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Sexually Explicit Internet Material and Adolescents' Sexual Performance Orientation: The Mediating Roles of Enjoyment and Perceived Utility

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ABSTRACT

Little is known about how exposure to sexually explicit Internet material (SEIM) relates to a performance-focused orientation toward sex. Based on a three-wave panel study among adolescents ($N = 1,022$), we found that watching SEIM predicted a sexual performance orientation from Wave (W) 2 to W3, but not from W1 to W2. A sexual performance orientation at W2 predicted adolescents' exposure to SEIM at W3. The relationship between exposure to SEIM and a sexual performance orientation was explained by a two-step mediation model. The more adolescents were exposed to SEIM at W1, the more they enjoyed consuming this content at W2. In turn, enjoyment of SEIM (W2) predicted adolescents' perceived utility of SEIM (W2). This increased perceived utility at W2 predicted a more intense performance orientation towards SEIM at W3. Within this 2-step model, we also found full support for a reciprocal relationship between using SEIM (W1/W2/W3) and enjoyment of SEIM (W1/W2/W3) and partial support for a reciprocal relationship between sexual performance orientation (W2) and perceived utility of SEIM (W3).

Today, adolescents grow up in a society in which sexually explicit Internet material (SEIM) is easily available (e.g., Peter & Valkenburg, 2011). As a response to this availability of SEIM, previous investigations have documented relationships between adolescents' use of SEIM and their attitudes toward sex within the context of (casual or committed) relationships and their sexual behavior (for a review, see Peter & Valkenburg, 2016). However, several potential outcomes of the sexual socialization provided by SEIM remain to be explored. One of these outcomes is adolescents' beliefs about how to engage in the physical act of having sex itself. The lack of research on this particular subject is surprising, because qualitative research has suggested more generally that adolescents look in SEIM for examples of how to have sex (Arrington-Sanders et al., 2015; Löfgren-Mårtenson & Månsson, 2010;

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Rothman, Kaczmarsky, Burke, Jansen, & Baughman, 2015). In addition, quantitative studies suggest that users may learn from SEIM how to engage in sexual interactions, for instance, by teaching them about the importance of enacting a variety of sexual behaviors (Štulhofer, Buško, & Landripet, 2010; Wright, Sun, Steffen, & Tokunaga, 2015). Finally, a significant characteristic of portrayals of sexual interactions in SEIM is the focus on performances in sexual activities (e.g., Jensen & Dines, 1998). For instance, the characters in SEIM typically engage in a variety of sexual acts (including also sexual acts that are less frequently practiced in the general population) and demonstrate the related sexual skills to perform them (Gorman, Monk-Turner, & Fish, 2010; Jensen & Dines, 1998).

To better understand whether adolescents' use of SEIM is also related to their beliefs about how to engage in sex, we examined whether exposure to SEIM predicts adolescents' sexual performance orientation. Based on the sexuality literature (Harper, Gannon, Watson, Catania, & Dolcini, 2004; McCabe, 1998) and research studying achievement goals (Ames & Archer, 1988; Farr, Hofmann, & Ringenbach, 1993), a sexual performance orientation may be defined as the importance attached to excelling in performing various sexual behaviors and an ambition to be successful in sexual activities. Individuals with a sexual performance orientation find, for instance, proof of their sexual competences when they cause a partner's orgasm or successfully perform many different sexual positions (Arrington-Sanders et al., 2015; Gilfoyle, Wilson, & Own, 1992; Löfgren-Mårtenson & Månsson, 2010).

In addition to studying the direct relationship between exposure to SEIM and adolescents' sexual performance orientation, we also aimed at uncovering indirect relationships. In this context, the pertinent literature on SEIM points to the possible mediating roles of enjoyment of SEIM and perceived utility of SEIM (Chock, 2011; Peter & Valkenburg, 2009a, 2010b) to explain the relationship between exposure to SEIM and adolescents' sexual performance orientation. Moreover, the information processing and message design literature (Green, 2006; Slater & Rouner, 2002) hints at the idea that enjoyment of SEIM may affect the perceived utility of SEIM. As a result, we studied whether a two-step mediation model of enjoyment of SEIM and perceived utility of SEIM would explain the relationship between exposure to SEIM and sexual performance orientation.

Exposure to SEIM and adolescents' sexual performance orientation

Sexual script theory (Gagnon & Simon, 1973), as well as the script acquisition, activation, application model ($_3$ AM, Wright, 2011), posit that culturally available messages teach adolescents what sexual interactions entail. The information derived from sex-related messages is organized in individuals' mind in the form of sexual scripts (Gagnon & Simon, 1973; Wright, 2011). A

sexual script includes a well-defined interpretation of the sequential order in which sexual events process (Gagnon & Simon, 1973; Huesmann, 1988; Wright, 2011). Moreover, it entails guidelines about how individuals ought to react in the different sexual events (not only with regard to specific actions but also with what kind of an overall *attitude* or *style*; Wright, 2011). A sexual script will further inform individuals about the expected results of their actions in sexual events and is likely to provide cues on how a preferred sexual partner will look (Gagnon & Simon, 1973; Huesmann, 1988; Wright, 2011). The internalization of a sexual script is dependent on many factors including the frequency with which an individual has been exposed to cultural messages promoting the sexual script (Huesmann, 1988; Wright, 2011).

According to the ₃AM, SEIM can be an important cultural source of the acquisition, activation, and application of sexual scripts among adolescents (Wright, 2011). SEIM has been described as “professionally produced or user-generated (audio) visual material on or from the Internet that typically intends to arouse the viewer and depicts sexual activities and (aroused) genitals in unconcealed ways” (Peter & Valkenburg, 2011, p. 751). Frequent viewers of SEIM are likely to be exposed to a sexual script that focuses on people’s specific sexual performances and an overall attitude that values sexual proficiency. For instance, the (visible) orgasm (expressed for men by ejaculation and for women by facial, verbal, and vocal expressions, such as moaning) is considered an essential component of a sexual interaction in professionally produced and amateur pornography (Frith, 2015; Gorman et al., 2010; Van Doorn, 2010). Orgasms are important tokens to express the gratification that porn actors receive from engaging in the portrayed sexual interactions (Frith, 2015; Paasonen, 2006).

Sexual skills to sexually arouse and satisfy a partner, such as touching genitals or giving oral sex, are also frequently portrayed in SEIM (Gorman et al., 2010; Klaassen & Peter, 2015; Van Doorn, 2010). For instance, characters compliment sexual partners for their sexual performances (Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010) and explicitly show the enjoyment caused by a partner’s sexual skills (Gorman et al., 2010). Moreover, more than 90% of the characters involved in sexual interactions in SEIM appear to be sexually experienced and in control of the sexual actions that they perform (Vannier, Currie, & O’Sullivan, 2014). The characters’ sexual proficiency is sometimes expressed in propositions (e.g., “I’ll teach you something”) in the dialogues between characters and/or the title or description of SEIM (Vannier et al., 2014, p. 257). The advanced sexual skills of partners may further be shown in the ease with which sexual interactions are initiated. Research has demonstrated that, for the viewers, porn actors seem to very easily initiate sex (Štulhofer et al., 2010).¹ However, initiating sex

(especially among uncommitted partners as is common in SEIM) is perceived as more challenging in real life sexual interactions (Muehlenhard & Peterson, 2005). In addition, porn actors seem to be capable of performing sex in any situation (Štulhofer et al., 2010); individuals in real life stress the importance of situational factors to signal sex can be initiated (Simon & Gagnon, 1986).

