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van Oosten, J.M.F.; Vandenbosch, L.; Peter, J.

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Gender roles on social networking sites: investigating reciprocal relationships between Dutch adolescents' hypermasculinity and hyperfemininity and sexy online self-presentations

Johanna M. F. van Oosten^a, Laura Vandenbosch^{b,c} and Jochen Peter^a

^aAmsterdam School of Communication Research (ASCoR), University of Amsterdam, Amsterdam, the Netherlands; ^bSchool for Mass Communication Research, KU Leuven, Leuven, Belgium; ^cMIOS (Media, ICT, and Interpersonal Relations In Organizations and Society), University of Antwerp, Antwerp, Belgium

ABSTRACT

Previous research has suggested that adolescents play out stereotypical gender roles in their self-presentations in social media. However, longitudinal research on the relationships between (sexy) online self-presentation and adolescents' gender role orientation is lacking. The present study investigated whether endorsing a stereotypical gender role orientation (i.e., hypermasculinity for boys, hyperfemininity for girls) predisposes adolescents to engage in sexy self-presentation or to look at others' sexy self-presentations in social media. In addition, we investigated whether engaging in sexy self-presentation and looking at others' sexy self-presentation predicted an increased hypergender orientation over time. Using a three-wave short-term longitudinal panel survey among 1467 Dutch adolescents with six-month time intervals between waves, we found that adolescents' hypergender orientation predicted more frequent sexy self-presentation and exposure to others' sexy self-presentations in social media. Hypergender orientations were not predicted by these online behaviors and no gender differences were found.

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The past years have seen a growing interest in adolescents' behavior on social networking sites (SNSs) (e.g., boyd, 2007; Lenhart, Purcell, Smith, & Zickuhr, 2010; Livingstone, 2008; Livingstone & Brake, 2010; Shafer, Bobkowski, & Brown, 2013). In particular, adolescents' sexual behavior on SNSs, in the form of visual sexy self-presentation, has received increasing attention by scholars (e.g., Crescenzi, Araña, & Tortajada, 2013; Kapidzic & Herring, 2015; Moreno, Parks, Zimmerman, Brito, & Christakis, 2009). Sexy self-presentation on SNSs consists of posting pictures in which one engages in seductive or sexy gazing (Kapidzic & Herring, 2015), suggests sexual readiness in one's pose (Crescenzi et al., 2013; Hall, West, & McIntyre, 2012), and has a sexy appearance or is scantily dressed (e.g., Crescenzi et al., 2013; Hall et al., 2012; Moreno et al., 2009; Peluchette & Karl, 2009). Such sexy self-presentations may allow adolescents to

CONTACT Johanna M. F. van Oosten  j.m.f.vanoosten@uva.nl

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explore their (sexual) identity and to learn about what is appropriate when it comes to sexual matters (e.g., Ringrose, 2011; Ringrose & Eriksson Barajas, 2011). However, we still know little about which adolescents are more or less likely to engage in sexy self-presentations on SNSs. Similarly, it is largely unknown what predisposes adolescents to look at the online sexy self-presentations of their peers. Such knowledge is important as it sheds light on the gratifications that adolescents seek from the use and production of content on SNSs (Perloff, 2014) and is timely given the high use of SNSs among adolescents (e.g., Lenhart et al., 2010).

Some scholars have started to investigate predictors of adolescents' own sexy self-presentation (e.g., subjective peer norms, Baumgartner, Sumter, Peter, & Valkenburg, 2015; gender, sexual experience and sexual interest, Doornwaard, Moreno, van den Eijnden, Vanwesenbeeck, & Ter Bogt, 2014), as well as of adolescents' exposure to sexy self-presentations of others (e.g., sexual objectification of women; instrumental attitudes toward sex, and sexual experience, van Oosten, Peter, & Boot, 2015a). However, one particularly relevant predisposing factor has still been overlooked in the literature, namely adolescents' endorsement of stereotypical gender roles. In this study, stereotypical gender roles entail hypermasculinity for boys and hyperfemininity for girls. Hypermasculinity refers to men's tendency to engage in macho and dominant behavior (Mosher & Sirkin, 1984). Hyperfemininity is defined as an "exaggerated adherence to a stereotypic feminine gender role," which, among other things, includes the use of physical attributes and sexuality to attract men and to maintain relationships with them (Murnen & Byrne, 1991, p. 480).

Initial evidence suggests that young people take over stereotypical gender role messages from traditional media and society (Manago, Graham, Greenfield, & Salimkhan, 2008; Stokes, 2007; Tortajada, Araña, & Martinez, 2013) and play out typical masculine or feminine gender roles when they post sexy pictures of themselves on SNSs (Kapidzic & Herring, 2011; Manago et al., 2008; Renold & Ringrose, 2011; Ringrose, 2011; Siibak, 2010). However, longitudinal research on the relationship between hypergender orientation and adolescents' sexy self-presentations on SNSs is still lacking. Based on gender role development theories (i.e., Gender Schema Theory, Bem, 1981), and media effect theories (i.e., Media Practice Model, Steele & Brown, 1995; Reinforcing Spiral Model, Slater, 2007), the present study had two main aims; (1) to investigate whether adolescents' endorsement of hypergender roles predicts engagement in sexy online self-presentations and exposure to others' sexy self-presentations over time, and (2) to investigate whether adolescents' sexy online self-presentations and their exposure to others' sexy self-presentations predict their hypergender orientation over time. In addition, given the gender differences in sexy self-presentation found in previous research (Hall et al., 2012; Manago et al., 2008; Thiel-Stern, 2009), a sub-aim of the present study was to explore gender differences in the reciprocal relationships between adolescents' hypergender orientation and their sexy self-presentations and/or exposure to others' sexy self-presentations.

