Online dating and body dissatisfaction among men and women

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Abstract

Background: Online dating apps and websites are becoming ever more popular tools to search for a partner. Despite positive aspects of online dating, it can negatively impact how people view themselves. Online dating is mainly based on physically observable attributes that cause users to be objectified frequently, and this may lead to negative outcomes in terms of body dissatisfaction. However, previous research studies about this association have found contradicting results. The research purpose of this study was to test whether body dissatisfaction differs between online dating users and non-users, and whether it is related to higher frequency use of online dating. Moreover, it was expected that gender and the social motive to use online dating moderates the relationship between online dating use and body dissatisfaction. **Method**: A sample of 229 online dating users and non-users (men = 79, women = 150) completed an online survey and answered questions about their demographics, their online dating use, and their body dissatisfaction. **Results**: No correlation between online dating app use and body dissatisfaction (face nor body) was found. Further, the relationship is not found to be dependent on gender and/ or social motives. **Discussion**: A curvilinear relationship was found between the frequency of online dating use and body dissatisfaction, with users who indicated using online dating once a week showing a higher level of body dissatisfaction compared to those who indicated using online dating more or less than once a week. **Conclusion**: It can be concluded that online dating use was not found to have an influence on users' body dissatisfaction, neither was gender or the social motive to use online dating apps found to have an influence on this association.

Keywords: Online dating, dating apps, body dissatisfaction, gender, social motives

Introduction

The need for love is one of the most basic human needs, as is searching for the right partner. But how exactly do people find their partners? Online dating, as a form of social media, has become an increasingly popular tool in recent years to search for a suitable mate or a sexual partner. This happened first via dating websites primarily used on a computer, but since 2008 also via dating apps that can be used with a smartphone (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). In 2018, about 41% of single internet users worldwide were using dating services, dating websites or dating apps (the term used interchangeably for the purposes of this study), and the number of dating platforms increased globally by 17% within 2 years (Internet security systems, 2016; Paisley, 2018).

One of the most famous dating apps used is an app called Tinder. On Tinder, profile pictures are shown to users and they can decide if they want to "swipe right", indicating that they like the profile, or "swipe left", indicating that they do not like the profile. If two users like each other's profiles, it will be indicated as a "match" and a conversation can begin (Newall, 2015; Smith, 2015). One of Tinder's biggest competitors is Bumble. Bumble's design is similar to Tinder and other dating apps in terms of indicating interest by swiping to the right and rejecting it by swiping to the left. If two users show an interest in each other's profile, a "match" is achieved. Unlike other dating apps, Bumble focuses on being feministic by giving control to women. After a match is achieved, the female partner has 24 hours to start a conversation with the male partner. If this does not happen, the match disappears (Bivens & Hoque, 2018). Other popular dating apps that have a similar design to Tinder or Bumble are, for example, "Lovoo" and "Badoo". "OkCupid" additionally includes a matching algorithm that matches users based on their answers to some questions and demographic information, such as age, gender, sexual orientation or location, and "Grindr" was created for gay, and bisexual men (Kelly, 2017). Aretz, Gansen-Ammann, Mierke, and Musiol (2017) divided online dating apps into five categories: (1) Online personal advertisement, where user profiles are published in an online catalogue, in which a potential partner can search; (2) Online dating agency, where users are suggested based on similarities in personality tests; (3) Adult-dating/ casual-dating, where users are suggested based on their sexual preferences and orientation; (4) Niche providers, which are specialised on specific target groups; and the most common form, (5) Social dating, which is used primarily via smartphones and often includes GPS-based dating services, where users can make contacts in their immediate surroundings. The last category includes apps such as Tinder.

It is hardly surprising that online dating websites are becoming more and more popular. The unprecedented level of access to potential partners offers people an easier and faster way to find a potential new partner than in real-life. This is especially true for people with special needs, a non-heterosexual sexual orientation, or an atypical lifestyle (Döring, 2009; Finkel et al., 2012). The instantaneous communication via computer allows the users to get to know the potential date without being in the same location, and without much risk or time investment (Finkel et al., 2012). The communication is always between two people, with the exchanged messages not viewable by any other user. This enables users to have a level of privacy that seldom exists in real-life interactions, where outsiders such as friends, family or strangers are always somewhat involved (Masden & Edwards, 2015). Another advantage of online dating is the possibility to present oneself in the best possible light, and change personal information to one's advantage to increase the chances of finding a potential partner (Jacobson, Atkinson, Mohamed, & Dorr, 2016). This can include giving incorrect information about oneself in the description or in direct chat conversations, for example regarding their hobby or income level, or enhancing the photos used in the profile because an attractive photo usually receives more attention (Lo, Hsieh, & Chiu, 2013).

Besides the positive aspects of online dating, the use of online dating apps carries risks for mental as well as physical health. The study of Aretz et al. (2017) divided the health impact into three categories: deception and fraud, psychological and physical impact, and emotional wear and tear and objectification.

Deception and fraud: The potentially far reach of dating applications could allow some users to become victims of an "online romance scam" (Buchanan & Whitty, 2014). There, the offender gets in contact with a person and tells him or her after a short period of time that they have fallen in love. After gaining the trust of the person, normally after a period of 6-8 months, and pretending to begin a relationship, the offender asks the victim for financial support. People with a strong tendency to romantic idealization are more likely to believe the lie and therefore are more likely to become a victim of this fraud (Buchanan & Whitty, 2014). Giving false information on online dating sites and altering profiles, for example by being deceptive about age, job title, or income, is a common phenomenon in online dating (Anderson, Vogels, & Turner, 2020; Jacobson et al., 2016). This inevitably creates a risk of not knowing that you are being misled.

Psychological and physical impact: Sexual harassment can also be a negative side effect of online dating. This occurs in the form of suggestive or degrading statements, the sending of sexual content (e.g. nude images) or requesting a counterpart to send sexual

content. If sexual content is sent, it is possible that the content could be spread against the will of the owner, which can have serious consequences and even leads to suicide in some cases (Döring, 2012). Online dating can also be the cause of crime or other regrettable outcomes which are not directly linked to the online dating app. For example, circumstances can arise where a victim and perpetrator meet on the app, leading to a real-life meeting, which then results in an incident such as one being physically injured, getting a sexually transmitted disease, or becoming pregnant unintentionally (Couch, 2011).

Emotional wear and tear and objectification: The high number of available online dating platforms, and with this the high number of potential partners, can lead to the objectification of other users (Finkel et al., 2012). Users get a kind of 'shopping' mentality when searching for potential partners on these platforms based on their desired attributes, and keep searching if a suitable match is not found (Heino, Ellison, & Gibbs, 2010). This has an influence on the ability to make decisions and the willingness to commit. The user prefers to keep searching for the perfect partner instead of starting a satisfying relationship (Finkel et al., 2012). Also, if a decision is made but there is a large selection of potential partners, the decisions are regretted more easily afterwards due the high number of possible alternatives. Additionally, the relationship is more likely to break up (D'Angelo & Toma, 2016).

