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Abstract

This study investigates individual differences, sex differences and predictors of current and prior use of Picture-Based Mobile Dating Apps (PBMDA), including level and type of PBMDA activity, and reasons for PBMDA use. Six hundred and forty-one Norwegian university students aged between 19 and 29 years completed a questionnaire in lecture breaks. Nearly half of the participants reported former or current PBMDA use. One in five was current users. We found that PBMDA-users tend to report being less restricted in their sociosexuality (as measured with the SOI-R) than participants who have never used PBMDAs. This effect was equally strong for men and women. Sociosexuality essentially accounted for the effects of other variables such as seeking a casual sex partner, being comfortable picking up strangers, and self-reported short-term mate value. As predicted, women and men's reasons for using PBMDAs differed. Relative to women, men emphasized desire for sex as a reason for using PBMDAs. When controlling for sex, age and SOI Desire there was no evidence that length of use increased lifetime casual sex partners. We conclude that the new technology provided by PBMDAs merely represents a new arena for short-term sexual behavior, and not necessarily a facilitator of new sexual behaviors.

1 Introduction

Several picture-based mobile dating apps (PBMDA) are now available, but with more than 10 million active users, Tinder, introduced in 2012, is currently the most popular online dating app (Freier, 2015; Sumter, Vandenbosch, & Ligtenberg, 2017). According to the Tinder website the app has users in 196 countries, counting more than 10 billion matches worldwide (Tinder, 2016). PBMDAs provide pictures of potential mates and there is no cost associated with use. Based on an impression formed from one or more photos the user can choose to like or dislike a potential mate with a right or left swipe. If two people like each other, they get the opportunity to contact each other via text message, which denotes a “match.”

Despite their popularity, few studies that have investigated various aspects of PBMDA use, including motivations and reasons for their use (Sager, Alderson, and Boyes, 2016; Sumter et al., 2017). Sager and colleagues (2016) found that female respondents scored higher than males on sexual-motives for using mobile dating apps (as assessed with items like “I use hook-up app(s) for sexual freedom” and “I use hook-up app(s) to be sexually adventurous”). Despite this difference in sexual motivation, it was reported that men were more interested in actually hooking-up than women when using mobile dating apps. Sumter et al. (2017) who looked specifically at the use of Tinder found that men were more interested in finding a short-term partner than women. Further, different from men, women had a substantially lower motivation for casual sex compared to love (Sumter et al., 2017). Recently, Moran, Salerno and Wade (2018) found that unrestricted Snapchat users were more likely to use that picture sharing app to gain sexual access and hookups.

Sexual Strategies Theory (SST; Buss & Schmitt, 1993, 2016) is particularly relevant for understanding sexual motivations. SST suggests there are two main human mating strategies, short-term and long-term. Long-term mating involves extended courtship, pair-

bonding emotions and dedication of resources over time, while short-term mating refers to more fleeting sexual encounters. Along the continuum of these mating tactics, there are other intermediate-term relationships such as longer lasting affairs and relationships of shorter duration. Which strategy the individual applies is contingent on a number of factors, such as operational sex ratio in the local mating pool (Barber, 2000), personal attractiveness (mate value) and other individual differences, such as mating strategy. Two causal factors potentially influence the motivation for having sex: the sex of the individual and his or her mating strategy (Buss & Schmitt, 1993). Sex differences will therefore appear in areas where men and women have faced recurrently different adaptive problems through human evolution, e.g., related to mating and parental investment (Buss, 1998). Based on men's lower minimum parental investment (Trivers, 1972), men are expected to devote a larger proportion of their total mating effort (energy and resources) to short-term mating strategies than women because of the fitness benefits for men compared to women in having numerous sex partners (Buss & Schmitt, 1993). As such, relative to women, men will (1) desire short-term partners more, (2) desire a larger number of short-term partners, and (3) require less time before consenting to sex or desire to have sex with an attractive partner (Schmitt, Shackelford, & Buss, 2001). These sex differences are expected to be universal, and evidence suggest they are (e.g., Lippa, 2009; Schmitt, 2005). Moreover, within each sex, individual differences in the preference for short-term sexual relationships will influence mating relevant behavior. Therefore, the current paper both considers sex differences as well as individual differences in sociosexuality.

The overall orientation towards uncommitted sexual activity has been termed sociosexual orientation, and Simpson and Gangestad (1991) were the first to develop an inventory (SOI) quantifying individual differences in this preference. A revised inventory assesses individual differences in three interrelated domains of sociosexuality, including past behavior experiences, attitudes toward casual sex, and desire for casual sex (Penke &

Asendorpf, 2008). As such, a person's sociosexuality should be a particularly good predictor of PBMDA use, as this provides an alternative arena for dating and short-term sexual encounters (Asendorpf, Penke, & Back, 2011). Sevi, Aral, & Eskenazi (2017) reported the only evidence that indirectly supports this claim in a recent M-Turk study of 163 Tinder users. They found that sociosexuality strongly predicted Tinder use *motivation*, and that sociosexuality fully accounted for the inhibiting effect of disgust on motivation to use. Further, Moran et al. (2018) found sociosexuality related to hook up behavior in the use of the Snapchat dating app. Although the primary motivation for PBMDA use may be to achieve casual sex (see preliminary findings by Kuhle et al., 2016), the extent to which sociosexuality predicts *actual* PBMDA use remains to be studied.