Predicting adolescents' (exposure to) sexy self-presentation from hypergender orientation

Theories on gender role development and young people's media use suggest that hypergender orientation may predict adolescents' (exposure to) sexy self-presentations in SNSs. According to Gender Schema Theory (Bem, 1981), children learn what it means to be a boy or a girl from an early age. This learning process also entails stereotypical messages about

gender, such as that boys are strong and girls are weak. During young people's development, gender schemas become increasingly linked to the self-concept and, thus, progressively guide future perceptions, judgments, and behaviors including self-presentation behaviors (Bem, 1981). Gender Schema Theory was developed to describe the process of organizing one's self-concept and behavior on the basis of gender (i.e., male versus female) and the extent to which individuals differ in this respect (i.e., sex-typed versus non-sex-typed individuals, Bem, 1981). In line with this theory, several studies have shown that, from early childhood on, a greater adherence to (stereotypical) gender identities predicts gender typical behavior, as well as greater attention to and memory of others engaging in gender-typical (or stereotypical) behavior (for an overview, see Halim & Ruble, 2010).

In the past decades, scholars have started to focus on the sexualized and stereotypical nature of the gender roles that adolescents develop (i.e., hypergender orientation). Tolman (2002), for instance, has argued that girls are encouraged to look sexy, and are taught an adult form of sexuality that may suggest their sexual availability. Similarly, studies have suggested that some women and girls have adopted the idea that femininity is strongly about physical attractiveness and the male gaze (e.g., Liss, Erchull, & Ramsey, 2011; Zurbriggen et al., 2010). Boys, in turn, are often taught a dominant masculinity (e.g., Ringrose & Eriksson Barajas, 2011).

Against the backdrop of adolescents' gender role development, scholars have called for more research on how gendered and sexual identities are constructed and portrayed on SNSs (e.g., Livingstone & Brake, 2010; Ringrose & Eriksson Barajas, 2011). According to the Media Practice Model (Steele, 1999; Steele & Brown, 1995), adolescents' selection of sexual media content, their interactions with such content, and the application or reproductions of media in their lives, are the results of continuous interactions between the media, the beliefs that adolescents already have, and their everyday experiences and behavior. Adolescents are thus more likely to use *and* produce media content that is in line with their everyday experiences and attitudes (Shafer et al., 2013; Steele, 1999), including their gender role orientation. In this context, SNSs are particularly relevant to study as they are platforms in which both the exposure to and the production of sexual content take place.

Initial empirical evidence suggests that offline gender roles and sexual norms do guide expectations and motivations for appropriate behavior online (e.g., Doornwaard et al., 2014; Subrahmanyam, Smahel, & Greenfield, 2006). SNSs also seem to function as platforms where adolescents can perform idealized and stereotypical forms of teen masculinity and femininity (Kapidzic & Herring, 2011, 2015; Ringrose, 2011). For instance, adolescents express their gender roles by using (hyper-) gendered nicknames in online chat rooms (Subrahmanyam, Greenfield, & Tynes, 2004; Subrahmanyam et al., 2006) and online weblogs (Subrahmanyam, Garcia, Harsono, Li, & Lipana, 2009). Endorsing an hypergender orientation may thus also predispose visual sexy self-presentations on SNSs. Moreover, one of the main functions of SNSs is to get in contact and interact with peers (Barker, 2009; Gross, 2004; Lenhart & Madden, 2007). One previous study found that stereotypical sexual attitudes predict adolescents' exposure to sexy self-presentations of others on SNSs (van Oosten et al., 2015a). Overall, then, the findings of previous studies suggest that hypergender orientation may form a predisposing factor of both adolescents' own engagement in sexy self-presentation and their exposure to others' sexy self-presentations.

The idea that hypergender orientation may be a relevant personal characteristic to predict adolescents' engagement in, and exposure to, sexy self-presentations on SNSs, is further suggested by previous research on hyperfemininity and hypermasculinity. With regard to

hyperfemininity, hyperfeminine gender roles are related to women's enjoyment of sexualization, which, in turn, predicts engaging in self-sexualizing behaviors (e.g., flaunting one's breasts), self-objectification (i.e., placing a higher importance on the appearance than the function of one's body), body surveillance (e.g., being preoccupied with how one looks), as well as gaining self-esteem from feeling attractive (Liss et al., 2011). In addition, hyperfemininity predicts sexually objectifying media use among women (Nowatzki & Morry, 2009) and conditions positive responses to sexually explicit media content (van Oosten, Peter, & Boot, 2015b).

With regard to hypermasculinity, boys engage in sexy self-presentations on SNSs by showing their nude upper body on SNSs (Kapidzic & Herring, 2011). The display of muscular bodies (e.g., Crescenzi et al., 2013; Tortajada et al., 2013) may be a sign of reproducing a hypermasculine gender orientation (i.e., sexual dominance and potency, Mosher & Sirkin, 1984; Mosher & Tomkins, 1988). In addition, given their attraction to violent pornography (e.g., Malamuth & Huppín, 2005), hypermasculine men can be assumed to show a preference for sexual media content. Thus, although research on the association between hypermasculinity and (self-) sexualization is less developed than it is for hyperfemininity, this hypergender orientation may also form a relevant predispositions for boys' sexy self-presentation online and their exposure to others' sexy self-presentations.

Research on the correlates of hypergender orientations has mostly focused on adults (e.g., Hamburger, Hogben, McGowan, & Dawson, 1996; Liss et al., 2011; Nowatzki & Morry, 2009). Little, however, is known about the role of hypergender orientations for adolescents' sexual behavior or sexual media use. There is reason to believe that research on hypergender orientations among adults may extend to adolescents. For instance, one study showed that adolescent girls' responses to sexually explicit internet material depended on their hypergender orientation (van Oosten, 2016), similar to young adult men (e.g., Kingston, Malamuth, Fedoroff, & Marshall, 2009) and women (e.g., van Oosten et al., 2015b). In addition, an increased hypergender orientation predicts adolescent girls' initiation of the use of sexually explicit internet material (Vandenbosch & Peter, 2016), and both adolescent boys' and girls' selection of certain types of sexually explicit material (i.e., violent pornography, Vandenbosch, 2015).

As the predictive value of hypergender orientation in sexual media use is suggested by previous research, Gender Schema Theory (Bem, 1981) and the Media Practice Model (Steele & Brown, 1995), the present study aimed to investigate the relationship between adolescents' hypergender orientation and their engagement in, and exposure to, sexy self-presentations on SNSs, by testing the following hypotheses: A hypergender orientation predicts adolescents' greater engagement in sexy self-presentations on SNSs (H1) and adolescents' greater exposure to others' sexy self-presentations on SNSs (H2) over time.

