The influence of social motives to use online dating services on mental well-being:

A gender comparison.

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Abstract

Introduction. Online dating services experienced increasing popularity over the last years resulting in more and more studies analysing different consequences and reasons for dating online. Regardless of the multiple reasons to use of such services, most common are social motivations such as looking for new friends, seeking a romantic relationship, or to engage in casual sex. The different social motives can lead to different outcomes e.g. success rate, therefore, influencing mental health of an individual. Since men and women have been found in past research to differ in their main motives to date online it could also influence a possible relationship between social motives and mental well-being. This study aims to find out 1)*"Which social motive to use online dating results in the highest level of mental well-being?"; 2)"What gender differences can be found for the three most common social motives?"; 3)"Is the relationship between social motives and mental well-being moderated by gender?"*. **Methods.** An online survey was carried out with 151 participants (63 males, 88 females) that filled out all the necessary items. The required items were the demographics, the social motives and well-being (assessed with the MHC-SF scale). For the first research question, a 'One-way ANOVA' was carried out to compute means and statistical significance of possible mean differences. For the second research question, a crosstabs table with a chi-square test was chosen to analyse gender differences for each social motive ('friendship', 'romantic relationship', 'casual sex'). Lastly, a mean cantered moderator analysis was conducted to investigate a moderator effect on the relationship between casual sex and mental well-being. **Results.** The descriptives showed differences in the mental well-being level for all three social motives, however, these differences were not statistically significant ($p = .610$). Gender was found to be associated with social motives (X^2 (2, N = 151) = 22,772, $p < .001$) and gender differences existed for all three motives. The moderation analysis revealed that there was also no statistical significance for a moderator effect of gender ($p = .562$). **Discussion.** The findings that more men would date online for casual sex while women would look commonly for friendship and romantic relationship was in line with the expectations of previous research. However, the social motives of online dating users had no influence on their mental health. This might explain that social motives do not have a direct influence on mental health or that non-social motives are more suitable predictors. Furthermore, gender as a moderator did not influence the relationship between casual sex and mental well-being but a mediation model or another composition could be more applicable for the relationship between these three variables which are connected based on past research.

Introduction

Over the last years and due to digitalization, looking for a partner online has become more and more popular. In 1994 and 1995, the first modern dating websites 'kiss.com' and 'match.com' were launched focusing at that time on international dating mostly in terms of 'mail-order bride' services (Ali & Wibowo, 2011). In the beginning, online dating had a negative reputation in the general society because it was assumed to be an indicator of despair and people lacking social skills (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). A study by Smith and Duggan (2013) showed that this attitude changed and became more positive over time. Due to the change in attitude towards online dating, new dating websites were developed for almost all variables of interest such as religion, demographics, intentions, or cultural/ethnic background (Scheinbaum & Zinkhan, 2004). With the increasing opportunity and acceptance towards online dating the user number raised worldwide so that in 2019 it was estimated that 38% of all singles within the age of 16-64 used online dating services (Beer, 2019). Based on the "eServices Report 2019" regarding online dating a total number of 239.9 million people used such services, most of which were 25-34 years old, therefore, presenting the most popular age group dating online.

Moreover, the use of online dating technology can be found in almost all age groups (Beer, 2019; Smith, & Duggan, 2013; Statista, 2019). This could be explained due to lack of time in modern society including increased time-pressure and need for mobility making it very difficult to meet new people face-to-face (Konijn, Utz, Tanis, & Barnes, 2008). The relatively low difficulty to use and access such services offers a very efficient way to meet and interact with new people, making it attractive to all age groups (Konijn, Utz, Tanis, & Barnes, 2008).

How does online dating work?

Most online dating services follow the same steps and make it relatively easy to create a user profile for which only an internet connection and an electronic device such as a laptop, smartphone or tablet are needed (Finkel, Eastwick, Karney, & Sprecher, 2012). Such profile set-ups have the function to give a first description of the users and allow them to look for certain attributes in potential partners. Some dating services help the user to find matches through algorithms whereas other websites and apps give almost unlimited freedom in meeting different individuals (Finkel, Eastwick, Karney, & Sprecher, 2012).

Benefits and risks of online dating

Next to the benefit of narrowing down possible partners to certain attributes, online dating is not limited to boundaries of geographical nature or social networks (Finkel, Eastwick, Karney, & Sprecher, 2012; Wiederhold, 2015). Moreover, online dating does seem to provide a relatively unthreatening way and place to develop and maintain social skills and relationships (McKenna, Green, & Gleason, 2002; Wiederhold, 2015). These aspects were found to be perceived as even more beneficial for shy and socially anxious individuals and people that lack social face-to-face skills. (Brannan, & Mohr, 2020; McKenna, Green, & Gleason, 2002).

Besides the advantages of seeking a romantic relationship online, this form of dating also includes certain risk factors. These are the potential objectification of individuals, unwillingness in terms of commitment, making unthoughtful decisions and communication problems e.g. the misunderstanding of a text message (Wiederhold, 2015). Furthermore, people can use the anonymity of the Internet for pervasive lies, letting out electronic sexual aggression, cyberbullying, unwanted exposure to pornographic material, cyberbullying, or scammers attempting financial exploit (Pujazon-Zazik & Park, 2010; Vandeweerd, Myers, Coulter, Yalcin, & Corvin, 2016).

Mental well-being

Experiences such as the encounter of cyberbullying, objectification and sexual aggression can have negative psychological consequences on the mental well-being of an individual (Vandeweerd, Myers, Coulter, Yalcin, & Corvin, 2016). Nevertheless, online dating can also have a positive impact of mental health as it can decrease loneliness and promotes happiness and confidence when experiencing successful satisfaction of one's needs (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Her & Timmermans, 2020).

Since there is an extensive selection of possible partners presented by online dating services, it can very quickly lead to a phenomenon called "relationship shopping" (Aron, 2012; Firestone, 2019; Heino, Ellison, & Gibbs, 2010). This phenomenon is related to online shopping and implies that individuals on online dating apps and websites are less seen as human beings but more as objects presenting certain attributes. This objectification of individuals online can influence physical self-perception and psychological well-being (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). Moreover, this factor can also lead to an online dating addiction underlying the

effect of online dating, using intensity on the mental health of an individual (Bloom & Dillman Taylor, 2019).

