leary, 2012). It could therefore be that the insignificant results found in this study are due to the design of the study, that for example only focused on measuring wellbeing right after the interaction with the mock-up dating app. If this is the case, should be investigated in further research.

A question that this study raises, and which further research should address, is that perhaps the type of dating app is not that much of a problem when it comes to users' wellbeing, but rather the behaviours that come with fast dating apps such as compulsive usage and addiction. It is already known that online dating can be negatively related to wellbeing, which is an important subject to investigate since it is forecasted that the number of online dating users will only grow (Statista Research Department, 2022). Moreover, having a good, romantic relationship can be positively related to wellbeing (Kansky, 2018), which could

indicate that the difference between both kinds of apps – and their intention to find a romantic partner – and wellbeing certainly is important to investigate. However, with the current results, it is not known whether compulsive and addictive behaviours happen on both kinds of apps and how they relate to wellbeing. Therefore, it could well be the case that current, short time usage of apps does not bring out problematic behaviours and therefore negative consequences for wellbeing are also not revealed through this study. It is recommended that future studies take this into account.

The results of this study also have practical implications for dating app developers and users of dating apps. First, this study implies that there are almost no differences between fast and slow dating and dating success on wellbeing. Therefore, the rise of slow dating apps as a counteract against the negative wellbeing consequences of fast dating apps can be questioned. This study suggests that participants' wellbeing is not bothered by the type of dating, which indicates that using fast dating apps such as Tinder is not necessarily more unsafe for users' wellbeing than using slow dating apps. However, it should be kept in mind that behaviours of compulsive and addictive usage, validation-seeking and appearance comparison were not considered in this study, while these are factors of fast dating apps that might disclose negative consequences for wellbeing.

Limitations

This study found that there are no significant differences in the way people deal with the type of dating app and their dating success, which can be a valuable insight. However, since this study also has limitations, the findings must be taken with caution. One limitation concerns potential shortcomings regarding the study's sample and the extent to which the participants carefully took part in the study. For example, the sample mainly existed of highly educated students, which is not a representative sample for all dating app users.

Moreover, a part of the respondents was recruited through Facebook groups with other students who were distributing their survey and looking for respondents. Since surveys are

used as a medium of exchange in these groups and students often fill in many surveys after each other, it is unclear to what extent these participants took the time to carefully fill in this survey. Namely, there are several indications that some participants did not carefully complete the survey, read questions, or fill in the survey on a computer which did not enhance ecological validity. For example, not each participant read the questions in the survey carefully since 29 participants answered wrong on the manipulation check questions. In addition, 27.6% of all participants did not fill the survey in via their mobile phone, which was, however, stated as a recommendation in the recruitment message and welcoming letter. The idea behind this was that using a mobile phone, especially in the fast dating condition, would enhance the feeling of using a real dating app since swiping was made possible as well. For now, it is not clear whether this indeed affected the results, but to be sure that each participant has the same experience, it is advised that using a mobile phone for future experiments with a mock-up dating app is a requirement. Future research is also recommended to include a more representative sample, with not only students, and a sample where fewer participants were recruited through survey exchange groups.

Another limitation of the current study is that the experiment only measured participants' wellbeing for a short moment. The sadness, joviality and expected (online) dating success scales were solely focused on negative and positive effects directly after the usage of the mock-up dating apps. Therefore, it is unclear whether participants would feel similarly after a longer period of use. A recommendation for further research is therefore to ask participants to use this mock-up dating app for multiple days in a row.

Conclusion

Prior studies on the topic of online dating and wellbeing found that users of fast dating apps had more often relationships with decreased wellbeing, as opposed to people that did not use dating apps. The current study seems to be one of the first that investigated whether slow dating (vs. fast dating) is better for users' wellbeing, while also investigating the role of dating

success on these apps. To investigate this, a 2x2 between-subjects design was used where participants interacted with a mock-up dating app in one of four conditions. Afterwards, participants' wellbeing was measured by using three scales. In general, no main and interaction effects of type of app and dating success were found on well-being. This could mean that users' wellbeing is not affected by the type of dating or dating success, or it could be the result of the current study's setup. For example, wellbeing was now measured only at one moment right after the usage of the mock-up dating apps, while the type of dating app and dating success might not immediately impact wellbeing. In line with this, another explanation could be that in earlier studies it was found that compulsive behaviour, validation-seeking behaviour, and appearance comparison influenced wellbeing, while the current study did not investigate the role of such behaviours in relation to wellbeing.