Predicting hypergender orientations from adolescents' (exposure to) sexy self-presentation

Previous studies have shown the important role of (hyper)-gender orientation as a predictor and moderator of sexual media use (e.g., Malamuth & Huppín, 2005; Nowatzki & Morry, 2009; van Oosten et al., 2015b). Several social psychological and media effects theories have generally pointed to the multiple roles that personality characteristics and orientations can play in media use (e.g., Social Cognitive Theory, Bandura, 1986; the Elaboration Likelihood Model, Petty, Briñol, & Priester, 2009; Reinforcing Spiral Model, Slater, 2007). In this context, hypergender orientation may also be predicted by social media use. More specifically, adolescents

may further explore and validate the adopted gender orientation on SNSs, given their use of such sites for identity exploration (e.g., boyd, 2007; boyd & Ellison, 2007; Livingstone, 2008; Livingstone & Brake, 2010).

Gender Schema Theory predicts that young people's gendered behavior can reinforce gender role orientations through the observation of one's own behavior, as well as the behavior of others (Bem, 1981). Such processes may also occur for adolescents' exploration of gender roles on SNSs. First, by observing one's own sexy self-presentations on SNSs, which can be hypergendered in nature (e.g., Kapidzic & Herring, 2011, 2015; Ringrose, 2011), a pre-existing hypergender orientation may be reinforced. This expectation is further supported by research on self-presentation and expression effects (i.e., when the act of expression influences the message sender, Pingree, 2007), which has shown that the way in which individuals present themselves to others makes certain attributes more salient (e.g., Jones, Rhodewalt, Berglas, & Skelton, 1981; Schienker, Dlugolecki, & Doherty, 1994). Such expression effects have been found for personality traits, such as extroversion and introversion (Gonzales & Hancock, 2008; Walther et al., 2011), and may apply to gender role orientations as well.

Gender Schema Theory also posits that when developing a gendered identity, individuals may observe models of the same gender to learn about typical feminine or masculine behavior (Bem, 1981). Similar processes may occur for hypergender schemata and sexual behaviors of others online. Consequently, when adolescents look at peers who engage in sexy self-presentations, they may take over the hypergender behavior of their peers, which, in turn, reinforces their own hypergender orientation. This expectation is also supported by Social Cognitive Theory (e.g., Bandura, 1986), which posits that people learn and reinforce behaviors and attitudes regarding behaviors through observing rewarded behavior of others. Therefore, we tested the following hypotheses: Engaging in sexy self-presentations on SNSs (H3), as well as looking at sexy self-presentations of others on SNSs (H4), predicts a stronger hypergender orientation over time.

Gender differences

Given the higher prevalence of sexy self-presentations on SNSs by girls and women (Hall et al., 2012; Manago et al., 2008; Thiel-Stern, 2009), relations between hypergender orientation and sexy self-presentations may be stronger for girls than for boys. At the same time, previous research on the impact of SNSs on outcomes, such as sexual experience (van Oosten et al., 2015a) and appearance investment and body satisfaction (e.g., de Vries, Peter, de Graaf, & Nikken, 2016; de Vries, Peter, Nikken, & de Graaf, 2014), did not find any differences between adolescent boys and girls. To gain more insight into possible gender differences in the relationships between adolescents' gender role orientation and SNS use in general and sexy self-presentations in particular, we asked whether gender moderated the previously hypothesized reciprocal relationships (RQ1).

Methods

Participants and procedure

Between May 2013 and May 2014, a Dutch survey institute (Veldkamp) fielded a three-wave short-term longitudinal panel study, developed by the authors at the University of

Amsterdam, among 13- to 17-year-old adolescents. This adolescent sample was randomly drawn from an existing panel of adolescents that is representative of the Dutch adolescent population in terms of gender, age, educational level, family size, and residential area. The study was approved by the ethical review committee of the research institute at the University of Amsterdam. Informed consent was obtained from the adolescents' parents before adolescents were contacted to participate. At the start of each survey, adolescents were asked for their informed consent as well. The waves of data collection were separated by six months. Literature on adolescents' sexual media use considers a six-month interval as an appropriate interval period because of the relatively rapid sequence of developmental changes (Mul, 2004; Vandenbosch & Eggermont, 2013). At Time 1, a total of 2137 adolescents participated (response rate = 78%). At Time 2, 1765 adolescents (response rate = 82.6%) and at Time 3, 1467 adolescents (response rate = 68.65%) of those who had participated at baseline participated again. Participants were rewarded with €5 euro for their participation in each wave and received an additional €5 for participating in all three waves, resulting in total sum of €20 for participating in all three waves.

Using Pillai's Trace, a MANOVA analysis with "dropout" as the independent variable (with those who participated in all three waves coded as "1" and those who dropped out after waves 1 or 2 coded as "0") and our main variables (hypergender orientation, exposure to sexy images of others on SNSs, and a sexy self-presentation on SNSs, all at wave 1) as dependent variables revealed that there were significant differences between adolescents participating only at baseline and adolescents participating at all waves, $V = .009$, $F(3, 2133) = 6.21$, $p < .001$. Univariate ANOVA's showed that adolescents who did not participate in all waves had obtained higher scores on hypergender orientation ($M = 3.60$, $SD = 1.27$) compared to adolescents who participated in all waves ($M = 3.43$, $SD = 1.29$), $F(1, 2135) = 8.42$, $p = .004$. Similarly, adolescent who dropped out had higher scores on exposure to sexy self-presentations of others ($M = 3.14$, $SD = 1.59$) compared to adolescents who participated in all waves ($M = 2.86$, $SD = 1.50$), $F(1, 2135) = 15.95$, $p < .001$. Only adolescents who had participated in all waves ($N = 1467$) were included in the analytical sample of the current study. The mean age of this study's sample was 14.94 years ($SD = 1.41$). Fifty percent were boys, and 93.5% had an exclusively heterosexual sexual orientation.

