



Sexual self-presentation on social network sites: Who does it and how is it perceived?



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ABSTRACT

The aims of this study were to investigate (a) the role of peer factors in adolescents' sexual self-presentation on social network sites, and (b) how adolescents who present themselves sexually online are evaluated by others. 238 high school students (aged 12–18) evaluated either a sexual or non-sexual online presentation of same-sex and opposite-sex peers. Moreover, they filled in a questionnaire about their own self-presentation behavior. Findings showed that peer norms played a crucial role in whether adolescents posted sexual pictures of themselves online. Moreover, need for popularity was a strong predictor for posting such pictures. Girls who presented themselves in sexual ways were evaluated more negatively by other girls but more positively by boys. Similarly, boys who presented themselves in sexual ways were evaluated more positively by girls but not by boys.

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1. Introduction

The exploration of sexuality and the development of a sexual identity is an important part of adolescents' lives (Buzwell & Rosenthal, 1996). In this context, the internet has become an important source for sexual information and sexual exploration for young people (Shafer, Bobkowski, & Brown, 2013; Subrahmanyam, Smahel, & Greenfield, 2006). On the internet, adolescents do not only consume but may also produce sexual content by presenting themselves in sexual ways (Shafer et al., 2013), notably on social network sites. This online sexual self-presentation includes the posting of sexual pictures on social network sites. These pictures may feature adolescents in sexy or sexually suggestive poses or in sexy or semi-naked clothing (e.g., swim- or underwear) (Van Oosten, Peter, & Boot, 2014).

Online sexual self-presentation fulfills important functions for adolescents. By presenting themselves in sexual ways, adolescents may try to conform to prevailing standards of sexual attractiveness (Shafer et al., 2013). Moreover, by receiving feedback from their peers, online sexual self-presentation may help them to reduce uncertainties that are inherent in the process of developing a sexual self (Buzwell & Rosenthal, 1996).

Online sexual self-presentation, however, may also be problematic because it may lead to unwanted online sexual solicitations (Mitchell, Finkelhor, & Wolak, 2007) as well as, potentially adverse

offline sexual encounters (Bobkowski, Brown, & Neffa, 2012). In order to identify adolescents who might potentially experience these negative consequences, it seems important to know who present themselves sexually online and which factors predict online sexual self-presentation. To date, however, not much is known about the predictors of online sexual self-presentation because most studies merely focused on the prevalence of this behavior, and on gender differences in this behavior (Hinduja & Patchin, 2008; Kapidzic & Herring, 2011; Moreno, Parks, Zimmerman, Briot, & Christakis, 2009; Pujazon-Zazik, Manasse, & Orrell-Valente, 2012).

As online sexual self-presentation occurs in online platforms that are characterized by interactions with peers, such as social network sites (SNS), a crucial predictor of sexual self-presentation appears to be the influence of peers. In order to be accepted by their peers, adolescents may strive for an online self-presentation in line with prevailing peer norms (Moreno, Brockman, Rogers, & Christakis, 2010; Utz, Tanis, & Vermeulen, 2012). As sexiness is considered important by many adolescents (Shafer et al., 2013), the display of sexual pictures may be a means for adolescents to comply with peer norms and to become popular among their peers. Moreover, adolescents with specific individual difference factors, such as high need for popularity and low resistance to peer influence, may be more eager to present themselves in sexual ways in order to become popular among peers. The first aim of this study, therefore, is to investigate peer norms, as well as need for popularity and resistance to peer influence as predictors of sexual self-presentation.

It is not only important to understand how adolescents present themselves online, but also to know whether the way they present

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themselves online influences how they are viewed by their peers. Recent studies have shown that SNS users take even subtle cues on social network profiles into account when forming an impression of other users' personality, sociability and popularity (Tong, Van Der Heide, Langwell, & Walther, 2008; Walther & Parks, 2002). However, the majority of these studies has focused only on general online self-presentation but has not assessed how *sexual* self-presentation informs our impression of others. As a consequence, we do not know how adolescents perceive other peers who present themselves sexually online. The second aim of this study, therefore, is to examine how adolescents evaluate peers who engage in online sexual self-presentation. As evaluations of sexy peers may strongly differ for same sex and opposite sex evaluations (Vaillancourt & Sharma, 2011), we focus on how adolescents evaluate sexual self-presentations by both same sex and opposite sex peers.

2. Sexual self-presentation on social network sites

The selection of pictures plays a crucial role in online self-presentation (Strano, 2008). Pictures are the most important source of information for users when judging others' profiles (Moreno, Swanson, Royer, & Roberts, 2011; van der Heide, D'Angelo, & Schumaker, 2012). Previous research has shown that adolescents know very well which type of pictures are valued the most by their peers and that the presentation of the "right" pictures can promote their social acceptance among peers. As a result most adolescents carefully present those pictures of themselves that fit these peer standards (Salimkhan, Manago, & Greenfield, 2010; Siibak, 2009). Siibak (2009), for example, provides evidence that adolescents know that it is important to not only post attractive pictures but also 'sexy' pictures online in order to gain popularity among other social network site users. Posting sexual pictures online may thus be a means to increase peer popularity.