To improve their chances on the online partner market, some individuals lie about physical information e.g. height, age, or weight or even tend to false self-representation during their interactions on online dating apps/websites (Johnson, 2015). The consequences on an individual experiencing false representation by another person online can result in serious psychological problems including mental breakdown, depression or suicide (Johnson, 2015). The main factor is the anonymity on the Internet that allows false representations, persuasive lying, and 'catfishing' (Brannan, & Mohr, 2020; Johnson, 2015). But not only the anonymity but also affordability, accessibility; approximation in online activities has been found to cause intimacy problems regarding trust, communication, and loss of security for online dating individuals (Hertlein & Stevenson, 2010).

However, there are findings that report positive effects of online dating on mental well-being. A study by Young and Caplan (2010) showed that online dating services can serve as places for processing past experiences and self-discovery after a post-identity loss. Additionally, the well-being of individuals having social concerns, difficulties finding a matching partner, or relocated recently can be positively influenced by e-dating services (Finkel, Eastwick, Karney, & Sprecher, 2012). Besides the benefit of decreasing loneliness and sadness, individuals can learn social skills during online dating, build up confidence and use their new gained skills in offline social face-to-face interaction (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Her & Timmermans, 2020). A decrease in negative emotions and an increase in positive feelings and confidence can influence mental health.

Despite all the possible risks and negative effects of online dating on well-being, most men and women reported having personally experienced positive effects while dating online (Anderson, Vogels, & Turner, 2020).

Gender differences in online dating

While men and women seem to share similar positive dating experiences, gender differences have been found in various studies analysing online dating behaviour and outcomes. Men and women differ in their (risk)perception of online dating but also in their reasoning, self-presentation, preferred information, interaction styles, mate preferences, and expectations when using online

dating services (Abramova, Baumann, Krasnova, & Buxmann, 2016). Whilst both men and women seem to benefit by uploading more pictures, especially women show a higher need for self-representation through pictures on their dating profiles to achieve their favourable dating outcome (Abramova et al., 2016; Fiore & Donath, 2005). The number of chat requests and messages was found to be positively influenced by the number of pictures they uploaded which implies that men find physical attractiveness very important (Abramova et al., 2016; Bak, 2010; Fiore & Donath, 2005; Kreager, Cavanagh, Yen, & Yu, 2014; Xia, Jiang, Wang, Chen, & Liu, 2014). In relation to this, men approach women through online dating services more often than women initiating contact with men (Abramova et al., 2016).

As men are found to be more interested in physical appearance, women show their preferences in socio-economic attributes such as financial stability, profession and intelligence (Abramova et al., 2016; Xia et al., 2014). Thus, women are also more interested in longer self-descriptions rather than solely physical self-representation (Xia et al., 2014).

When dating online, men tend to be more open, while women display higher levels of creativity and variety of presented information. Nonetheless, both male and female individuals were found to lie about some information regarding themselves (Abramova et al., 2016). Women mainly used digital programs to enhance their physical attractiveness whereas men more mainly lie about their relationship status, their intentions and motives to use online dating services.

Gender does not only affect different aspects of online dating, but gender differences also seem to be in relation to psychological factors. Some of the main psychological factors are personality traits, rejection anxiety, bonding styles, and motivation (Blackhart, Fitzpatrick, & Williamson, 2014; Timmermans & De Caluwé, 2017b).

Motivation

Despite all the differences in men and women regarding the use of online dating services, certain motives to use such services have been found in previous research and are applicable to both genders. The motives found in literature can be divided into two main categories, social motives and non-social motives (Timmermans & De Caluwé, 2017a). Both non-social and social motives can be linked to 'Maslow's Hierarchy of Needs' which deals with the different levels in human motivations and needs (Maslow, 1943). These five levels are presented in a hierarchical structure and deficits in a level must be relatively satisfied before an individual can encounter a higher level.

The first two stages include basic needs such as 'physiological needs' and 'safety needs'. The second and third level 'love and belongingness needs' and 'esteem needs' are also called 'psychological needs' making them applicable for this research in terms of online dating and mental well-being.

Non-social motives such as using online dating services for ego-boosting would refer to Maslow's 'esteem needs' (Maslow, 1943; Timmermans & De Caluwé, 2017a). It is relatively common that individuals use online dating apps or websites in order to improve their confidence or in times of procrastination when they seek entertainment (Kallis, 2020; Timmermans & De Caluwé, 2017a). Nevertheless, most individuals use online dating for socializing and meeting other people (Kunst, 2019). This could be explained by Maslow's theory emphasizing that humans have a higher need for 'love and belongingness' than 'esteem needs' meaning that online dating is mostly used due to social motives to satisfy social needs (Maslow, 1943).

A study by Timmermans and De Caluwé (2017a) used the Uses and Gratifications Theory (U&G) to explain the reasons behind the use of online dating services. The U&G implies that individuals are motivated to gratify psychological and social needs through the active use of media. In a survey Kunst (2019) found that main reasons for individuals using online dating services such as meeting people with the same interests or hobbies, finding a partner for a long-term relationship or marriage, meeting people for sexual encounters without being in a committed relationship, and meeting people that share the same values or beliefs. These findings are in line with the results of Timmermanns and De Caluwé (2017b) which identified, among a total of 13 motives, three main social motives including friendship, casual sex, and romantic relationships for their research.

Research Question and Hypotheses

As the literature analysis revealed, a lot of research has already been conducted about gender differences, online dating, social motives, and mental health. Studies by Timmermann and De Caluwé (2017b), James (2015) or Kunst (2019) established the motives of individuals to use online dating services but did not further examine the influence of such motivations on mental health. This study will focus on the social motives because the majority of online users have been found to use online dating services to meet other people (Kunst, 2019). The influence of social motives on mental well-being was based on the study by Her and Timmermans (2020) who found that different social motives had different success rates. Those differences in success rates of social

motives determined the satisfaction of social needs such as decreasing sadness and loneliness in addition to an increase of positive emotions and mental well-being (Ando & Sakamoto, 2008; Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Her & Timmermans, 2020).

