

The Effect of Online Dating Frequency on Body Image

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Abstract

Online dating platforms are a popular form of social networking sites (SNS) which give users the opportunity to choose potential partners from a large selection of people. However, recent findings suggest that online dating use may cause body image concerns, which can be a serious threat to both mental and physical health. It was hypothesized within the context of the current study that self-objectification and the internalization of societal beauty standards respectively mediate the relationship between online dating frequency and body image concerns. Both online dating users and non-users were recruited to fill in an online questionnaire (N = 143). The two mediations were analyzed using the bootstrapping technique. No direct effect of online dating frequency on body image concerns was found. However, it was found that self-objectification mediates this relationship, albeit in the context of an indirect-only mediation. The internalization of societal beauty standards does not mediate the relationship, but the previous finding that internalization predicts body image concerns could be confirmed. Still, additional research is advised due to the limitations of this study, namely missing data, an underrepresentation of the male beauty ideal in the questionnaire, a possible underestimated effect of online dating frequency, and potential social desirability. The suggestions that are made for future research are including personality characteristics in the analysis, including a question for past online dating users about how much time has passed since they were active users, controlling for social desirability, and incorporating the SATAQ-4 in the questionnaire so that the Thin Internalization subscale is used for women and the Muscular Internalization subscale for men. A suggestion for providers of online dating services is to put increased emphasis on shared interests, personality characteristics, and expectations of potential partners rather than photographs to decrease the onset of self-objectification and subsequent body image concerns.

1. Introduction

The use of online dating websites and apps provides an attractive opportunity to meet potential partners, and it has spread widely across the world. Online dating platforms such as Tinder are a form of social networking sites (SNS) (Strubel & Petrie, 2017). They are very popular, seeing as Tinder alone is used by approximately 10 million people on a daily basis (Pronk & Denissen, 2019). Online dating entails interacting with other individuals through the Internet with the aim to seek romantic and/or sexual relationships (Gibbs, Ellison, & Heino, 2006). Platforms for online dating typically involve detailed profiles, and options to seek and view dating matches (Bryant & Sheldon, 2017). Probably the most striking aspect of online dating is that such platforms offer a broader and more efficient opportunity to meet potential partners than traditional dating, as reported by the majority of users (Mosley, Lancaster, Parker, & Campbell, 2020). Also, users have access to online dating platforms anytime and anywhere, seeing as they only need a smartphone or computer (AnKee & Yazdanifard, 2015). All in all, online dating seems to offer a convenient service for people who are looking to find romantic and/or sexual partners.

Despite the opportunities that online dating offers, approximately half of online dating users think that there are more risks with regards to online dating than traditional dating (Mosley et al., 2020). For instance, users might deceive potential partners by giving false information, or altering their photographs to appear more attractive (AnKee & Yazdanifard, 2015). An even more serious risk is the online romance scam, which means that a relationship is initiated through an online dating platform and the perpetrator defrauds the victim an extensive amount of money (Whitty & Buchanan, 2012). A different kind of risk concerns the users' body image. It has been suggested that the more frequently people use SNS, which includes online dating, the greater the likelihood of body consciousness and body shame (Holland and Tiggemann, 2016). Furthermore, using online dating platforms such as Tinder has been related to being increasingly aware and critical of one's body, and to questioning

one's worth (Carpenter & McEwan, 2016). Overall, there are not only advantages, but also risks associated with online dating. The risk that will be explored within the context of the current study is a possible detrimental effect of online dating on the users' body image.

An important framework for the current study is objectification theory due to its link with both body image concerns and online dating. According to objectification theory, being objectified entails being reduced to one's appearance and having beauty ideals imposed on oneself (Moradi, Dirks, & Matteson, 2005; Strubel & Petrie, 2017). This objectification leads to the internalization of beauty ideals and to people viewing themselves as objects to be evaluated by others. Objectification theory therefore encompasses the internalization of societal beauty standards as well as self-objectification, both of which are promoted by society (Moradi et al., 2005). Importantly, self-objectification has been suggested to lead to body image concerns (Moradi et al., 2005), and online dating has been suggested to facilitate the internalization of beauty standards (Strubel & Petrie, 2017). Due to body image concerns and online dating having been associated with the components of objectification theory, those components, namely self-objectification and the internalization of societal beauty standards, will be taken into account within the context of the current study.

1.1 Body Image Concerns and Online Dating

Body image has been defined as "individuals' perceptions of and attitudes toward their own body, especially its appearance" (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). More specifically, body image incorporates the thoughts and feelings that result from the perception of one's own body, and those thoughts and feelings about one's appearance can be both positive and negative (McShirley, 2019). A body image disturbance can be defined as personal dissatisfaction with one's appearance or certain parts of one's appearance (Thompson & Stice, 2001). Body image disturbances are widely prevalent in the general population and they have been related to emotional distress and depression (Thompson & Stice, 2001). Additional negative effects of body image disturbances are low self-esteem,

unhealthy eating behaviors, and eating disorders (Smith, 2019). Hence, body image concerns can have strong negative effects on people's mental and physical health.