Both professionally produced and amateur pornography also pay attention to porn actors' abilities to perform a variety of sexual positions during a sexual encounter (Gorman et al., 2010; Van Doorn, 2010). Viewers of SEIM consider the variety of sexual actions an important characteristic of the sex script that is promoted in pornography (Štulhofer et al., 2010). Although it seems rather straightforward to assume that a proficiency to perform a variety of sexual skills is shown in pornography (Gorman et al., 2010; Štulhofer et al., 2010; Van Doorn, 2010), such skills are not taken for granted in people's own sexual lives (Aubrey, Harrison, Kramer, & Yellin, 2003).

Prior content analyses and the sexual script literature thus suggest that frequent viewers of SEIM may be more likely to develop a sexual performance orientation than nonfrequent viewers of SEIM. Qualitative research has suggested that a sexual performance orientation may be adopted from using SEIM (Arrington-Sanders et al., 2015; Löfgren-Mårtenson & Månsson, 2010; Mattebo, Tydén, Häggström-Nordin, Nilsson, & Larsson, 2015; Rothman et al., 2015). In this context, Albright (2008) showed that women experience pressure to perform particular (novel) sexual acts after viewing pornography themselves. In addition, women whose partners were viewers of pornography felt their partners were more critical toward the women's sexual performances.

Quantitative studies have also hinted at a relationship between SEIM use and sexual performance outcomes. For example, cross-sectional studies among both US-American and Croatian adults reported that the more frequently individuals watched SEIM, the more they preferred the sexual practices that they saw in SEIM (Morgan, 2011; Štulhofer et al., 2010; Wright et al., 2015). The results of a longitudinal study among adolescents further showed that watching SEIM predicted a greater level of sexual uncertainty (Peter & Valkenburg, 2010a). Research has suggested that uncertainty may partly origin in upward comparisons between adolescents' own sexual skills and the superior skills of sexual actors (Vandenbosch & Eggermont, 2013). A recent cross-sectional survey among male American college students further supports this explanation showing that pornography use is related to worries about one's own sexual performance (Sun, Bridges, Johnson, & Ezzell, 2016). Together, these findings led us to hypothesize:

Hypothesis 1: Exposure to SEIM will positively predict a sexual performance orientation among adolescents over time.

The reinforcing spirals model (RSM) posits that the relationship between exposure to SEIM and a sexual performance orientation will be reciprocal (Slater, 2007). Building on several well-known theories, such as selective exposure theory (Zillman & Bryant, 1985), the RSM proposes that media use may change our beliefs. One's beliefs, in turn, are likely to determine which media content one consumes (Slater, 2007). The more consistent the media content is with a user's beliefs, the greater the likelihood that the use of this content is considered pleasant and selected in the future (Zillman & Bryant, 1985).

Although cumulative support for reciprocal relationships between sexual media use and sexual outcomes is limited (for a review, see Peter & Valkenburg, 2016), there are some longitudinal studies that have found such a relationship (e.g., Peter & Valkenburg, 2009a; Wright & Tokunaga, 2016). In addition, qualitative research suggests that the particular relationship between watching SEIM and a sexual performance orientation may be reciprocal: Adolescents not only indicated that they learned from SEIM how to perform sex, but also actively searched for SEIM to improve their own sexual performances (Arrington-Sanders et al., 2015; Rothman et al., 2015). Therefore, we hypothesized:

Hypothesis 2: A sexual performance orientation will positively predict exposure to SEIM among adolescents over time.

The mediating roles of enjoyment of SEIM and perceived utility of SEIM

Recently, Valkenburg and Peter (2013a) organized the literature on explanatory mechanisms for media effects into a comprehensive model, the Differential Susceptibility to Media Effects Model (DSMM). This model assumes that media effects on users' beliefs process through response states. Response states refer to users' cognitive, affective, and excitative reactions during media exposure. Depending on how the exposure to media content is experienced, individuals' beliefs may change (Valkenburg & Peter, 2013a).

According to the literature on the effects of SEIM in particular and sexual media content in general, two response states may be particularly relevant to explain how SEIM affects adolescents' sexual performance orientation: the affective response state of enjoyment of SEIM and the cognitive response state of perceived utility of SEIM (Chock, 2011; Peter & Valkenburg, 2009a, 2010b; Zurbriggen & Morgan, 2006). In line with prior literature (Peter & Valkenburg, 2009a), the affective response state enjoyment of SEIM can be defined as the extent to which viewers experience positive emotions while watching SEIM. Cross-sectional research has shown that if media users

appear to enjoy the consumed content, they are more likely to endorse the sexual beliefs that are shown in the content (Zurbriggen & Morgan, 2006). Longitudinal research has added that not only current, but also prior levels of SEIM use positively predict adolescents' perceived liking of SEIM (Peter & Valkenburg, 2009a). For adolescents, in particular, such prolonged effects may be expected. Adolescents' sexuality is still developing and novel sexual stimuli often trigger an initial feeling of ambivalence while these are perceived as more enjoyable when adolescents mature (Brown, White, & Nikopoulou, 1993).

The cognitive response state perceived utility of SEIM refers to perceptions about the usefulness of SEIM as a sexual information source and the applicability of SEIM to the real world (Peter & Valkenburg, 2010b). The perceived utility of SEIM is thus similar to the concept of perceived functional value in the $\text{}_3\text{AM}$ (Wright, 2011), which includes the plausibility that viewers attribute to sexual messages of SEIM. Several studies have shown that viewers of sexual media content who experienced the content as more realistic had a higher likelihood of adopting the messages promoted in the sexual media content (Chock, 2011; Peter & Valkenburg, 2006). This process also seems to develop over time as several studies showed that the perceived utility of SEIM predicts sexual outcomes 6 months later among adolescents (Peter & Valkenburg, 2010b; Vandenbosch & Peter, 2016).

Transportation theory (Green, 2006) and the extended elaboration likelihood model (E-ELM, Slater & Rouner, 2002) have suggested that affective response states may precede cognitive response states. Transportation theory posits that media users who enjoy being carried away in a media story (i.e., affective response state) are more likely to perceive the content as realistic (i.e., cognitive response state; Green, 2006). After all, media users who enjoy media content are less likely to reflect on arguments on why the portrayed media content may not be plausible in the real world (Green, 2006). The E-ELM states that, after becoming absorbed in media content (i.e., affective response state), media users will show cognitive responses that are in line with the portrayed media content (Slater & Rouner, 2002).