1.4 The current study

This study investigates factors associated with PBMDA use among students within the framework of individual differences in sociosexuality and sex differences as predicted by SST (Buss & Schmitt, 1993, 2016). Use of dating apps may be considered a tactic for achieving traditional short-term mating opportunities, possibly enabling people to expand their mating opportunities. The main purpose of this study is to investigate factors that predict current and former use of Picture-Based Mobile Dating Apps (PBMDA) in a sample of university students from a sexually liberal and secular culture. Mating takes effort, and we believe that active use of PBMDA may be a functional tool for effectively searching for and finding potential partners. This might make short-term mating more available to other groups than those who have thus far been able to succeed in the short-term mating market. We therefore expect to find evidence of both sex differences and individual differences in use and motives.

The following hypotheses will be tested:

H1: Relative to individuals who never have used dating apps, we expect current PBMDA users to be less restricted in their sociosexuality. Further, we expect that unrestricted sociosexuality predicts being more comfortable picking up a stranger, seeking short-term mates (hooking up, casual sex) rather than long-term mates (i.e., committed relationship), and rating themselves high on short-term mate value. In predicting PBMDA use, we expect that sociosexuality accounts for the effect of the other short-term oriented indicators (Moran et al., 2018; Penke & Asendorpf, 2008; Sevi et al., 2017).

H2: From Sexual Strategies Theory (Buss & Schmitt, 1993), we predict that (1) Relative to women, men will show more mating relevant PBMDA activity such as approving and meeting up with partners following dating app use (Buss & Schmitt, 1993; Sager et al., 2016). Further, we predict that (2) The reasons (motives) given for PBMDA use will differ for women and men. We expect women to use dating apps primarily for feeling good/self-affirmation and when wanting a committed relationship, and less when desiring sex, and that men use dating apps primarily when desiring sex. We also expect that these sex differences to hold up across current and former PBMDA users.

2 Methods

2.1 Participants

Participants were recruited from lectures in social sciences, natural sciences and humanities at the two major campuses at a Norwegian University ($N= 678$). The sample eligible for analyses covered 641 (55.8% women) students aged between 19 and 29, all

reporting preference for opposite-sex partners.¹ Mean age was 21.4 ($SD= 1.6$) and 21.6 ($SD= 1.5$) for women and men, respectively. Nearly six out of ten (57.6%, $N= 369$) reported being single when filling in the questionnaire (50.7% women, 66.2% men), 35.9% reported being in a committed relationship, and 6.6% reported being in an 'undefined' relationship.

2.2 Procedure

Participants filled out questionnaires during a lecture break while seated at their desks. They were informed that participation was voluntary, that they could terminate at any point without consequences, and that their responses would remain anonymous. To ensure anonymity the participants were asked not take part in any discussion, and not to write any information on the questionnaire that could identify them. When completed, they deposit their questionnaires in a sealed box by the podium. The respondents did not receive credit or any other reward for taking part in the study.

2.3 Measurements

2.3.1 Sociosexual orientation

We applied the 9-items self-report revised Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf, 2008). SOI-R covers three interrelated components reflecting unrestricted or casual sexual behavior, unrestricted attitudes toward casual sex, and casual sex desires and fantasies. Both the full SOI-R scale ($\alpha= .87$) and the three separate components showed good internal consistency (behavior, $\alpha= .88$; attitudes, $\alpha= .87$; desire, $\alpha= .89$). Scaling and scoring was identical to Penke & Asendorpf (2008).

2.3.2 Mate value and other personal characteristics

Self-perceived mate value was assessed applying the short version of the Mate Value Inventory (MVI; Kirsner, Figueredo, & Jacobs, 2003). Each participant rated their response to

¹ Preference was measured using a 5-point rating scale with options: 1 (men only), 2 (men mostly), 3 (men and women equally), 4 (women mostly), and 5 (women only). Additional options were provided for those having 'no preference' and 'don't know'.

“how well does each of 17 traits/attributes apply to you” on a seven-point Likert scale with anchors 1 (*very low on this trait*) and 7 (*very high on this trait*). Explorative factor analysis (Maximum likelihood) extracted two factors reflecting short-term (MV-ST) and long-term (MV-LT) mate value. Many of the items had low factor loadings, and after removal of these we ended up with one MV-ST measure covering two items on physical attractiveness (face and body, $\alpha = .78$) and one three-item MV-LT measure covering being kind, dependable and loyal ($\alpha = .69$). Each participant also rated how strongly they sought long-term and short-term partners using two global questions (Buss & Schmitt, 1993), and how comfortable they were picking up strangers in regular (non-digital) dating contexts on a seven-point Likert with endpoint only was applied, 1 (*not at all*) and 7 (*very strongly*).