Objectification is also caused by the design of the apps, which let the user evaluate other users mainly based on the visual profiles, and thus on their appearance. It was found that the decision to date a partner in online dating is mostly based on physically observable attributes like attractiveness, or body mass index (BMI), and is rather less on other attributes such as education, religion, sociosexuality, having children, or desiring future children (Kurzban & Weeden, 2005). This can be conceptualized within sexual objectification theory (Fredrickson & Roberts, 1997; Moradi & Huang, 2008). The theory indicates that being sexually objectified, which means reducing a person's evaluation to their physical appearance rather than their full identity, can lead to body monitoring which in turn might lead to negative outcomes in terms of body dissatisfaction such as body shame and self-surveillance. Body dissatisfaction means "a person's negative thoughts and feelings about his or her body" (Cash & Pruzinsky, 1990).

Body dissatisfaction is also linked to the self-discrepancy theory of Higgins (1987), indicating that a perceived discrepancy between the personal ideal, and the actual self is related to negative emotions, such as disappointment, dissatisfaction, or sadness, and that perceived discrepancy between the ought self and the actual self is related to negative emotions, such as threat, fear and restlessness. Perceived discrepancies can also occur

between the actual physical appearance and a person's own ideal physical appearance which might have consequences such as body image concerns and dissatisfaction. On online dating platforms, it is common to present oneself in the best possible and most attractive way, which is often closer to one's own ideal self than the actual offline self (Toma & Hancock, 2010). Thus, a discrepancy between the constructed online self, and the actual offline self might also lead to body concerns and increased body dissatisfaction, if the person believe that the constructed ideal online self may never be able to be achieved.

The sociocultural theory, one of the primary frameworks within body image, indicates that the interaction between media and the pressure on people in that environment might lead to body dissatisfaction. This may occur when someone is exposed to a lot of appearance ideals in the media, or when someone receives pressure from their peer group to fulfil an unrealistic appearance ideal, for example by losing weight or increasing muscle tone. This may result in pressure to conform to these unrealistic body ideals, followed by body image concerns if these ideals cannot be achieved (Webb & Zimmer-Gembeck, 2013). The internet allows people to be exposed to pictures of others showing common appearance ideals, resulting in social comparison, and thus body dissatisfaction. Transferring this to the context of online dating, one is exposed to other profiles showing users presenting themselves in an ideal manner while using the apps, which could also result in a reduction of one's own body satisfaction. The internet is also an interactive medium that enables peer feedback (Rogers, 2015). In online dating feedback is given through matches, and receiving none or just a few matches may give a feeling of not being attractive or good enough. One consequence might be reduced body satisfaction (Rodgers, 2015). A consequence of body dissatisfaction through the exposure to appearance ideals may also be negative behavioural consequences such as unhealthy weight control, poor eating habits, or other eating disorders because of pressure and the need to fulfil these ideals (Tran et al., 2019).

Limited research has examined the association between use of online dating apps and body image/body dissatisfaction (Griffiths, Murray, Krug, & McLean, 2018; Rodgers et al., 2019; Shimokobe & Miranda, 2018; Strubel & Petrie, 2017). Shimokobe and Miranda (2018) found no significant difference between dating app users and non-users in terms of lower body perception. In contrary to these findings, Strubel and Petrie (2017) found a significant relationship between Tinder use and body dissatisfaction. The users of Tinder in the study showed less satisfaction with their faces and bodies, as well as a higher level of internalization, appearance comparisons, body shame, and surveillance compared to non-Tinder users. Similarly, a strong association between the use of dating apps and poorer body

image was found in the study of Rodgers et al. (2019). The study of Griffiths et al. (2018) found just a small positive relationship between dating app use and body dissatisfaction.

Between users of online dating apps, the frequency of dating app use differs greatly. Some use the apps several times per day and some just several times per month or even less. Strubel and Petrie (2017) took this into account by including only those in the 'user' group that have a Tinder account and logged in 2-3 times per month or more, and including those that have no Tinder account or never logged in in the 'non-user' group. Griffiths et al. (2018) measure frequency of use on a 6-point scale ranging from 1 (never) to 6 (always), and Rodgers et al. (2019) measure it on a 4-point scale ranging from 1 (less than one hour) to 4 (three or more hours). However, little attention is given to frequency by other similar studies.

There are small gender differences in findings relating to online dating use and body dissatisfaction. Rodgers et al. (2019) found a strong association only in the male sample, where frequent use of dating apps was strongly correlated with experiencing high levels of body shame and negative beliefs regarding weight/shape controllability. In the female sample few associations were found between poor body image and the use of other types of social media. However, in contrast to these findings, no gender difference was found in the study of Strubel and Petrie (2017). Griffiths et al. (2018) only examined a male sample, and Shimokobe and Miranda (2018) did not take gender into account at all.

The motive to use online dating apps or websites is different for every user. The motivation to use online dating apps can be to find a romantic relationship, to look for casual sex, or to find new friends (Bryant & Sheldon, 2017; Timmermans & De Caluwé, 2017). Those motivated by finding a casual sex partner may prioritize the physical attraction to the partner above other attributes. On the other hand, those motivated to find a long-term relationship, or to find friends, may prioritize other attributes over physical appearance (Welch, 2018). Having the focus on appearance while using dating apps is expected to lead to more body dissatisfaction than having the focus on character attributes, which raises the question in what way social motives have an influence on online dating use and body dissatisfaction. With regard to gender, the study by Clemens, Atkin and Krishnan (2015) indicates that women are more likely to use online dating because of social reasons and less likely to find a sexual partner. Thus, social motives may cause gender differences in the use of online dating platforms so that male users are expected to show higher body dissatisfaction than female users, depending on if their motive is to find a causal sex partner through online dating.

While the preliminary studies show the importance of examining the relationship between dating app use and body dissatisfaction, the findings are still inconsistent and even contradictory. Furthermore, little attention is given to the frequency of online dating use. The literature about gender differences in body dissatisfaction related to online dating is very limited and the findings vary greatly. Therefore, more research is needed to clarify these contradictions in relation to online dating use and body image, to explore the relationship between frequency use and body image, as well as to investigate gender differences in relation to dating app usage and body image. In addition, examining the impact of the moderator variable- social motives- on body dissatisfaction would be informative. If a gender difference were found, social motives could be one explanation for these differences.

Thus, the focus of the study is to examine whether body dissatisfaction differs between online dating users and non-users, and whether it is related to frequency use. Additionally, the study also focuses on if the relationship is dependent on gender and social motives, and if gender and social motives are interrelated. It is expected that the use of online dating apps, especially higher frequency use, is associated with higher body dissatisfaction. It is also expected that there is a difference between the genders in the association between online dating use and body dissatisfaction, and that this is dependent on social motives (Figure 1).