To date, only a few studies have focused on sexual self-presentation on social network sites. For example, Pujazon-Zazik et al. (2012) found that 16% of adolescents who had a profile on a US teen dating site displayed some kind of sexual reference, such as pictures or text referring to sexual activities. In that study, girls were more likely to post sexual references. Similarly, Moreno et al. (2009) found that among 18 year old MySpace users, 24% posted sexual references on their profile. Investigating more specifically the display of sexual pictures, Kapidzic and Herring (2011) reported that 15% of males and 8% of females aged 16–19 years posted partially nude pictures of themselves on a teen dating site. In contrast, Hinduja and Patchin (2008) reported that among adolescents younger than 18 only 5% posted pictures of themselves in swimsuits or underwear on MySpace.

Posting sexual pictures on social network sites may be problematic because it may lead to unwanted sexual solicitations (Mitchell et al., 2007). Moreover, it has been related to (risky) sexual offline behavior (Bobkowski et al., 2012). More recently, online sexual self-presentation has also been related to the reinforcement of potentially problematic sexual self-images (Shafer et al., 2013; Van Oosten, 2015). For example, Van Oosten (2015) showed that the more frequently adolescents engaged in sexual self-presentation on social network sites, the more important became their sexual self-concept for their overall identity. This implies that sexual self-presentation may increase specific aspects of an individual's identity that are related to sexual behavior and attitudes. However, posting of sexual content on social network sites does not only have an influence on one's own attitudes and behavior but may also influence others who are exposed to these images. Recent studies show that exposure to online sexual self-presentations of others may lead to changes in sexual behavior and in sexual self-image (Van Oosten et al., 2014; Van Oosten, 2015).

Due to these potential consequences of online sexual self-presentation, it is important to understand which factors predict adolescents' engagement in sexual self-presentation. Although the existing studies give an important first indication of the prevalence of online sexual self-presentation, most of these studies are based on content analyses, and are thus unable to link the prevalence of posting sexual pictures to other peer-related or individual difference factors that may explain some of the differences in the prevalence of sexual self-presentation in the studies.

3. Predictors of posting sexual pictures on social network sites

To understand why adolescents post sexual pictures of themselves on social network sites, it is important to take their primary audience into account and to understand how they would like to be perceived by this audience. The primary audience of adolescents is their peer group and research has shown that most adolescent have an intrinsic desire to be popular among these peers (Santor, Messervey, & Kusumakar, 2000). As a result, how adolescents present themselves online and whether they present themselves sexually or not may highly depend on peer norms and adolescents' sensitivity to these norms.

3.1. Peer norms as predictor of online sexual self-presentation

Several studies have shown that peer norms have a strong influence on offline as well as online sexual behavior (Baumgartner, Valkenburg, & Peter, 2011; Brechwald & Prinstein, 2011; Moreno et al., 2009). According to social norms theory (Berkowitz, 2005), adolescents' behavior is highly influenced by peer norms. Peers are the most important reference group for most adolescents, and their friends' behavior therefore is guiding their own behavior (Brechwald & Prinstein, 2011). If adolescents have friends who engage in a specific behavior, they are more likely to engage in this behavior as well (Berkowitz, 2005). This has also been shown in an online context. For example, Moreno et al. (2009) found that young adults were more likely to post sexual references online if they had friends who also did that. Moreover, Baumgartner et al. (2011) showed that adolescents were more likely to engage in online sexual risk behavior if they had friends engaging in this behavior as well. We, therefore, expect that adolescents are more likely to post sexual pictures of themselves online if they have friends who post such pictures as well. Thus, similarly, those adolescents who feel that their friends do not post sexual pictures online, will also be less likely to post these pictures themselves.

H1. Adolescents who have more friends, who post sexual pictures online, are more willing to post sexual pictures online as well.

3.2. Need for popularity as predictor of online sexual self-presentation

Research has consistently demonstrated the role of individual differences in adolescents' internet-based sexual activities (e.g., Peter & Valkenburg, 2006, 2011). Consequently, specific individual difference factors may also predict whether adolescents decide to post sexual pictures online. At least two individual difference factors may influence whether adolescents are more or less willing to post sexual pictures online: need for popularity and resistance to peer influence. Adolescents with a high need for popularity are motivated to do things that make them more popular or make them appear more popular among their peers (Santor et al., 2000; Utz et al., 2012). Utz et al. (2012), for instance, have shown that individuals with high need for popularity engage in more strategic self-presentation on social network sites than others. This suggests that adolescents with high need for popularity are eager to present

themselves in optimal ways online in order to gain approval of and acceptance among their peers. In the process of developing one's own sexual identity, it is oftentimes important to appear sexually attractive to others (see [Shafer et al., 2013](#)). Presenting themselves in sexy or sexually attractive ways may consequently be a means to earn peer approval. Adolescents with a higher need for popularity may thus be more willing to present themselves in sexual ways on social network sites.

H2. Adolescents with higher need for popularity are more likely to post sexual pictures online.

3.3. Resistance to peer influence as predictor of online sexual self-presentation

Adolescents also differ in their ability to resist the influence of peers. Resistance to peer influence indicates how well adolescents can resist both explicit and implicit persuasion attempts by their peers ([Steinberg & Monahan, 2007](#)). This ability develops during the course of adolescence, and adult levels of resistance to peer influence are achieved during late adolescence ([Steinberg & Monahan, 2007](#)). Especially during early adolescence, boys and girls are more likely to adapt their behavior to the reigning peer norms. There are also strong individual differences in adolescents' ability to resist peer influence. Previous studies have shown that adolescents who are low in resistance to peer influence are more likely to engage in risk behavior, such as risky driving, delinquent acts and substance use ([Chein, Albert, O'Brien, Uckert, & Steinberg, 2011](#); [Grosbras et al., 2007](#); [Steinberg & Monahan, 2007](#)). In addition, adolescents are more likely to make risky decisions or engage in risk behavior when they are observed by their peers ([Gardner & Steinberg, 2005](#)). For example, [Gardner and Steinberg \(2005\)](#) showed in a simulated driving experience that adolescents took more risks in the presence of their peers than when driving alone. Moreover, peer influence has also been shown to influence how adolescents behave online. For example, adolescents who were low in resistance to peer influence shared more personal information online ([Walrave, Vanwesenbeeck, & Heiman, 2012](#)).