Moreover, gender differences have been found in the motivation and online dating behaviour but a more detailed analysis of gender as a possible moderator for the relationship between mental well-being and online dating motives was disregarded (James, 2015; Timmermann & De Caluwé, 2017a; Timmermann & De Caluwé, 2017b). Since the increased popularity of online dating, various studies have been carried out about motivation including social motives, gender, and mental well-being. However, research is lacking insight of the relational composition of all three concepts combined. In consideration of the small existing number of studies, this research focused on the direct influence of social motives to use online dating services on individual's mental well-being. In addition, this study included a gender comparison in order to determine a possible moderator effect.

The three main social motives friendship, romantic relationship, and casual sex, identified in the study of Timmermanns and De Caluwé (2017), are also used in this study in order to enable a better comparison of past and future research findings. Based on this, the first research question is *"Which social motive to use online dating results in the highest level of mental well-being?"*. It was expected that individuals looking for friendship would have the highest level and individuals that are only interested in casual sex would have the lowest level of mental well-being. Therefore, individuals that are looking for a romantic relationship would have a lower level of mental well-being compared to friendship but a higher level than casual sex. These expectations are based on the prevalence for the three main social motives, as friendship was found to be the most common social motive followed by seeking a romantic relationship and lastly looking for casual sex (James, 2015; Timmermann & De Caluwé, 2017). The higher the number of people sharing the same social motive would increase the chance to satisfy one's social needs potentially resulting in a higher mental well-being (Her & Timmermans, 2020).

To analyse gender differences among looking for friendship, seeking a romantic relationship and casual sex, the second research question is examining *"What gender differences can be found for the three most common social motives?"*. Gender differences are expected for all three motives as men and women were found to have different motivations when using online dating services (Abramova et al., 2016; Kallis, 2020; Lopes & Vogel, 2019; Timmermanns & De

Caluwé, 2017b). Based on previous research, the social motive casual sex was found to more common for men as men in general would have a higher sex drive (Lopes & Vogel, 2019; Timmermanns & De Caluwé, 2017b). Furthermore, it was expected that men and women show divergence for friendship and romantic relationship as earlier studies stated women would more often use online dating to find new friends or a romantic partner than men (Abramova et al., 2016; Kallis, 2020; Lopes & Vogel, 2019).

Research showed that gender influences aspects such as motivation for using online dating services as well as the behaviour, and experiences of individuals using this form of technology (Abramova et al., 2016; Xia et al., 2014). Therefore, the third research question is: *"Is the relationship between social motives and mental well-being moderated by gender?"*. For this, the relationship between casual sex and mental well-being was chosen based on previous research revealing most gender differences for using online dating service for casual sexual activity (Abramova et al., 2016; Lopes & Vogel, 2019; Timmermanns & De Caluwé, 2017b). A negative moderation effect was expected on mental well-being for individuals seeking sexual encounters. Furthermore, it was expected that this negative effect will be higher on men than women as men look more often solely for casual activities when using online dating services. (Timmermanns & De Caluwé, 2017b). This could imply a higher success rate for women who are looking for casual sex, because they could have it easier to find a male partner that matches their social motive, resulting in faster satisfaction of their own (social)needs (Her & Timmermans, 2020).

Methods

Participants

The participants were reached through convenience sampling, they were contacted through personal connections and social media followed by the snowball principle. They received a link that forwarded them to the online questionnaire. Moreover, the study was published on 'SONA SYSTEMS', a test subject pool of the University of Twente, to recruit more participants (Sona Systems, 2002). On this website students of the University of Twente can participate in different research projects to earn credits for their own study progress.

Earlier studies targeted participants from all age groups starting mostly from 18 years old without any upper cut-off (Smith, & Duggan, 2013; Statista, 2019). For this study, such age classifications

were adopted not only regarding the legal age of participants but also to keep an international comparison for past and future research possible.

In total, 262 individuals participated in a combined study of multiple researchers who investigated different aspects of online dating. However, 111 participants were excluded during the data analysis because they did not fill out the necessary items relevant for this research paper. This resulted in a convenience sample size of 151 individuals ranging from the age of 18 until 55 (M(age)= 23.34, SD(age)= 5.08). This number includes 63 male participants and 88 female participants. The majority of the participants were German (107), followed by Dutch (16) and other nationalities (28). Most participants (86.1%) reported to be heterosexual, 9.3% bisexual, 2.6% homosexual, 1.3% other sexual orientation, and 0.7% preferred not to answer.

The frequencies for social motives revealed that 47.7% of the participants use/used online dating for a romantic relationship. In comparison, 29.8% of individuals dating online used such services for casual sex while 22.5% were only interested in meeting new people and making friends.

Materials

An online questionnaire with 66 items was created based on different pre-existing scales and questionnaires. The full version can be found in the Appendix (Appendix A). Since this research was part of a bigger research group, the questionnaire was divided into 12 different scales. Scales that were not relevant for this study, but part of the overall questionnaire measured the concepts of self-esteem, rejection, body-satisfaction, self-compassion, body image, and self-objectification. The scales of interest for this study were 'Demographics', 'Online dating', and 'Mental Health Continuum-Short Form'.

The first category of interest 'Demographics' contained five items about demographic information including age, gender, nationality, sexual orientation, and if a participant uses/used or never made use of an online dating service.

Secondly, the category 'Online dating' included one item of interest in relation to the social motives to use online dating apps or websites. The item was based on the research findings by James, (2015), and Timmermann and De Caluwé (2017). In detail, the participants were asked what statement they could mostly identify with regarding the social motives to use online dating services.

It was then possible to select only one of the following three statements: "I want to meet new people/ find new friends", "I am seeking a romantic relationship", or "I am looking for casual sex".

The third category measured the mental well-being of the participants. In this scale the participants had to answer the questions of the 'Mental Health Continuum-Short Form (MHC-SF)' developed by Keyes (2005). The test was chosen because of its good psychometric properties (Cronbach's alpha = .91) providing good internal reliability, divergent validity and convergent validity (Luijten, Kuppens, van de Bongardt, & Nieboer, 2019). The scale consisted in total of 14 items measuring not only the overall mental well-being but also included three subscales of mental health such as emotional, social, and psychological well-being (Keyes, 2005).

Design and Procedure

A questionnaire survey design was carried out online via an online survey tool by the software company 'Qualtrics' in order to test the four hypotheses related to the research topic "The influence of social motives to use online dating services on mental well-being: A gender comparison." (Smith, Smith, Smith, & Orgill, 2002).