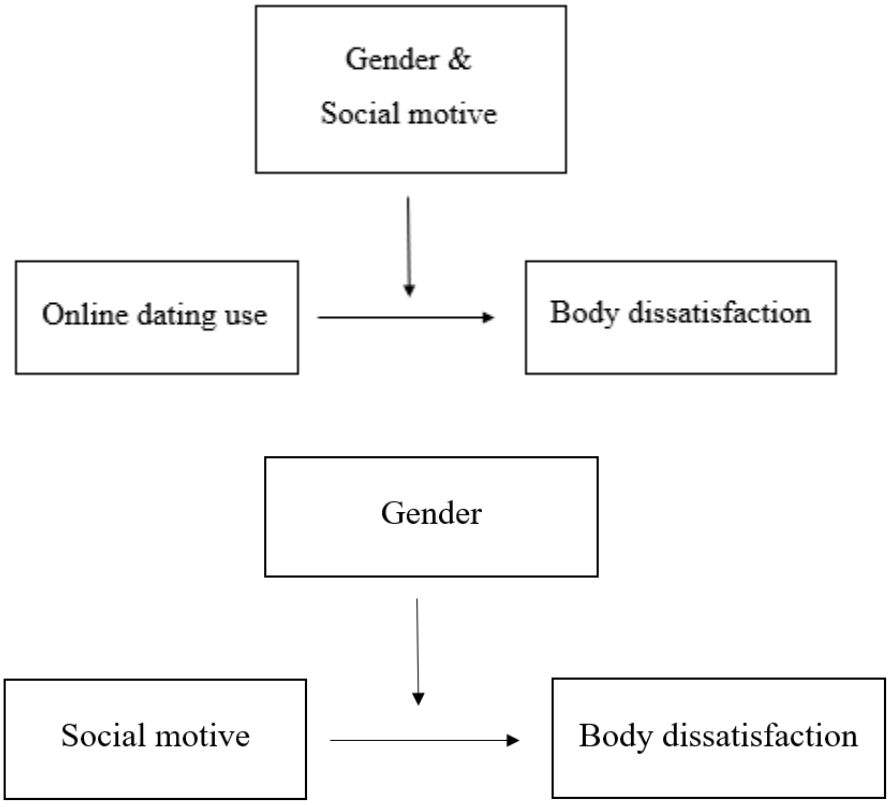

Figure 1. Research designs

Methods

Participants

A total of 264 respondents filled out the survey. Of these, 2 did not provide consent, 30 provided missing data, and 3 were excluded due to providing the same score for every item. After selection, 229 respondents remained for analysis. Of the remaining respondents, 150 identified themselves as female (65.5%) and 79 identified themselves as male (34.5%). The age range was from 18 to 55 (M = 22.84, SD = 4.51) and the majority of respondents were German (72.5%). Only a few belonged to other nationalities, such as Dutch (9.2%), Danish (5.7%), British (1.7%), or French (1.3%). The participants were sampled through convenience sampling, where the link to the questionnaire was sent to people who were asked to participate.

Design

The design of the research is quantitative, including a cross-sectional survey. The independent variable was use of online dating apps or websites in two conditions: as binary variable (use and no use) and as continuous variable (frequency). The dependent variable was the level of body dissatisfaction, measured on one main scale of general body dissatisfaction, and two subscales: head dissatisfaction and body dissatisfaction. Gender and social motivation to use online dating platforms were investigated as moderator variables.

Materials

The materials used for the study were an online survey and a computer program named SPSS. The online platform “Qualtrics” was used to create the survey and to collect the data. Qualtrics is accessible by creating an account with the University log in data. The survey consists of a consent form, demographic questions, and one scale measuring body satisfaction, and was accessible via a link. Social media and the platform Sona System, which is also accessible via the University log in data, were used to distribute the survey. The program “SPSS” was used to analyse the data.

Procedure

The online survey was distributed to people using a link via the University platform “Sona system”, which is accessible by students of the Faculty of Behavioural, Management and Social sciences (BMS). Filling out the online survey gave a reward in the form of Credits. In addition to that, the survey was distributed via Social media, such as WhatsApp, Facebook, and Instagram, to friends and family.

By clicking on the distributed link, the participants were directed to the online survey. First, the consent form was displayed to the participants. The consent form includes information about the researcher, a broad explanation about the study, important participant rights, and contact details. The participants were asked at the end of the consent form to tick the box stating "I agree" if they wanted to take part in the study, meaning they are giving their informed consent, or to tick the box stating "I disagree" if they did not wish to take part in the study. In the second case, the participant was directed to the last page of the online survey. After the consent form was displayed the participants were forwarded to questions about demographic data including 3 items, then to questions about online dating including 4 items, and finally to the body satisfaction scale with 16 items. After completing the questionnaire, the participants were thanked for their participation.

Independent variables

Demographic data. The questions about the demographic data include 1 open question about age, and 3 closed questions about gender, nationality and sexual orientation. Gender can be answered with "Male", "Female", "Other, namely" with a field for text entry, or "Prefer not to answer". Nationality can be answered with "Dutch", "German", or "Other, namely" with a field for text entry. Sexual orientation can be answered with "Heterosexual", "Gay/lesbian", "Bi-sexual", "Other, namely" with a field for text entry, or "Prefer not to answer" (Appendix A).

Online dating use. A closed question about the use of online dating was displayed to the participants, which could be answered with "Yes, I use it currently", "Yes, I used it in the past", or "No, I never used it". If the last option was chosen, the participants were forwarded to the first scale and skipped the questions about frequency use and social motive. Online dating use was categorized into (a) Online dating user (current use or use in the past) and (b) Not online dating user (Appendix B).

Frequency use. The participants were asked to rate how frequently they use online dating apps or websites, choosing between the answers "once a month", "2-3 times a month", "once a week", "2-3 times per week", "4-5 times per week", and "daily" (Strubel & Petrie, 2017). The answers were scored as a continuous variable ranging from 1 (once a month) to 6 (daily) (Appendix B).

Social motive. The participants were asked to choose one of three statements with which they most identify with regards to social motives for using online dating services, including "I want to meet new people/ find new friends", "I am seeking a romantic

relationship", and "I am looking for casual sex" (Bryant & Sheldon, 2017). The variable is measured as a categorical variable and as dummy variables, where each statement about each social motive count as one variable named "friends", "romantic relationship" and "casual sex" (Appendix B).

Dependent variable

Body dissatisfaction. The participants' body dissatisfaction was measured using the Body Satisfaction Scale (BSS) of Slade, Dewey, Newton, Brodie, and Kiemle (1990). The scale consists of a list of 16 body parts, and the participants are asked to rate their degree of satisfaction with each of the 16 body parts on a seven-point scale ranging from 1 (very satisfied) to 7 (very unsatisfied) (Appendix C). The scale includes two subscales: one scale measuring the head dissatisfaction, including the body parts head, face, jaw, teeth, nose, mouth, eyes and ears, and one scale measuring the body dissatisfaction, including the body parts shoulders, neck, chest, stomach, arms, hands, legs and feet. High scores are associated with high levels of dissatisfaction. The study of Slade et al. (1990) calculated Cronbach's alpha for all three scales for three samples: college students, student nurses, and eating disorder patients. In the results they found all alphas around 0.80, with the highest score at 0.893 and lowest 0.785, which indicates the scales as internally consistent and reliable. In order to test for validity, the Body Satisfaction Scale (BSS) was tested against the Body Shape Questionnaire (BSQ) of Cooper, Taylor, Cooper, & Fairburn (1987). The BSQ was significantly positively correlated with all three scales of the BSS, with a "general" factor of 0.44, a "head" factor of 0.26, and a "body" factor of 0.52 (Slade et. al., 1990).