Based on the empirical evidence of the explanatory value of enjoyment of SEIM and perceived utility of SEIM, as well as the theoretical literature on media effects (Green, 2006; Slater & Rouner, 2002; Valkenburg & Peter, 2013a), we propose a two-step mediation model to explain how SEIM users adopt beliefs about the importance of performances during sex. In this model, we expect that adolescents who enjoy consuming SEIM more strongly will perceive SEIM as more useful for their daily life. This increased perceived utility of SEIM, in turn, will lead SEIM viewers to endorse the promoted performance orientation towards sex in SEIM more strongly. We thus hypothesized:

Hypothesis 3: Exposure to SEIM will indirectly predict a sexual performance orientation over time. More precisely, exposure to SEIM will positively predict enjoyment of SEIM among adolescents over time (H3a). Enjoyment will positively predict the perceived utility of SEIM (H3b). Perceived utility of SEIM will positively predict a sexual performance orientation over time (H3c).

Reciprocal relationships within the two-step mediation model

Within the two-step mediation model of enjoyment of SEIM and perceived utility of SEIM, several reciprocal relationships may occur. In the two step-mediation model, it is expected that exposure to SEIM predicts enjoyment of SEIM. However, it may also be that enjoyment of SEIM predicts exposure to SEIM. The DSMM (Valkenburg & Peter, 2013a), together with other theories on media selection, such as the uses and gratifications theory (e.g., Katz, Blumer, & Gurevitch, 1974), posits that prior enjoyment of consuming particular media content is likely to motivate an individual to select the same media content again in the future. In accordance with these propositions, a prior longitudinal study among adolescents demonstrated that adolescents who liked watching SEIM consumed SEIM more frequently over time (Peter & Valkenburg, 2009a). Similarly, qualitative research has revealed that enjoyment of the consumption of SEIM is an important motivation to select SEIM (Rothman et al., 2015). Against this background, we tested the following hypothesis:

Hypothesis 4: Enjoyment of SEIM will positively predict exposure to SEIM among adolescents over time.

Our two-step mediation model also implies that the perceived utility of SEIM predicts adolescents' sexual performance orientation. However, cognitive dissonance theory (Festinger, 1957) holds that individuals are likely to adjust cognitions to beliefs that they have previously endorsed. According to the cognitive dissonance literature (Festinger, 1957), adolescents may perceive SEIM as more useful for their own lives if they endorse a sexual performance orientation. As SEIM frequently portrays sexual activities with a focus on performances (e.g., Jensen & Dines, 1998), users may evaluate the content as more realistic because the acts portrayed in SEIM match their own orientation toward sex. In addition to the influence of perceived utility on adolescents' sexual performance orientation, we therefore hypothesized:

Hypothesis 5: A sexual performance orientation will positively predict perceived utility of SEIM among adolescents over time.

Methods

Participants and procedure

A three-wave study was conducted between May 2013 and May 2014 with an interval of 6 months between each wave.² The data collection was organized by the Dutch research agency Veldkamp. The research agency collected active parental consent before the start of the data collection at Waves 1, 2, and 3. The adolescent sample came from a respondent pool of Veldkamp, which is similar to the Dutch population in terms of the proportions of gender, age, educational level, family size, and residential area. The large majority (77%) of our sample had relatively high SES levels, based on the income and educational level of the parents of the adolescents. This is similar to the SES levels of the Dutch population in general in terms of educational level: 73% of the population has received university or intermediate or higher vocational education, and 27% are less well educated in the Netherlands.

Based on parental consent in Wave 1, the research agency invited 2,785 adolescents of which 2,137 completed the first questionnaire (response rate of 78%; Wave 1). In the second wave, 1,765 participants of those who had also participated at Wave 1 answered the online survey again. In the third wave, 1,467 participants of those who had participated at baseline and in the second wave answered the online survey (response rate from the first to the third wave = 68.65%). Using Pillai's Trace, a MANOVA analysis demonstrated that there were no significant differences between adolescents participating only at baseline and adolescents participating at all waves regarding sexual orientation, age, gender, exposure to SEIM, enjoyment of SEIM, perceived utility of SEIM, and sexual performance orientation, $V = .01$, $F(7, 1809) = 1.55$, $p = .147$, $\eta^2 = .01$.

Participants who were unfamiliar with SEIM or felt unsure to evaluate enjoyment and/or perceived utility of SEIM had the response option *I don't know*. Of the 1,467 participants who had participated in all waves, respectively 161, 177, and 154 respondents chose this option in Waves 1, 2, and 3 for enjoyment of SEIM, and 168, 170, and 152 participants chose this option in Waves 1, 2, and 3 for perceived utility of SEIM. These participants were excluded from the analytical sample. A total of 1,022 participants were included in the analytical sample of this study. The mean age was 15.13 ($SD = 1.38$) at baseline. The majority of the sample was heterosexual (93.5%) and 53.8% were boys.

Using Pillai's Trace, a second MANOVA analysis demonstrated that there were significant differences between adolescents in our analytical sample ($n = 1,022$) and the excluded adolescents, $V = .02$, $F(7, 1809) = 6.23$, $p < .001$, $\eta^2 = .02$. More precisely, included adolescents were older, $F(1, 1815) = 5.31$, $p < .05$, and more likely to be boys, $F(1, 1815) = 10.53$, $p < .001$, and scored higher on SEIM use, $F(1, 1815) = 11.86$, $p < .001$, perceived

enjoyment of SEIM, $F(1, 1815) = 27.08, p < .001$, perceived utility of SEIM $F(1, 1815) = 26.92, p < .001$, and sexual performance orientation, $F(1, 1815) = 12.41, p < .001$, than adolescents who were excluded.

Measures

Table 1 reports the means and standard deviations for all variables described below.

Socio-demographic variables

Participants indicated their age, gender (1 = *boy*, 2 = *girl*), and sexual orientation. Sexual orientation was measured by asking adolescents whether they were sexually attracted (1) *only to boys*; (2) *mainly to boys, but also to girls*; (3) *equally to boys and girls*; (4) *mainly to girls, but also to boys*; or (5) *only to girls* (Kinsey, Pomeroy, & Martin, 1948; Peter & Valkenburg, 2011). The answer options were recoded, separately for boys and girls, into *exclusively heterosexual* (0) and *not exclusively heterosexual* (1) to create the dichotomous variable, *sexual orientation*.