At the beginning of the questionnaire, the participants had to read through an introduction including a general description of the purpose and procedure of the survey followed by the informed consent. They could only proceed to the next elements of the survey after agreeing on the informed consent. If they declined the participation, they got redirected to the end of the questionnaire. If they agreed to participate, they had to answer the first two categories of items 'Demographics' and 'Online dating' followed later on by the 'MHC-SF' as the third scientific scale.

After the participants filled out all items in the survey, the questionnaires were collected by the online tool and later transferred into a statistic-software program to analyse the data in greater detail.

The survey took around 20-30 minutes to complete and was open for participation from the third of April 2020 until 30th of April 2020.

Data Analysis

The statistic program IBM SPSS Statistics 25 was used for analysing the collected data. At first, the final data set was determined by screening the data and including all items necessary to answer

the four hypotheses. Following the data screening, the total score of the MHC-SF and the score for its subscales were calculated and transformed into four ratio variables (mentalWB total score, emotionalWB total score, socialWB total score, and psychologicalWB total score). Following, the frequencies for the relevant demographics were calculated including the mean, the standard deviation. After that, the descriptives of the scale mental well-being and the subscales emotional, social, and psychological well-being were determined for all participants and separated by gender.

A 'One-way-ANOVA' was carried out in order to investigate possible statistically significant differences between the group means of the MHC-SF scale and its subscales for the independent variable social motives with its values: 'friendship'(=1), 'romantic relationship'(=2), and 'casual sex'(=3). This was done to examine the first research question.

In order to answer the second research question, a crosstabs table with chi-square test was carried out including the variables 'social motives' and 'gender'. Thereby, the three social motives friendship, romantic relationship and casual sex were placed in the rows and gender containing male and female participants in the columns. The cross tab should present the observed percentages for each social motive divided by gender while the chi-square test analysed the statistical significance of an association between these two variables.

To answer the third research question regarding a possible moderation effect of gender on the relationship between social motives and mental well-being of online dating app users, the additional SPSS extension tool 'Process Macro' (Version 3.5; Hayes, 2013) was used to carry out a mean centred moderation analysis. The dummy variable 'casual sex' was chosen for the independent variable to examine a possible increase of mental well-being women when using online dating for casual sex.

Results

Descriptives

The descriptives for the overall mental well-being of all participants included in the dataset revealed a mean of 3.91 with a standard deviation of .82. The mean of the subcategory emotional well-being was 4.36 (*SD* = .96). The second subcategory social well-being had a mean of 3.43 (*SD* = 1.02) while psychological well-being showed a mean of 4.07 (*SD* = .88). The descriptives for each mental well-being category divided by gender can be found in the table below (Table 1).

Table 1

Means and Standard Deviation for Well-being Categories for Men (N=63) and Women (N=88)

Category	Gender	Mean (M)	Standard Deviation (SD)
mental well-being	Male	3.81	.920
	Female	3.97	.751
emotional well-being	Male	4.21	1.085
	Female	4.45	.853
social well-being	Male	3.41	1.071
	Female	3.45	.979
psychological well-being	Male	3.94	.960
	Female	4.17	.812

The one-way-ANOVA analysis revealed that people mainly interested in friendship had an overall mental well-being mean of 4.01 (SD = .854). Individuals looking for a romantic partner had a slightly lower mean of 3.90 (SD = .772) whilst individuals looking mainly for casual sex showed the lowest mean of 3.87 (SD = .898).

The descriptive results of the crosstabs table and the chi-square test have been summarized in the following table presenting the gender differences in social motives (Figure 1; Table 2). A visualization of these numbers can be found in the Appendices (Appendix A).

Table 2

Social Motives identification by Gender (Male/Female)

			Gender		
			Male	Female	Total
Social Motives for Online Dating	I want to meet new people/ find new friends	Count	10	24	34
		% within Gender[a]	15,9%	27,3%	22,5%
	I am seeking a romantic relationship	Count	21	51	72
		% within Gender[a]	33,3%	58,0%	47,7%
	I am looking for casual sex	Count	32	13	45
		% within Gender[a]	50,8%	14,8%	29,8%
Total		Count	63	88	151
		% within Gender[a]	100,0%	100,0%	100,0%

a. Chi(df) = 22,772(2), $p < .001$

Correlation Regressions

The results of the one-way ANOVA determined no statistically significant relationship between social motives and the overall mental well-being of individuals dating online ($F(2,148) = .496$, $p = .610$). Moreover, there was also no significant relationship between social motives and the subcategories of mental well-being 'emotional well-being' ($F(2,148) = .007$, $p = .993$), 'social well-being' ($F(2,148) = .209$, $p = .812$), and 'psychological well-being' ($F(2,148) = 1.585$, $p = .208$).

The results of the Chi Squared Test showed that there is a significant association between 'gender' and 'social motives' (X^2 (2, N = 151) = 22,772, $p < .001$). Women were more likely to use online dating to find new friends or a romantic partner while men more often dated online for casual sexual encounters.

Although there was no significant relationship between the social motives and mental well-being based on the 'One-way ANOVA' output, the moderator analysis was still carried out to fully examine the third research question. After investigating a possible interaction effect by 'gender' as a moderator variable on the relationship between the predictor variable 'casual sex' on the dependent variable 'mental well-being' of individuals dating online, the model summary

revealed no statistical significance ($F(3,147) = .686$, $p = .562$). Regarding 'casual sex' and the subcategories of mental well-being moderated by 'gender', the model summary showed as well no statistical significance for 'emotional well-being' ($F(3,147) = .830$, $p = .480$), 'social well-being' ($F(3,147) = .728$, $p = .537$), and 'psychological well-being' ($F(3,147) = .898$, $p = .444$).

Discussion

Implications & Discussion

This study aimed to examine possible different effects of social motives to use online dating services on the mental well-being of online dating users. Secondly, differences for men and women were examined to see if this research was in line with previous findings. Furthermore, the variable gender was analysed for a possible moderator effect on the relationship between social motives and mental well-being. For this the motive to encounter in casual sexual activities was chosen due to the high divergence between men and women in past research.