As online sexual self-presentation takes place in a peer environment, resistance to peer influence may be a predictor of online sexual self-presentation. As a result, we expect that particularly adolescents who are low in resistance to peer influence will be more likely to engage in sexual self-presentation.

H3. Adolescents with lower resistance to peer influence are more likely to post sexual pictures online.

4. Evaluation of sexual pictures by others

One of the reasons for posting sexual pictures on social network sites is adolescents' perception that this activity will advance their social status and is in line with prevailing peer norms. Although adolescents may seem to assume that sexual self-presentation advances their status among their peers ([Siibak, 2009](#)), little is known about how peers actually evaluate others' sexual self-presentation. Based on studies conducted in an offline context (e.g. [Vaillancourt & Sharma, 2011](#)), it may be expected that in contrast to adolescents' own perceptions, their online sexual self-presentation may not be evaluated positively by their peers. Moreover, the evaluation of sexual self-presentation may highly differ for same sex and opposite sex peers. One theoretical framework to predict how adolescents will evaluate their peers' online sexual presentation comes from evolutionary psychology. We chose evolutionary theory because, in the context of the present

study, it affords precise predictions based on a parsimonious set of concepts. Moreover, it has been successfully used in comparable studies (e.g., [Vaillancourt & Sharma, 2011](#)).

Specifically, we focus on sexual selection, that is, the idea that some individuals have more reproductive success because they outperform others in getting mates ([Darwin, 1871](#)). Sexual selection itself consists of two components, intrasexual selection and intersexual selection. Intrasexual selection involves a competition of members of the same sex in which the winner gains access to members of the opposite sex ([Buss & Schmitt, 1993](#); [Buss, 1996](#)). Intersexual selection implies that, if members of one sex agree on desired qualities in the opposite sex, the members of the opposite sex who have these qualities gain a mating advantage ([Bleske-Rechek & Buss, 2006](#); [Buss & Schmitt, 1993](#)). In the present study, the concept of intrasexual selection is relevant to predict how adolescents evaluate same sex peers depending on the degree of the peers' sexual self-presentation. The concept of intersexual selection is relevant to predicting how adolescents evaluate peers of the opposite sex depending on these peers' sexual self-presentation.

4.1. Evaluation of sexual self-presentations of same sex peers

In terms of the competition involved in intrasexual selection, research has suggested that females are derogatory of sexy same sex peers. [Baumeister and Twenge \(2002\)](#), for example, concluded from a review of the literature on the suppression of female sexuality that females, rather than males, stifle each other's sexuality. Women who make sex too easily available endanger other females' position toward males ([Vaillancourt & Sharma, 2011](#)). As a result, females are likely to be derogatory toward other females who present themselves in a sexual way, a prediction that has been supported in the literature ([Campbell, 2004](#); [Vaillancourt & Sharma, 2011](#)). We therefore expect:

H4. Female adolescents evaluate a female peer who presents herself in a sexual way more negatively than a female peer who does not present herself in a sexual way.

Although intrasexual competition among males has been well-documented (e.g., [Archer, 2009](#)), we know little about the role of sexual self-presentation in this process. Research on the perceived effectiveness of mating tactics, however, suggests that males do not consider sexual self-presentation an effective way to attract females ([Buss, 1988](#), study 3). This perception corresponds with the finding that, overall, females seem to prefer males with resources (e.g., earning capacity, ambitiousness) over purely physically attractive males ([Buss, 1989](#)). Therefore, a sexual self-presentation of a male peer may not be perceived by other males as endangering their position among their female peers. As a result, we expect:

H5. Male adolescents do not differ in their evaluation of a male peer who presents himself in a sexual way compared to a male peer who does.¹

4.2. Evaluation of sexual self-presentations of opposite sex peers

As for intersexual selection, robust evidence has emerged in evolutionary psychology that females value characteristics in males that indicate that they can provide resources ([Buss, 1989](#);

¹ Although typical approaches based on null-hypothesis testing do not allow testing the equivalence between means, specific statistical tests, such as equivalence tests can do this (see for example [Weber & Popova, 2012](#)). We will therefore, test this hypothesis using equivalence tests (see results section).

Shuler & McCord, 2010). The basic idea in evolutionary psychology is that females look for males who provide resources that facilitate parental investment in offspring because, overall, females invest more in their offspring than males do. Accordingly, females have been found to put more emphasis on behavioral traits that indicate long-term mating strategies, such as reliability (Hattori, Castro, & Lopes, 2013). These sex differences in mating preference seem to be already evident during adolescence (Hattori et al., 2013; Kenrick, Keefe, Gabrielidis, & Cornelius, 1996).