Exposure to SEIM

A scale for which prior research has demonstrated its validity and reliability (Peter & Valkenburg, 2009a, 2009b, 2010a, 2010b, 2011; Vandebosch & Eggermont, 2013) was used. Participants indicated on a 7-point scale (*several times a day* = 1 through *never* = 7) how often that they had intentionally exposed themselves during the last 6 months to (a) pictures with clearly exposed genitals, (b) videos with clearly exposed genitals, (c) pictures in which people are having sex, and (d) or videos in which people are having sex (Peter & Valkenburg, 2009a). These items were averaged to create a new variable and recoded (*several times a day* = 7 through *never* = 1) so that higher values reflect higher exposure to SEIM (Wave 1 eigenvalue = 3.50; explained variance = 87.50%; $\alpha = .95$; Wave 2 eigenvalue = 3.55; explained variance = 88.67%; $\alpha = .96$; Wave 3 eigenvalue = 3.54; explained variance = 88.51%; $\alpha = .96$).

Enjoyment of SEIM

Inspired by Peter and Valkenburg (2009a), participants indicated on a 7-point scale (*not at all applicable to me* = 1 to *very applicable to me* = 7) the extent to which watching SEIM evoked positive emotions (i.e., “While watching SEIM, I am enjoying myself well;” and “What I see while watching SEIM makes me happy”). The items were averaged to create a new variable (Wave 1 eigenvalue = 1.91; explained variance = 95.53%; $r = .91, p < .001$; Wave 2 eigenvalue = 1.91; explained variance = 95.61%; $r = .91,$

Table 1. Descriptive statistics (N = 1,022).

	M	SD	Zero-Order Correlations													
			2	3	4	5	6	7	8	9	10	11	12	13	14	
1. Watching SEIM W1	1.89	1.30	.65**	.64**	.70**	.57**	.56**	.35**	.26**	.27**	.31**	.24**	.28**	.07*	.03	
2. Watching SEIM W2	1.93	1.33	1	.70**	.56**	.70**	.58**	.27**	.34**	.30**	.25**	.25**	.24**	.04	.00	
3. Watching SEIM W3	2.09	1.38	1	1	.56**	.61**	.71**	.28**	.31**	.39**	.26**	.26**	.32**	.01	.03	
4. Enjoyment of SEIM W1	2.93	1.81	1	1	.67**	.65**	.46**	.35**	.33**	.34**	.24**	.24**	.30**	.03	-.01	
5. Enjoyment of SEIM W2	3.01	1.86	1	1	1	.70**	.38**	.52**	.39**	.31**	.33**	.33**	.31**	.00	.01	
6. Enjoyment of SEIM W3	3.15	1.88	1	1	1	1	.37**	.40**	.54**	.30**	.33**	.33**	.39**	-.01	.01	
7. Utility of SEIM W1	2.97	1.48	1	1	1	1	1	.51**	.46**	.46**	.34**	.25**	.27**	-.03	.06	
8. Utility of SEIM W2	2.88	1.51	1	1	1	1	1	1	.53**	.53**	.26**	.34**	.29**	-.06	.05	
9. Utility of SEIM W3	2.83	1.47	1	1	1	1	1	1	1	.27**	.27**	.29**	.41**	-.03	.03	
10. Sexual Performance Orientation W1	3.47	1.50	1	1	1	1	1	1	1	1	1	.50**	.51**	.15**	.01	
11. Sexual Performance Orientation W2	3.55	1.46	1	1	1	1	1	1	1	1	1	1	.49**	.13**	.03	
12. Sexual Performance Orientation W3	3.64	1.45	1	1	1	1	1	1	1	1	1	1	1	.15**	.02	
13. Age W1	15.13	1.38	1	1	1	1	1	1	1	1	1	1	1	1	.01	
14. Sexual orientation W1	.06	.25	1	1	1	1	1	1	1	1	1	1	1	1	1	

Note. ** $p < .01$; * $p < .05$.

$p < .001$; Wave 3 eigenvalue = 1.91; explained variance = 95.62%; $r = .91$, $p < .001$).

Perceived utility of SEIM

Participants indicated on a 7-point scale (*not at all applicable to me* = 1 to *very applicable to me* = 7) the extent to which they agreed with the following statements: (a) “By watching sex on the Internet, you can learn things you wouldn’t learn otherwise;” (b) “Sex on the Internet gives you valuable information about sex;” and (c) “By watching sex pictures or sex videos on the Internet, you learn how to behave when having sex.” For further information on this scale, see Peter and Valkenburg (2010b). The items were averaged to create a new variable (Wave 1 eigenvalue = 2.46; explained variance = 82.02%; $\alpha = .89$; Wave 2 eigenvalue = 2.50; explained variance = 83.35%; $\alpha = .90$; Wave 3 eigenvalue = 2.49; explained variance = 83.11%; $\alpha = .90$).

Sexual performance orientation

A sexual performance orientation was operationalized with four items that were suggested in the literature (Arrington-Sanders et al., 2015; Gilfoyle et al., 1992; Löfgren-Mårtenson & Månsson, 2010; McCabe, 1998; Rothman et al., 2015) as indicators of sexual performance successes. Participants indicated on a 7-point scale (*not at all important to me* = 1 to *very important to me* = 7) the extent to which it was important for them to (a) “always make their partner have an orgasm during sex,” (b) “be good at oral sex,” (c) “show their partner how good they are at sex,” and (d) “know many sexual positions.” The items were averaged to create a new variable (Wave 1 eigenvalue = 3.12; explained variance = 78.03%; $\alpha = .91$; Wave 2 eigenvalue = 3.09; explained variance = 77.35%; $\alpha = .90$; Wave 3 eigenvalue = 3.10; explained variance = 77.61%; $\alpha = .90$).

Sexual performance orientation may be prone to changes over time, which may decrease the strength of the correlations between measurements of the same construct over time (DeVellis, 2003; Noar, 2003). Therefore, we checked the test-retest reliability of this scale. In line with prior literature that suggests that concepts similar to individuals’ sexual performance orientation are affected by sociocultural influences (e.g., communication among peers, media exposure; Harper et al., 2004), the test-retest correlations appeared to be moderately high, r from Wave 1 to Wave 2 = .50, $p < .001$; r from Wave 1 to Wave 3 = .51, $p < .001$; r from Wave 2 to Wave 3 = .49, $p < .001$ (see Table 1).

Also, we explored the construct validity (i.e., correlations with similar and theoretically related constructs; DeVellis, 2003; Noar, 2003) by calculating correlations between sexual performance orientation at Waves 1–3, and a range of theoretically related sexuality variables at Waves 1–3 (Štulhofer

et al., 2010; Sun et al., 2016), that is, interest in casual, nonemotionally intimate sexual relationships (i.e., impersonal sex orientation and instrumental attitudes towards sex), gender stereotypes (i.e., sexual objectification of women), and sexual uncertainty. All relationships were positive and significant at a $p < .001$ level. The values of the correlation coefficients ranged between .12 and .38.