The Internet plays a large role in the perception of one's own body, as it is a "socio-cultural medium of relevance to the body image", which means that the Internet has a strong influence on body image across cultures and society (Tiggemann & Slater, 2013). Tiggemann and Slater (2013) investigated the relationship between Internet exposure and body image concerns in adolescent girls, the main focus being exposure to the SNS Facebook. A sample of 1087 adolescent girls between the ages of thirteen and fifteen filled in a questionnaire about their Internet consumption and body image concerns. It was found that the frequency of exposure to SNS on the Internet is significantly associated with body image concerns, especially regarding thinness. Additionally, Holland and Tiggemann (2016) found that the more frequently people use SNS, the more likely they are to experience body consciousness and body shame. Overall, the frequency of SNS use seems to negatively impact body image.

Tiggemann and Slater's (2013) and Holland and Tiggemann's (2016) research is relevant in the sense that online dating is a form of SNS use. Online dating specifically has also been found to affect body image by causing an increasing awareness and criticism towards one's own body (Carpenter & McEwan, 2016). Moreover, Strubel and Petrie (2017) conducted a study about the effect of the dating app Tinder on body image. A sample of 1147 respondents participated in their study, who were either engaged in online dating or not. It was found that compared to the participants who did not engage in online dating, users of the Tinder app reported significantly lower levels of satisfaction with their faces and bodies. These previous findings give rise to the assumption that frequent usage of online dating platforms leads to body image concerns (see Figure 1).

Online dating frequency → Body image concerns

Figure 1. Online dating frequency is assumed to lead to body image concerns.

1.2 Self-Objectification as a Possible Mediator of the Relationship between Online Dating Frequency and Body Image Concerns

Self-objectification greatly affects how people want to be perceived by others. It is a component of objectification theory, according to which being reduced to one's appearance can cause the adoption of an objectified view of oneself (Morari et al., 2005). Self-objectification is connected to body image in the sense that objectifying oneself in terms of appearance may be detrimental to one's body image if one views one's body as different from other objectified people (Schaefer et al., 2012). Generally, objectification means that people view a person's value as based on how physically attractive they are, while excluding other characteristics in their evaluation of someone (Karsay, Knoll, & Matthes, 2018). Self-objectification specifically can be defined as viewing one's body as an object to be gazed at and evaluated by others (Fardouly, Willburger, & Vartanian, 2018). When viewing one's body as an object, one takes a third-person perspective and tries to predict how attractive one is perceived as by others (Karsay et al., 2018). Hence, self-objectification entails determining one's own worth on the basis of appearance and assigning extensive importance to how one's appearance is perceived by others.

Self-objectification results from being (sexually) objectified by others, both in social settings and through SNS, for instance through suggestive comments or "hyper-sexualized media images" which objectify others (Schaefer et al., 2018). If women are repeatedly objectified, in social contacts or through SNS, they will also begin perceiving themselves as objects and assign more importance to their appearance than their internal experience (Schaefer et al., 2018). Moreover, witnessing and being exposed to objectification encourages not only women, but also men to adopt an objectified perception of themselves (Karsay et al., 2018). People who do not solely define themselves based on their appearance have a more positive body image, greater self-esteem, and also more perceived social support from family and friends (Cline, Bailey, & Gammage, 2018), which implies that self-objectification exerts

a negative impact on the affected. Overall, both genders appear to be prone to objectifying themselves, which can result either from experiences in social settings or experiences made using SNS.

Self-objectification seems to be related to both body image and SNS. When individuals objectify themselves, they try to improve how they appear to others to decrease the damage to their body image (Schaefer et al., 2018). Furthermore, self-objectification leads to chronically being concerned about one's outer appearance (Karsay et al., 2018). Based on these findings, in the context of the present study, it is assumed that self-objectification leads to body image concerns. Additionally, taking into account that self-objectification can be facilitated through SNS (Schaefer et al., 2018), it is hypothesized that self-objectification is a mediator of the relationship between online dating frequency and body image concerns (see Figure 2).

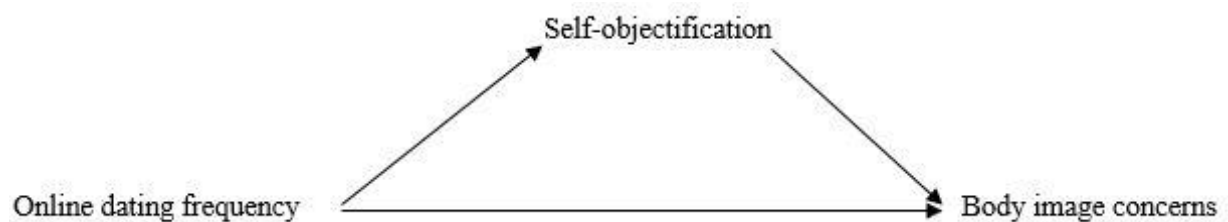


Figure 2. Self-objectification is hypothesized to mediate the relationship between online dating frequency and body image concerns (H1).