2.3.3 PBMDA-use, level and type of activity

Participants were first asked about their use of dating apps. Response alternatives were 0 (*No, never*), 1 (*No, but in the past*), and 2 (*Yes, I'm a current user*). Questions on the length of PBMDA use among current or former users covered how long they had used dating apps. A six-point rating scale was applied, 1 (*less than 3 months*), 2 (*between 3 and 6 months*), 3 (*between 6 and 12 months*), 4 (*between one year and 18 months*), 5 (*between 18 months and two years*), 6 (*more than two years*). Also, a six-point rating scale was used to measure how much time they spent on dating apps each day, 1 (*less than 10 minutes*), 2 (*between 10 and 20 minutes*), 3 (*between 20 and 30 minutes*), 4 (*between 30 and 50 minutes*), 5 (*between 50 and 90 minutes*), and 6 (*more than 90 minutes*). Questions on type of PBMDA activity covered how likely they were to (1) meet up with persons contacted through dating apps, (2) approve persons (“swipe right”), (3) meet persons in private settings, (4) to make contact with matches, and (5) respond to conversations in dating apps. A seven-point Likert with endpoint only was applied for all five items, 1 (*very unlikely*) and 7 (*very likely*).

2.3.4 Reasons (motives) for PBMDA use

Eight questions were constructed by the authors for measuring reasons or motives for using dating apps. Explorative factor analysis (Maximum likelihood) on the subsample of single former and current dating app users and conceptual considerations both suggested four dimensions (see Appendix A for details on wording of items, scoring and factor loadings) each covering two items: ‘When wanting to feel good/self-affirmation’ ($\alpha = .87$), ‘When desiring sex’ ($\alpha = .90$), and ‘When wanting committed relationship’ ($\alpha = .86$), and “To check the ‘mating market’ / When feeling bored” ($\alpha = .59$).

3 Results

We have presented an overview of PBMDA use for single and partnered participants in Table 1. Slightly more than half (53%) of the participants reported that they never had used dating apps, 28% were former users, and 19% were current users. Former or current use was strongly related to relationship status. Of the 121 current users, only eight were partnered.² Nearly one in three ($N = 113$) singles were current users (women: 33.7%, men: 27.7%).

Insert Table 1 about here

3.1 Predicting current dating app use

To test Hypothesis 1, we first predicted current use of dating apps applying hierarchical logistic regression analyses on single participants ($N = 369$). Respondent age and sex were entered first in Model 1. Seeking long-term partner, casual sex partner, and being comfortable picking up a stranger were entered in Model 2, and Mate Value (Short-Term) in Model 3. Sociosexuality was entered in Model 4, but because the number of casual sex partners may also be affected by PBMDA use, the effect of each component of sociosexuality

² Five women and three men

(behavior, attitudes and desire) was examined separately and mediation analyses of the association between PBMDA use and number of casual sex partners were performed. Possible moderating effects of participant sex were checked throughout. All bivariate associations among the predictors and with the outcome are presented in Appendix B.

As can be seen from Model 1 in Table 2, there was no sex difference in current use of PBMDA use, but the odds of using increased significantly with increasing age. In Model 2, seeking casual sex partners was a particularly strong predictor for PBMDA use, followed by being comfortable picking up and looking for a romantic partner predicted PBMDA use. The latter effect was significant only when accounting for the other factors in the model (the correlation was not significant, $r_{pb} = .11$). Short-term and long-term mate value did not predict PBMDA use in Model 3. In model 4, both the desire and the behavioral component of SOI predicted PBMDA use. Attitudes had no effect over and above desire. Running Model 4 with the SOI-Desire only, produced findings largely comparable to Model 3, but the effects of seeking casual sex partners and being comfortable picking up were significantly reduced when accounting for the effect of SOI-Behavior. None of the effects were moderated by participant sex in any of the models. Fig 1 shows the effect of SOI-Desire on the net probability of PMBDA use when the effects of all factors in Model 4 were accounted for.

Insert Fig 1 about here

To examine more closely the relationship between PBMDA use and sociosexuality, we performed two mediation analyses, both predicting the number of lifetime one-night stand partners (the most relevant SOI-Behavior item). First, we examined if increased length of PBMDA use predicted more lifetime one-night stand partners when accounting SOI-desire. Second, we examined if SOI-Desire predicted lifetime one-night stand

partners when accounting for length of PBMDA use. In both analyses we accounted for the effect of age and sex. First, the zero-order association between length of PBMDA use and lifetime one-night stand partners was $r = .21$ ($r = .18$ for women, $r = .26$ for men). However, applying the Zhao, Lynch & Chen's approach (Mehmetoglu, 2017), the effect of PBMDA use was no longer significant ($p = .071$) in a model controlling for the effect of SOI-Desire, sex, and age. Age accounted for most of the association, but the desire component of SOI also mediated the effect (25.3%) of PBMDA on the number of casual sex partners, suggesting that extended use of dating apps did not increase this number. In the second model, SOI-desire correlated $r = .24$ with number of lifetime one-night stand partners ($r = .22$ for women and $r = .36$ for men). PBMDA use did not mediate this association, and it remained moderately strong ($B = .257$).