Data analysis

After the data from the online survey was inserted into the programme SPSS, and the data was screened and sorted out, the first step was to prepare the variables for the analysis. Therefore, the first variable "general body dissatisfaction" was computed by adding the scores of each item of the body satisfaction scale together and dividing the total by the number of items to get the mean score. In addition to that, the second variable "head dissatisfaction" was computed by adding the scores of the items, namely head, face, jaw, teeth, nose, mouth, eyes and ears, and dividing the total by the number of items. Finally, the third variable "body dissatisfaction" was computed by adding the scores of the items, namely shoulders, neck, chest, stomach, arms, hands, legs and feet, and dividing the total by the number of items. For each variable Cronbach's alpha was calculated to assess the internal consistency. The variable "general body dissatisfaction" has a Cronbach's alpha of 0.881, the variable "head

dissatisfaction" has a Cronbach's alpha of 0.830 and the variable "body dissatisfaction" has a Cronbach's alpha of 0.834, indicating that the internal consistency of each scale is satisfying.

The binary variable "online dating use" was coded into "1" for use of online dating apps, including the answers "Yes, I use it currently" and "Yes, I used it in the past", and "0" for no use of online dating apps, with the given answer "No, I never used it".

Each social motive was coded into a separate dummy variable. The variable "friends" was coded into "1" for seeking friends and "0" for not seeking friends, the variable "romantic relationship" was coded into "1" for seeking a romantic relationship and "0" for not seeking a romantic relationship, and the variable "casual sex" was coded into "1" for seeking casual sex and "0" for not seeking casual sex.

To look at the frequency and the means of each demographic variable, a frequency table was used. The Shapiro Wilk test was conducted, and a histogram was created in order to check for normality of the data.

In order to test the first hypothesis, if the use of online dating apps is associated with higher body dissatisfaction, an Independent Samples T Test was conducted if the data was normally distributed, and a Mann Whitney U test was conducted if the data was not normally distributed. The independent variable is the dummy variable "online dating use" and the dependent variables are "general body dissatisfaction", "body dissatisfaction" and "head dissatisfaction".

In order to test the second hypothesis, if frequency use of online dating apps is associated with higher body dissatisfaction, a Pearson correlation was conducted if the data was normally distributed, and a Spearman correlation if the data was not normally distributed. For this, the independent variable is "frequency use" and the dependent variables are "general body dissatisfaction", "body dissatisfaction" and "head dissatisfaction".

The moderation effect of the variable "gender" was tested, and with this the third hypothesis, that gender differs the association between online dating use and body dissatisfaction, by conducting a moderator analysis using PROCESS macro for SPSS (Hayes, 2018). First, the independent variable was the dummy variable "online dating use", and the dependent variables were "general body dissatisfaction", "body dissatisfaction" and "head dissatisfaction". Secondly, the independent variable was "frequency use", with the dependent variables "general body dissatisfaction", "body dissatisfaction" and "head dissatisfaction".

To compare the effect of social motive on body dissatisfaction, three separate one-way ANOVAs were conducted for each social motive. The independent variables are the dummy variables "friends", "romantic relationship" and "casual sex", and the dependent variables are

"general body dissatisfaction", "body dissatisfaction" and "head dissatisfaction". Then, the effect of gender and social motives on body dissatisfaction was examined by conducting a two-way ANOVA with "gender" and "social motive" as independent variables, entered as categorical variables with 3 values, and "general body dissatisfaction", "body dissatisfaction" and "head dissatisfaction" as dependent variables. The moderation effect of the categorical variable "social motive" on frequency use and body dissatisfaction was tested using PROCESS macro for SPSS (Hayes, 2018). The independent variable was "frequency use" and the dependent variables were "general body dissatisfaction", "body dissatisfaction" and "head dissatisfaction".

Results

Descriptive statistics

Of the 229 respondents, 66.8% (N = 153) indicated that they are currently using online dating or have in the past. The online dating use is significantly higher among the male sample, with 79.7% (N = 63) using online dating, than among the female sample which showed 60.0% (N = 90) using online dating, $X^2(1, N = 229) = 9.1$, $p = < .01$.

Overall, women showed a significantly higher general body dissatisfaction than men, with a mean of 3.01 (SD = 0.86), compared with 2.55 (SD = 0.88) for men; t (227) = -3.80, $p < .01$. Furthermore, higher dissatisfaction was found in the body scale with a mean of 3.15 (SD = 1.09) than in the head scale with a mean of 2.55 (SD = 0.92) suggesting that people are overall more satisfied with their head parts than their body parts (Table 1).

Table 1

Mean and standard deviation of body dissatisfaction of each scale for male, female and both

	Male N = 79	Female N = 150	Both N = 229
General scale	2.55 (0.88)	3.01 (0.86)	2.85 (0.89)
Head scale	2.38 (0.96)	2.64 (1.08)	2.55 (0.92)
Body scale	2.72 (0.99)	3.38 (0.89)	3.15 (1.09)

Note. Each scale ranges from 1 (Very satisfied) to 7 (Very unsatisfied).

For the online dating users, 20 participants (13.07%) indicated using online dating apps/ websites once a month, 17 (11.11%) using them 2-3 times a month, 24 (15.69%) using them once a week, 42 (27.45%) using them 2-3 times per week, 15 (9.8%) using them 4-5 times per week, and 35 (22.88%) using them daily.

The most mentioned social motive to use online dating was seeking a romantic relationship (47.7%), followed by looking for casual sex (29.4%) and wanting to meet new people/finding new friends (22.9%). Among the male sample the most reported motivation to use online dating was looking for casual sex (49.2%), and among the female sample the most reported motivation was seeking a romantic relationship (57.8%).

The p-value for the Shapiro Wilk test was $p = 0.02$, indicating that the data is not distributed normally. However, according to the University of Sheffield (2011), the Shapiro-Wilk test is more suitable when the sample size is below 50 participants. Therefore, the histogram will be considered, which shows a near-normal shape with the mean of 2.85 (N = 229) indicating the data is approximately normally distributed (Figure 2). Taking this into account and considering the large sample size, parametric tests will be used (University of Sheffield, 2011).