1.3 Internalization of Societal Beauty Standards as a Possible Mediator of the Relationship between Online Dating Frequency and Body Image Concerns

The internalization of societal beauty standards refers to the degree to which individuals adopt socially defined beauty ideals as their personal ideals and goals (Fardouly et al., 2018). It is a component of objectification theory, according to which having societal beauty standards imposed on oneself leads to the internalization of such ideals (Morari et al., 2005; Strubel & Petrie, 2017). The beauty ideal for women widely consists of being young and tall, having long legs, large eyes, clear skin, but most importantly, being thin (Tiggemann, 2011). For

men, the ideal is commonly being athletic and muscular, having a v-shaped body and broad shoulders, and most importantly, a low level of body fat. In both cases, attaining those ideals in healthy ways is close to impossible, but they are still used as standards against which men and women judge themselves (Tiggemann, 2011). Thompson and Stice (2001) have investigated beauty ideals and describe the internalization of beauty standards as accepting ideals of attractiveness and performing behaviors to achieve those ideals. According to them, internalizing societal beauty standards is influenced by social reinforcement, for instance through peers and media, the latter of which are referred to as “socialization agents” (Thompson & Stice, 2001). Peers and media have an impact on appearance ideals by emphasizing the benefit of attractiveness, which is being socially accepted. Actions that generally reinforce the internalization of beauty ideals are criticism regarding weight, encouragement to diet, and the glorification of models in the media (Thompson & Stice, 2001). Overall, men and women seem to share one main beauty ideal in the sense that men idealize having low levels of body fat and women idealize being thin. Also, such beauty standards appear to be reinforced by the idea of being socially accepted.

Out of the available media, which for instance include fashion magazines and television, the one that exerts the most powerful impact on beauty ideals appears to be the Internet, which offers SNS to users (Tiggemann & Slater, 2013). Exposure to SNS has been found to predict the internalization of beauty ideals, especially thinness, in adolescent girls (Tiggemann & Slater, 2013). In addition, beauty ideals that are spread through SNS have been found to affect people’s body image not only in adolescence but also throughout adulthood (Yamout, Issa, & Ghaddar, 2019). According to Thompson and Heinberg (1999), the internalization of such standards leads to body image disturbances and body dissatisfaction in women. Tiggemann (2011) extended this finding by stating that the internalized ideals lead to body dissatisfaction among both men and women, and might also lead to unhealthy behaviors, such as disordered eating, in an attempt to decrease this dissatisfaction. Overall, it seems that

especially exposure to SNS predicts the internalization of beauty ideals, which can lead to body image concerns and unhealthy behaviors.

The internalization of societal beauty standards could be another meaningful mediator in the current research. Strubel and Petrie (2017) examined the effect of Tinder use on the internalization of societal beauty standards. They found that using the dating app caused higher levels of internalization in its users. Including internalization as a mediator could be a meaningful extension to their research because they tested the effect of online dating on internalization, but they did not test the internalization of beauty standards in a mediation framework. A mediation framework including internalization could provide insights into why online dating affects body image. In accordance with the aforementioned research studies, it is assumed within the context of the present study that the internalization of societal beauty standards leads to body image concerns. Importantly, the internalization of societal beauty standards is hypothesized to also be influenced by online dating, and therefore to be a mediating variable (see Figure 3).

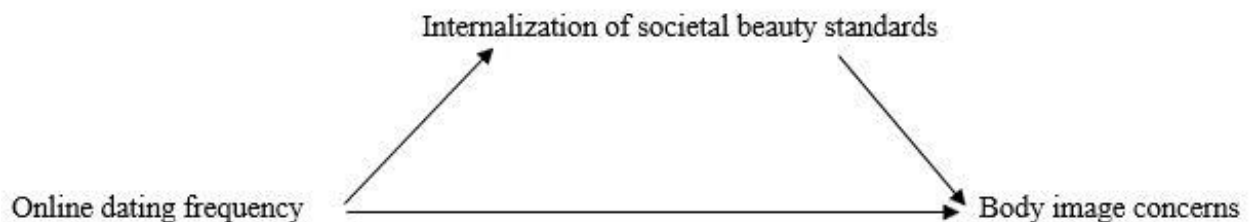


Figure 3. The internalization of societal beauty standards is hypothesized to mediate the relationship between online dating frequency and body image concerns (H2).

1.4 The Current Study

The research question of the current study is “*To what extent do self-objectification and the internalization of societal beauty standards mediate the relationship between online dating frequency and body image concerns?*” The focus will be on frequency specifically as opposed to whether or not people use online dating because it is expected that the more frequently online dating is used, the more detrimental the effect could be on body image, which has been

suggested by earlier research findings (Holland & Tiggemann, 2016; Tiggemann & Slater, 2013).

The aim of the current study is to investigate the effect that the frequency of online dating use has on users' body image. Online dating specifically, independently of other SNS, in relation to body image has been barely investigated thus far, which is part of the reason why more research should be done on this topic. The main reason to investigate online dating in relation to body image is that body image disturbances are widely prevalent and lead to emotional distress and depression (Thompson & Stice, 2001), to low-self-esteem, unhealthy eating behaviors, and eating disorders (Smith, 2019). Should it be found that online dating has a negative impact on body image, the current study could be used to raise awareness in society about a detrimental effect of online dating on body image to protect users. Also, providers could then find ways to improve their online dating platforms to lessen the number of body image disturbances.

In addition to a possible effect of online dating frequency on body image concerns, other factors could also play an important role in this relationship, two of which have been chosen to be added to the current research on the basis of objectification theory.

Objectification theory has been related to both online dating use (Strubel & Petrie, 2017) and body image concerns (Moradi et al., 2005), and thus its components self-objectification and internalization might be of importance to this relationship. Self-objectification is a mediator which is important to include because of the strong effect that it can have on society and on the mental health of individuals. When people don't objectify themselves, they have a more positive body image, greater self-esteem, and more perceived social support from family and peers (Cline et al., 2018). Hence, if providers indeed want to improve their online dating platforms with regards to body image, they should take self-objectification into account as well. Including the internalization of societal beauty standards as a mediator is of importance because a mediation framework could bring additional meaningful insights to what Strubel

and Petrie (2017) have found out about the effect of online dating on internalization. The mediation framework could explain more clearly why online dating affects people's body image.