The literature research beforehand revealed that there was only limited English based research about these three factors combined. Studies by James (2015), or Timmermann and De Caluwé (2017) identified three most common social motives that made people use online dating services such as looking for friendship, romantic relationship, or casual sex. The frequency of those motives did not only differed among men and women but social motives were also found to influence mental well-being as they also affect the success rate to satisfy social needs (Ando & Sakamoto, 2008; Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Kallis, 2020; Her & Timmermans, 2020).

First Research Question

Related to the first research question, this frequency of the main social motives to use online dating services implied a certain success rate for the users. Therefore, it was predicted, that individuals that use online dating services for seeking friendship would have the highest level of well-being followed by romantic relationship and then lastly by casual sex. The statistical analysis revealed that friendship seeker had the highest mean level of mental well-being, however, the mean differences were relatively small and moreover, not statistically significant. This leads to the conclusion that an individual's motivations to use online dating services such as making new friends, seeking a romantic relationship, or for casual sex does not affect their levels of mental well-being.

This was against the expectations based on previous research by different researchers (Ando & Sakamoto, 2008; Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Her & Timmermans, 2020; Timmermann & De Caluwé, 2017a; Timmermann & De Caluwé, 2017b). However, this could be due to a general increase in non-social motivates to use online dating services making them potentially more relevant factors for influencing mental well-being. Already James (2015), and Timmermans and De Caluwé found that non-social factors that motivated people to use online dating services such as boredom, ego-boost, relaxation, entertainment seeking, or to past time. More recent studies showed, that installing online dating applications like Tinder are more frequently used for mainly entertainment purposes instead of a need for social connections (Kallis, 2020). The motivation to use online dating services as an entertainment tool was also found to have a positive effect on mental well-being (Her & Timmermans, 2020). In terms of the 'Hierarchy of needs' by Maslow (1943) social needs of online dating app users could be already satisfied in the current user group of online dating as individuals more frequently reported to use e.g. Tinder on recommendations of their friends for entertainment purposes or self-esteem boost (Kallis, 2020; Her & Timmermans, 2020). This user group could already have a stable social network of friends, and family or even a romantic partner and could, therefore, enable them to target their 'esteem needs' (Kallis, 2020; Maslow, 1943).

Second Research Question

The second research question was examining potential gender differences in the three most common social motives namely friendship, romantic relationship, and casual sex. The cross table presented statistically significant differences between men and women for all three social motives 'casual sex' and 'romantic relationship' and 'friendship'. In detail, men more often used online dating services with the motivation to participate in casual sex while women more commonly dated online to find a romantic partner. Furthermore, the chi-square test revealed that gender affects the social motivation of individuals to use online dating services.

These findings of this study were in line with previous research that found the same gender differences in motivations of men and women for dating online (Abramova et al., 2016; Kallis, 2020; Lopes & Vogel, 2019; Timmermanns & De Caluwé, 2017b).

Third Research Question

The third aim of this study was to examine if the relationship between social motives and mental well-being could be potentially moderated by gender. For this, the social motive 'casual sex' was chosen as previous research indicated the highest gender differences for such motivation. In relation to the success rate to satisfy one's social needs, it was expected that using online dating apps would have a more negative effect on men than women. As fewer women would look for casual sex during dating online, men were predicted to have higher difficulty to find a partner with the same motivation. However, the moderator analysis of the model did not reveal statistical significance for a moderator effect of gender on the relationship between casual sex and mental well-being. In conclusion, gender did not change the strength or direction of an effect between social motives and mental well-being which was contrary to expectations based on previous research (Abramova et al., 2016; Her & Timmermans, 2019; Kallis, 2020; Xia et al., 2014).

Regardless of the non-significance of a moderator model, this research showed a relationship between gender and social motives. In addition, earlier research found gender differences in online dating behaviour and mental well-being (Abramova et al., 2016; Her & Timmermans, 2019; Kallis, 2020; Xia et al., 2014). This could mean that another composition e.g a mediation model of these variables would be more likely to be significant. However, this current research was not without limitations that could have affected the outcomes of this study.

Strengths & Limitations

Regardless the outcomes of this study were partly in contrast to previous research, the study sample achieved to represent the main age group that uses online dating the most. However, certain aspects were identified at the end of the study that could have influenced the final outcomes.

One aspect would include an incomplete representation of important social motives forcing people to answer on only three available options regardless of inconsistency with their true social motives. One participant of this study gave additional feedback saying she would not really be interested in friendship, partnership or sex but sometimes just wants to talk to someone who does not know her. Making interaction with new people without attachment to another person a possible social motive. This would be in line with previous research by Kallis (2020) where socializing in terms of entertainment motivated individuals to use online dating apps such as Tinder.

Moreover, this research was conducted in times of a global pandemic resulting in lockdowns and social distancing in most countries all around the world that could have further promote the importance of non-social motives (Chakraborty & Maity, 2020). Due to the social distance rules, social face-to-face interactions were limited to one's own household. These social changes due to COVID19 did not only cause an increase in users of online dating platforms but also changed their behaviour and motivation (Fisher, 2020; Kießler, 2020; Oelsner, 2020). These changes in motivation to use online dating could have changed the success rate of different motives influencing mental health. Spending more time at home could have had a positive impact on interpersonal relationships with family or household members, leading to a satisfaction of social needs without using online dating services (Coughlan, 2020; Foster, 2020). As these 'Love/Belongingness needs' were fulfilled individuals could have used e.g. Tinder more commonly as an entertainment tool to reduce boredom or to relax and to escape tension by talking to others without deeper social motivation to create new bonds (Kießler, 2020; Maslow, 1943; Oelsner, 2020).

Lastly, another main limitation that could have influenced the outcome of this study was the choice of the MHC-SF since this scale only takes the measure of the well-being in a time period of one month. This study did not examine in detail the time period of participants using online dating services. The inclusion of participants that might have dated online two month or even years ago could have affected part of the data to be unreliable to some degree.

Recommendations

Certain limitations of this study could have potentially influenced the final outcomes but therefore also revealed interesting aspects that can be recommended for future research. In detail, it would be advisable to provide more social motives which could give a more complete offer of response possibilities.

Furthermore, the influence of non-social motives should be further explored, as they seemed to be a more promising factor, as previous research revealed an entertainment factor of online dating services (Kallis, 2020). Regarding this, social and non-social motives need clear evaluation since individuals may use e.g. Tinder for entertainment purposes but at the same time seek socializing as their coping strategy to overcome boredom. As such differentiation might be difficult to make, it could influence the participants' responses.