However, women's preference for males with resources has not only been shown in the context of long-term relationships, but also in the context of short-term, rather casual (sexual) encounters (Buss & Schmitt, 1993; Durante, Griskevicius, Simpson, Cantú, & Li, 2012). For example, Hill, Nocks, and Gardner (1987) found that females evaluated males more negatively, both as potential marital partners and as potential sex partners, when they were displayed showing more skin than when they were completely dressed. Similarly, research suggests that males who present themselves sexually may be perceived by females as being only interested in short-term sexual encounters and being of low social economic status (Ellis, 1992). Given these findings, online sexual self-presentation of males may be negatively evaluated by female peers. We, therefore, expect:

H6. Female adolescents evaluate a male peer who presents himself in a non-sexual way more positively than a male peer who presents himself in a sexual way.

It has been widely documented that males have a strong preference for young and sexy females (Buss & Schmitt, 1993; Buss, 1989; Ellis, 1992; Fisher & Cox, 2009; Hattori et al., 2013; Vaillancourt & Sharma, 2011). According to evolutionary psychologists, sexiness promises reproductive success and thus determines the reproductive value of a female (Buss, 1989). Males' search for sexiness in females seems to be most distinct in the context of short-term (sexual) encounters, when sexiness may also suggest a lack of prudishness (Buss & Schmitt, 1993; Ellis, 1992). The evaluation of unknown female peers on a profile resembles a short-term encounter more than a long-term relationship. Consequently, we expected:

H7. Male adolescents evaluate a female peer who presents herself in a sexual way more positively than a female peer who presents herself in a non-sexual way.

5. Method

5.1. Sample and procedure

In this study, 238 students from a German urban high school participated (47% girls). Students were aged 12–18 years ($M = 14.75$, $SD = 1.37$; 97.5% between 13 and 17 years). The German school system distinguishes between three levels of secondary education (general, intermediate, and academic high school). Students in the participating school followed the two lower levels. The study was approved by the ethical committee of the University of Amsterdam, and passive parental consent was obtained. The study was conducted via an online survey in two computer rooms at the school. Students participated in groups of up to ten students. Filling in the survey took approximately 30–40 min. First, students answered questions about their own social network site use, their online posting behavior, their friends' posting behavior, and individual difference factors. In the second part of the survey, participants were exposed to several Facebook profiles of other unknown adolescents (see Section 5.2 for a description of these pages) and rated the persons on these profiles on several dimensions.

5.2. Online self presentation stimulus material

Several mock Facebook (FB) profile pages were created for the purpose of this study. The set of profile pages included eight male profile pages and eight female profile pages. Each FB page included (1) a picture of the profile owner at the top left side of the page, (2) an indication of the number of friends, (3) several comments on the wall of the profile owner, and (4) a background picture. Two FB pages – one male and one female – were manipulated to vary in sexual self-presentation by changing the top left profile picture. This profile picture depicted the same person in two different poses (non-sexual vs. sexual). The non-sexual version was a close-up of the face. The sexual version portrayed the person with the upper part of the body in swimwear. All other parts of the FB page, including number of friends, comments posted on wall, and the background picture were kept identical. These four FB pages functioned as the target stimulus material (see Appendix).

Participants were randomly assigned to one of two conditions. Condition 1 ($N = 120$) included the FB profiles with the following profile pictures: one sexual male and one non-sexual female. Condition 2 ($N = 118$) included the following profile pictures: one non-sexual male and one sexual female. For male participants these two target profile pages were presented with six additional (non-target) FB pages of five men and one woman. For female participants the target profile pages were presented with six additional (non-target) profile pages of five women and one man. In all conditions, the female target page is presented last. Although the presentation of the FB profile pages was not randomized, at least two non-target pages were presented between the target male FB profile and target female FB profile to diminish order effects.

5.3. Measures

5.3.1. Sexual online self-presentation

Before exposure to stimulus material, participants were asked how likely they are to post three different types of sexual pictures online: (1) A photo in underwear or swimwear, (2) a photo portraying them in a sexual pose, and (3) a 'sexy' photo of themselves. We chose for these three items to cover the full range of sexual self-presentation from less to more explicitly sexual (e.g. Kapidzic & Herring, 2011; Reichert & Ramirez, 2000).

Participants rated the likelihood of posting these pictures on a scale from 1 (*would never do that*) to 5 (*would definitely do that*). The means were $M = 1.63$, $SD = 0.99$, for posting a photo in swimwear or underwear, $M = 1.75$, $SD = 1.06$ for posting in a sexual pose, and $M = 2.87$, $SD = 1.40$ for posting a sexy picture. The three items were strongly correlated (at least $r = .48$, $p < .001$) but were used separately in the analyses.² Because the distribution of the variables, posting a picture in swimwear or underwear, and posting a picture in a sexual pose were positively skewed (skewness = 1.67 and 1.49, respectively), these variables were log-transformed (skewness after log-transformation ≤ 1) before they were entered in the regression analyses.

5.3.2. Peer norms

Peer norms were measured by assessing the posting behavior of their friends. Previous research has shown that the perceived prevalence of peer behavior is a strong indicator of prevailing peer norms (Berkowitz, 2005). Participants reported how many of their friends post the three types of pictures on social network sites (i.e. photo in swimwear/underwear; in sexual pose; sexy photo). Response categories ranged from 1 (*none of my friends*) to 5 (*all*

² These values are based on the 210 out of the 238 participants who were active users of social network sites.

of my friends). Means and SDs were $M = 1.55$, $SD = 0.80$; $M = 1.74$, $SD = 0.91$; $M = 2.36$, $SD = 1.16$ for photo in swimwear/underwear, sexual pose, and sexy photo, respectively. Because the distribution of the variables, peers posting of photo in swimwear or underwear, and peer posting of photo in a sexual pose were also positively skewed (skewness = 1.66 and 1.26, respectively), these variables were log-transformed (skewness after log-transformation <1) before they were entered in the regression analyses.