2. Methods

2.1 Design

The current cross-sectional study was part of a larger research study on online dating and well-being. Ethical approval by the BMS Ethics Committee was obtained (application number: 200344). To explore the effect of online dating frequency on body image concerns, four variables were tested. Online dating frequency was the independent variable, body image concerns was the dependent variable, and the two mediator variables were self-objectification and the internalization of societal beauty standards.

2.2 Participants

The participants were recruited through the online platform Sona Systems, as well as convenience sampling via link to the questionnaire, which was distributed by the members of the research group through messages and SNS. A total number of 250 participants responded, while 179 participants finished the questionnaire. The number of participants was then reduced to only current online dating users and non-users, excluding past users ($N = 107$) and leaving a total number of 143 participants. Both men and women were included in the population of interest because, regardless of gender, they are at risk of struggling with and potentially suffering from body dissatisfaction (Tiggemann, 2011), self-objectification (Karsay et al., 2018), and internalized beauty standards (Strubel & Petrie, 2017; Tiggemann, 2011).

2.3 Materials

The material used for the research study was an online questionnaire (see Appendix A). The questionnaire contained 3 scales. The first scale was the Body Image Concerns subscale taken from the Body Uneasiness Test (BUT) (Cuzzolaro, Vetrone, Marano, & Garfinkel, 2006). The

second scale was the Self-Objectification Questionnaire (SOQ) (Noll & Fredrickson, 1998). Finally, the third scale was used to measure the participants' level of internalization of societal beauty standards. This third scale was the Thin Internalization subscale, taken from the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4) (Schaefer et al., 2012).

2.3.1 Online Dating Frequency. The participants were provided with 11 possible answers to this custom question. They had to select one of the responses to indicate how often they used online dating platforms. The possible responses ranged from "Never" to "Two or more times per hour."

2.3.2 Body Image Concerns. The dependent variable was measured using the 9 items of the Body Image Concerns subscale taken from the BUT (Cuzzolaro et al., 2006). Examples of the items included "I like those clothes which hide my body." and "My physical appearance is disappointing compared to my ideal image." The response options ranged from "Never" to "Always" (Cuzzolaro et al., 2006). The item scores were summed to represent an overall score per participant, with higher scores indicating greater body image concerns (Cuzzolaro, Garfinkel, & Spera, 2007). The reliability of the Body Image Concerns subscale has been shown to be high with a Cronbach's alpha of .90 (Cuzzolaro et al., 2006). In the current sample, a Cronbach's alpha of .91 was found, which confirms a high reliability. The factor loadings of the nine items have been found to be close to 1, between .70 and .86 to be exact. This indicates that the questionnaire is valid and that the items measure the same construct, namely body image concerns (Cuzzolaro et al., 2006).

2.3.3 Self-Objectification. The first mediator variable was measured using the 10 items from the SOQ (Noll & Fredrickson, 1998). The participants had to rank the items based on their relevance to the participants' physical self-concept. The ranking included appearance-based items such as "When considering your physical self-concept, what rank do you assign to physical attractiveness?" and competence-based items such as "When considering your

physical self-concept, what rank do you assign to physical coordination?" The ranks of the appearance-based items and the ranks of the competence-based items were summed respectively per participant (Noll & Fredrickson, 1998). Then, the sum of competence ranks was subtracted from the sum of appearance ranks, again per participant. The final scores of self-objectification ranged between -25 and 25. The higher the scores, the higher the participant's level of self-objectification (Noll & Frederickson, 1998). Due to the scoring system of the ranks, it was not possible to report a traditional reliability value. The reliability was determined by correlating the sum of the appearance ranks and the sum of the competence ranks (Hill & Fischer, 2008). When the appearance-based items are ranked as more relevant, the competence-based items have to be ranked as less relevant, which means there is a negative correlation between the two types of items (Hill & Fischer, 2008). Such a negative correlation in this case stands for good reliability, which was found by Hill and Fischer (2008) with a value of $-.81$. In the current sample, the correlation between appearance-based and competence-based items showed that the reliability is excellent with a value of -1.0 , $r(101) = -1.0$, $p < 0.001$. The questionnaire has also been proven to display strong construct validity (Noll & Fredrickson, 1998).

2.3.4 Internalization of Societal Beauty Standards. The second mediator variable was measured using 5 items, namely the Thin Internalization subscale taken from the SATAQ-4 (Schaefer et al., 2012). The thin internalization was deemed relevant to both men and women, seeing as the main beauty ideal for women is to be thin, while for men it is of importance to have a low level of body fat (Tiggemann, 2011). Examples of the Thin Internalization subscale included "I want my body to look like it has little fat." and "I want my body to look very lean." The response options ranged from "Definitely Disagree" to "Definitely Agree" (Schaefer et al., 2012). The item scores were summed to represent an overall score per participant, with higher scores indicating greater levels of internalization (Yamamiya et al., 2016). The reliability of the Thin Internalization subscale has been shown

to be high with a Cronbach's alpha of 0.92 (Schaefer et al., 2012). In the current sample, the Cronbach's alpha value was .68, which is a good reliability measure considering that short scales can lead to reduced reliability values (Tavakol & Dennick, 2011). The factor loadings of the five items ranged between .67 and .90. This indicates that the subscale is valid and that the items measure the same construct, namely thin internalization (Schaefer et al., 2012).