Analytical strategy

Structural equation modelling in AMOS 23 was used to analyze the data. All models controlled for the baseline value of age, gender, and sexual orientation by modelling covariances with exogenous constructs (i.e., independent variables) and predictive paths to endogenous constructs (i.e., dependent and mediating variables). Prior values of a particular endogenous construct were regressed on values of the endogenous construct measured during the next wave. Independent variables that were measured at the same wave and error terms of dependent variables that were measured at the same wave were modelled to covary (note that no covariance was modelled between the error terms of the mediators enjoyment and perceived utility, see Figure 1). Last, error terms of identical items measuring the latent constructs were allowed to covary over time.

Fit was determined based on the comparative fit index (CFI for an acceptable fit $\geq .95$, for an excellent fit $\geq .97$), the root mean square error of approximation (RMSEA $\leq .08$ for an acceptable fit, $\leq .05$ for an excellent fit), the Normed Fit Index (NFI $\geq .90$ for an acceptable fit, $\geq .95$ for an excellent fit) and the χ^2/df (for an acceptable fit ≤ 5 , for an excellent fit ≤ 3) (Byrne, 2001; Marsh & Hocevar, 1985). A first model

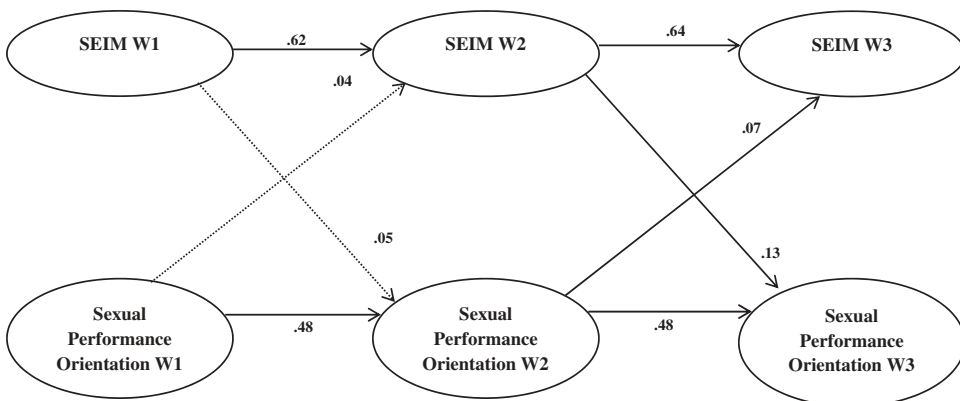


Figure 1. Model showing standardized coefficients for relationships between exposure to SEIM and sexual performance orientation ($N = 1,022$). Note: All full paths were significant at least at $p < .05$ based on results of normal test theory and bias-corrected bootstrapped CI 's (95%) while dashed lines are not significant. For clarity, error terms, covariances, and measurements are not shown.

tested the reciprocal relationships between exposure to SEIM and a sexual performance orientation as predicted in Hypotheses 1 and 2. A second model tested the set of relationships between exposure to SEIM, enjoyment of SEIM, perceived utility of SEIM, and a sexual performance orientation. This model thus tested Hypotheses 3–5. The second model modelled the relationships in such a wave order that it was possible to test the mediating roles of enjoyment of SEIM and perceived utility of SEIM, the reciprocal relationships between the exposure to SEIM and enjoyment of SEIM, and the reciprocal relationships between perceived utility of SEIM and a sexual performance orientation. We ensured that no different wave-order was possible to test the hypothesized relationships.

Because the normality assumption is often not met in sexuality research, bootstrapping (bias-corrected 95% bootstrapped confidence intervals [bc 95% bt CI]; 1000 samples) was used to provide additional significance tests. Moreover, bias-corrected bootstrapped confidence intervals tested whether the indirect effect of exposure to SEIM at Wave 1 on adolescents' sexual performance orientation at Wave 3, through enjoyment and perceived utility at Wave 2, differed significantly from zero.

Missing data (i.e., respondents who dropped out of the sample after Wave 1 and/or respondents who were unfamiliar with SEIM or felt uncertain about how to evaluate enjoyment and/or perceived utility of SEIM and had chosen the response option *I don't know* on (at least) one of the questions regarding enjoyment and/or perceived utility of SEIM) were handled by using listwise deletion, which is a rather conservative approach to handle missing data. Because of problems associated with imputation methods (Acock, 2007) and to increase the comparability of our findings with prior longitudinal research on SEIM (e.g., Peter & Valkenburg, 2009a, 2009b, 2010a, 2010b, 2011), this approach was preferred. To further explore potential differences between working with nonimputed and imputed data and get an indication of the robustness of our results, we also conducted post-hoc analyses of the hypothesized models after applying automatic imputation for missing data (Acock, 2007). Our post-hoc analyses are thus of methodological rather than substantive interest as we use the dataset without missing data to test our hypotheses. The dataset for the post-hoc analyses was a pooled dataset of the mean estimates of five automatically imputed missing datasets in SPSS ($N = 2,137$).

Last, additional analyses testing gender differences in hypothesized models and the time-order between the affective and cognitive response states are reported in footnotes 3–4.^{3,4}

Results

Table 1 presents the zero-order correlations.

Exposure to SEIM and adolescents' sexual performance orientation

Hypotheses 1 and 2 predicted a positive reciprocal relationship between exposure to SEIM and adolescents' sexual performance orientation. The fit of the model testing Hypotheses 1 and 2, as shown in Figure 1, was acceptable, $\chi^2(271) = 1589.69$, $p < .001$, CFI = .95, NFI = .94, RMSEA = .07 (90% CI: .066/.072), $\chi^2/df = 5.87$. The model explained respectively 29.9% and 29.7% of the variance in sexual performance orientation at Waves 2 and 3. In addition, 47.8% and 56.4% of the variance in exposure to SEIM at Waves 2 and 3 were explained.

Exposure to SEIM at Wave 1 did not predict adolescents' sexual performance orientation at Wave 2, $\beta = .05$, $B = 0.06$, $SE = 0.04$, $p = .10$ (bc 95% bt CI: -.004/.128). Exposure to SEIM at Wave 2 did predict adolescents' sexual performance orientation at Wave 3, $\beta = .13$, $B = 0.14$, $SE = 0.03$, $p < .001$ (bc 95% bt CI: .070/.210). In contrast to the predictions of Hypothesis 2, adolescents' sexual performance orientation at Wave 1 did not significantly predict exposure to SEIM at Wave 2, $\beta = .04$, $B = 0.03$, $SE = 0.02$, $p = .16$ (bc 95% bt CI: -.012/.083). Adolescents' sexual performance orientation at Wave 2 did significantly predict exposure to SEIM at Wave 3, $\beta = .07$, $B = 0.07$, $SE = 0.02$, $p < .005$ (bc 95% bt CI: .012/.117). Hypotheses 1 and 2 were thus supported for the time lag between Waves 2 and 3 as opposed to the time lag between Waves 1 and 2.

Testing the two-step mediation model

Hypothesis 3 predicted that exposure to SEIM would indirectly influence adolescents' sexual performance orientation through a two-step mediation model of enjoyment of SEIM and perceived utility of SEIM. Within this model, Hypothesis 4 further posited that enjoyment of SEIM and exposure to SEIM would be reciprocally related to each other. Hypothesis 5 predicted that the relationships between perceived utility of SEIM and sexual performance orientation would also be reciprocal.