3.2 Sex differences in mating-relevant PBMDA activity

A number of analyses were performed for testing the first part of Hypothesis 2. On average current and former PBMDA users reported approximately 6 months of use (Women: $M = 2.4$, $SD = 1.5$, Men: $M = 2.7$, $SD = 1.5$). When we applied Ordered logistic regression (OLR)³ to study sex differences in length of use, the difference in how long women and men had used dating apps was not significant, $Z = 1.77$, $p = .077$, $OR = 1.46$, 95% CI [0.96, 2.22]. The proportion of men and women reporting extended use (one year or more) was 28% and 22%, respectively. Six out of 10 women had used dating apps for less than 6 months compared to half of the men. Regarding daily use on dating apps women ($M = 1.8$, $SD = 1.7$) reported spending more time than men ($M = 1.5$, $SD = 1.4$), $Z = -2.44$, $p = .015$, $OR = 0.56$ [0.35, 0.89]. On the other hand, men were significantly more likely than women to meet up with persons contacted through dating apps, $t(295) = 5.43$, $p < .001$, $d = 0.65$ [0.41, 0.89], to approve

³ OLR is applicable for categorized dependent variables under the assumption that the levels of the dependent variable have a natural ordering (low to high), but the distances between adjacent levels are unknown. <https://stats.idre.ucla.edu/stata/output/ordered-logistic-regression/>

(“swipe right”), $t(294)= 3.76, p< .001, d= 0.45 [0.21, 0.69]$, far more likely to meet persons in private settings, $t(292)= 8.99, p< .001, d= 1.08 [0.83, 1.33]$, far more likely to make contact with matches, $t(294)= 6.06, p< .001, d= 0.73 [0.48, 0.97]$, and more likely to respond to conversations in dating apps, $t(293)= 9.94, p< .001, d= 0.47 [0.23, 0.71]$.

3.3 Sex differences in reasons for app use

For testing the second part of Hypothesis 2, we first compared for each of the four reasons of app use single respondents in 2 x 2 Anova's (Sex: Women vs Men, PBMDA use: Former vs Current). We then applied a number of paired-samples t-tests for current users, women's and men's reasons for PBMDA use. For illustration, we have presented the mean scores for each of the four reasons in Fig 2.

Insert Fig 2 about here

Women rated reason “to feel good” significantly higher than men, $F(1, 190)= 8.90, p= .003$, and former users rated this reason higher than current users, $F(1, 190)= 8.23, p= .005$. Women and men did not differ in their rating of reason “when I feel bored”, $F(1, 190)= 0.97$, but current users rated this reason higher than former users, $F(1, 190)= 21.82, p< .001$. Men rated reason “when desiring sex” higher than women, $F(1, 190)= 16.48, p< .001$, and current users rated this reason higher than former users, $F(1, 190)= 11.90, p< .001$. Finally, women and men rated reason “when wanting a relationship” similar, $F(1, 190)= 1.81$, and current users rated this reason higher than former users, $F(1, 190)= 19.89, p< .001$. There was no sex by PBMDA use interaction effect in any of the above analyses.

Paired-sample t-tests showed that among single current users, women rated ‘When desiring sex’ ($M= 3.1$) equally to ‘When wanting a committed relationship’ ($M= 3.3$), $t(60)= -$

0.94, $p = .35$, $r = .54$, $d = -0.12$ [-0.47, 0.24].⁴ Men rated ‘When desiring sex’ ($M = 4.2$) higher than ‘When wanting a committed relationship’ ($M = 3.6$), $t(51) = 2.21$, $p < .05$, $r = .25$, $d = 0.40$ [0.01, 0.79]. Women rated ‘When wanting to feel good’ ($M = 4.1$) higher than both ‘When desiring sex’, $t(61) = 4.45$, $p < .001$, $r = .46$, $d = 0.59$ [0.22, 0.96], and ‘When wanting a committed relationship’, $t(60) = 3.91$, $p < .001$, $r = .50$, $d = 0.52$ [0.15, 0.83]. In contrast, men rated ‘When wanting to feel good’ ($M = 3.7$) lower than ‘When desiring sex’, $t(51) = -2.42$, $p < .05$, $r = .51$, $d = -0.35$ [-0.74, 0.04], and similar to ‘When wanting a committed relationship’, $t(51) = -0.27$, $r = .31$, $d = -0.04$ [-0.43, 0.34].

4 Discussion

One fifth of our sample of male and female students were current PBMDA users, and current PBMDA users were primarily single. In support of Hypothesis 1, current use of dating apps was clearly associated with unrestricted sociosexuality and a number of other short-term casual sex indicators. However, in predicting current PBMDA use, sociosexuality essentially accounted for the effects of looking for a casual sex partner and being comfortable picking up strangers. It seems that sociosexual unrestrictedness ties in with traditional or non-digital hook-up and flirtation behavior, pursuing short-term sex, and short-term mate value (i.e. rating one’s own face and body as attractive).

Dating apps are thus merely a new, digital arena where the same people who enjoy success in more traditional arenas, such as bars and dance clubs, also will be more likely to pursue hooking ups by using new technology (see also Asendorpf, Penke, & Back, 2011; Moran et al., 2018). Further, recently Moran et al. (2018) also found that unrestricted individuals used mobile apps to gain hook-ups. It would seem that new technology use is driven by a stable sexual psychology; including sex differences and sexual conflicts in human mating (Buss, 2017). Importantly, our finding on predictors of actual PBMDA use strongly

⁴ Formula applied was Cortina & Nouri (2000): $d = t_r [2(1 - r) / n]$ ⁵

support Sevi et al's. (2017) who reported increase in *motivation* for Tinder use among sociosexually unrestricted participants. Additionally, this is in line with recent, preliminary findings (Kuhle et al, 2016), that report traditional patterns and sex differences in how people present themselves on Tinder, mirroring how people used to present and promote themselves in newspaper personal ads.