Additionally, the research was conducted during the time of a global pandemic, which could have potentially caused a temporary shift of the main motives to use online dating towards boredom, stress relief, or procrastination. Therefore, the circumstances under which the study was conducted should be taken into consideration for future research, along with a general possible higher importance of non-social motives.

Another interesting aspect would be further research of the success rate for each social and non-social motive and if there have been changes over the time. Such changes might indicate why social motives to use online dating services potentially became less relevant for the mental well-being of the users.

Moreover, the targeted group should be limited to individuals that are currently dating online or used such services in the past including only a one-month time period. This would enable a more reliable use of the MHC-SF in terms of measuring mental health of online dating users. By narrowing down the target group, errors such as an inclusion of unreliable data can be avoided and could potentially result in a statistically significant relationship between mental well-being and social motives to use online dating.

Lastly, previous research found an effect of gender on motivation and mental well-being (Abramova et al., 2016; Her & Timmermans, 2019; Kallis, 2020; Xia et al., 2014). Thus, the idea of an interaction between all three variables should not be rejected but further examined in which way gender influences those variables. As this research only conducted a moderator analysis, a possible mediator effect cannot be ruled out.

Conclusion

This research found significant gender differences between men and women in their social motivations to use online dating services. Nonetheless, no relationship between social motives and mental well-being could be found which also induced no moderation effect of gender on an earlier expected relationship between the social motive casual sex and mental well-being. However, this does not mean that the idea of influencing effects between these variables should be rejected but the composition should be further analysed and evaluated and for this the limitations of this study should be considered. Nevertheless, the findings of this study produced interesting recommendations for future research such as a potential shift in motivation to use online dating services. Such a shift could have led to changes in success rate of social motives and/or make non-social motives more relevant for current and future user and their mental well-being.

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Appendices

Appendix A – Histogram of Gender Differences in Social Motives

Figure 1

Social motives gender differences
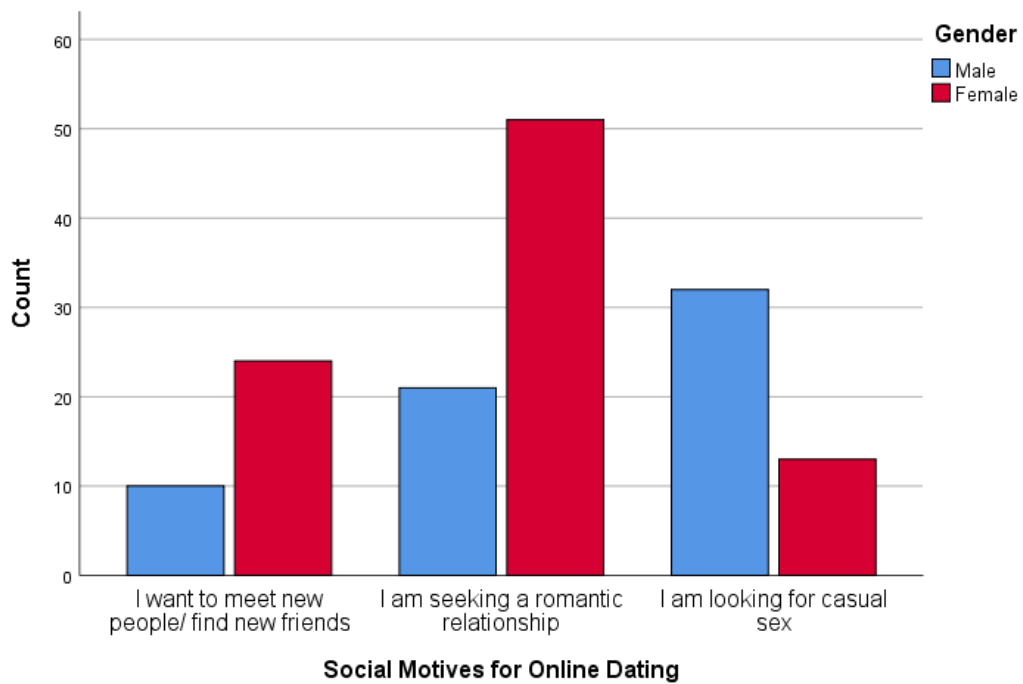
Note. This figure is a visualization of the differences between men and women in their social motives to use online dating services.

Appendix B - Questionnaire

Dear participant,

You are being invited to participate in a research study about "Mental wellbeing in an era of online dating". This study is being done by a group of third-year Psychology students from the University of Twente from the Faculty of Behavioural, Management, and Social Sciences at the University of Twente.

The purpose of this research is to investigate the relationship between online dating and different facets of mental wellbeing and will take approximately 20-30 minutes to complete. The data collected in this online survey will be treated strictly confidential. As such, all analysis of the collected data occurs anonymously and only for the purpose of this study. If the data is published, measures will be taken to ensure that no data of any individual is recognizable as such.

Your participation in this study is entirely voluntary and you can withdraw at any time. There are no right or wrong answers to the questions. Try to go along with the first thoughts you have.

We believe there are no known risks associated with this research study. We will minimize any risks by safely storing the data and anonymize all of your answers. However, during the study you are asked to individually self-reflect upon different constructs of your current mental well-being level. If you have the feeling that your current level of mental well-being is at risk we kindly invite you (if you are a student of the University of Twente to contact the student psychologist (please contact the secretariat of SACC on office hours: +31 53 489 2035 or visit the desk in the Vrijhof, 3rd floor, room 311) or your study advisor) to get help by contacting self-help hotlines:(https://www.nhs.uk/conditions/stress-anxiety-depression/mental-health-helplines/).

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Thank you for your participation.

In compliance with the EU General Data Protection Regulation GDPR for collection of new data active, informed consent is required.