Measures

Sexy online self-presentation

First, adolescents were asked whether they were SNSs users. SNSs users were, subsequently, asked to report the extent to which during the past six months they had uploaded pictures portraying themselves (a) with a sexy gaze, (b) with a sexy appearance, (c) scantily dressed (e.g., bathing suit or underwear), and (d) in a sexy posture. The items were based on previous research on the characteristics of young people's sexy self-presentations (e.g., Crescenzi et al., 2013; Hall et al., 2012; Moreno et al., 2009; Peluchette & Karl, 2009), conform other research on sexy self-presentation and adolescents' sexual attitudes and media use (e.g., van Oosten & Vandenbosch, 2017; Vandenbosch, van Oosten, & Peter, 2015). The frequency to which SNSs users had engaged in these four behaviors was reported on a seven-point Likert scale (1 = *never* to 7 = *always*). Non-SNSs users were given the code 1 ("never") as they would never have had the possibility to present themselves as sexy.¹ Principal components analysis supported a one-dimensional scale structure (Time 1 eigenvalue = 2.82; explained

variance = 70.38%; $\alpha = .85$; Time 2 eigenvalue = 2.94; explained variance = 73.51%; $\alpha = .88$; Time 3 eigenvalue = 2.96; explained variance = 74.06%; $\alpha = .88$). The variable “sexy online self-presentation” was obtained by averaging all items (Time 1 $M = 1.32$; $SD = .67$; Time 2 $M = 1.32$; $SD = .69$; Time 3 $M = 1.36$; $SD = .70$).

Exposure to sexy online self-presentation of others

When adolescents identified themselves as SNSs users, they were also asked to which extent in the past six months they had been exposed to pictures in which others portrayed themselves (a) with a sexy gaze, (b) with a sexy appearance, (c) scantily dressed (e.g., bathing suit or underwear), and (d) in a sexy posture. This measure was previously used in research relating exposure to sexy self-presentations of others to adolescents’ sexual attitudes and behavior or their initiation of sexually explicit internet material (e.g., van Oosten et al., 2015a; Vandenbosch & Peter, 2016). In line with the measure of online sexy self-presentation, adolescents reported the frequency of these behaviors on a seven-point Likert scale ranging from 1 (=never) to 7 (=always). Moreover, non-SNSs users were again given the code 1 (“never”). Principal components analysis supported a one-dimensional scale structure (Time 1 eigenvalue = 3.52; explained variance = 88.09%; $\alpha = .96$; Time 2 eigenvalue = 3.55; explained variance = 88.69%; $\alpha = .96$; Time 3 eigenvalue = 3.59; explained variance = 89.84%; $\alpha = .96$). The variable “exposure to sexy online self-presentation of others” was obtained by averaging all items (Time 1 $M = 2.86$; $SD = 1.51$; Time 2 $M = 2.96$; $SD = 1.49$; Time 3 $M = 2.94$; $SD = 1.47$).

Hypergender orientation

As done in previous operationalization of hypergender orientation (e.g., Kreiger & Dumka, 2006; van Oosten, 2016; Vandenbosch, 2015), the Hyper Femininity Scale of Murnen and Byrne (1991) and the Hyper Masculinity Index of Mosher and Sirkin (1984) were used to measure a hypergender orientation. Six items were selected from each scale (because of space constrains) based on the results of the highest corrected item-total correlations in a pilot study that was conducted among 103 undergraduate students (77 women). Items were rated by adolescents on a seven-point Likert scale ranging from 1 (=totally disagree) to 7 (=totally agree). The selected items were adapted to be appropriate for adolescents. For instance, the item of the Hyper Femininity Scale “It’s okay if men are a little forceful during sex” was changed into “It’s okay if a boy acts a little dominant towards me” (i.e., male dominance). Other examples of included items for girls are “Boys need to hunt for girls,” and “You can get boys to do what you want by acting sexy.” Examples for boys are: “A risk is never too high if the reward is big enough,” and “I fight to win.” Principal components analysis supported a one-dimensional scale structure (Time 1 eigenvalue = 3.26; explained variance = 54.29%; $\alpha = .83$; Time 2 eigenvalue = 3.35; explained variance = 55.84%; $\alpha = .84$; Time 3 eigenvalue = 3.38; explained variance = 56.41%; $\alpha = .85$). The variable “hypergender orientation” was obtained by averaging all items (Time 1 $M = 3.43$; $SD = 1.29$; Time 2 $M = 3.38$; $SD = 1.29$; Time 3 $M = 3.47$; $SD = 1.31$).

Control and moderator variables

When investigating our hypotheses, we controlled for age as previous research has shown differences between early and late adolescents in sexy online self-presentations (e.g., Doornwaard et al., 2014) and gender roles (e.g., Galambos, Almeida, & Petersen, 1990). We also controlled for sexual experience, sexual objectification of women and instrumental

attitudes toward sex, as these variables have been shown to predict exposure to sexy self-presentations of others in previous research (i.e., van Oosten et al., 2015a).²

Adolescents indicated whether they were a boy (=1) or a girl (=2), and reported their age. The measure of sexual objectification of girls was based on a previous measure (cf. Peter & Valkenburg, 2007, 2009) which includes five items, such as "There is nothing wrong with boys being primarily interested in a girls' body," and has answer options on a scale from 1 (*totally disagree*) to 7 (*totally agree*) (eigenvalue > 2.68, explained variance > 42%, and $\alpha > .77$ in all waves; $M = 3.07$, $SD = 1.21$ in wave 1; $M = 2.99$, $SD = 1.25$ in wave 2; $M = 2.98$, $SD = 1.23$ in wave 3). Instrumental attitudes toward sex were measured with four items taken from the Sexual Attitudes Scale (Hendrick & Hendrick, 1987) and slightly adjusted for the use among adolescents. An example item is: "The main goal of sex is that you yourself have a good time," with answer options on a scale from 1 (*totally disagree*) to 7 (*totally agree*) (eigenvalue > 2.70, explained variance > 57%, and $\alpha > .83$ in all waves; $M = 2.79$, $SD = 1.32$ in wave 1; $M = 2.71$, $SD = 1.35$ in wave 2; $M = 2.75$, $SD = 1.32$ in wave 3). To measure sexual experience, respondents were asked to answer with "yes" (coded 1) or "no" (coded 0), whether they had experience with the following sexual behaviors: (a) touching each other's genitals, (b) giving or receiving oral sex, and (c) sexual intercourse. We took the average of the three items as a measure of sexual experience (eigenvalue > 2.35, explained variance > 67%, and Guttman's $\lambda_2 > .85$, in all waves; $M = .18$, $SD = .33$ in wave 1; $M = .23$, $SD = .36$ in wave 2; $M = .27$, $SD = .39$ in wave 3).