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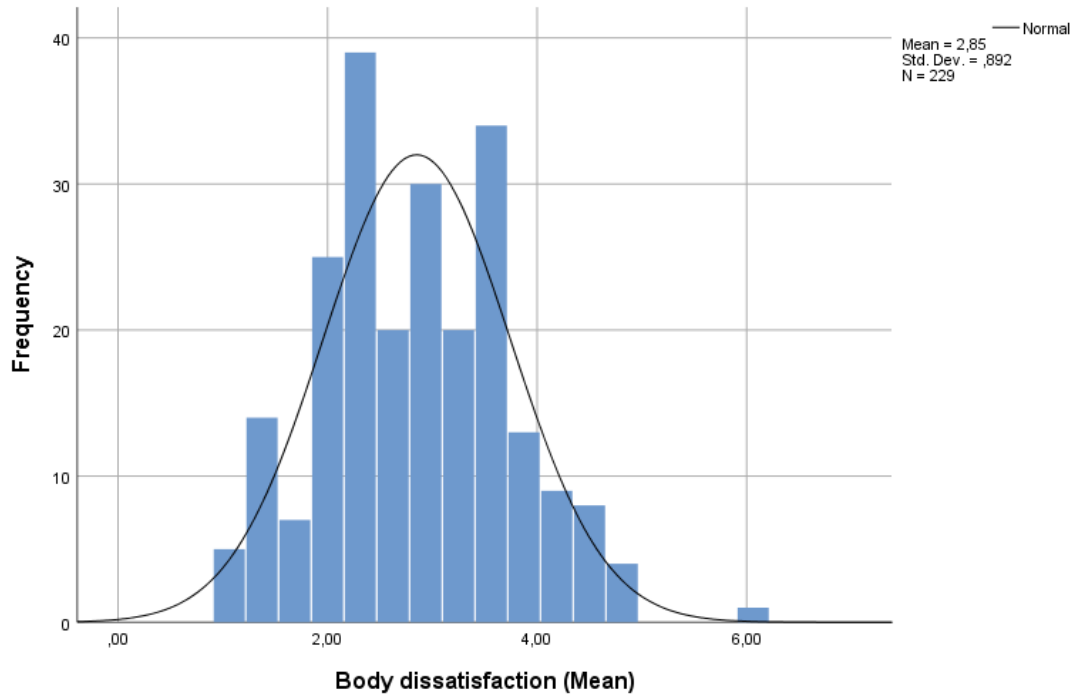

Figure 2. Level of general body dissatisfaction

Inferential statistics

To test the first hypothesis, that the use of online dating apps is associated with higher body dissatisfaction, an Independent Samples T-Test was conducted to compare body dissatisfaction in online dating users and non-users. The mean rank in general body dissatisfaction is slightly higher in online dating users (M = 2.88, SD = 0.85) than non-users (M = 2.79, SD = 0.98), but there was no significant difference in the scores; t (227) = 0.74, p

= .46. No significant difference between online dating users and non-users was also found in head dissatisfaction, t (227) = 0.78, p = .44 and body dissatisfaction, t (227) = 0.55, p = .58. Thus, the first hypothesis is rejected.

To test the second hypothesis, that higher frequency use of online dating apps is associated with higher body dissatisfaction, a Pearson correlation was conducted to determine the relationship between frequency use and body dissatisfaction. There was no significant correlation between the two variables, r (151) = 0.05, p = .55. There was also no significant correlation found between frequency use and head dissatisfaction, r (151) = 0.12, p = .15, or between frequency use and body dissatisfaction, r (151) = -0.02, p = .84. Thus, the second hypothesis is rejected.

An additional analysis was performed to explore whether a non-linear association can be found. First, the distribution of mean body dissatisfaction across the 5 levels of frequency of use was examined. A peak was found in body dissatisfaction in frequency use of once a week (Figure 3).

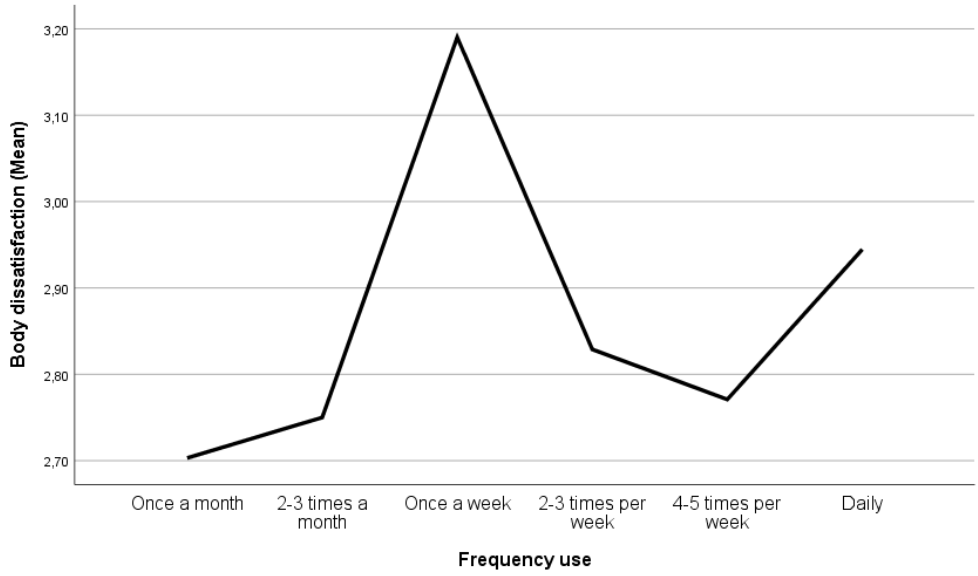

Figure 3. Level of body dissatisfaction compared to Frequency use

Second, an Independent Samples T-Test was conducted to compare general body dissatisfaction between weekly users and more/less frequent users. A marginal effect was found, with higher body dissatisfaction for weekly users (M = 3.19, SD = 0.86) than all other users (M = 2.82, SD = 0.83); t (151) = 1.97, p = .05.

To test the third hypothesis, that there is a difference between the genders in the association of online dating use and body dissatisfaction, 6 moderator analyses were conducted with 2 measures for online dating app use as independent variable (dummy

variable, and continuous variable) and 3 measures for body dissatisfaction as dependent variable (general body dissatisfaction, head dissatisfaction, and body dissatisfaction). First, the independent variable was the dummy variable that either online dating apps were used or not used, and the dependent variables were general body dissatisfaction, head dissatisfaction and body dissatisfaction. The interaction term was statistically not significant for general body dissatisfaction (b = -0.22, 95% CI [- 0.779, 0.332], t = -0.79, p = .43), not significant for head dissatisfaction (b = -0.34, 95% CI [- 0.926, 0.247], t = -1.14, p = .26) and not significant for body dissatisfaction (b = -0.11 , 95% CI [- 0.780, 0.564], t = -0.32, p = .75) indicating that gender was no moderator of the effect of use of online dating apps on body dissatisfaction. Secondly, the independent variable was the continuous variable frequency use, and the dependent variable was general body dissatisfaction, head dissatisfaction and body dissatisfaction. The interaction term was statistically not significant for general body dissatisfaction (b = -0.06, 95% CI [- 0.217, 0.103], t = -0.71, p = .48), not significant for head dissatisfaction (b = -0.04, 95% CI [- 0.207, 0.127], t = -0.48, p = .63) and not significant for body dissatisfaction (b = -0.07, 95% CI [- 0.275, 0.127], t = -0.73, p = .47), indicating that gender was no moderator of the effect of frequency use of online dating apps on body dissatisfaction. Thus, the third hypothesis is rejected.