5.3.3. Need for popularity

Need for popularity was measured with seven items from the need for popularity scale (Santor et al., 2000; Utz et al., 2012). Example items are “It’s important that people think I’m popular” and “At times, I’ve changed the way I dress in order to be more popular.” Participants indicated on a scale ranging from 1 (*not at all*) to 5 (*very much*) how much these statements applied to them. The items were collapsed into one index with $M = 2.26$, $SD = 0.93$, Cronbach’s alpha = .87.

5.3.4. Resistance to peer influence

Resistance to peer influence was assessed with an adapted version of the Resistance to Peer Influence Scale (Steinberg & Monahan, 2007; Sumter, Bokhorst, Steinberg, & Westenberg, 2009). We selected five items with the highest loadings from Sumter et al. (2009). Participants rated on a scale from 1 (*not at all*) to 5 (*very much*) how much each of the five items applied to them. To increase the internal reliability of the scale, one of the items was excluded. The average score from the remaining four items was calculated. High scores on this scale reflected low resistance to peer influence, $M = 2.53$, $SD = 0.93$, Cronbach’s alpha = .74.

5.3.5. Evaluation of profile owners

Participants rated the owners of the mock Facebook pages (see Section 5.2) on the following attribute dimensions: unpopular-popular; uncool-cool; unattractive-attractive; unlikeable-likeable. We chose these four attributes as they reflect important dimensions on which peers are evaluated during adolescence (see, for example, Closson, 2009; LaFontana & Cillessen, 2002). Each attribute was presented as a 5-point semantic differential. The four items loaded on one single factor and had a Cronbach’s alpha of .90 (for the evaluation of the male profile) and .89 (for the evaluation of the female profile). These four attributes were, thus, collapsed into a single evaluation score with higher values indicating more positive evaluations.

6. Results

6.1. Descriptives

The majority of participants in this study reported that they were active users of social network sites (88%). 92% were using these sites at least once a week, with 66% being active on these sites at least once a day. Half of the students reported that they had more than 280 friends in their network, and 23% indicated that they had more than 500 friends. Whereas 34% indicated that they are likely or very likely to post a sexy picture of themselves on their profile site, only 5% were likely or very likely to post a picture in swimwear or underwear, and 8% reported that they were likely or very likely to post a picture in a sexual pose. The correlations between posting of sexy pictures, peer norms, and individual difference factors are displayed in Table 1.

6.2. Predictors of posting sexual pictures online

To investigate the predictors of posting sexual pictures online and to test H1 to H3, we conducted three multiple linear regressions with peer norms, need for popularity, resistance to peer

influence, age, and gender (1 = *male*, 2 = *female*) as independent variables and as dependent variables, the three types of posting sexual pictures separately.

The first regression indicated that posting pictures in swimwear or underwear is predicted by gender (boys were more likely), $b = -.08$, $SE = .02$, $\beta = -.18$, $p = .002$, peer norms, $b = .53$, $SE = .06$, $\beta = .47$, $p < .001$, and need for popularity, $b = .06$, $SE = .02$, $\beta = .24$, $p = .001$. Adolescents who had more friends who post such pictures online were more likely to do so as well. Moreover, adolescents with stronger need for popularity were more likely to post pictures in swim- or underwear online. Resistance to peer influence, and age had no effect on posting. The overall model explained 37% of the variance in posting these pictures.

Similarly, in the second regression we found that posting of sexy pictures was predicted by gender (more boys), $b = -.81$, $SE = .16$, $\beta = -.29$, $p < .001$, peer norms, $b = .47$, $SE = .07$, $\beta = .39$, $p < .001$, and need for popularity, $b = .45$, $SE = .11$, $\beta = .30$, $p < .001$. Age and resistance to peer influence had no additional effect. The model explained 37% of the variance of posting sexy pictures.

The final multiple linear regression indicated that posting pictures in a sexual pose was predicted by peer norms, $b = .46$, $SE = .07$, $\beta = .42$, $p < .001$, and need for popularity, $b = .05$, $SE = .02$, $\beta = .23$, $p = .003$. Resistance to peer influence, gender, and age had no additional effect. This model explained 27% of the variance.

Overall, these analyses support H1 and H2, but do not support H3. Although, peer norms and need for popularity predicted the willingness to post sexual pictures online, resistance to peer influence had no influence on the willingness to post sexual pictures online.

6.3. Additional analyses

We investigated additional interaction effects between peer norms and need for popularity and resistance to peer influence. It may be argued that those adolescents with higher need for popularity and lower resistance to peer influence are more sensitive to peer norms and are, therefore, more likely to post sexual pictures if they have friends who post these pictures. However, the interaction effects were not significant. This indicates that peer norms are a unique predictor of posting sexual pictures, for adolescents high and low in need for popularity and resistance to peer influence. Similarly, need for popularity predicted the effects even for adolescents who have not many friends posting sexual pictures.

6.4. Evaluation of girls’ sexual self-presentation

As posited by H4, we expected that female adolescents would evaluate a female peer who presents herself in a sexual way more negatively than a female peer who does not present herself in a sexual way. In contrast, we expected that male adolescents would evaluate a female peer in a sexual self-presentation more positively than a girl who presents herself in a non-sexual way (H7). To investigate this, we conducted a two-way ANOVA with gender and self-presentation (sexual vs. non-sexual) as independent variables and the evaluation score as dependent variable.