Theoretically SOI Behavior was expected to predict PBMDA use. SOI Behavior and PBMDA use are two behavioral measures that differ in content. At the same time, given that the primary motivation to use PBMDA's is to have casual sexual relations, it is not clear which of these may be the true predictor, and which may be the true outcome. It was possible, a priori, that PBDMA use actually increased the number of partners, and thus the SOI Behavior scores, and not primarily vice versa, as the hypothesis stated. We tested this. The conclusion is that length of PBDMA use does not increase number of lifetime *one-night stand* partners, when controlling for SOI-Desire, age and sex. We therefore maintain the claim that SOI predicts PBMDA use rather than vice versa. If use is successful, there will be a necessary bi-directionality (greater length of use will then increase number of partners relative to non-use, when controlling for age and SOI Desire) – but use does not seem to be successful enough in general for this pattern to actually manifest in the current data.

As hypothesized (H2), men differ from women in their use of PMBDA. Men are markedly more eager to establish contact with dates, are more positive to more potential partners, and seek to have short-term sexual encounters with matches to a larger degree than women are (effect sizes ranged from $d= 0.45$ to $d= 1.08$). This is in line with research outside of digital dating (Buss & Schmitt, 2016). Men appear to pursue more actively sex that is not contingent upon relationship commitment. Despite women and men spending equal time daily on dating apps, men seem to spend more time on mate relevant behaviors, as they seem to be engaged more in the actual and concrete hooking-up activities. Additional support of

Hypothesis 2 was found as men and women clearly differed in their reasons for using apps. Although feeling bored / checking the ‘mating market’ seem to be a quite prevalent reason for use in both sexes, relative to women, men used PBMDA when they desired sex more than when they wanted a committed relationship. Women, on the other hand, rated self-affirmation (to feel good) above both when they desire sex and when they want a committed relationship. Effect sizes were generally moderate. Despite this first attempt at considering sex differences in approaches to and reasons for PBMDA use, further research needs to consider what functions dating apps have for men and women in even greater detail.

It is noteworthy that despite finding the expected sex differences in patterns and reasons of use, the predictors of current use were not moderated by sex. In other words, the factors predicting current use are the same for both sexes. These factors reflect individual differences in short-term orientation. PBMDA users are not primarily looking for a long-term relationship, but the multivariate analyses suggest that the motivation of looking for a romantic partner may be a secondary factor compared to primary short-term aims.

4.1 Limitations and future research

One limitation in this study is the cross-sectional design, and thus inferences about causality cannot be made. Future research that applies longitudinal designs should be able to better distinguish between precursors and outcomes of dating apps use in general, including whether sociosexuality is the principal predictor as suggested here. Further, the sample covered university students from one of the world’s most gender egalitarian and sexual liberal cultures (Bendixen, Asao, Wyckoff, Buss, & Kennair, 2017; Grøntvedt & Kennair, 2013). The findings from this study may therefore not generalize to non-student populations or to less egalitarian cultures. Future studies on samples from less egalitarian cultures are strongly warranted. Further, this is a convenience sample, and we cannot assess to what degree the current sample is representative of the broader student population. On the other hand,

compared with three prior studies on samples from the same population of students (Bendixen, Kennair, & Buss, 2015, Bendixen et al., 2017; Kennair, Bendixen, & Buss, 2016) central characteristics of this sample do not seem to deviate markedly, suggesting that the inferences from the findings are valid for university students in Norway.

4.2 Conclusion

Independent of sex, unrestricted sociosexuality predicted the use of dating apps. In general, the same people who were comfortable hooking up with short-term partners in other, traditional arenas such as bars or even speed-dating, are those who use dating apps. On the other hand, we found no evidence of length of dating app use increasing number of lifetime one-night stands. Unrestrictive sociosexuality – a preference for short-term, casual sex – is the major predictor of both former and current use of dating apps. As such, this new technology is merely a new arena for short-term sexual behavior, and not necessarily a facilitator of new sexual behaviors.

5 References

- Asendorpf, J. B., Penke, L., & Back, M. D. (2011). From dating to mating and relating: Predictors of initial and long-term outcomes of speed-dating in a community sample. *European Journal of Personality, 25*, 16-30. doi: 10.1002/per.768
- Barber, N. (2000). On the relationship between country sex ratios and teen pregnancy rates: A replication. *Cross-Cultural Research, 34*(1), 26-37. doi: doi/10.1177/106939710003400102
- Bendixen, M., Asao, K., Wyckoff, J. P., Buss, D. M., & Kennair, L. E. O. (2017). Sexual regret in US and Norway: Effects of culture and individual differences in religiosity and mating strategy. *Personality and Individual Differences, 116*, 246-251. doi:https://doi.org/10.1016/j.paid.2017.04.054
- Bendixen, M., Kennair, L. E. O., & Buss, D. M. (2015). Jealousy: Evidence of strong sex differences using both forced choice and continuous measure paradigms. *Personality and Individual Differences, 86*(0), 212-216. doi:http://dx.doi.org/10.1016/j.paid.2015.05.035
- Buss, D. M. (1998). Sexual strategies theory: Historical origins and current status. *Journal of Sex Research, 35*(1), 19-31.
- Buss, D. M. (2017). Sexual Conflict in Human Mating. *Current Directions in Psychological Science, 26*(4), 307-313. doi:10.1177/0963721417695559
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological review, 100*(2), 204-232.
- Buss D.M., & Schmitt D.P. (2016) Sexual Strategies Theory. In T. Shackelford & V. Weekes-Shackelford (Eds), *Encyclopedia of Evolutionary Psychological Science*. Springer: Cham, Switzerland.