Three separate one-way ANOVAs were conducted to test the effect of social motive on the 3 scales for body dissatisfaction, with the social motives entered as dummy-coded factors. First, a one-way ANOVA was done with the social motive “friends”. There was no statistically significant effect of the social motive “friends” on general body dissatisfaction [F(1, 151) = 0.18 , p = .68], on head dissatisfaction [F(1, 151) = 0.07 , p = .79], or on body dissatisfaction [F(1, 151) = 0.76, p = .76]. Second, a one-way ANOVA was done with the social motive “romantic relationship”. There was no statistically significant effect of the social motive “romantic relationship” on general body dissatisfaction [F(1, 151) = 0.24 , p = .63], on head dissatisfaction [F(1, 151) = 0.12, p = .73], or on body dissatisfaction [F(1, 151) = 0.28, p = .63]. Third, a one-way ANOVA was done with the social motive “casual sex”. There was no statistically significant effect of the social motive “casual sex” on general body dissatisfaction. [F(1, 151) = 0.85 , p = .36, on head dissatisfaction [F(1, 151) = 0.02, p = .89] or on body dissatisfaction [F(1, 151) = 1.81, p = .18]. Thus, none of the social motives have an effect on body dissatisfaction.

In order to examine the interaction effect of gender and social motives on body dissatisfaction measured on all three scales, a two-way ANOVA was conducted, with social motive entered as the categorical variable with 3 values. There was no significant interaction

between the effects of gender and social motive on the level of general body dissatisfaction, $F(2, 147) = 0.18$, $p = .83$, no interaction effect between the effects of gender and social motive on the level of head dissatisfaction, $F(2, 147) = 0.77$, $p = .47$, and no interaction effect between the effects of gender and social motive on the level of body dissatisfaction, $F(2, 147) = 0.14$, $p = .87$. Thus, social motive and gender are independent.

The PROCESS macro for SPSS was used to analyse the moderating effect of social motive (entered as categorical variable with 3 values) on the association between frequency use and body dissatisfaction. The interaction term was statistically not significant for general body dissatisfaction ($b = -0.05$, 95% CI [- 0.176, 0.073], $t = 0.81$, $p = .42$), not significant for head dissatisfaction ($b = -0.04$, 95% CI [- 0.163, 0.090], $t = 0.57$, $p = .57$), and not significant for body dissatisfaction ($b = -0.07$, 95% CI [- 0.224, 0.093], $t = -0.82$, $p = .41$) indicating that no moderation effect of social motive was found on the impact of use of online dating apps on body dissatisfaction on all three scales.

Discussion

The purpose of this study was to test whether online dating app use is correlated with body dissatisfaction. The study was conducted to understand how online dating use can have an impact on the users' mental health, as online dating use is constantly increasing. Body dissatisfaction was found to be a strong mental health risk factor of online dating use, resulting from issues such as objectification, social comparison, and unrealistic appearance ideals. However, the research about body dissatisfaction as a mental health issue related to online dating use is limited. Moreover, the study tested whether the relationship is dependent on gender and social motives. Gender was tested because body dissatisfaction was found to differ between genders, but there was very limited testing on whether gender differs body dissatisfaction in relation to online dating use. Social motives were tested because these have been expected to be risk factors for body dissatisfaction.

Findings

Online dating. The findings revealed that online dating users did not report more dissatisfaction with their faces and bodies compared to those not using online dating, and nor did they report more body dissatisfaction when using online dating platforms more frequently, both contrary to expectations. Previous research indicated contradictions in whether body dissatisfaction was found to be related to online dating use. The current findings are inconsistent with the previous research of Strubel and Petrie (2017), who found higher body dissatisfaction in online dating users than in non-users. The findings are also inconsistent with

the previous findings of Griffiths et al. (2018) and Rodgers et al. (2019), who found a positive relationship between frequency use of dating apps and body dissatisfaction. However, it was consistent with the findings of Shimokobe and Miranda (2018), who did not find a difference in body dissatisfaction between online dating users and non-users.

Some methodological features of the studies are compared to find an explanation for these different findings. Comparing the measurement of online dating use, both Shimokobe and Miranda (2018), and Strubel and Petrie (2017) compared online dating use to no online dating use, similar to the current study, whereas Shimokobe and Miranda (2018) compared current users to not current users, and Strubel and Petrie (2017) compared current and former users to never users, just like this study did. Griffiths et al. (2018) and Rodgers et al. (2019) both measured the frequency of online dating use, but differently to the current study. Griffiths et al. (2018) measured frequency on a 6-point scale ranging from 1 (never) to 6 (all the time), which might be interpreted differently by the participants. For example, "sometimes" can be interpreted as sometimes throughout a day or sometimes in the week, of even sometimes in the month. Rodgers et al. (2019) compared the number of hours per day users spend on dating apps on a 4-point scale, ranging from 1 (less than one hour) to 4 (three or more hours) instead of monthly or weekly use as the current study did. Furthermore, body dissatisfaction was assessed with different scales and measurements in every study. These different measurements of online dating use and body dissatisfaction may be one reason for the different findings, although the evidence is difficult to compare, so no clear explanation for the different results was found in relation to the measurements.

Additionally, the sample differs between some of the studies. Every study included a sufficient number of respondents in each condition. The age of the respondents was between 18 and 34, except in the study of Griffiths et al. (2018) where they ranged between 18 and 78, and those of the current study that ranged between 18 and 55. The study of Griffiths et al. (2018) differs remarkably by including exclusively sexual minority male participants instead of male and female college students, sampled through an advertisement on a popular dating app, so the study includes only app user and no former user or never-users. Three of the studies reported participants' relationship status (Griffiths et al., 2018; Shimokobe and Miranda, 2018; Strubel & Petrie, 2017), but Strubel and Petrie (2017) included exclusively single participants. Additionally, two previous studies (Griffiths et al., 2018; Rodgers et al., 2019) and the current study reported sexual orientation, but Griffiths et al. (2018) included exclusively sexual minority men. Thus, it can be concluded that all studies are difficult to compare, and Griffiths et al. (2018) is particularly different and therefore not quite

comparable with the current and other studies. Further, no conclusion can be made about the influence of relationship status and sexual orientation.

Although no correlation was found between online dating use and body dissatisfaction, interestingly, a curvilinear relationship was found between frequency use of online dating and body dissatisfaction. It was observed that users who reported using online dating once a week showed a higher level of body dissatisfaction than those reporting using online dating more or less than once a week. This was an unexpected finding since a linear association between frequency use and higher body dissatisfaction was assumed. One explanation might be that frequency use is related to getting feedback. Users who are getting a large amount of positive feedback in the form of matches might have more positive feelings towards online dating and towards themselves, which might result in using online dating more often and showing a lower level of body dissatisfaction. This assumption is in line with the study of Shimokobe and Miranda (2018), which indicated that the majority use dating apps such as Tinder as a "self-confidence booster". Matching with somebody lets them feel good about themselves and they get a boost in self-confidence. On the other hand, those who do not get many matches might use online dating less (once a week) and show lower body satisfaction and lower self-confidence. However, those not using it, or using it less than once a week, are probably in general confident and satisfied with their bodies, so do not need feedback from online dating to improve their satisfaction and thus do not use online dating often. This possible explanation should be investigated in further research by including different motives for online dating app use besides the social motives tested in this study. In addition, questions about the amount of feedback received from other users, such as feedback in form of matches, could be included as well to test this assumption.

According to the current findings, it seems that more frequent use of online dating is not significantly associated with users' increased body dissatisfaction, resulting from comparison of themselves to others or seeing themselves as objects while using online dating. One assumption might be that online dating use reduces body dissatisfaction if getting a high amount of positive feedback and matches, and increases body dissatisfaction if getting less positive feedback and matches. This assumption may explain the non-significant results of the current study and those of Shimokobe and Miranda (2018).