The ANOVA yielded a significant main effect for gender, $F(1, 234) = 23.80$, $p < .001$, $\eta^2 = .09$, indicating that, overall, boys perceived the girl as more positive ($M = 4.05$, $SD = 1.03$) than girls ($M = 3.43$, $SD = 1.00$). However, this main effect was qualified by a significant interaction effect between gender and sexual self-presentation, $F(1, 234) = 16.50$, $p < .001$, $\eta^2 = .07$. The non-sexual girl was perceived similarly by girls and boys (girls: $M = 3.73$, $SD = 0.89$; boys: $M = 3.84$, $SD = 1.09$). The sexual girl, however, was evaluated more negatively by girls ($M = 3.12$, $SD = 1.02$) and more positively by boys ($M = 4.27$, $SD = 0.94$) in comparison to

Table 1
Summary of correlations between main variables.

	1	2	3	4	5	6	7	8	9
1. Gender	–								
2. Age	–.11	–							
3. Need for popularity	–.02	–.08	–						
4. Resistance to peer influence	–.06	–.16*	.59***	–					
5. Post sexy photo	–.37***	.06	.33***	.13	–				
6. Post photo swim/underwear	–.25**	–.01	.37***	.22**	.48***	–			
7. Post photo sexual pose	–.15*	–.06	.33***	.15*	.53***	.65***	–		
8. Peers: Post sexy photo	–.20**	.19**	.16*	.06	.49***	.30***	.35***	–	
9. Peers: Post photo swim/underwear	–.16*	.11	.22**	.14*	.20**	.57***	.38***	.42***	–
10. Peers: Post photo sexual pose	–.03	.08	.24***	.10	.27***	.32***	.51***	.52***	.50***

Note. Gender: 1 = boy, 2 = girl.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

the non-sexual girl (see Fig. 1). Additional t-tests showed that girls evaluated the girl who presented herself in a sexual way significantly more negatively than the non-sexual girl, $t(110) = -3.40$, $p = .001$. This finding supports H4. In contrast, boys evaluated the sexual girl significantly more positively than the non-sexual girl, $t(124) = 2.37$, $p = .02$. This finding is in line with H7.

6.5. Evaluation of boys' sexual self-presentation

H5 posited that male adolescents would evaluate other male adolescents who present themselves in a sexual way similar to male adolescents who present themselves in a non-sexual way. In contrast, in line with H6, we predicted that female adolescents would evaluate a male peer who presents himself in a non-sexual way more positively than a male peer who presents himself in a sexual way. To test these assumptions, we conducted a two-way ANOVA with gender and self-presentation (sexual vs. non-sexual) as independent variables and the evaluation score as dependent variable.

There was no significant main effect for gender or self-presentation, but a significant interaction effect between gender and sexual self-presentation, $F(1,234) = 6.48$, $p = .01$, $\eta^2 = .03$. As Fig. 2 shows, girls evaluated the sexual boy more positively ($M = 3.37$, $SD = 0.86$) than the non-sexual boy ($M = 3.02$, $SD = 0.99$). An additional t-test showed that this difference was significant, $t(110) = -2.01$, $p = .048$. In contrast, boys evaluated the sexual boy somewhat more negatively ($M = 3.07$, $SD = 1.14$) than the non-sexual boy ($M = 3.38$, $SD = 0.95$). This difference was, however, not significant, $t(124) = 1.63$, $p = .11$. Because the t-test is not eligible to test equivalences between means, we conducted an additional equivalence test (Weber & Popova, 2012). Equivalence

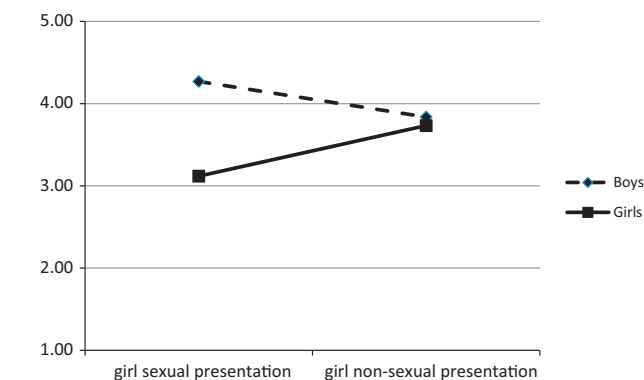


Fig. 1. Evaluation of the girl with a non-sexual versus sexual self-presentation. Higher values indicate more positive evaluations.