Future research is encouraged to further examine if the type of dating app and not getting any matches indeed does not impact wellbeing, for example by using a longitudinal research design or by asking respondents to create their own profile prior to swiping partner suggestions in order to enhance the feeling of being the one that evaluates the partner suggestions and is evaluated by others.

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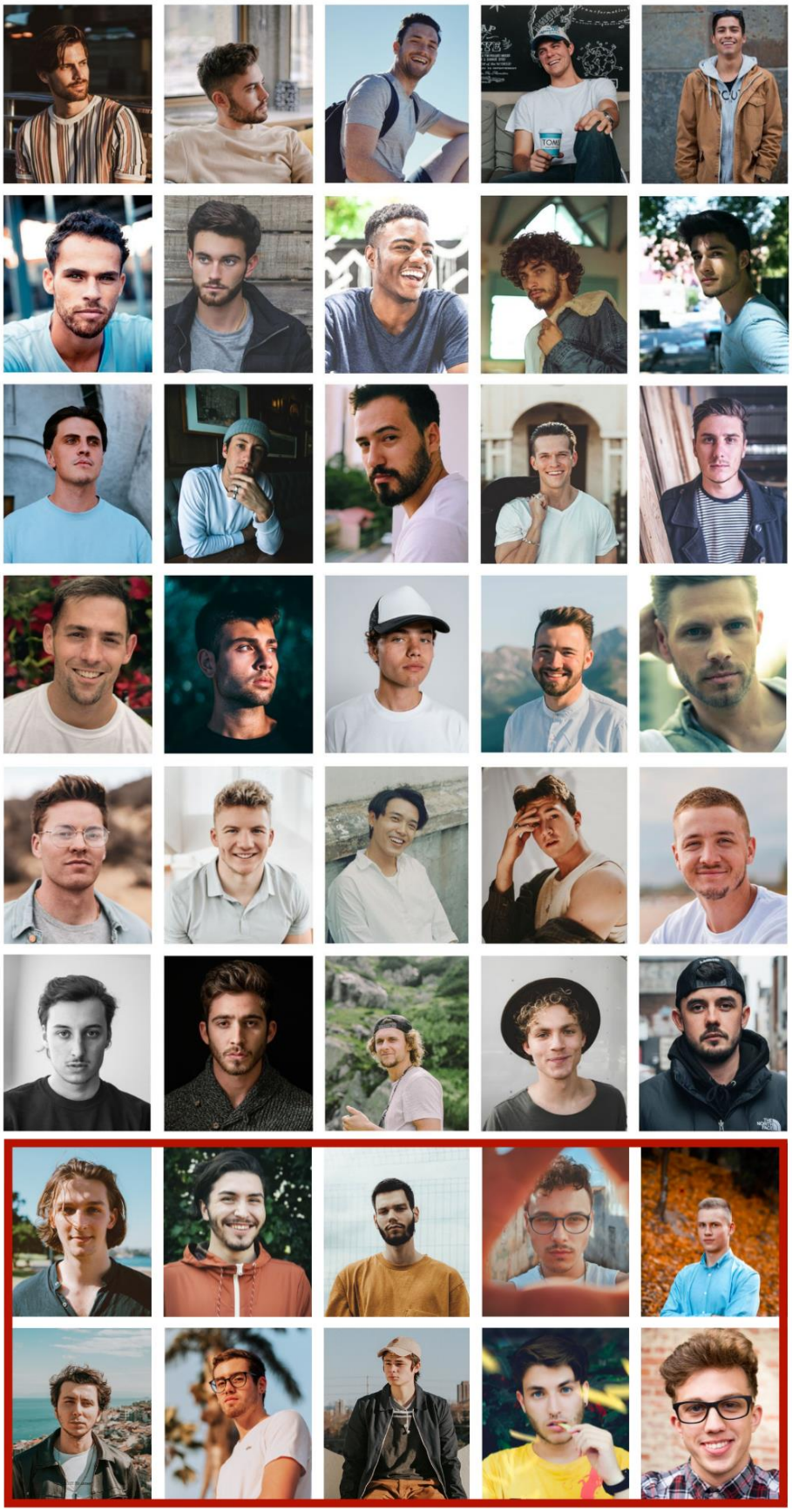
Appendix A: Photos used in the pretest