Analytical strategy

A structural equation model in AMOS tested the reciprocal relationships between sexy self-presentation and hypergender orientation, and between exposure to sexy self-presentations of others and hypergender orientation. Each latent variable was predicted by the manifest items used to measure that construct. The model controlled for the baseline value of the four control variables (i.e., age, sexual experience, sexual objectification of women and instrumental attitudes towards sex) which were drawn as manifest variables. These control variables were expected to covary with exogenous constructs and modeled as predictors of the endogenous constructs at wave 2 and wave 3. Moreover, stability effects were taken into account as subsequent values of a particular endogenous construct were regressed on prior values of that construct. Exogenous constructs of the same wave and error terms of endogenous latent constructs of the same wave were allowed to covary, as were the error terms of similar manifest items of the latent variables over time. Furthermore, as the normality assumption is often violated in sexuality research, bootstrapping (95% bias-corrected bootstrapped confidence intervals [bc 95% bt CI]; 1000 samples) was used to validate the significance tests based on normal theory.

Lastly, to examine our research question regarding differences between boys and girls, we conducted a multiple-group analysis in which the fit indices of an unconstrained model were compared with the fit indices of a constrained model. The latter unconstrained model allowed all relationships to vary across boys and girls. A first constrained model constrained the reciprocal relationships between sexy self-presentation and hypergender orientation to be equal across gender; a second constrained model constrained the reciprocal relationships between exposure to sexy self-presentations of others on SNSs and hypergender orientation to be equal across gender. The χ^2 -model comparison test value ($\Delta\chi$) was used to test for gender differences.

Results

Preliminary analyses

Zero-order correlations (Table 1) were calculated and provided some initial evidence for reciprocal relationships between sexy self-presentation and a hypergender orientation, and between exposure to sexy self-presentations of others and a hypergender orientation.

Table 1. Zero-order correlations between the main variables at all three waves.

	1	2	3	4	5	6	7	8	9	10
1. Gender wave 1	1	.14**	.11**	.11**	.12**	.08*	.07*	.05	.04	.02
2. Online sexy self-presentation wave 1		1	.56**	.55**	.39**	.30**	.30**	.37**	.31**	.27**
3. Online sexy self-presentation wave 2			1	.58**	.28***	.38**	.30**	.29**	.33**	.28***
4. Online sexy self-presentation wave 3				1	.26**	.28**	.41**	.32**	.31**	.37***
5. Exposure online sexy self-presentation of others wave 1					1	.63**	.55**	.36**	.29**	.24**
6. Exposure online sexy self-presentation of others wave 2						1	.62**	.30**	.35**	.27**
7. Exposure online sexy self-presentation of others wave 3							1	.29**	.30**	.33**
8. Hypergender orientation wave 1								1	.66**	.62**
9. Hypergender orientation wave 2									1	.67**
10. Hypergender orientation wave 3										1

*Correlation is significant at least at the .01 level (2-tailed); **Correlation is significant at least at the .001 level (2-tailed).

Hypothesized model

Figure 1 presents the results of the hypothesized relationships. The model had an adequate fit of the data, $\chi^2(882) = 3901.81$, $p < .001$, CFI = .94, RMSEA = .048 (90% CI: .047/.050). Hypotheses 1 and 3 predicted a positive reciprocal relationship between a sexy self-presentation on SNSs and adolescents' hypergender orientation. In line with hypothesis 1, hypergender orientation at Time 1 predicted sexy self-presentation on SNSs at Time 2, $\beta = .097$, $B = .063$, $SE = .020$, $p = .002$ (bc 95% bt CI: .031/.168). Similarly, hypergender orientation at Time 2 was associated with a sexy self-presentation on SNSs at Time 3, $\beta = .135$, $B = .094$, $SE = .020$, $p < .001$ (bc 95% bt CI: .063/.206). In contrast to Hypothesis 3, the data did not support an inverse relationship. Sexy self-presentation on SNSs at Time 1 and Time 2 was not significantly associated with a hypergender orientation at Time 2, $\beta = .035$, $B = .054$, $SE = .039$, $p = .166$ (bc 95% bt CI: $-.015$ /.092) and Time 3, $\beta = .044$, $B = .068$, $SE = .038$, $p = .071$ (bc 95% bt CI: $-.005$ /.088) respectively.

Hypotheses 2 and 4 predicted a positive reciprocal relationship between exposure to sexy self-presentations of others on SNSs and adolescents' hypergender orientation. In line with hypothesis 2, a hypergender orientation at Time 1 was associated with adolescents' exposure to sexy self-presentations of others on SNSs at Time 2, $\beta = .080$, $B = .096$, $SE = .034$, $p = .005$ (bc 95% bt CI: .020/.136) and a hypergender orientation at Time 2 was associated