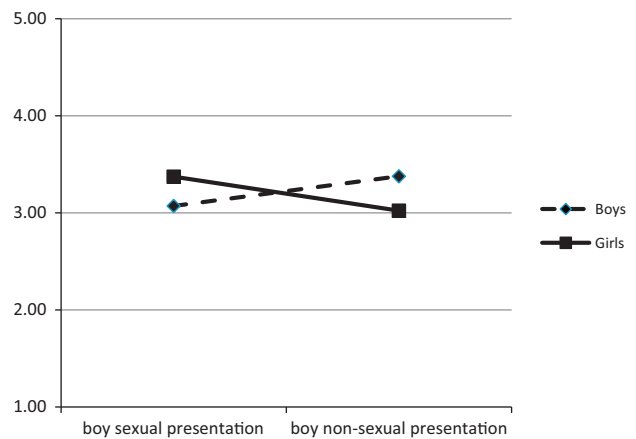


Fig. 2. Evaluation of the boy with a non-sexual versus sexual self-presentation. Higher values indicate more positive evaluations.

testing examines whether an effect is significantly smaller than a predetermined effect. Because we cannot make any predictions about the size of the effect due to a lack in previous studies, we conducted an exploratory equivalence test. The results show that only when expecting a large effect size, we can assume an equivalence between means (Cohen's $d = .5$, $p < .001$). However, for small to moderate effect sizes, the test is not significant (Cohen's $d = .1$ to $.3$, $p = .77$ and $p = .13$, respectively). Overall, the findings of these tests only tentatively supported H5. More research is needed to test this hypothesis in larger samples. In contrast to our expectations, female adolescents evaluated the boy who presented himself in a sexual way more positively than the non-sexual male. This finding does not support H6.

7. Discussion

Social network sites provide adolescents, for whom sexuality and being attractive to the opposite sex becomes increasingly important, a stage to explore and experiment with their sexual identity. However, few studies have investigated which types of adolescents engage in online sexual self-presentation by posting sexual pictures of themselves on social network sites. Furthermore, no study has investigated how these online displays of sexual self-presentation are evaluated by same sex and opposite sex peers. The aim of the present study was to fill these gaps in the literature.

Overall, participants in this study reported low levels of online sexual self-presentation. This is in line with previous studies that

observed that only a minority of adolescents, ranging from 5% to 24%, posted sexual references online (Pujazon-Zazik et al., 2012; Moreno et al., 2009; Hinduja & Patchin, 2008). By distinguishing between different types of sexual pictures, this study showed that adolescents seemed to be more likely to post sexy pictures of themselves online than posting pictures in swimwear/ underwear or in a sexual pose. This indicates that most adolescents are well aware of the appropriateness of posting sexual pictures of themselves online. Although they want to be seen as sexy and sexually attractive, they hesitate to post pictures that are overtly sexual (e.g. in a sexual pose) or that reveal too much of their bodies.

Concerning the predictors of sexual self-presentation, peer norms had a strong influence on posting behavior. Adolescents who thought that many of their peers engaged in sexual self-presentation were more likely to post pictures of themselves in swimwear, in a sexual pose and sexy pictures. The influence of peers on the type of pictures adolescents are willing to share on their social network site is in line with other studies that investigated how the peer context affects adolescents' online behaviors (e.g. Baumgartner et al., 2011). Similarly to many studies showing that peers highly influence adolescents' offline behavior (Brechtwald & Prinstein, 2011), this study adds to cumulative support that peers also highly influence what adolescents do online (Baumgartner et al., 2011; Huang et al., 2013).

Next to peer norms, also adolescents' need for popularity was a consistent predictor for posting sexy pictures, in a sexual pose or in swim- or underwear. Adolescents with a stronger need for popularity were more likely to post these kinds of pictures. In general, adolescents with a higher need for popularity have a strong motivation to become and appear popular. For them, social network sites offer an ideal environment because they can strategically self-present themselves and reach large audiences (Utz et al., 2012). This may indicate that adolescents with high need for popularity assume that posting sexual pictures of themselves is a strategic means to become popular among peers.

Although we expected that adolescents who are more susceptible to peer norms are more likely to post sexual pictures online, this expectation was not supported in the current study. Resistance to peer influence was not related to sexual self-presentation, nor did it moderate the effect of peer norms on sexual self-presentation. However, this null finding might result from the strong overlap between resistance to peer influence and need for popularity. Future research should investigate for which adolescents peer norms of sexual self-presentation are most influential. Research on the influence of peer norms concerning alcohol use has shown that especially people who are high in public self-consciousness are more easily influenced (e.g., LaBrie, Hummer, & Neighbors, 2008). Furthermore, negative experiences, for instance being the victim of online sexual harassment might moderate the effect of peer norms by highlighting the possible social costs of posting sexual references online (Christofides, Muise, & Desmarais, 2012).

Although posting sexual pictures online may be a form of strategic self-presentation for adolescents in order to become more popular, our findings indicate that this type of self-presentation may not necessarily increase the popularity among peers. In line with evolutionary theory, we found that girls who portray themselves in sexual ways are evaluated more negatively by other girls (cf. Campbell, 2004; Vaillancourt & Sharma, 2011), but more positively by boys (cf. Buss & Schmitt, 1993; Buss, 1989). Likewise, a recent qualitative study illustrated how adolescent girls evaluate other girls who post pictures that cross the line between "desirable" and "too slutty" (Ringrose, 2011, p106). Girls who posted the second type of pictures are characterized as being conceited,

slutty, and desperate (Ringrose, 2011). Although, in our study, girls who presented themselves in a sexual way were negatively evaluated by other girls, they were more positively evaluated by boys. Thus, if girls with high need for popularity engage in strategic online sexual self-presentation to gain peer popularity, they might only partially achieve their objective. Although they may become more popular among boys, they may lose acceptance from other girls. However, because during adolescence, it becomes especially important for many adolescents to appear sexually attractive to the opposite sex (Shafer et al., 2013), girls with high need for popularity may still consider posting sexual pictures a successful strategy.