Photos of males, in order (left to right) of attractiveness. The last ten photos were deleted from the dataset for the experiment. The first photo had a mean score (1-10) of 7.71, the last photo had a mean score of 2.95.



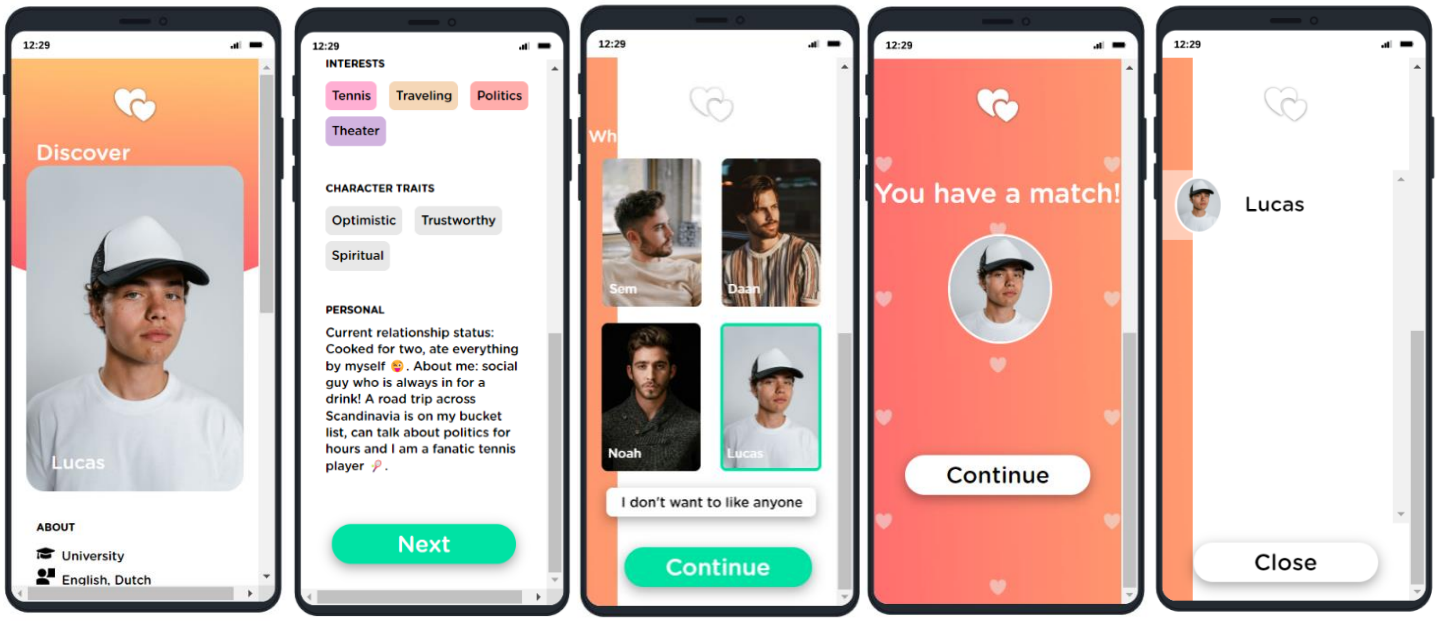
Photos of females, in order (left to right) of attractiveness. The last ten photos were deleted from the dataset for the experiment. The first photo had a mean score (1-10) of 7.96, the last photo had a mean score of 4.67.