2.4 Procedure

The questionnaire was created using the website Qualtrics. The participants were recruited through the online platform Sona Systems, and through convenience sampling via link to the questionnaire. The link to the online questionnaire was distributed through messages and SNS. Prior to filling in the questionnaire, the participants were required to give their informed consent, meaning that they first had to read and sign the consent form in order to start with the questionnaire. The consent form informed the participants that their participation would take approximately 20-30 minutes, that they would be able to withdraw their consent at any time, and that their information was going to be treated confidentially and used only for the purpose of this study (see Appendix B). After agreeing to the consent form, the participants were directed to the actual questionnaire. The participants answered questions regarding their characteristics, namely their gender, age, nationality, and the frequency of their online dating use. Afterwards, they gave responses to the questions about body image concerns, self-objectification, and the internalization of societal beauty standards. After the questionnaire, the participants were thanked for their participation and provided with contact details from the researchers in case they wished to request further information.

2.5 Data Analysis

The statistical analysis software SPSS was used to analyze the data gained through the questionnaire.

Prior to conducting the data analysis, a screening of the data was done, which revealed that 30% of the data was missing. Using pairwise deletion, solely incomplete data on the

relevant variables (online dating frequency, body image concerns, self-objectification, and internalization) were excluded from the analysis rather than all information contained in the data sample, which would have been the case with listwise deletion (Kamaruzaman, Zin, & Ariff, 2017). This method of deletion was used because it does not involve removing all of the information available in a data sample that is missing part of the data. Thereby, it was prevented that all information contained in the data sample was lost despite only one point of data being missing (Kamaruzaman et al., 2017).

In addition, the correlations between the variables were calculated. The correlation coefficients indicated the type and degree of association between two variables (Senthilnathan, 2019). Calculating the correlations was useful to determine beforehand the utility of a regression analysis. The higher the value of the correlation coefficient, the better the prediction of the dependent variable would be, with lowest possible errors (Senthilnathan, 2019).

The hypotheses were tested using the PROCESS macro tool for SPSS (Hayes, 2013). Bootstrapping using the PROCESS tool was chosen as a way to test the two mediation models because it is useful for working with relatively small sample sizes (Cerina, Taylorb, Lesliea, & Owena, 2006). The bootstrapping method allows the random selection of a large number of samples from the original sample, which provides additional statistical power (Cerina et al., 2006).

3. Results

3.1 Demographics

The majority of the participants was female, as 64.3% of them reported being female and 35.7% reported being male (see Table 1). The mean age of the participants was 22.57 ($Age_{SD} = 3.69$, $Age_{min} = 18$; $Age_{max} = 44$). The majority of the participants was German with a number of 104 participants, 10 were Dutch, and 29 participants had other nationalities. Most respondents were non-users with a number of 84, while 59 online dating users participated.

The majority of the online dating users reported using online dating platforms 1-5 times per week. Out of the 143 participants, 110 answered all questions regarding body image concerns, 101 answered all questions regarding self-objectification, and 100 responded to all questions concerning internalization (see Table 2).

Table 1

Demographic characteristics of the participants (N = 143)

Characteristics	N	%
Gender		
Male	51	35.7
Female	92	64.3
Age		
18-20	29	20.3
21-22	58	40.6
23-25	42	29.4
26-30	9	6.2
31-44	5	3.5
Nationality		
German	104	72.7
Dutch	10	7.0
Other	29	20.3
Online dating use		
Users	59	69.8
Non-users	84	30.2
Frequency of online dating use		
Never	84	58.7
1-3 times per month	8	5.6

1-5 times per week	30	21.0
1-6 times per day	18	12.6
At least once per hour	3	2.1

Table 2

Total number of respondents (N), means, standard deviations (SD), minimum and maximum scores per variable, correlations

Variable	N	Mean	SD	Minimum	Maximum	1	2	3	4
1. Online Dating Frequency	143	1.97	2.76	0	10	–			
2. Body Image Concerns	110	15.39	9.28	0	43	.18	–		
3. Self-Objectification	101	- 3.3	12.27	- 25	25	.28*	.29*	–	
4. Internalization	100	14.76	3.77	6	25	.08	.46**	.03	–

* $p < .05$. ** $p < .01$.

3.2 Mediation Analysis of Online Dating Frequency and Body Image Concerns

3.2.1 Mediating Effect of Self-Objectification. The first hypothesis was that self-objectification mediates the relationship between online dating frequency and body image concerns. It was found that that the direct effect of online dating frequency (X) on body image concerns (Y) was non-significant, $b = .50$, 95% CI [-.17, 1.16], $t = 1.48$, $p = .1422$ (see figure 4). It was also found that self-objectification (M) significantly predicted body image concerns (Y), $b = .21$, 95% CI [.06, .36], $t = 2.74$, $p = .0073$. Additionally, it was shown that that online dating frequency (X) significantly predicted self-objectification (M), $b = 1.2$, 95% CI [.37, 2.05], $t = 2.84$, $p = .0054$. With self-objectification (M) involved, there was also no significant effect of online dating frequency (X) on body image concerns (Y), $b = .24$, 95% CI [-.43, .91],

$t = .72, p = .4758$. Overall, 9.1% of the variance in body image concerns was explained by online dating frequency and self-objectification. The effect of X on Y had a lower b-value with the mediator included, which indicated a mediating effect of self-objectification. Indeed, there was a mediating effect because self-objectification (M) was significantly predicted by online dating frequency (X) and significantly predicted body image concerns (Y). Also, the indirect effect did not contain zero, and was therefore significant. Hence, an indirect-only mediation was found, which means that there was a mediating effect but no direct effect, and hypothesis 1 could be partially accepted.