Boys who engaged in sexual self-presentation online were evaluated more positively by girls than boys who did not present themselves in sexual ways. Boys, however, did not differ much in their evaluation of boys who presented themselves in sexual or non-sexual ways. This may indicate that for boys engaging in online sexual self-presentation might be a successful way to gain peer popularity among their female and male peers. This may also explain why boys in this study were more likely to present themselves sexually online than girls. However, future research is needed to further support this finding.

The finding that girls preferred sexual presentations of boys in comparison to non-sexual presentations is in contrast to expectations based on evolutionary psychology. The finding may be the result of the muscularity shown in the experimental stimuli. Research has shown that females interpret muscularity in terms of sexually selected fitness cues and find muscular males more sexually desirable than non-muscular males (Frederick & Haselton, 2007). As a result, the muscularity, rather than the sexiness in the self-presentation, may have led to the positive evaluation of male peers who presented themselves in a sexual way. Future experimental studies should manipulate different aspects of the males' self-portrait to fully understand whether it is the sexiness of the presentation itself or specific aspects of the male body that led to the positive evaluation by girls.

The current study showed that adolescents might engage in online sexual self-presentation to gain popularity among their peers. At the same time, online sexual self-presentation might be a maladaptive strategy for girls, as they are evaluated more negatively by same sex peers. To understand why girls would engage in online sexual self-presentation even though they are evaluated more poorly by same sex peer, future studies might investigate whether and which type of feedback girls receive when they engage in online sexual self-presentation.

The study has some limitations that need to be considered. First, the evaluation of profiles was based on unknown peers. In their every-day lives, however, adolescents may often evaluate the self-presentation of known peers. Future studies may want to compare evaluations of sexual self-presentation for known and unknown peers. Second, we only included profiles of attractive adolescents. It is well known that attractiveness is a strong predictor of popularity (LaFontana & Cillessen, 2002; Siibak, 2009) and is also considered to reflect fitness. Boys might be more negative about less attractive girls who engage in sexual self-presentation than about attractive girls. Future experimental research may therefore manipulate not only the sexiness but also the attractiveness of the self-presentation.

Acknowledgment

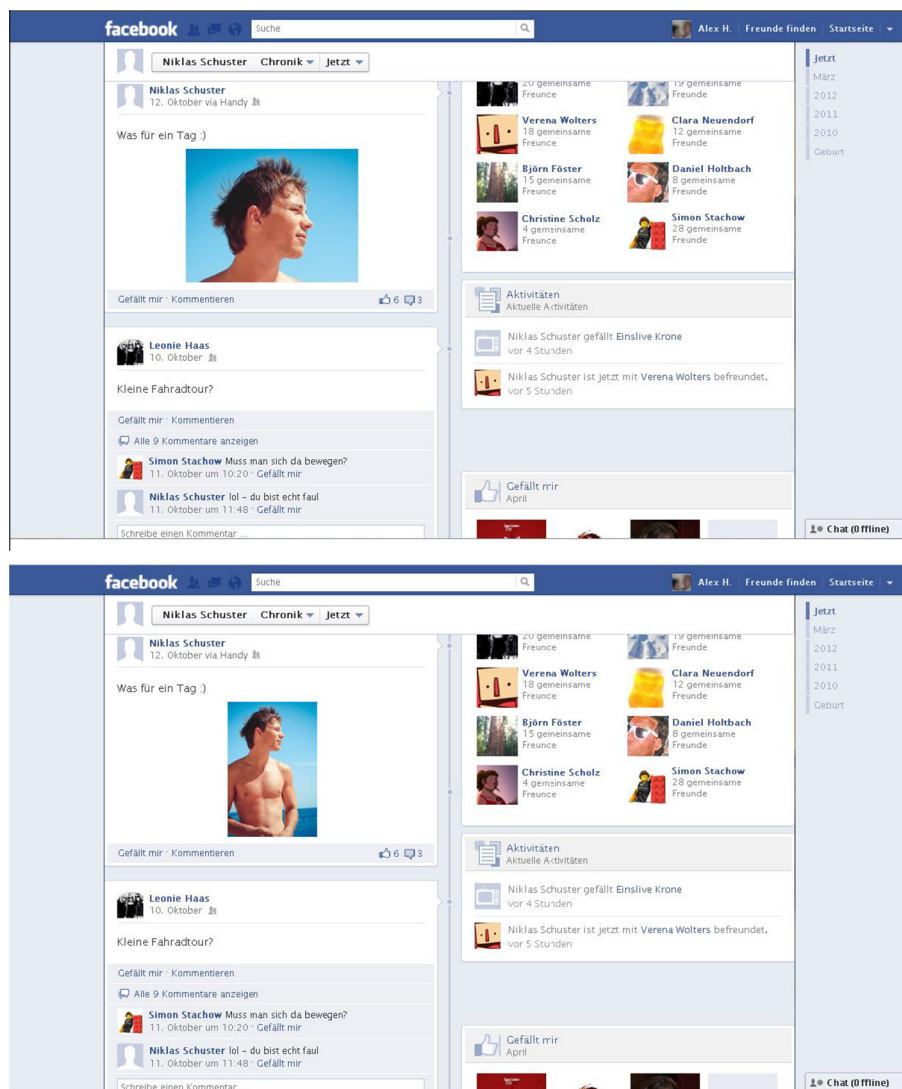
The authors would like to thank Maria Poehner for her help with data collection and creating stimulus materials.

Appendix A

A. Profiles of a girl with non-sexual and sexual self-presentation



B. Profiles of a boy with non-sexual and sexual self-presentation



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