The model, which is illustrated in Figure 2, demonstrated a good fit of the data, $\chi^2(710) = 2434.28$, $p < .001$, CFI = .96, NFI = .94, RMSEA = .05 (90% CI: .047/.051), $\chi^2/df = 3.43$. The model explained respectively 29.2% and 28.4% of the variance in sexual performance orientation at Waves 2 and 3. Additionally, 48.6% and 57.0% of the variance in exposure to SEIM at Waves 2 and 3 were explained, as well as 51.4% and 55.4% of the variance in

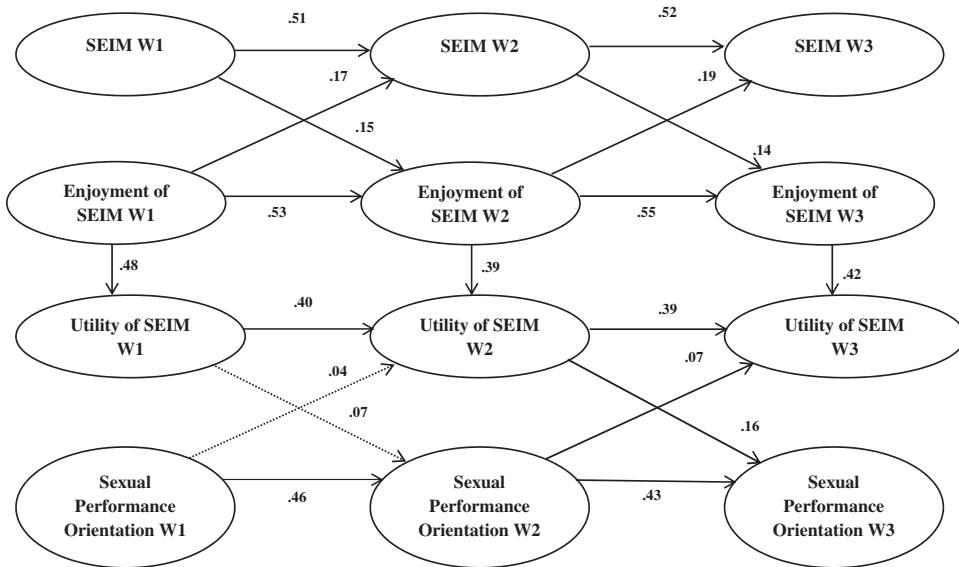


Figure 2. Model showing standardized coefficients for relationships between exposure to SEIM, enjoyment of SEIM, perceived utility of SEIM, and sexual performance orientation ($N = 1,022$). Note: All full paths were significant at least at $p < .05$ based on results of normal test theory and bias-corrected bootstrapped CI 's (95%) while dashed lines are not significant. For clarity, error terms, covariances, and measurements are not shown.

enjoyment of SEIM at Waves 2 and 3, and 25.3%, 42.7% and 43.9% of the variance in utility of SEIM at Waves 1, 2, and 3.

The data supported Hypothesis 3. Exposure to SEIM at Waves 1 and 2 was positively associated with adolescents' enjoyment of SEIM at Wave 2, $\beta = .15$, $B = 0.22$, $SE = 0.05$, $p < .001$ (bc 95% bt CI: .124/.332) and Wave 3, $\beta = .14$, $B = 0.19$, $SE = 0.05$, $p < .001$ (bc 95% bt CI: .075/.316), respectively. In addition, testing cross-sectional relationships between the mediators showed that enjoyment of SEIM at Waves 1, 2, and 3 was positively associated with perceived utility of SEIM at Wave 1, $\beta = .48$, $B = 0.36$, $SE = 0.03$, $p < .001$ (bc 95% bt CI: .304/.421), Wave 2, $\beta = .39$, $B = 0.29$, $SE = 0.02$, $p < .001$ (bc 95% bt CI: .236/.347) and Wave 3, $\beta = .42$, $B = 0.30$, $SE = 0.02$, $p < .001$ (bc 95% bt CI: .245/.355), respectively.

The results further demonstrated that perceived utility of SEIM at Wave 1 was significantly related to adolescents' sexual performance orientation at Wave 2, $\beta = .07$, $B = 0.08$, $SE = 0.03$, $p < .05$ according to normal test theory, but not according to bootstrapping (bc 95% bt CI: -.002/.149). Perceived utility of SEIM at Wave 2 was significantly related to adolescents' sexual performance orientation at Wave 3, $\beta = .16$, $B = 0.16$, $SE = 0.03$, $p < .001$ (bc 95% bt CI: .086/.244). In line with Hypothesis 3, the results also showed that the overall indirect relationship between exposure to SEIM at Wave 1 and a sexual performance orientation at Wave 3, through enjoyment and perceived

utility at Wave 2, was significant, $B = .010$, $SE = 0.004$ (bc 95% bt CI: .005/.020).

Hypothesis 4, testing a reverse relationship between SEIM use and enjoyment, was supported. Enjoyment of SEIM at Waves 1 and 2 was positively associated with exposure to SEIM at Wave 2, $\beta = .17$, $B = 0.12$, $SE = 0.03$, $p < .001$ (bc 95% bt CI: .065/.182) and at Wave 3, $\beta = .19$, $B = 0.14$, $SE = 0.03$, $p < .001$ (bc 95% bt CI: .077/.201).

Hypothesis 5, testing a reverse relationship between sexual performance orientation and perceived utility, was only partly supported. Sexual performance orientation at Wave 1 was not associated with perceived utility of SEIM at Wave 2, $\beta = .04$, $B = 0.04$, $SE = 0.03$, $p = .190$ (bc 95% bt CI: -.019/.101), while at Wave 2, it was positively associated with perceived utility of SEIM at Wave 3, $\beta = .07$, $B = 0.06$, $SE = 0.3$, $p < .05$ (bc 95% bt CI: .004/.122).

Post-hoc analyses with pooled dataset

As the exclusion of adolescents that were not familiar with SEIM created a systematic drop-out (as was shown by the MANOVA analysis previously reported), post-hoc analyses explored whether this drop-out could reduce the internal validity of the main findings. To test how robust the results reported are when no attrition would be present in this study ($N = 2,137$), post-hoc analyses were conducted using a pooled dataset. Based on the pooled dataset of the mean estimates of the automatically imputed missing data in five datasets ($N = 2,137$; SPSS), we found that the significant relationships reported in [Figures 1](#) and [2](#) were also significant in the models with imputed data for missing values, [Figure 1](#): $\chi^2(271) = 2923.71$, $p < .001$, CFI = .96, NFI = .95, RMSEA = .07 (90% CI: .065/.070), $\chi^2/df = 10.79$; [Figure 2](#): $\chi^2(710) = 4630.36$, $p < .001$, CFI = .96, NFI = .95, RMSEA = .05 (90% CI: .049/.052), $\chi^2/df = 6.52$.