Gender. With regard to gender, no difference was found between males and females in the association of online dating use and body dissatisfaction. The findings are inconsistent with those of Rodgers et al. (2019), who found strong associations in the male sample, but not

in the female sample. However, it was in accordance with the findings of Strubel and Petrie (2017), who did not find a gender difference.

These differences might be explained by methodological differences. Rodgers et al. (2019), who found a difference between genders, used a different measurement of online dating use than Strubel and Petrie (2017) and the current study. Rodgers et al. (2019) measured the number of hours spent on online dating, in contrast to Strubel and Petrie (2017) who compared online dating use to no online dating use, similar to the current study, which additionally compared frequency use of online dating ranging between daily use and a use of once a month. According to this, it might be that gender differences in body dissatisfaction occur if comparing the hours per day spent on online dating, so that males' body dissatisfaction increases the more hours per day they use online dating, but this is not the case for females. Furthermore, the different results might be explained by the different scales for body dissatisfaction used for the study. The study of Strubel and Petrie (2017) used the Body Part Satisfaction Scale and the current study used the Body Satisfaction Scale for measuring body satisfaction/dissatisfaction, which are both similar by using a rating system of the body parts. However, Rodgers et al. (2019) used the Objectified Body Consciousness Scale for measuring body image shame, which is similar, but also a slightly different construct. So, when measuring body dissatisfaction with the Objectified Body Conscious Scale, a gender difference was found, but no gender difference was found using the two other scales measuring body dissatisfaction by rating body parts.

Although it was not possible to find a gender difference in the association between online dating use and body dissatisfaction, gender differences were found in general body dissatisfaction, regardless of online dating use. Females were shown to be significantly more dissatisfied with their bodies on all three scales than males. This is in line with most previous studies about gender differences in body dissatisfaction, such as the most recent study of Quittkat, Hartmann, Düsing, Buhlmann, and Vocks (2019) who found higher body dissatisfaction in women than in men. This consistency of the finding with previous findings also validates the scale used for measuring body dissatisfaction in this study.

Social motives. The gender difference in body dissatisfaction cannot be explained by social motives, contrary to expectation, because the results revealed that gender and social motives are independent in body dissatisfaction in online dating. That means that female users are more dissatisfied with their bodies than male users regardless of which social motives they had for using online dating. Moreover, the social motive was also not found to be a moderator of the effect of online dating platforms on general body dissatisfaction. Although the most

reported motivation to use online dating for males was to look for casual sex, and the most reported motivation for women was to seek a romantic relationship, which is in line with the literature on online dating, social motive seems to have no influence on the association of body dissatisfaction and online dating (Clemens, Atkin and Krishnan, 2015). Expecting social motives to influence body dissatisfaction, as was done in this study, should be considered carefully, since having a particular motive to use online dating is an intention and not the actual behaviour, and having only an intention to do something might not be enough to influence the body dissatisfaction of the person, rather the actual behaviour and the interaction with others is influencing the user's body dissatisfaction. Thus, this might be the reason that no effect from social motives was found in the current study.

Strengths & Limitations

The current study contains some strengths but also some limitations. In terms of strengths, the study displayed quite remarkable reliability values for the Body Satisfaction Scale (BSS) and found results consistent with previous literature, namely the gender differences in body dissatisfaction, and therefore appeared to measure the variable 'body dissatisfaction' sufficiently. Furthermore, the sample size was very appropriate with 229 participants, divided into 150 females and 79 males. Another key strength of the study was the relevance of the topic of online dating. Although a lot of research has been conducted on the topic of social media use and body dissatisfaction, online dating and body dissatisfaction has not yet been researched much, and the conducted research is limited and inconsistent. Since online dating is often more image-centric than social media, and is getting more and more popular, it is important to expand the understanding of the impact of online dating apps and websites.

However, this research has some limitations to consider. Firstly, the social motive to use online dating is expected to influence the users' body dissatisfaction and is expected to be interactive with gender in this association. But a motive is only an intention and not an actual behaviour, and only having an intention might not be enough to influence the user's body dissatisfaction. It is more likely that the actual use of online dating and the interaction with other users is increasing or decreasing the body dissatisfaction, instead of the thought about using it. In addition to this, expecting males to have the motive of searching for a sex partner in online dating might be an old-fashioned idea and show a stereotypical bias. Although the majority of research articles indicate higher sex drive in men than in women, and also a higher sociosexuality, which means men are more likely to engage in casual sex relations than

women, these results are dependent on self-reported measures which, despite anonymity, are more susceptible to social desirability effect (Bakke & Walker, 2020; Norwood, Hughes, & Amico, 2016). Thus, some men could indicate looking for casual sex while using online dating because this is what is expected of them, but actually they have the desire to find a romantic relationship instead. On the other hand, some women might not dare to admit that they are using online dating to search for a casual sex partner, or having a high sex drive, because this is not expected from them and they want to conform to the social expectations. In relation to this, Tortora et al. (2020) found that heterosexual women scored high in social pressure to conform to feminine expectations, in contrast to heterosexual men. So, in addition to the issue that the intention to do something might not be enough to influence body dissatisfaction, not finding gender differences in this study might also be explained by the assumption that males and females (especially females) do not always report their true intentions in order to conform to gender expectations. However, this is based on assumptions and not confirmed by literature. Still, this could be an issue, and might be taken into consideration in further research.

Secondly, the use of online dating platforms or websites was assessed by three possible answers: “Yes, I am using it currently”, “Yes, I used it in the past” and “No, I never used it”, and was analysed as a dichotomised variable in use and non-use. However, no distinction was made between the users who use online dating currently and those who used it in the past. Further, it is not identifiable if the participant used it a month ago, a year ago or even longer ago. It might be that those who are using online dating currently are showing higher body dissatisfaction than those who used it in the past, especially when the use was a long time ago. In addition, including ex-users in the user sample might confound the results depending on the particular reason they had to abort the use. The level of body dissatisfaction might be higher for them who abort the use because they found a romantic partner than for them who abort the use because they were not successful and did not get any matches.

Furthermore, the participants were asked if they use online dating, assuming that the apps and websites are broadly similar. However, dating platforms do differ in some features. One example is that most online dating apps or websites are image-centric, including the feature of swiping in one direction if the picture is liked, and some online dating platforms have the focus more on personality characteristics, such as online dating agencies who suggest users based on similarities in personality tests. Those differences might have an effect on body dissatisfaction in online dating, as one can expect more dissatisfaction with image-centric dating platforms, according to Griffiths et al. (2018), who found stronger

dissatisfaction for users of image-centric social media platforms than for non-image-centric platforms.

As the current research topic was a sensitive one, another limitation could be that only those who were confident enough to indicate their dissatisfaction with their body took part in the study, and those who have significantly lower body dissatisfaction may have been left out. Further, those who do not feel fully confident with their body may have taken part in the study, but were not willing to tell the truth on the internet, and therefore presented themselves as more satisfied than they actually are.