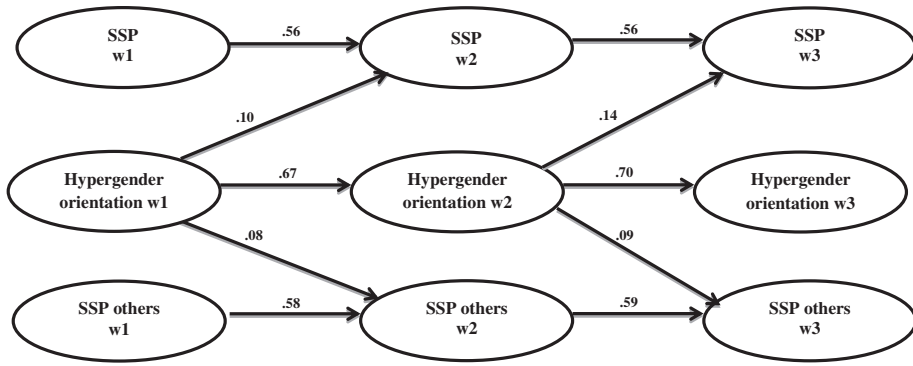


Figure 1. Model showing standardized coefficients for relationships between a sexy online self-presentation, exposure to online sexy self-presentations of others and a hypergender orientation. Notes: All full paths were significant at $p < .05$ based on results of normal test theory and Bootstrapping bt CI (95%). For clarity, error terms, control variables, covariance and measurements are not shown. SSP = sexy self-presentation; w1 = wave 1; w2 = wave 2; w3 = wave 3.

with exposure to sexy self-presentations of others on SNSs at Time 3, $\beta = .090$, $B = .113$, $SE = .033$, $p < .001$ (bc 95% bt CI: .025/.145). In line with the results on online sexy self-presentation, but in contrast to Hypothesis 4, a hypergender orientation at Time 2 and Time 3 was not predicted by exposure to sexy self-presentations of others on SNSs at Time 1, $\beta = .011$, $B = .008$, $SE = .019$, $p = .665$ (bc 95% bt CI: $-.041/.063$) and Time 2, $\beta = .004$, $B = .003$, $SE = .020$, $p = .878$ (bc 95% bt CI: $-.047/.054$), respectively.

Testing gender differences

For descriptive purposes, we first investigated gender differences in our main variables by running a MANOVA with gender as a fixed factor and sexy self-presentation, exposure to sexy self-presentations of others and hypergender orientation as dependent variables. As can be seen in Table 2, girls showed significantly higher means for sexy self-presentation and exposure to sexy self-presentations of others compared to boys. No gender differences were found for levels of hypergender orientation. To see whether there were gender differences in the hypothesized relationships, and thus to test Research Question 1, we conducted

Table 2. Gender differences in means of sexy self-presentation, exposure to sexy self-presentations of others, and hypergender orientation.

	Boys	Girls	Difference between means	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>F(1, 1466)</i>	<i>p</i>
Sexy self-presentation (wave 1)	1.23 (.56)	1.41 (.74)	27.87	.000
Sexy self-presentation of others (wave 1)	2.69 (1.50)	3.03 (1.49)	19.46	.000
Hypergender orientation (wave 1)	3.37 (1.31)	3.49 (1.26)	3.25	.071
Sexy self-presentation (wave 2)	1.25 (.62)	1.39 (.73)	16.61	.000
Sexy self-presentation of others (wave 2)	2.83 (1.52)	3.07 (1.44)	9.24	.002
Hypergender orientation (wave 2)	3.31 (1.27)	3.43 (1.31)	2.89	.089
Sexy self-presentation (wave 3)	1.28 (.63)	1.43 (.75)	16.26	.000
Sexy self-presentation of others (wave 3)	2.83 (1.53)	3.04 (1.39)	7.32	.007
Hypergender orientation (wave 3)	3.43 (1.27)	3.49 (1.33)	.64	.422

Italic values refer to the standard deviations of the means.

multiple-group analyses. The results indicated that the reciprocal relationships between sexy self-presentation on SNSs and a hypergender orientation were similar for boys and girls, $\Delta\chi(1, N = 1467) < 3.428, p > .064$,³ as was the reciprocal relationship between exposure to sexy self-presentations of others on SNSs and a hypergender orientation, $\Delta\chi(1, N = 1467) < .524, p > .469$.

Discussion

Previous research has increasingly focused on the predictors and outcomes of adolescents' sexy self-presentations on SNSs (e.g., Baumgartner et al., 2015; Doornwaard et al., 2014; van Oosten et al., 2015a). At the same time, scholars have noted that adolescents are socialized to adopt stereotypical gender role orientations, with girls adopting hyperfeminine gender roles (e.g., high importance of being sexually attractive and being the passive recipient of male sexual attention, Zurbriggen et al., 2010) and boys adopting hypermasculine gender roles (e.g., engaging in macho and dominant behavior, Ringrose & Eriksson Barajas, 2011). The present study is one of the first to combine these two lines of research by investigating whether adolescents' sexy self-presentation on SNSs and their exposure to others' sexy self-presentations are related to their hypergender orientation. As expected, adolescents' hypergender orientation predicted an increase in sexy self-presentation, as well as in exposure to others' sexy self-presentations, on SNSs six months later. In contrast to our expectations, sexy self-presentation and exposure to sexy self-presentations of others did not strengthen adolescents' hypergender orientation. No robust evidence was found for gender differences in the hypothesized relationships.

Hypergender orientation predicts sexy self-presentation and exposure to others' sexy self-presentations

The finding that boys' hypermasculinity and girls' hyperfemininity predict sexy self-presentation and exposure to sexy self-presentations of others is in line with theories such as Gender Schema Theory (Bem, 1981) and the Media Practice Model (Steele & Brown, 1995). Gender Schema Theory has mostly focused on sex-typed identities and how such identities can guide future processing, evaluations, and behavior. In line with previous research showing that endorsement of a hypergender orientation predicts adolescents' exposure to certain types of online pornography (Vandenbosch, 2015), the present study showed that similar processes occur for hypergender orientation guiding adolescents' online behaviors and self-expression on SNSs. Our findings thus extend previous research that has shown that young people's gender roles predict gender typical behavior, as well as greater attention to others engaging in gender-typical (or stereotypical) behavior (Halim & Ruble, 2010). Moreover, the Media Practice Model has posited that adolescents' selection and (re-)production of sexual media content depends on their pre-existing attitudes, beliefs, and experiences. Our study demonstrates that this idea also applies to adolescents' selection and production of social media content and their pre-existing gender role orientation. The present findings also merge with previous notions of how gender role orientations may guide adolescents' behavior in social media (e.g., Kapidzic & Herring, 2011, 2015; Subrahmanyam et al., 2006), notably for the phenomenon of visual sexy self-presentation. Finally, the present study dovetails with recent findings that showed that hypergender orientation functions as

a predictor (Vandenbosch, 2015; Vandenbosch & Peter, 2016) as well as a moderator (van Oosten, 2016) of various types of sexual media use, which attests to the conceptual importance of the hypergender orientation construct. Together with previous research, our study thus suggests that hypergender orientation is a relevant disposition to study in relation to adolescents' sexual and social media use.