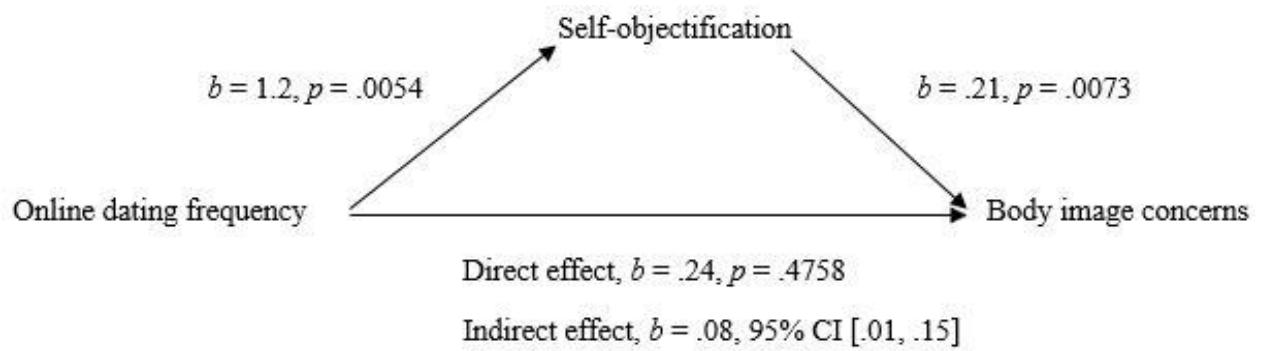


Figure 4. Mediation model involving self-objectification.

3.2.2 Mediating Effect of the Internalization of Societal Beauty Standards. The second hypothesis was that the internalization of societal beauty standards mediates the relationship between online dating frequency and body image concerns. It was found that that the direct effect of online dating frequency (X) on body image concerns (Y) was non-significant, $b = .50, 95\% \text{ CI } [-.18, 1.17], t = 1.46, p = .1465$ (see figure 5). It was also found that internalization (M) was a significant positive predictor of body image concerns (Y), $b = 1.13, 95\% \text{ CI } [.68, 1.60], t = 4.99, p < .001$. In addition, it was shown that that that there was no significant effect of online dating frequency (X) on internalization (M), $b = .11, 95\% \text{ CI } [-.16, .38], t = .82, p = .4127$. With internalization (M) involved, there was also no significant effect of online dating frequency (X) on body image concerns (Y), $b = .37, 95\% \text{ CI } [-.23, .97], t = 1.21, p = .2279$. Hence, effect of X on Y had a somewhat higher b-value with the mediator included, which indicates that there was no mediation effect. Since there was also no direct

significant effect of online dating frequency (X) on body image concerns (Y), it was concluded that no mediation took place. Therefore, hypothesis 2 was rejected.

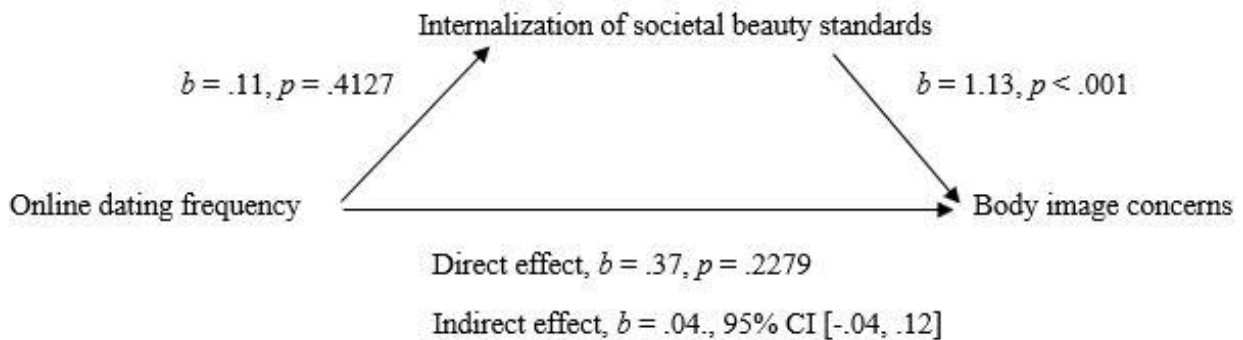


Figure 5. Mediation model involving the internalization of societal beauty standards.

4. Discussion

The aim of this cross-sectional research study was to examine whether self-objectification and the internalization of societal beauty standards mediate the relationship between online dating frequency and body image concerns. It was found that with self-objectification involved, there was an indirect-only mediation. On the other hand, it was found that internalization did not mediate the relationship between online dating frequency and body image concerns.

Therefore, hypothesis 1 was partially accepted, while hypothesis 2 was rejected.