These additional models differed from the reported models as several *non-significant* hypothesized relationships now became significant. For the model shown in [Figure 1](#), exposure to SEIM at Wave 1 did predict adolescents' sexual performance orientation at Wave 2, $\beta = .07$, $B = 0.09$, $SE = 0.03$, $p < .005$ (bc 95% bt CI: .034/.137). Adolescents' sexual performance orientation at Wave 1 also significantly predicted exposure to SEIM at Wave 2, $\beta = .06$, $B = 0.04$, $SE = 0.01$, $p < .005$ (bc 95% bt CI: .015/.073). For the model shown in [Figure 2](#), sexual performance orientation at Wave 2 was significantly predicted by perceived utility of SEIM at Wave 1, $\beta = .10$, $B = 0.10$, $SE = 0.02$, $p < .001$ (bc 95% bt CI: .053/.146).

Discussion

Prior literature has documented how exposure to SEIM is related to adolescents' sexual attitudes and behavior (for reviews, see Peter & Valkenburg, 2016; Wright & Donnerstein, 2014). Extending this literature, our longitudinal study suggests that SEIM also may play a role in another area of adolescent sexuality: adolescents' orientation toward performances in sexual activities. We found that, over time, adolescents who frequently watched SEIM focused more strongly on their sexual performance. This relationship was further explained by enjoyment and perceived utility of SEIM. However, these findings were not consistent across waves. Relationships particularly emerged from Wave 2 to Wave 3, but not from Wave 1 to Wave 2.

Exposure to SEIM and sexual performance orientation

The finding that exposure to SEIM at Wave 2 predicted a sexual performance orientation at Wave 3 merges with qualitative research that showed that adolescents may learn how to engage in sex from SEIM (Arrington-Sanders et al., 2015; Löfgren-Mårtenson & Månsson, 2010; Rothman et al., 2015), as well as quantitative research suggesting links between SEIM use and young adults' views toward sexual performance (e.g., Sun et al., 2016). This finding adds to the existing literature that, over time, adolescents can learn from SEIM to focus on performances in sexual interactions, albeit to a limited extent. The positive relationship between SEIM and a sexual performance orientation is in line with the 3AM model (Wright, 2011), which proposes that sexual messages inform media users on expected behaviors and reactions in sexual situations. In fact, various studies have documented that performing well sexually is of particular importance in SEIM (e.g., Gorman et al., 2010), which seems reflected in adolescents' perception of performance as an important part of sex. Our findings thus suggest that the role of SEIM for adolescents may be somewhat broader than what has been documented in prior research (e.g., Peter & Valkenburg, 2016).

Several scholars (e.g., Peter & Valkenburg, 2016; Wright, 2011) have called for more research on the processes that underlie the changes predicted by exposure to (sexual) media. In response to this call, this study applied the DSMM and investigated the explanatory value of response states (Valkenburg & Peter, 2013a). In particular, this study further investigated the DSMM's assumption that response states are related. We integrated an emotional response state (i.e., enjoyment) and a cognitive response state (i.e., perceived utility) in a two-step mediation model based on literature on information processing and message design (Green, 2006; Slater & Rouner, 2002). Our findings suggest that integrating multiple response states in

explanatory models for the effects of watching SEIM has some potential to better understand how and why SEIM users hold particular sexual beliefs.

In our two-step model, the frequency of watching SEIM predicted the extent to which adolescents enjoyed consuming SEIM. In addition, the more adolescents enjoyed watching SEIM, the more they perceived SEIM as applicable to the real world. Perceived utility eventually predicted a small, but positive change in performance orientation toward sex, albeit not consistently across waves. The study thus showed that adolescents' sexual performance script may develop through the emotional value of SEIM and its utility to adolescents' own life. This two-step mediation model may be a promising direction for future research to explain previously documented outcomes of SEIM use, such a permissive attitude toward sex (e.g., Peter & Valkenburg, 2006, 2010b), initiation of sexual intercourse (e.g., Vandenberg & Eggermont, 2013), and casual sex (Vandenberg & Peter, 2016). If these two response states partly also explain relationships between SEIM use and other sexual outcomes, media literacy interventions may also focus more on these response states. Prior research has already suggested that a media literacy intervention is less likely to change adolescents' perceived enjoyment of consuming sexual media, but that it may counter the link between enjoyment and perceptions of the plausibility of sexual media content (Austin, Pinkleton, Chen, & Austin, 2015). It may thus be especially useful to focus on this two-step process of enjoyment and perceived utility in media literacy interventions.

Although the relationships between SEIM exposure, as well as perceived utility of SEIM and a sexual performance orientation, were all in the same direction, they were inconsistent over time and rather small. With regard to the instability of the relationships over time, a maturation effect may explain why we only found these relationships from Wave 2 to Wave 3 and not from Wave 1 to Wave 2 (Peter & Valkenburg, 2009b). Our sample had become slightly older in the course of the study. Many factors may change when adolescents grow older and render the adoption or activation of a sexual performance script challenging and inconsistent over time. For instance, adolescents may perceive SEIM as more useful to their own life when they gain more sexual experience or become more interested in becoming sexually active. Adolescents often have little experience with sex (e.g., Tolman & McClelland, 2011) and thus limited indications of their own sexual capacities. They may also consider their own sexual capacities as less relevant given their lack of sexual experiences. As a result, adolescents may initially be less occupied with how to perform sex themselves, but rather be curious about how individuals in SEIM have sex. However, when their own interest in, and opportunity of, engaging in sexual behavior grow, they may become more likely to adopt a sexual performance script from SEIM. This reasoning is supported by an additional test showing a positive linear trend in the scores

of performance orientation and SEIM use over the three waves.⁵ The adoption of a sexual performance orientation from SEIM may thus take some time among adolescents.

The small effect sizes in our study are not genuine to the particular topic studied, but have also been found when examining how other socialization sources (such as parents) contribute to components of adolescents' maturation (e.g., eating behavior; Valkenburg & Peter, 2013b). More specifically, the effect size of the relationship between the use of SEIM at Wave 2 and sexual performance orientation at Wave 3 was similar to the effect sizes that are usually reported in studies examining associations between the use of SEIM and adolescent sexuality (e.g., Peter & Valkenburg, 2011). Nonetheless, the rather small effect size, together with the inconsistent findings over time suggest that it may be useful to study special populations of adolescents to test whether stronger effect sizes and temporally more consistent associations may occur under such populations. Moreover, particular groups of adolescents may also be rather resilient toward developing a relationship between SEIM use and a sexual performance orientation and this may explain why we could not find support for a stronger relationship. The ₃AM (Wright, 2011) as well as the DSMM (Valkenburg & Peter, 2013a), indeed, suggest that some users are more susceptible to the effects of sexual media content than others. Future research may especially focus on developmental factors, such as pubertal status and interest in sex. Moreover, the role of personality factors that play a role in how individuals' respond to behavioral models showing superior behavior (e.g., perfectionism and self-esteem) may be relevant to consider (Luthar & Becker, 2002).