Appendix B: Prototypes used for the mock-up dating app

Fast dating and success condition:

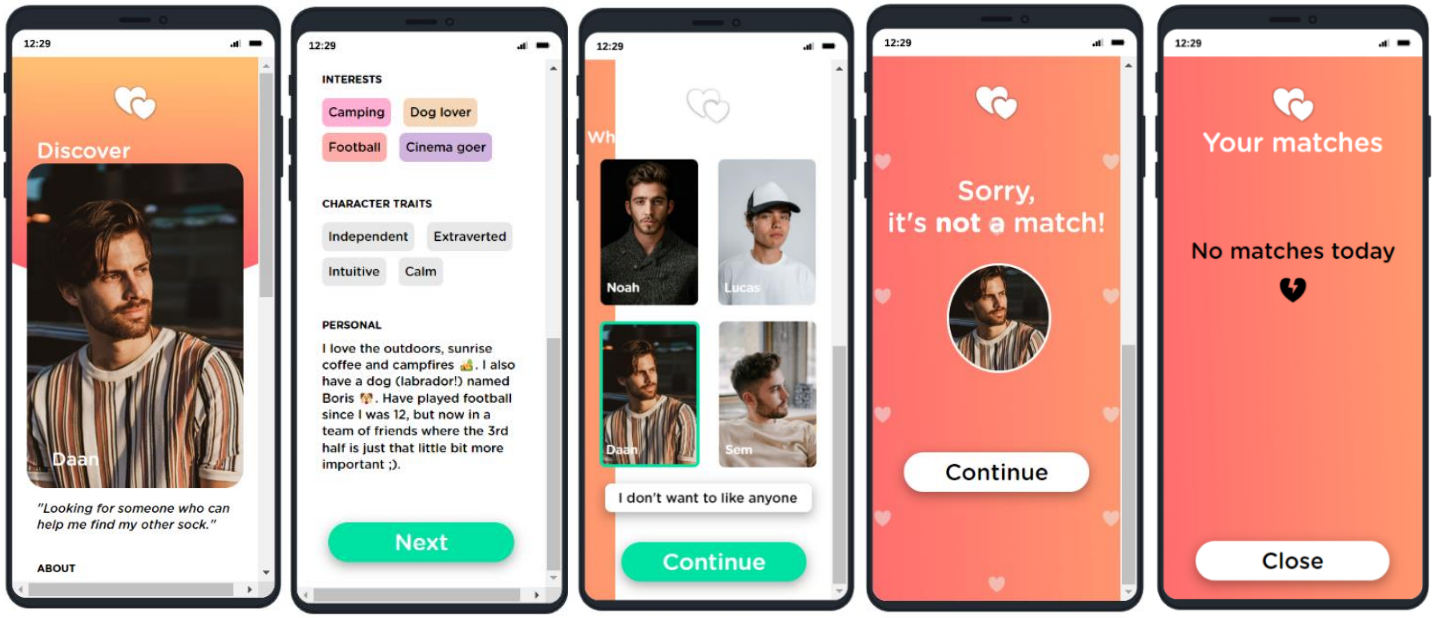
Fast dating and rejection condition:

Slow dating and success condition:



Note. In the third and fifth images, the background is not shown correctly. This is due to the Qualtrics preview feature, but this was not the case during the experiment.

Slow dating and rejection condition:



Note. In the third image, the background is not shown correctly. This is due to the Qualtrics preview feature, but this was not the case during the experiment.

Appendix C: Qualtrics survey

Welcoming letter

Welcome,

Thank you very much for participating in this study of Tilburg University! In this text you can read all the information that is necessary to start with this study, please read it carefully. With this research, we want to gain insights into people's behaviour when using an online dating app. Therefore, we would like to ask you to interact with a mock-up online dating app. Everything you need to know will be explained later on in this survey. After using the mock-up dating app, we ask you to answer a couple of statements.

Please fill in this survey via your mobile phone. You have to be between 18 and 30 years old to be able to participate in this study. You also need to be single. Participating in this study will take approximately 10 minutes of your time. There are no risks to participating in this study. All the data collecting will be done according to the GDPR (General Data Protection Regulations). The Research Ethics and Data Management Committee of Tilburg School of Humanities and Digital Sciences has given permission for conducting this study. The participation will be fully anonymous and collected data will be treated confidentially. By no means, your name can be associated with the results. The anonymized data of this study will be stored for 10 years and can be shared with other researchers.