4.1 Interpretation

The current research showed that online dating frequency in itself does not significantly predict body image concerns. This finding contradicted with the finding of the study conducted by Strubel and Petrie (2017), in which they found that Tinder users reported lower levels of satisfaction with their faces and bodies than non-users. A possible explanation for the differing results might be that in the research done by Strubel and Petrie (2017), the independent variable was dichotomous and captured whether or not the participants used online dating, while in the current study, the variable frequency was stringent with ten possible answer options. If the frequency of online dating use does not predict body image concerns, but whether or not people use online dating does, this implies that how frequently

online dating platforms are used is of no relevance to body image. Hence, the difference in findings suggests that using online dating in itself might pose a threat to users' body image, but it does not make a difference how often they use it.

Moreover, it was confirmed by the current study that online dating frequency significantly predicts self-objectification. This result was in line with the finding by Schaefer and colleagues (2018) that using SNS facilitates self-objectification. Their finding could be extended in the sense that SNS is a broad term and the current study showed that online dating specifically leads to self-objectification. When considering objectification theory, which holds that self-objectification stems from being objectified by others (Moradi et al., 2005), the finding that online dating frequency predicts self-objectification implies that users experience objectification through online dating platforms. It appears that the more frequently people use online dating platforms, the more they internalize an objectified view of themselves. This suggestion also corresponds to the earlier finding that using Tinder causes an increased awareness of one's own body (Carpenter and McEwan, 2016).

Contrary to the expectation, it was found that online dating frequency does not significantly predict the internalization of societal beauty standards. This result contradicted with the finding that using the dating app Tinder leads to higher levels of internalization (Strubel & Petrie, 2017). A possible explanation for the finding that online dating frequency does not predict internalization could be given by Dakanalis and colleagues (2014), who found that internalization happens regardless of media characteristics such as frequency of use, but rather happens depending on whether the individual is personally vulnerable to beauty standards. The differing findings indicate that the effect of online dating frequency on internalization might be more complex, and that internalization could be affected by other, more individual factors.

Furthermore, the current study showed that both self-objectification and the internalization of societal beauty standards significantly predict body image concerns. The

result corresponded with the findings that self-objectification impacts one's body image (Cline et al., 2018) and leads to chronically worrying about one's outer appearance (Karsay et al., 2018). The result was also in accordance with foregoing research which indicated that internalization leads to body image disturbances (Thompson & Heinberg, 1999) and body dissatisfaction (Tiggemann, 2011). Therefore, the current study confirms these findings.

4.2 Limitations

There have been certain limitations to this research that should be taken into account. First of all, 30% the data was missing. There was a pattern to the missing data, seeing as the sequence of the scales was (1) frequency of online dating use, (2) body image concerns, (3) self-objectification, and (4) internalization of societal beauty standards, and the further the questionnaire went, the less data could be found in the dataset. This might have been the case because the scales used for the current research were the last ones shown to the participants, and despite using the "forced response" option, many of them seem to not have completed the questionnaire, which might indicate for instance a shortage of time or a loss of motivation. Also, there were relatively few participants who were online dating users, especially after removing the past users. The disadvantage of having relatively few participants who were online dating users is that the effect of online dating frequency on the other variables could have been underestimated, and therefore falsely rejected when there might indeed have been an effect.

Another limitation was that in order to have a single measure of internalization, the Thin Internalization subscale from the SATAQ-4 was chosen. Thinness has been proven to be a beauty ideal that women internalize, and while men also aspire to have little body fat (Tiggemann, 2011), this subscale does not take into account the idealization of a muscular and athletic body for men. Hence, it is possible that men generally scored lower on the Thin Internalization subscale, regardless of their online dating use, because it could not fully capture their beauty ideal. If men generally scored lower on the internalization of societal

beauty standards, the effect of online dating frequency on internalization could have been underestimated and falsely dismissed. This means that there could have been a mediating effect of internalization that was not recognized due to a lack of proper representation of the male beauty standard.

In addition, a limitation might be that the participants answered self-report questions, which could have skewed the results. It is possible that they responded in a socially desirable manner, which is likely with regards to socially sensitive topics such as physical activity or dietary intake (van de Mortel, 2008). Since physical activity and body satisfaction played a large role in the questionnaire, it is possible that the answers were impacted by social desirability. In that case, the scores on the Body Image Concerns subscale, the SOQ, and the Thin Internalization subscale could be lower than they normally would have been without socially desirable answers. If that was the case, the effects of self-objectification and internalization, and the levels of body image concerns could have been underestimated.

4.3 Implications for Future Research

In future research, factors other than or additional to online dating frequency, such as personality characteristics of the participants, could be taken into account. This would be in favor of the research done by Dakanalis and colleagues (2014), who discovered that beauty standards are internalized regardless of media characteristics such as frequency of online dating use, but rather depending on the individual's personal vulnerability to internalization.

Another proposition for future research would be to add a question for past online dating users about how much time has passed since they were an active user. Supported by literature, perhaps a time frame or cut-off score could be found about how long online dating might affect a user, which would subsequently lead to a larger number and variety of participants to be incorporated in the sample. Also, by excluding the past users even though they were quite many and might still have been active users recently, it is possible that some meaningful data was removed and the effect of online dating frequency on the other variables was

underestimated. In order to prevent underestimating and possibly overlooking the effect of online dating frequency, it is advised to include the past users and add a question about how much time has passed since they were active users.

Moreover, an idea for future research would be to add the Marlowe–Crowne Social Desirability Scale with 13 items to the questionnaire to control for social desirability bias. This short version has been shown to reveal social desirability more adequately than the original version (Sârbescu, Costea, & Rusu, 2012), and a reasonable number of items would be added to the online questionnaire. Responses by participants are more likely to be impacted by social desirability when the questions require them to self-report on topics that are socially sensitive, such as physical activity levels and dietary intake (van de Mortel, 2008). Physical activity in particular was a topic relevant to the SOQ, so social desirability might be an important factor to control for in future research.