- Cortina, J. M., & Nouri, H. (2000). *Effect size for ANOVA designs*. Sage University Papers Series on Quantitative Applications in the Social Sciences, 7-129. Thousand Oaks, CA: Sage.
- Freier, A. (2015). Tinder mobile app statistics and revenue. Retrieved from <http://www.businessofapps.com/tinder-mobile-app-statistics-and-revenue/>
- Gangestad, S. W., & Simpson, J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences*, 23(4), 573-587.
- Grøntvedt, T. V., & Kennair, L. E. O. (2013). Age preferences in a gender egalitarian society. *Journal of Social, Evolutionary, and Cultural Psychology*, 7(3), 239-249.
- Kennair, L. E. O., Bendixen, M., & Buss, D. M. (2016). Sexual regret: Tests of competing explanations of sex differences. *Evolutionary Psychology*, 14(4), 1-9.
doi:<http://dx.doi.org/10.1177/1474704916682903>
- Kirsner, B. R., Figueredo, A. J., & Jacobs, W. J. (2003). Self, friends, and lovers: Structural relations among Beck Depression Inventory scores and perceived mate values. *Journal of affective disorders*, 75(2), 131-148.
- Kuhle, B. X., Beasley, D. O., Beck, W. C., Brezinski, S. M., Cnudde, D., Lavelle, K. D., . . . Woehrl, R. C. (2016). To swipe left or right: Sex differences in tinder profiles. Poster presented at the Human Behavior and Evolution Society Annual Conference 2016, Vancouver, Canada.
- Lippa, R. A. (2009). Sex differences in sex drive, sociosexuality, and height across 53 nations: Testing evolutionary and social structural theories. *Archives of sexual behavior*, 38(5), 631-651.
- Mehmetoglu, M. (2017). MEDSEM: Stata module to perform mediation analysis using structural equation modelling (Version S458300): Boston College Department of Economics. Retrieved from <https://ideas.repec.org/c/boc/bocode/s458300.html>

- Moran, J. B., Salerno, K. J., & Wade, T. J. (2018). Snapchat as a new tool for sexual access: Are there sex differences? *Personality and Individual Differences, 129*, 12-16.
doi:<https://doi.org/10.1016/j.paid.2018.02.040>
- Penke, L., & Asendorpf, J. B. (2008). Beyond global sociosexual orientations: A more differentiated look at sociosexuality and its effects on courtship and romantic relationships. *Journal of personality and social psychology, 95*(5), 1113-1142.
- Sager, R. L., Alderson, K. G., & Boyes, M. C. (2016). Hooking-up through the use of mobile applications. *Computer Communication & Collaboration, 4*(2), 15-41.
- Schmitt, D. P. (2005). Sociosexuality from Argentina to Zimbabwe: A 48-nation study of sex, culture, and strategies of human mating. *Behavioral and Brain Sciences, 28*(02), 247-275.
- Schmitt, D. P., Shackelford, T. K., & Buss, D. M. (2001). Are men really more oriented toward short-term mating than women? A critical review of theory and research. *Psychology, Evolution & Gender, 3*(3), 211-239.
- Sevi, B., Aral, T., & Eskenazi, T. (2017). Exploring the hook-up app: Low sexual disgust and high sociosexuality predict motivation to use Tinder for casual sex. *Personality and Individual Differences. doi:<https://doi.org/10.1016/j.paid.2017.04.053>*
- Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of personality and social psychology, 60*(6), 870-883.
- Sumter, S. R., Vandenbosch, L., & Ligtenberg, L. (2017). Love me Tinder: Untangling emerging adults' motivations for using the dating application Tinder. *Telematics and Informatics, 34*(1), 67-78.
- Tinder. (2016). About Tinder. Retrieved from <https://www.gettinder.com/press>

Trivers, R. (1972). Parental investment and sexual selection. In B. Campell (Ed.), *Sexual selection and the descent of man: 1871 – 1971* (pp. 136-179). Chicago: Aldine-Atherton.

Table 1. *PBMDA-use for Single and Partnered Participants*

	Never used	Former users	Current users
Single	170 (47.1%)	86 (23.3%)	113 (30.6%)
Partnered	169 (62.1%)	95 (34.9%)	8 (2.9%)
Total	340 (52.9%)	181 (28.2%)	121 (18.9%)

Table 2. Hierarchical Logistic Regression Analysis Predicting Current PBMDA Use among Single Participants (N = 370)

Variable	Model 1		Model 2		Model 3		Model 4		
	Z	OR	Z	OR	Z	OR	Z	OR	95% CI
Age	2.92**	1.29	2.61**	1.28	2.53*	1.27	1.44	1.16	[0.95, 1.41]
Sex (Male)	-1.57	0.69	-3.41**	0.40	-3.52**	0.38	-2.99**	0.41	[0.22, 0.73]
Romantic Partner			2.83**	1.30	2.70**	1.28	2.85**	1.31	[1.09, 1.58]
Casual Partner			4.65**	1.48	4.76**	1.50	1.84†	1.21	[0.99, 1.51]
Comfortable Picking Up			2.62**	1.26	2.48*	1.26	1.70†	1.18	[0.97, 1.45]
Mate Value ST					-0.03	1.00	-0.48	0.93	[0.71, 1.23]
Mate Value LT					0.44	1.08	0.43	1.08	[0.76, 1.52]
SOI-Desire							2.95**	1.30	[1.09, 1.56]
SOI-Attitudes							0.29	1.02	[0.87, 1.21]
SOI-Behavior							2.32**	1.22	[1.03, 1.44]
McFadden R^2	0.022		0.115		0.119		0.160		
Nagelkerke R^2	0.038		0.187		0.193		0.254		
Correctly Classified	70.5%		71.2%		72.4%		75.0%		

Note. † $p < .10$, * $p < .05$, ** $p < .01$. Romantic=Seeking romantic, Casual=Seeking casual, ST=Short-term, LT=Long-term.