The data used in the moderation analysis was cross-sectional data, but this has some disadvantages. Using a cross-sectional methodology might be appropriate for initial testing of relationships among variables, but conclusions about the temporality of these relationships are limited. Further, they do not inform the direction of these relationships, so it is not possible to identify what is the cause and what is the effect (Sedgwick, 2014).

Implications & Future research

The current findings provide a certain contribution to the research framework and have implications for the understanding of online dating use and body dissatisfaction. The use of online dating, and especially higher frequency use, was expected to increase body dissatisfaction according to previous research, although contradictions in previous research were found. The current findings make it unlikely that such a relationship exists. However, this study showed that body dissatisfaction seems to be the highest in online dating users who indicate using online dating once a week, and significantly lower for those using online dating more or less than once a week, which might be explained by the motive of using online dating as a "self-confidence booster", as explained earlier. Thus, it might be important to investigate not only the social motives, but also the non-social motives of the users in future research.

Furthermore, the current study has implications for the understanding of gender differences in body dissatisfaction of online dating users. The findings give additional evidence for females being overall more dissatisfied with their appearance than males. However, gender does not moderate the association between body dissatisfaction and online dating as expected, although contradictory findings were found in previous research. These current findings indicate that this relationship may be very unlikely.

The sexual orientation of the participants was not considered in this study, but might be a moderator of body dissatisfaction and online dating use. In Western society, heterosexual women and gay men reported higher levels of self-objectification, and alongside this, higher body dissatisfaction (Moradi & Huang, 2008). If several gay men were included in the

sample, they might increase the body dissatisfaction of the male user sample. Thus, sexual orientation should be taken into account in further investigations.

Exploring further factors that might moderate the relationship between body dissatisfaction, online dating, and gender could be of significant interest. Another possible moderator might be the relationship status of the participants. According to Kunst (2019), most online dating users identify themselves as being single, but a large number of online dating users are in a relationship, or even married, and still using online dating platforms. Laus, Almeida and Klos (2018) found that being in an intimate relationship has an important influence on one's body image. Adults who were romantically involved but not currently cohabitating were found to be less dissatisfied with their appearance than single adults. It might be that online dating users who are in a romantic relationship but still using online dating are less susceptible to becoming dissatisfied than single online dating users, and thus relationship status should also be taken into account in future research.

Age was not investigated in this study but might be another moderator for online dating and body dissatisfaction. This study included participants from the age of 18 to the age of 55, who may differ in their level of body dissatisfaction. Some studies indicate that body dissatisfaction varies across different age groups, such as the study of Esnaola, Rodriguez, and Goñi (2010) which indicated that young females tend to be more susceptible to body dissatisfaction problems, and more vulnerable to sociocultural pressure, than older women who are more able to cope with these problems. Similarly, Sivert and Sinanovic (2008) indicate that young women demonstrate higher levels of body dissatisfaction than older women. Little research is found about age and body dissatisfaction in males. Thus, it might be interesting to investigate the influence of age on body dissatisfaction in online dating.

In the study, the self-discrepancy theory of Higgins (1987) and the sociocultural theory of Webb & Zimmer-Gembeck (2013) were used to explain the relationship between online dating use and body dissatisfaction. However, the social comparison theory of Festinger (1954) might also be applicable to explain the association, and could be considered in further research. According to Festinger (1954), individuals have the drive to evaluate their qualities by comparing themselves to others. Unlike social media users, who are comparing themselves to other users by the number of likes or views, direct comparison on Tinder is not possible since the amount of received matches or feedback is not open to the public. The users are only exposed to the users' pictures of the opposite sex (Her & Timmermans, 2020). However, online dating is about assessing one's own market value on the online dating market, meaning assessing how successful one might be in finding a partner. With this, the

users might indirectly compare themselves through thinking that others would be more successful than themselves, even if they do not see the actual success of other users. Hobbs et al. (2017) found that online dating app users have the feeling that only the top most attractive users are successful in online dating, which indicates a comparison between some of the users. Direct comparison in online dating might also be possible by comparing oneself to one's own social circle, such as comparing one's own amount of matches received with the amount of matches received by friends. Thus, online dating facilitates a so-called upward comparison, which means that someone can compare themselves to someone who has better qualities, or more matches if referring to online dating. Upward comparison is found to be related to lower wellbeing, for example through body dissatisfaction (Her & Timmermans, 2020).

Conclusion

The study shows no evidence of a difference between online dating users and non-users in body dissatisfaction, and no evidence of an association between frequency use of online dating and body dissatisfaction. Even although gender and social motives are not found to have a moderation effect on the association, a gender difference was found in body dissatisfaction regardless of online dating use, with females showing higher body dissatisfaction than males, which is consistent with the literature.

Although it was expected that higher frequency use of online dating would lead to higher body dissatisfaction in online dating users, a trend was found that once a week frequency use leads to higher body dissatisfaction than frequency use of more or less than once a week. However, further research is needed to investigate this finding.

As dating apps and other dating platforms continue to become more and more popular, expanding our understanding of the influence of online dating on our mental health, especially on body dissatisfaction, is important. Furthermore, the findings show that it remains important to investigate moderators, such as type of online dating app, sexual orientation, relationship status, or age.

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Appendices

Appendix A: Demographic questions

Please fill in the following questions on your demographics

What is your age?

_____

What is your gender?

- ○ Male
- ○ Female
- ○ Other, namely: _____
- ○ Prefer, not to answer

What is your nationality?

- ○ Dutch
- ○ German
- ○ Other, namely: _____

Appendix B: Questions about online dating use

Do you use online dating sites or mobile dating apps?

- ○ Yes, I use it currently
- ○ Yes, I used it in the past
- ○ No, I never used it

Which site or app do/did you use?

- [ ] Tinder
- [ ] Lovoo
- [ ] Bumble
- [ ] Badoo
- [ ] Other, namely: _____

How often do you make use of online dating apps/websites?/ How often have you made use of online dating apps/websites in the past?

- ○ Once a month
- ○ 2-3 times a month
- ○ Once a week
- ○ 2-3 times per week
- ○ 4-5 times per week
- ○ Daily

Which statement can you most identify with regarding the social motives to use online dating services?

- ○ I want to meet new people/ find new friends
- ○ I am seeking a romantic relationship
- ○ I am looking for casual sex

Appendix C: Body satisfaction scale (BSS)

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

	Very satisfied	Moderately satisfied	Slightly satisfied	Neither satisfied nor unsatisfied	Slightly unsatisfied	Moderately unsatisfied	Very unsatisfied
Head	○	○	○	○	○	○	○
Face	○	○	○	○	○	○	○
Jaw	○	○	○	○	○	○	○
Teeth	○	○	○	○	○	○	○
Nose	○	○	○	○	○	○	○
Mouth	○	○	○	○	○	○	○
Eyes	○	○	○	○	○	○	○
Ears	○	○	○	○	○	○	○
Shoulders	○	○	○	○	○	○	○
Neck	○	○	○	○	○	○	○
Chest	○	○	○	○	○	○	○
Tummy	○	○	○	○	○	○	○
Arms	○	○	○	○	○	○	○
Hands	○	○	○	○	○	○	○
Legs	○	○	○	○	○	○	○
Feet	○	○	○	○	○	○	○