I understand and consent that:

1. I am 18 years old or older.

2. The procedure will approximately take 20-30 minutes.

3. I understood the content and agreed to contribute my data for the use of this research.

4. I can withdraw from this research at any time by informing the researchers and all my data will be deleted.

5. My personal information will be anonymised to protect my privacy.

6. With my permission, I agree that all my data can be evaluated and used for the research.

7. I have been given the guarantee that this research project has been reviewed and approved by the BMS Ethics Committee. For research problems or any other questions regarding the research project, the Secretary of the Ethics Commission of the faculty Behavioural, Management and Social Sciences at the University of Twente may be contacted through ethicscommittee-bms@utwente.nl

In the case of questions or ambiguities, the researchers Miriam Sanhaji (m.sanhaji@student.utwente.nl), Charlie Chrie (c.s.chrie@student.utwente.nl) , Lea Faesing (l.m.faesing@student.utwente.nl) will be available in order to help.

Background questions:

What is your age?
_____

What is your gender?
_____

What is your nationality?
_____

How often do you make use of online dating apps/websites?

◯ Never → forwarded to the end of the questionnaire
◯ Once a month
◯ 2–3 times a month
◯ Once a week
◯ 2–3 times per week
◯ 4–5 times per week
◯ Daily
◯ 2–3 times per day
◯ 4–6 times per day
◯ Once an hour
◯ 2 or more times per hour

Which online dating apps do you use? (more than one answer is possible)
◯Tinder
◯Lovoo
◯Bumble
◯Badoo
◯Others, namely:_____

Which statements can you most identify with regarding the social motives to use online dating services (e.g. Tinder, OkCupid, Match.com,...)?
◯I want to meet new people/find new friends.
◯I am seeking a romantic relationship.
◯I am looking for casual sex.

Which statements can you most identify with regarding the non-social motives to use online dating services (e.g. Tinder, OkCupid, Match.com…)?

◯Because it passes time when I'm bored.

◯As a self-confidence boost.

◯To procrastinate things I should be doing (working, studying,...).

In case that you used online dating in the past, did you make experiences that you evaluate as positive?

◯ Yes

◯ No

◯ I never used online dating before

In case that you used online dating in the past, did you make experiences that you evaluate as positive?

◯ Yes

◯ No

◯ I never used online dating before

Do you intend to use online dating in the future?

◯ Yes

◯ No

◯ I am not sure

Rosenberg Self-Esteem Scale

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. On the whole, I am satisfied with myself.	○	○	○	○
2. At times I think I am no good at all.	○	○	○	○
3. I feel that I have a number of good qualities.	○	○	○	○
4. I am able to do things as well as most other people.	○	○	○	○
5. I feel I do not have much to be proud of.	○	○	○	○
6. I certainly feel useless at times.	○	○	○	○

7. I feel that I am a person of worth, at least on an equal plane with others.

○   ○   ○   ○

8. I wish I could have more respect for myself.

○   ○   ○   ○

9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude towards myself.

○   ○   ○   ○

10. I take a positive attitude towards myself.

○   ○   ○   ○

Questions about emotional well-being

Emotional well-being 1. happy 2. interested in life 3. satisfied with life

During the past month, how often did you feel …	NEVER	ONCE OR TWICE	ABOUT ONCE A WEEK	2 OR 3 TIMES A WEEK	ALMOST EVERY DAY	EVERY DAY
...happy	◯	◯	◯	◯	◯	◯
…interested in life	◯	◯	◯	◯	◯	◯
...satisfied with life	◯	◯	◯	◯	◯	◯

Social well-being

During the past month, how often did you feel …	NEVER	ONCE OR TWICE	ABOUT ONCE A WEEK	2 OR 3 TIMES A WEEK	ALMOST EVERY DAY	EVERY DAY
...that you had something important to contribute to society	○	○	○	○	○	○
...that you belonged to a community (like a social group, your school, or your neighborhood)	○	○	○	○	○	○
...that our society is a good place, or is becoming a better place, for all people	○	○	○	○	○	○
...that people are basically good	○	○	○	○	○	○
...that the way our society works made sense to you	○	○	○	○	○	○

Psychological well-being

During the past month, how often did you feel …	NEVER	ONCE OR TWICE	ABOUT ONCE A WEEK	2 OR 3 TIMES A WEEK	ALMOST EVERY DAY	EVERY DAY
...that you liked most parts of your personality	◯	◯	◯	◯	◯	◯
...good at managing the responsibilities of your daily life	◯	◯	◯	◯	◯	◯
...that you had warm and trusting relationships with others	◯	◯	◯	◯	◯	◯
...that you had experiences that challenged you to grow and become a better person	◯	◯	◯	◯	◯	◯
...confident to think or express your own ideas and opinions	◯	◯	◯	◯	◯	◯
...that your life has a sense of direction or meaning to it	◯	◯	◯	◯	◯	◯

Self-compassion Scale - Short form:

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost never   **Almost always**

    1   **2**   **3**   **4**   **5**

_____1. When I fail at something important to me I become consumed by feelings of inadequacy.

_____2. I try to be understanding and patient towards those aspects of my personality I don't like.

_____3. When something painful happens, I try to take a balanced view of the situation.

_____4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____5. I try to see my failings as part of the human condition.

_____6. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____7. When something upsets me I try to keep my emotions in balance.

_____8. When I fail at something that's important to me, I tend to feel alone in my failure
_____9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____11. I'm disapproving and judgmental about my own flaws and inadequacies.

_____12. I'm intolerant and impatient towards those aspects of my personality I don't like.

Social Anxiety: SIAS

Instructions: For each item, please circle the number to indicate the degree to which you feel the statement is characteristic or true for you. The rating scale is as follows:

    0 = **Not at all** characteristic or true of me.
    1 = **Slightly** characteristic or true of me.
    2 = **Moderately** characteristic or true of me.
    3 = **Very** characteristic or true of me
    4 = **Extremely** characteristic or true of me.