Fig 1: Probability of current dating app use as a function of SOI-Desire (higher scores –more desire when accounting for the effect of other factors).

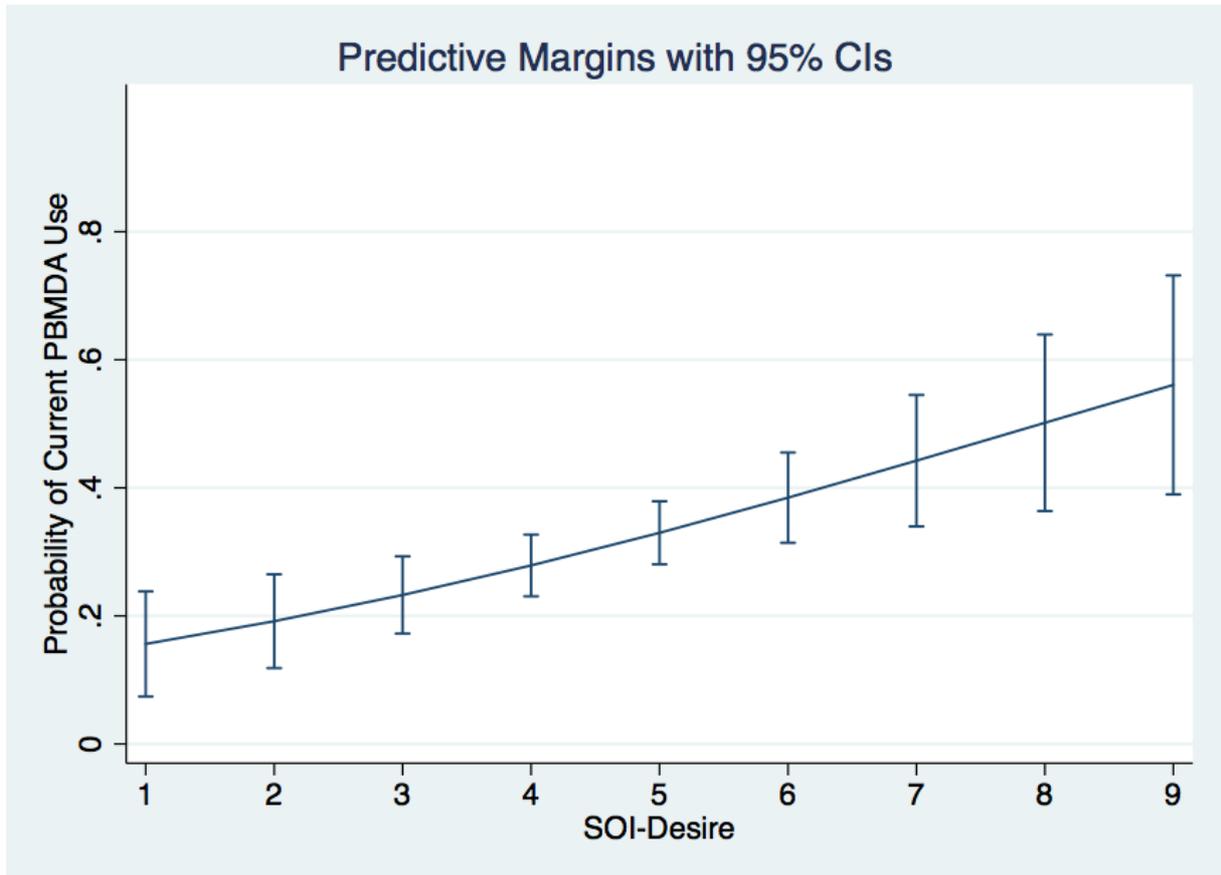
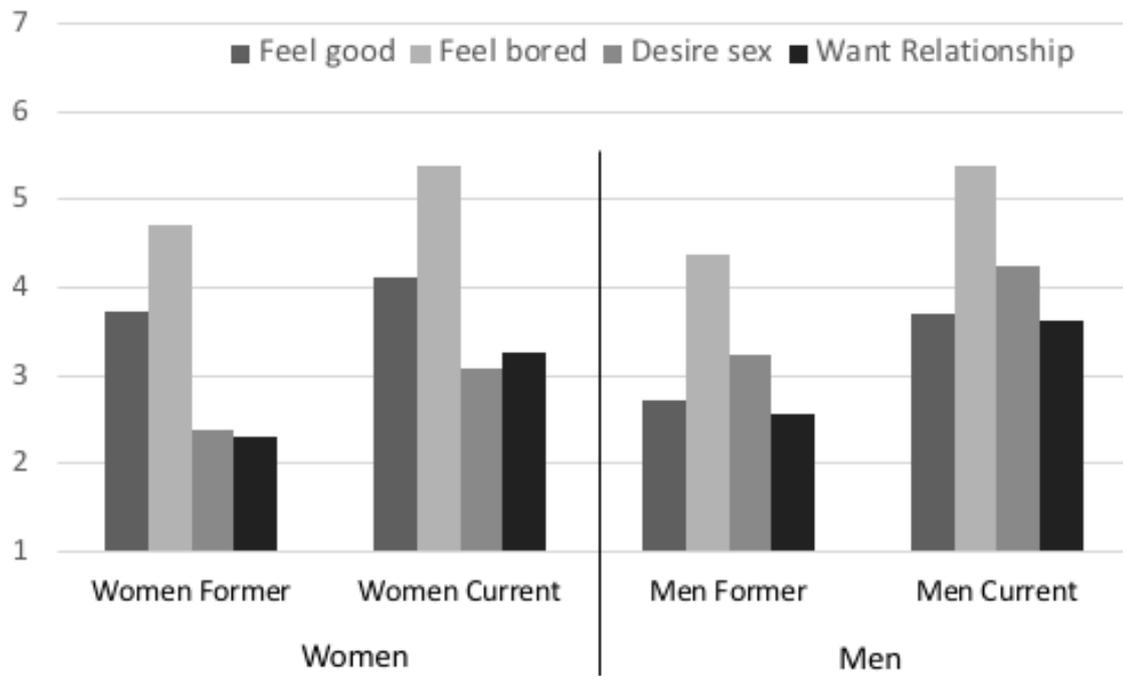