Participating in this study is completely voluntary and during this study you have the right to withdraw at any time, for any reason and without negative consequences. If you have any questions about this study at a later time, you can contact lead researchers:

- Rachèl Korver - R.Korver@tilburguniversity.edu
- Tjarda Waleson - T.A.M.Waleson@tilburguniversity.edu

or principal investigator Tess van der Zanden (T.vdrZanden@tilburguniversity.edu). For eventual comments or complaints about this study, you can also contact the Research Ethics and Data Management Committee of Tilburg School of Humanities and Digital Sciences via tshd.redc@tilburguniversity.edu.

When you want to participate in this study, you agree with the following statements:

- You have read the information on the previous page carefully; You know that you can withdraw from this study at any time;
- You know that if you have any questions, you can contact one of the researchers or the principal investigator;
- You agree that your anonymized data will be stored for 10 years;
- You agree that your anonymized data will be used for potential future studies or a scientific publication;
- You agree that your anonymized data can be shared with others (for non-commercial purposes).

- I agree with this and I would like to start with the study
- I do not agree with this and I do not want to participate in this study

Block 1 Demographic questions

What gender do you identify most with?

- Male
- Female
- Non-binary
- Third gender
- Prefer not to say

What is your age?

What is your highest completed or current level of education?

- Elementary school
- Lower secondary education (VMBO)
- Higher secondary education (HAVO or VWO)
- Vocational education (MBO)
- Bachelor at a University (of Applied Sciences) (HBO or WO bachelor)
- Master, Post-master or PhD

Are you currently single?

- Yes
- No

Which gender are you most attracted to?

- Males
- Females
- Both
- Prefer not to say

Block 2 Self-esteem (not used in this study)

In the following questions we want to ask you to reflect on yourself. Please indicate how you feel about the following statements (Very slightly or not at all, A little, Moderately, Quite a bit, Extremely):

- On the whole, I am satisfied with myself
- At times I think I am no good at all
- I feel that I have a number of good qualities
- I am able to do things as well as most other people
- I feel I do not have much to be proud of
- I certainly feel useless at times
- I feel that I'm a person of worth
- I wish I could have more respect for myself
- All in all, I am inclined to think that I am a failure
- I take a positive attitude toward myself

Block 3, 4 & 5 Experiments

Introduction Fast Dating

In the next section we would like to ask you to use a mock-up mobile dating app. In the app, 30 potential partner suggestions will be presented. We would like to ask you to rate these people fairly. Please try to imagine that you are the person who is using this dating app. Do you like someone? Then swipe right. If you don't want to like someone, swipe left. When you have rated the 30 potential partner suggestions you will see a screen with your personal matches at the end. After this, you will be automatically returned to this survey. Have fun and good luck!

Introduction Slow Dating
In the next section we would like to ask you to use a mock-up mobile dating app. In the app, four partner suggestions will be presented. We would like to ask you to choose one of those four that you like. Please try to imagine that you are the person who is using this dating app, take the time to review the profiles and choose one based on your own feelings. When you have liked one profile, you will see if you have a match with this person. After this, you will be automatically returned to this survey. Have fun and good luck!

Block 6 Manipulation check
You just interacted with a mock-up online dating app. In the next set of questions, we would like to know what you saw in this app.

How many partner suggestions did you see?
- 4
- 30

Did you have any matches?
- Yes
- No

Have you liked at least one of the given partner suggestions?
- Yes
- No

Fill in the number of matches you received:
- 1-5
- 6-10
- 11-15
- 16-20
- 21-35
- 26-30

IF match condition: On average, how attractive do you think your matches were on a scale ranging from 1-10 (1 = not attractive at all, 10 = highly attractive)?
1 2 3 4 5 6 7 8 9 10

IF no math condition: On average, how attractive do you think the people you liked are on a scale ranging from 1-10 (1 = not attractive at all, 10 = highly attractive)?
1 2 3 4 5 6 7 8 9 10

Block 7 Internal attribution (not used in this study)

In the next set of questions, we want to ask you to reflect on your experiences with online dating. If you have no experiences with online dating, we want to ask you to base your answers on your experiences with the mock-up dating app you just used.