1. I get nervous if I have to speak with someone in authority (teacher, boss etc)

      Not at all   Slightly   Moderately   Very
            extremely

2. I have difficulty making eye contact with others.

      Not at all   Slightly   Moderately   Very
            extremely

3. I become tense if I have to talk about my feelings

      Not at all   Slightly   Moderately   Very
            extremely

4. I find it difficult to mix comfortable with the people I work with

      Not at all   Slightly   Moderately   Very
            extremely

5. I find it easy to make friends my own age

      Not at all   Slightly   Moderately   Very
            extremely

6. I tense up if I meet an acquaintance in the street

      Not at all   Slightly   Moderately   Very
            extremely

7. When mixing socially, I feel uncomfortable

      Not at all   Slightly   Moderately   Very
            extremely

8. I feel tense if I am alone with just another person

    Not at all   Slightly   Moderately   Very
        extremely

9. I am at ease meeting people at parties etc.

    Not at all   Slightly   Moderately   Very
        extremely

10. I have difficulty talking with other people

    Not at all   Slightly   Moderately   Very
        extremely

11. I find it easy to think of things to talk about

    Not at all   Slightly   Moderately   Very
        extremely

12. I worry about expressing myself in case I appear awkward

    Not at all   Slightly   Moderately   Very
        extremely

13. I find it difficult to disagree with another's point of view

    Not at all   Slightly   Moderately   Very
        extremely

14. I have difficulty talking to attractive persons of the opposite sex

    Not at all   Slightly   Moderately   Very
        extremely

15. I find myself worrying that I won't know what to say in social situations

    Not at all   Slightly   Moderately   Very
        extremely

16. I am nervous mixing with people I don't know well

    Not at all   Slightly   Moderately   Very
        extremely

17. I feel I'll say something embarrassing when talking

       Not at all   Slightly   Moderately   Very
           extremely

18. When mixing in a group, I find myself worrying I will be ignored

       Not at all   Slightly   Moderately   Very
           extremely

19. I am tense mixing in a group

       Not at all   Slightly   Moderately   Very
           extremely

20. I am unsure whether to greet someone I know only slightly

       Not at all   Slightly   Moderately   Very
           extremely

Body satisfaction scale (BSS) (or Body Image Scale with 30 items)

Please rate how satisfied you are with the following body-parts of you

1 = very satisfied
2 = moderately satisfied
3 = slightly satisfied
4 = undecided
5 = slightly unsatisfied
6 = moderately unsatisfied
7 = very unsatisfied

__ 1. Head
__ 2. Face
__ 3. Jaw
__ 4. Teeth
__ 5. Nose
__ 6. Mouth
__ 7. Eyes
__ 8. Shoulders
__ 9. Chest
__ 10. Tummy
__ 11. Arms
__ 12. Hands
__ 13. Legs
__ 14. Feet

<u>Body Uneasiness Test (BUT) - subscale "body image concerns"</u>

Please mark the answer which best expresses your experience at the moment.

0 = never

1 = seldom

2 = sometimes

3 = often

4 = very often

5 = always

__ 1. I like those clothes which hide my body.

__ 2. I spend a lot of time thinking about some defects of my physical appearance.

__ 3. I think my life would change significantly if I could correct some of my aesthetic defects.

__ 4. I would do anything to change some parts of my body.

__ 5. I feel I am laughed at because of my appearance.

__ 6. I am dissatisfied with my appearance.

__ 7. My physical appearance is disappointing compared to my ideal image.

__ 8. I can't stand the idea of living with the appearance I have.

__ 9. I am ashamed of my body.

Self-Objectification Scale (SOQ)

Please rank order these body attributes from that which has the greatest impact on your physical self-concept (rank this a "9"), to that which has the least impact on your physical self-concept (rank this a "0").

Important: Do not assign the same rank to more than one attribute!

When considering your physical self-concept…

__ 1. What rank do you assign to physical coordination?

__ 2. What rank do you assign to health?

__ 3. What rank do you assign to weight?

__ 4. What rank do you assign to strength?

__ 5. What rank do you assign to sex appeal?

__ 6. What rank do you assign to physical attractiveness?

__ 7. What rank do you assign to energy level (e.g., stamina)?

__ 8. What rank do you assign to firm / sculpted muscles?

__ 9. What rank do you assign to physical fitness level?

__ 10. What rank do you assign to measurements (e.g., chest, waist, hips)?

Sociocultural Attitudes Towards Appearance Questionnaire-4 - subscales "thin internalization," "muscular internalization," & "media pressure"

Please mark the answer which best expresses your experience.

1 = Definitely disagree

2 = Mostly disagree

3 = Neither agree nor disagree

4 = Mostly agree

5 = Definitely agree

__ 1. It is important to me to look athletic.

__ 2. I think a lot about looking muscular.

__ 3. I want my body to look very thin.

__ 4. I want my body to look like it has a little fat.

__ 5. I think a lot about looking thin.

__ 6. I spend a lot of time doing things to look more athletic.

__ 7. I think a lot about looking athletic.

__ 8. I want my body to look very lean.

__ 9 . I think a lot about having very little body fat.

__ 10. I spend a lot of time doing things to look more muscular.

__ 11. I feel pressure from the media to look in better shape.

__ 12. I feel pressure from the media to look thinner.

__ 13. I feel pressure from the media to improve my appearance.

__ 14. I feel pressure from the media to decrease my level of body fat.

Self-objectification

Surveillance Scale (from the objectified body consciousness scale)

From 1 (strongly disagree) to 7 (strongly agree)

1. I rarely think about how I look.

2. I think it is more important that my clothes are comfortable than whether they look good on me.

3. I think more about how my body feels than how my body looks.

4. I rarely compare how I look with how other people look.

5. During the day, I think about how I look many times.

6. I often worry about whether the clothes I am wearing make me look good.

7. I rarely worry about how I look to other people.

8. I am more concerned with what my body can do than how it looks.

Questionnaire: Rejection in online dating

1.What does rejection in the context of online dating mean to you ?

1. Getting ghosted
2. Getting ignored
3. Getting blocked
4. all of the three

2.Have you ever experienced rejection in the context of online dating ?
     Yes/No

3.How frequently do you experience rejection through online dating ?
5 Point Likert scale from 1. Always to Never
0 = never
1 = seldom
2 = sometimes
3 = often
4 = very often
5 = always

 4.What is the most common form of rejection that you experience?

1.ghosting (People just stop replying to messages)

2.ignoring, rejection message(stating you are not interested/ tell them its not going to work out)

3.blocking

5. Did you ever rejected somebody in an online dating app ?
Yes/ No

6.How frequently do you reject somebody through online dating ?

5 Point Likert scale from 1. Always to Never
0 = never
1 = seldom
2 = sometimes
3 = often
4 = very often
5 = always

7. If you ever experienced rejection in online dating how did that make you feel?

1.Distressed
2.Indifference
3.Superficiality

8. How does rejection influence your mobile dating app use?
1. No effect
2. Decreased use
3. Stop using it
4. Increased use