Reciprocal relationships

Against the backdrop of media theory on active media users (e.g., Katz et al., 1974; Slater, 2007) and cognitive dissonance theory (Festinger, 1957), we studied potentially reciprocal relationships between SEIM use, response states, and sexual performance orientation. However, the occurrence of some reciprocal relationships varied over time and was thus not consistently supported.

SEIM use and enjoyment of SEIM were reciprocally related over time. These results align with the principles of the DSMM (Valkenburg & Peter, 2013a), the reinforcing spirals model (Slater, 2007) and uses and gratifications theory (Katz et al., 1974) as well as with findings of prior qualitative and quantitative empirical investigations (Hawk, Vanwesenbeeck, De Graaf, & Bakker, 2006; Peter & Valkenburg, 2009a; Rothman et al., 2015). Adolescent viewers who enjoyed consuming SEIM were more motivated to watch SEIM over time. Similar to another longitudinal three-wave panel study on SEIM (Peter & Valkenburg, 2009a), this relationship appeared to be consistent over

time. This study thus supports the role of liking and enjoyment of SEIM in adolescents' selection of SEIM over time. As the reciprocal relationship between enjoyment of SEIM and exposure to SEIM seems robust, enjoyment seems a consistent motivator for adolescents' selection of this type of sexual media content.

The effect sizes of the media selection relationship, that is, between enjoyment of SEIM and exposure to SEIM, were overall small, but somewhat larger than the ones of the media effect relationship, that is, between exposure to SEIM and enjoyment of SEIM. This pattern merges with a prior study investigating the reciprocal relationship between watching SEIM and liking SEIM (Peter & Valkenburg, 2009a). Potentially, the media response state of enjoyment thus plays a more significant role in media selection processes than in media effect processes.

A reciprocal relationship between exposure to SEIM and a sexual performance orientation only occurred between Waves 2 and 3. The same was true for the reciprocal relationship between sexual performance orientation and perceived utility of SEIM. No relationships thus emerged between Waves 1 and 2. The finding that adolescent sexuality only relates to the selection of SEIM between Waves 2 and 3 has also been described in another three-wave panel study with a 6-month interval (Peter & Valkenburg, 2009b) and may point to maturation processes among adolescents. Consequently, more longitudinal research on developmental processes is needed to test this explanation. This research may also suggest that just as media effects depend on many factors, media selection effects also depend on a rich spectrum of factors (Hawk et al., 2006; Rothman et al., 2015; Valkenburg & Peter, 2013a; Wright, 2011). In particular, demographic factors, family characteristics, opportunity factors, and psychosocial traits have been shown to be of relevance (Wright & Donnerstein, 2014). For psychosocial traits, a recent study on SEIM use (Wright, Tokunaga, & Bae, 2014), for example, suggested that excitatory needs may drive the consumption of SEIM and thus deserve more attention in future media selection literature on SEIM.

Our findings need to be interpreted in light of at least five limitations. First, we had to rely on three-wave panel data to test our two-step mediation model. A four-wave panel design is more appropriate to test the explanatory value of a two-step mediation model. Second, although no significant differences between adolescents participating only at baseline and adolescents participating at all waves were found, we cannot preclude that the results would change if attrition had been lower. This conclusion is also supported by the post-hoc analyses based on imputed missing values. Our main analyses were based on the dataset in which dropouts or respondents with missing values were excluded. Among the respondents with missing values were also the respondents who felt uncertain about the evaluation of enjoyment and/or perceived utility of SEIM. As a consequence, our main analyses

rely on a dataset in which users with rather low to no use of SEIM, as well as with uncertain evaluations of perceived utility and enjoyment of SEIM, were underrepresented. This was also suggested by the MANOVA analysis comparing our analytical sample and the respondents who were excluded. The post-hoc analyses, which were based on imputed missing values, showed slightly different results than the results of our main analyses. This is likely due to statistical power and variance issues along with a bias through systematic non-response. At the same time, the post-hoc analyses did support the robustness of the significant findings in our main analyses.

Third, the validity and the reliability of our sexual performance measure should be further examined in future research. Fourth, the χ^2/df value was not optimal for the model reported in [Figure 1](#) and this may limit our conclusions. However, we worked with a large sample, which may have affected this particular fit measure (Byrne, 2001). Lastly, the findings of our study, which was done in the Netherlands, may not be generalizable to adolescents with a different cultural background because of potential differences in sexual socialization processes across cultures.

Despite these limitations, this study was one of the first to show that more frequent exposure to SEIM is related to changes in adolescents' perceptions of how to engage in the act of having sex itself, and thus extends previous research that investigated the influence of SEIM on more general attitudes about relationships or contextual factors of sex. As such, this study can inspire future research on whether and how SEIM influences specific sexual scripts, and how this, in turn, influences adolescents' sexual behavior and sexual satisfaction.

Notes

1. We thank Aleksandar Štulhofer and Ivan Landripet for providing us additional information about the ranking of the importance of the items for pornographic portrayals of sexual interactions in their pilot study.
2. The data of this three-wave panel study have also been used in other papers of the authors to study the antecedents of SEIM use and relationships of SEIM use with other sexual outcomes. These papers can be acquired by sending an e-mail to the first author.
3. Given the importance of gender both in sexuality and media effects research (Peter & Valkenburg, 2016; Tolman & McClelland, 2011), we investigated possible gender differences. For the first model, the model constrain test suggested similar results for boys and girls, $CMIN(4) = 4.43$, $p = .35$. For the second model, we also found the results were similar for boys and girls, $CMIN(11) = 17.41$, $p = .10$.
4. The model reported in [Figure 2](#) does not test a time order between enjoyment of SEIM and perceived utility of SEIM. Therefore, an additional SEM model was tested in which enjoyment of SEIM consistently predicted the perceived utility of SEIM over time. This model included the same covariances and control variables as described in our analytical strategy of the main analyses. The model had a good fit, $\chi^2(93) = 258.44$, $p < .001$,

CFI = .99, NFI = .98, RMSEA = .04 (90% CI: .036/.048), $\chi^2/df = 2.78$, and showed that enjoyment of SEIM at Waves 1 and 2 predicted respectively perceived utility of SEIM at Waves 2 and 3, all p -values < .005.

5. A within-subjects effect test compared the scores of performance orientation and SEIM use over the three waves and found significant differences, respectively $F(2, 1020) = 6.3, p < .005$ and $F(2, 1020) = 19.19, p < .001$. More precisely, a contrast test showed a positive, linear trend in the data of sexual performance orientation and SEIM scores, respectively $F(1, 1021) = 12.62, p < .001$ and $F(1, 1021) = 32.74, p < .001$.

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