Fig 2. Single women's and men's reasons for former and current PBMDA use. 1=Strongly Disagree, 7=Strongly Agree, N=194.



Appendix A

Reasons for Picture-Based Mobile Dating App (PBMDA) use

Instructions: How much do you agree with each of the following statements ...

1. I use PBMDA more often when I want to feel good
2. I use PBMDA more often when I want self-affirmation
3. I use PBMDA more often when I feel bored
4. I use PBMDA more often when I want to check the “mating market”
5. I use PBMDA more often when I feel like having sex
6. I use PBMDA more often when I feel horny
7. I use PBMDA more often when I want a committed relationship
8. I use PBMDA more often when I want a boyfriend/girlfriend

Scoring: 7-point Likert scaling, 1 (*Strongly disagree*), 7 (*Strongly agree*)

Scaling: Scores are summed and averaged.

Rotated factor loadings (pattern matrix) of the above eight reasons

Variable #	Feel Good	Feel Bored	Desire Sex	Want Relationship
1	0.93			
2	0.73			
3		0.44		
4		0.59	0.49	
5			0.96	
6			0.75	
7				0.72
8				0.95

Note. Blanks represent loadings <.40. Likelihood ratio test: 4 factors vs. saturated, $\chi^2(2, N = 193) = 0.33, p = 0.85$

Appendix B

Pearson's *r* and Point-Biserial Correlation Coefficients, Single Participants (Listwise Deletion). Total *N* = 360 (Women *N* = 173, Men *N* = 187)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Sex (Male) ^d	–											
2. Age	.13	–										
3. SOI-R (Total)	.16	.30	–									
4. SOI-Behavior	–.14	.32	.77	–								
5. SOI-Attitudes	.13	.22	.87	.54	–							
6. SOI-Desire	.38	.17	.73	.31	.46	–						
7. Romantic Partner	–.10	–.02	–.18	–.09	–.18	–.14	–					
8. Casual Partners	.39	.12	.69	.39	.67	.57	–.23	–				
9. Comfortable Pick Up	.22	.05	.37	.34	.24	.31	–.06	.34	–			
10. Mate Value ST	.18	.12	.24	.21	.16	.22	.05	.22	.38	–		
11. Mate Value LT	–.04	–.02	–.06	–.02	–.06	–.04	.15	–.06	.08	.23	–	
12. Current PBMDA ^d	–.12	–.19	.45	.39	.33	.35	.11	.33	.27	.13	.06	–
Women												
Mean		21.20	4.10	3.06	5.43	3.81	5.08	2.63	3.17	4.13	5.98	0.35
SD		1.20	1.45	1.80	2.19	1.49	1.47	1.46	1.44	0.97	0.73	0.48
Min-Max		20–27	1–9	1–9	1–9	1–9	1–7	1–7	1–7	1–7	1–7	0,1
Men												
Mean		21.46	4.48	2.66	5.87	4.90	4.89	3.64	3.67	4.43	5.93	0.28
SD		1.35	1.61	1.88	2.19	1.88	1.40	1.69	1.45	1.10	0.79	0.45
Min-Max		19–29	1–9	1–9	1–9	1–9	1–7	1–7	1–7	1–7	1–7	0,1
			Simple sex difference (Cohen's <i>d</i>)	0.25	–0.22	0.22	0.65	–0.15	0.65	0.37	0.32	–0.05
			When controlled for PBMDA use	0.46	–0.10	0.38	0.77	–0.16	0.80	0.45	0.34	–0.02

Note. ^d dichotomous, correlations above $r \pm .136$ or higher are significant at $p < .01$. PBMDA = Picture-Based Mobile Dating Apps.

Romantic=Seeking romantic, Casual=Seeking casual, ST=Short-term, LT=Long-term.