Expanding on previous research on the role of hyperfemininity in the relation between young adult women's sexual behavior and sexual media use (e.g., Liss et al., 2011; Nowatzki & Morry, 2009), our study shows that hypergender orientations also predict sexual behavior and sexual online media use of *adolescent* girls. Moreover, the novel finding that hypermasculinity also predicted sexy self-presentation calls for more research on the role of hypermasculinity in boys' sexual behavior and self-sexualization, not least because research about young people's self-sexualization has mostly focused on girls (Liss et al., 2011; Zurbriggen et al., 2010). The present study suggests that boys need to be included more strongly in research as they engage in self-sexualization as well, being motivated by current cultural gender stereotypes to engage in such behaviors.

A stronger research focus on boys seems also timely given the inconsistent views of boys' sexy self-presentations on SNSs. Studies have suggested that engaging in online sexual self-presentation may be a successful way for boys to gain peer popularity among their female and male peers, even more so than for girls (Baumgartner et al., 2015). At the same time, in the public discourse (sexy) online self-presentation is considered non-masculine among boys (Burns, 2015). Boys also often frame body displays as funny and as a sign of body confidence to avoid public shaming (Albury, 2015). Future research may investigate whether boys' sexy self-presentation results in increased popularity or public shaming, or both, and how this affects their self-esteem in the long run. Relatedly, future research may focus on the positive and negative reactions that hypergender sexy self-presentations may elicit on SNSs. For instance, a possible co-occurrence of both positive and negative reactions to boys' as well as girls' sexy self-presentations may explain why hypergender orientations were not strengthened by sexy self-presentation or exposure to others' sexy self-presentations.

Similar to earlier studies on sexy self-presentation (Hall et al., 2012; Manago et al., 2008; Thiel-Stern, 2009), girls showed higher levels of sexy self-presentation and more frequent exposure to sexy self-presentations of others than boys. Despite these gender differences in the frequency of online sexy self-presentations, the prediction of such online behaviors by hypergender orientation was similar for boys and girls. This finding seems to be in line with previous research on predictors and consequence of social media use and online sexy self-presentations (e.g., de Vries et al., 2014, 2016; van Oosten et al., 2015a; Vandenbosch et al., 2015). Thus, the more adolescents, female or male, endorse a hypergender orientation, the more likely they are to engage in sexy self-presentation or to look at others' sexy self-presentation. It should be noted that a recent study did not find a difference between adolescent boys and girls in their engagement in sexy self-presentation, and found that boys exposed themselves to the sexy self-presentations of others more than girls (van Oosten & Vandenbosch, 2017). Previous research thus suggests that the role of gender, in the sense of biological sex, in research on the frequency, predictors, and consequences of young people's (self-) sexualization is lacking or inconsistent. Future research in this field may therefore distinguish between low and high hypermasculine boys and low and high hyperfeminine girls, rather than focus on differences between boys and girls.

Engaging in, or exposure to, sexy self-presentations does not reinforce adolescents' hypergender orientation

Adolescents' sexy self-presentation and exposure to others' sexy self-presentations did not predict their hypergender orientation. To date, there is thus no longitudinal evidence that cyclical processes, as theorized by media effects theories (e.g., Media Practice Model, Steele & Brown, 1995; Reinforcing Spiral Model, Slater, 2007), occur for adolescents' sexy online self-presentations and their hypergender orientation. Although self-presentation can make certain attributes more salient (e.g., Schienker et al., 1994), this does not seem to apply to hypergender orientation. One explanation may be that although self-presentation can predict short term changes in personality traits, as shown by previous experiments (Gonzales & Hancock, 2008; Walther et al., 2011), its influence is not strong enough to produce changes over a longer period of time.

Our finding that adolescents' own, and their exposure to others', sexy self-presentations did not predict adolescents' hypergender orientation, also contradicts Gender Schema Theory (Bem, 1981). This theory posits that gender schemas and identities develop through self-socializing processes, where children actively construct their gender identities through processing gender-typical information and behaving in gender-stereotypical ways. The present findings suggest that such self-socializing processes do not occur in any significant way on SNSs. This is somewhat surprising because SNSs have been considered suitable for exploring one's identity (e.g., boyd, 2007; Young, 2013). One potential reason for a lack of reinforcement of hypergender orientations on SNSs may be that sexy self-presentations on SNSs only implicitly convey hypergendered messages (i.e., by visual, usually face- and body-centered, messages), but not by actual verbal messages.

Another related reason for our finding that sexy self-presentations on SNSs did not reinforce hypergender orientations may be that adolescents receive much stronger hypergendered messages from offline socialization agents, such as parents and traditional media. In fact, various studies have found an association between parents' gender schemas and their children's gender-related cognitions (Tenenbaum & Leaper, 2002). In addition, children are confronted with media messages about gender stereotypes from a young age, through videogames (e.g., Dill & Thill, 2007), advertising on television (e.g., Browne, 1998), and popular culture in general (e.g., Murnen, Greenfield, Younger, & Boyd, 2016). For instance, adolescents' preference for certain music genres (e.g., hip hop) has been associated with their endorsement of gender stereotypes (Ter Bogt, Engels, Bogers, & Kloosterman, 2010). In a similar vein, previous research also did not find that exposure to others' sexy self-presentations predicted adolescents' sexual attitudes (i.e., sexual objectification of girls and instrumental attitudes toward sex, van Oosten et al., 2015a). One explanation for the lack of such a prediction is that, on SNSs, adolescents are likely exposed to the sexy self-presentations of peers with whom they also interact offline. As a result, they may already be influenced by sexual messages that they receive from their peers offline (Collins, Martino, & Shaw, 2011), including expressions of a (hyper-) gender orientation. This may preclude an additional impact of peer behavior on SNS.