Furthermore, the SATAQ-4 could be put to use differently. One could use the Thin Internalization subscale for women and the Muscular Internalization subscale for men. That way, the subscales could better represent the respective beauty ideals and become gender-specific, which could make the results more accurate. By including both internalization subscales, one could prevent that the effect of online dating frequency on internalization is underestimated and falsely rejected due to the men generally scoring lower on the Thin Internalization subscale.

The final recommendation concerns the providers of online dating services. They may have an interest in improving their platforms in a way that they do not facilitate self-objectification or body image concerns, which could have serious negative consequences on the users' mental and physical health (Cline et al., 2018; Smith, 2019; Thompson & Stice, 2001). Since it was found that online dating frequency predicts self-objectification and that self-objectification predicts body image concerns, providers could use their expertise to think of steps that they could take to prevent self-objectification and body image concerns in the

users. For instance, the dating app Tinder provides users with partner suggestions based on proximity, and the users accept or decline the suggestions based on the pictures they see of the potential partners (Orosz et al., 2018). Only after both users accepted the partner suggestion, they are able to get to know each other (Orosz et al., 2018). In such a case, a step that the providers could take would be to alter the algorithms in a way that matches are not mainly based on distance and pictures, but equally based on shared interests, personality characteristics, or what kind of relationship users are looking for. These factors could be shown to the users prior to seeing the photographs of potential partners. If factors such as interests, personality, and expectations are responsible for partner suggestions, the users might find potential partners more independently of appearance, which in turn might prevent users from perceiving themselves as objects. Since self-objectification and body image concerns are largely based on appearance (Cash et al., 2002; Fardouly et al., 2018; Karsay et al., 2018; McShirley, 2019), shifting the attention from mainly depending on appearance to equally depending on other attributes might lessen the potentially negative impact of online dating.

4.4 Strengths

Despite the limitations, there have been strong points to this research that act in favor of deeming the results valid. First of all, the sample was highly representative of online dating users. Online dating services are particularly popular among people aged 18-24, with the number of users within this age range having increased immensely over the past years (Sawyer, Smith, Benotsch, 2017). In the current sample, the majority of participants was aged 18-25, which ideally represents the population of online dating users.

Another strength was that the reliabilities of the three subscales that have been used for the online questionnaire were high. The current research was thus able to confirm the high Cronbach's alpha values that were calculated in foregoing research studies. Hence, the reliability of the Body Image Concerns subscale (BUT), the SOQ, and the Thin Internalization subscale (SATAQ-4) could be affirmed.

In addition, a strong point was that other research findings could be confirmed and extended. For instance, it could be confirmed that the internalization of societal beauty standards predicts body image concerns (Thompson & Heinberg, 1999; Tiggemann, 2011). Also, it could be confirmed that self-objectification predicts body image concerns (Cline et al., 2018; Karsay et al., 2018). A finding that could be both affirmed and extended was that SNS use leads to self-objectification. Schaefer and colleagues (2018) found that SNS use facilitates self-objectification, and the current research specified this finding by revealing that this is also the case for online dating in particular, filling a gap in the literature.

Moreover, a significant strong point was that the relationship between online dating and body image concerns has not been tested in a mediation framework involving self-objectification and internalization thus far. Therefore, the current research provided new insights into if and how self-objectification and internalization are affected by online dating and how they affect body image concerns. Importantly, through the novel mediation model involving self-objectification, the new insight was gained that there is only an association between online dating frequency and body image concerns when self-objectification is involved.

4.5 Conclusion

This research study showed that self-objectification mediates the relationship between online dating frequency and body image concerns in an indirect-only mediation. Contrary to the expectation, it was found that the internalization of societal beauty standards does not mediate this relationship. It was also found that the frequency of online dating use in itself does not have an effect on body image concerns, which indicated that the frequency with which people use online dating platforms does not directly affect their body image. The main recommendations for future research are taking into account variables that reflect personality characteristics, including a question to inquire about how much time has passed since past online dating users were active users, adding the Marlowe-Crowne Social Desirability Scale

encompassing 13 items, and including both Internalization subscales from the SATAQ-4 in the questionnaire, so that the Thin Internalization subscale can be used for women and the Muscular Internalization subscale for men. A recommendation for providers of online dating platforms is to place emphasis on shared interests, personality characteristics, and expectations when providing partner suggestions rather than on photographs to prevent users from viewing themselves as objects and subsequently experiencing body image concerns.

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Appendix A: Questionnaire

Scale 1: Body Image Concerns subscale, taken from the Body Uneasiness Test (BUT)

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.

Scale 2: Self-Objectification Questionnaire (SOQ)

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)? _____

Scale 3: Thin Internalization subscale, taken from the Sociocultural Attitudes Towards Appearance Scale-4 (SATAQ-4)

1. I want my body to look very thin.
2. I want my body to look like it has little fat.
3. I think a lot about looking thin.
4. I want my body to look very lean.
5. I think a lot about having very little body fat.

Appendix B: Consent form

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 Behavioral, 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 confidentially. 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 anonymizing 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/>).

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 anonymized 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 Behavioral, Management and Social Sciences at the University of Twente may be contacted through ethicscommittee-bms@utwente.nl