Being unsuccessful on dating apps is something that:
Reflects an aspect of myself (1-5) Reflects an aspect of the situation

Being unsuccessful on dating apps is something that is:
Outside of me (1-5) Inside of me

Being unsuccessful on dating apps is:
Something about me (1-5) Something about others

Please indicate how you feel about the following statements (Very slightly or not at all, A little, Moderately, Quite a bit, Extremely):

- I lack confidence in my ability to get matches on online dating apps
- I often feel that I am a failure at online dating
- In general, I feel satisfied with my online dating life

Block 8 Well-being statements

We now ask you to answer some statements about how you feel at this moment.

At this moment, I feel (Very slightly or not at all, A little, Moderately, Quite a bit, Extremely):

- Sad
- Depressed
- Down
- Alone
- Lonely

At this moment, I feel (Very slightly or not at all, A little, Moderately, Quite a bit, Extremely):

- Happy
- Joyful
- Cheerful
- Enthusiastic
- Energetic

Block 9 Check question mobile phone

Are you filling in this survey on your mobile phone?

- Yes
- No

Debriefing & Closing

Your unique code: ${e://Field/Random%20ID}

You've reached the end of the study! Again, thank you very much for participating. This survey represented two different studies.

For both studies, the same material and data will be used for analysis. In this study, you have interacted with a prototype that was in one of the four conditions. You either had a prototype with many suggestions and you received matches, a prototype with many suggestions where you did not receive any matches, a prototype with only one suggestion and a match, or a prototype with only one suggestion and you did not receive a match.

The first study (study 1) looks at the influence of 'rejection', (which in the study was the presentation of a match or not) on mental wellbeing. There are several variables that could affect this influence, such as internal attribution or self-esteem. Internal attribution can be explained as the extent to which an individual uses a personal reason as the cause for a situation or event instead of an external reason. This, for example, could influence the relationship between rejection and mental wellbeing as the individual may not be imputing the rejection to himself but to the other. In addition, it is investigated if self-esteem influences this relationship, as it can be expected that people with a higher self-esteem score lower on internal attribution and therefore care less about the rejection.

The second study (study 2) that was represented in this survey looks at the differences in 'fast' and 'slow' dating and their influence on wellbeing. Fast dating apps are often swipe-based apps, where users have to swipe between the suggestions, they get served from the app. Decisions on fast dating apps are often quick and without much involvement. Recently, several studies have found that fast dating can have a negative effect on the (mental) wellbeing of individuals. For this reason, slow dating apps are emerging. With slow dating apps, users are only presented with one carefully selected suggestion per day. These apps want to encourage the user to take a deliberate and slow decision on whether they like the person. Because not much is known about the actual effect of slow dating on (mental) wellbeing, this study tries to investigate this matter. This study also tries to investigate if getting success (matches) or rejection (no matches) is perceived differently when it is the one person you have carefully selected to like (slow dating) or one of many (fast dating). Additionally, this study tries to clarify the relationship between online dating and (mental) wellbeing in general.

Do you still want to withdraw your participation? Please mail your unique code on the top of this page to Tess van der Zanden (T.vdrZanden@tilburguniversity.edu). All your data will then be removed from the database. For general questions or comments, please contact Tess van der Zanden (T.vdrZanden@tilburguniversity.edu). For specific questions or comments about study 1, please contact lead researcher Rachèl Korver (R.Korver@tilburguniversity.edu). If you have any questions or comments about study 2, please contact lead researcher Tjarda Waleson (T.A.M.Waleson@tilburguniversity.edu). For any comments or complaints about the study, you can also contact the Research Ethics and Data Management Committee of Tilburg School of Humanities and Digital Sciences at tshd.redc@tilburguniversity.edu.

Don't forget to submit your answers by clicking on the arrow at the bottom of this page.