Finally, according to research on gender intensification (e.g., Galambos et al., 1990), the socialization pressures to conform to traditional masculine and feminine gender roles already occur in early adolescence (i.e., between the ages of 11 and 13). Our sample included adolescents of 13 years and older whose gender roles may already have been established.

Therefore, socialization influences on hypergender orientations may not have been strong enough to be detected in our study. Future research investigating the role of social media in changing or reinforcing hypergender orientations may therefore focus on younger samples.

Limitations and suggestions for future research

The present findings should be seen in light of the cultural context in which the study was conducted. According to Hofstede (1998, 2001), the Netherlands is a “feminine” society, which is characterized by greater gender equality than “masculine” societies. Moreover, in countries such as the Netherlands, gender roles are less stereotypical and restrictive compared to sexually traditional countries (Kiefer & Sanchez, 2007; Marston & King, 2006). Our findings may therefore not generalize to more “masculine” or sexually traditional cultures. However, it should be noted that the particular Dutch cultural context may have resulted in an understatement of the relationships. Previous research has shown that gender differences in sexy self-presentations (i.e., sexting) are stronger in more traditional countries (Baumgartner, Sumter, Peter, Valkenburg, & Livingstone, 2014). The role of hypergender orientations in predicting (exposure to) sexy self-presentations may thus also be stronger in more traditional countries.

In addition, the use of self-report measures in the present study may have its limitations because they may, to some extent, be susceptible to the interpretation of the respondent. At the same time, self-report measures have been successfully used in many previous studies on antecedents and consequences of adolescents’ social media use (e.g., Barker, 2009; de Vries et al., 2016; Gross, 2004), including sexy self-presentation (e.g., Baumgartner et al., 2015). Moreover, the self-report measures of (exposure to) sexy self-presentations used in the present study have shown good construct validity, as they have been associated with other types of sexual media use (e.g., reality TV, Vandenbosch et al., 2015) and sexual attitudes (e.g., instrumental attitudes toward sex and notions of women as sex objects, van Oosten et al., 2015a) in previous studies using the same data-set and in a recent study using a different sample (van Oosten & Vandenbosch, 2017). Similarly, our self-report measure of hypergender orientation is based on validated self-report scales for hyperfemininity and hypermasculinity among adults (Mosher & Sirkin, 1984; Murnen & Byrne, 1991).

Our study also suffered from a common limitation of longitudinal research, namely participants who drop out of the sample over time. Our analyses showed that dropout may be systematic, as the participants who dropped out were significantly more hypergendered and looked at online sexy self-presentations more often. A likely implication is that, due to this loss of variance, the strength of the relationships that were found in the present study may be underestimated.

To conclude, this study has shown that both boys’ and girls’ hypergender orientation predisposes them to engage in sexy self-presentations and expose themselves to sexy self-presentations on SNSs. In doing so, our study has increased our knowledge on who is more susceptible to (self-) sexualization on SNSs. Although sexy self-presentation, and exposure to such self-presentation of others, did not strengthen hypergender orientations in the present study, previous research shows that online (self-) sexualization may have consequences for adolescents’ sexual development or self-esteem (e.g., Liss et al., 2011).

Hypergender adolescents may thus form a particularly relevant group to focus upon when studying the role of SNSs in their sexual development or overall well-being.

Notes

1. When non-SNS users are left in the data-set as missing values, the findings remained largely the same, with one exception: sexy self-presentation (wave 2) predicted hypergender orientation (wave 3), $\beta = .055$, $B = .082$, $SE = .038$, $p = .030$, whereas this relationship was insignificant ($p = .071$) in the data-set where missing values are replaced by "1" ("never").
2. Given recent findings on the role of reality TV viewing for sexy self-presentation (Vandenbosch et al., 2015), we ran additional analyses in which we also controlled for adolescents' reality TV viewing, and in particular docusoaps such as MTV's Jersey shore. Reality TV is a television genre that is characterized by highly hypergendered content and typically portrays characters in a sexualized way (e.g., Cato & Carpentier, 2010; Chrisler, Bacher, Bangali, Campagna, & McKeigue, 2012). Controlling for this type of media use did not change the findings in a significant way and we decided to not include it in the model for parsimony reasons. The results from the additional analyses are available from the first author upon request.
3. After removal of extreme outliers ($N = 8$) in the standardized residuals (>5) and Mahalanobis distance (>25) of the hypothesized relationships, there was a significant moderation of gender in the association between hypergender orientation (wave 1) and sexy self-presentation (wave 2), $\Delta\chi^2(1, N = 1459) = .397$, $p = .036$; this association was only significant for girls, $\beta = .128$, $B = .082$, $SE = .028$, $p = .003$, but not for boys, $\beta = .011$, $B = .006$, $SE = .024$, $p = .816$. The association between hypergender orientation at wave 2 and sexy self-presentation at wave 3 was still significant for both girls, $\beta = .131$, $B = .095$, $SE = .029$, $p = .001$, and boys, $\beta = .104$, $B = .071$, $SE = .030$, $p = .017$. The remainder of the findings did not change after removing outliers.

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Notes on contributors

Johanna M. F. van Oosten (PhD in Communication Science at the University of Amsterdam, 2015) is an assistant professor at the Amsterdam School of Communication Research (ASCoR, University of Amsterdam). Her research focuses on adolescents' and young adults' media use, and in particular social media use and self-presentation, in relation to sexual socialization, gender roles, and self-perceptions.

Laura Vandenbosch (PhD in Social Sciences at the University of Leuven, 2013) is a postdoctoral researcher at the School for Mass Communication Research (SMCR, University of Leuven) and a part-time assistant professor at the Department of Communication Studies (MIOS, University of Antwerp). Her research focuses on how media use may affect adolescent sexual well-being by focusing on factors that have not been understood well, such as the role of social relationships and body image.

Jochen Peter (PhD in Communication Science at the University of Amsterdam, 2003) is a full professor at the Amsterdam School of Communication Research (ASCoR, University of Amsterdam). His research focuses on the consequences of young people's new communication environments on their psycho-social development.

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