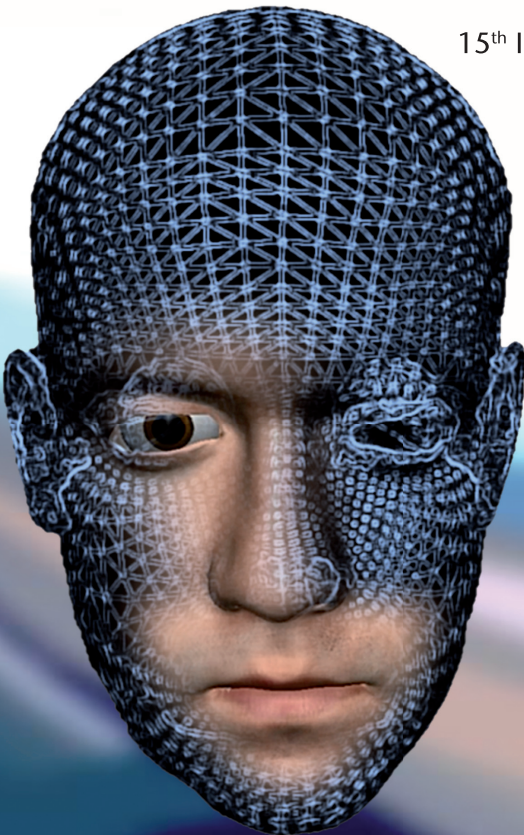


Anna Felnhofer
Oswald D. Kothgassner
(Eds.)

Challenging Presence

Proceedings of the International Society
for Presence Research

15th International Conference on Presence



facultas.wuv



Anna Felnhöfer, Research Associate at the Department of Applied Psychology and Director of the Virtual Reality Lab at the University of Vienna, Austria; Guest Researcher at the TU Eindhoven, NL.

Oswald D. Kothgassner, Research Associate at the Department of Applied Psychology and Director of the Virtual Reality Lab at the University of Vienna, Austria; Guest Researcher at the TU Eindhoven, NL.

Bibliografische Information Der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

Alle Angaben in diesem Fachbuch erfolgen trotz sorgfältiger Bearbeitung ohne Gewähr, eine Haftung der HerausgeberInnen, AutorInnen oder des Verlages ist ausgeschlossen.

Copyright © 2014 Facultas Verlags- und Buchhandels AG
facultas.wuv Universitätsverlag, Stolberggasse 26, 1050 Wien, Österreich
Alle Rechte, insbesondere das Recht der Vervielfältigung und der Verbreitung sowie der Übersetzung, sind vorbehalten.

Umschlagfoto: © Virtual Reality Lab of the University of Vienna

Satz: Anna Felnhöfer, Oswald D. Kothgassner

Einbandgestaltung: Anna Felnhöfer, Oswald D. Kothgassner;

Facultas Verlags- und Buchhandels AG

Druck: Finidr, Tschechien

Printed in Czech Republic

ISBN 978-3-7089-1081-9

Sexual presence as a dimorphic phenomenon

Patrice Renaud¹, Lilybeth Fontanesi² & Massil Benbouriche³

Abstract. In this paper we explore a particular variety of presence, namely sexual presence, using evolutionary psychology as a theoretical framework. We translate dimorphic differences between women and men in sexual imagery and in sexual behaviour into a tentative sexual presence model, introducing proto, core and extended sexual presence as conceptual layers explaining presence. Our aim is to give an evolutionary interpretation of sexual presence, in light of recent findings.

Keywords. Presence; Virtual reality; Sexual fantasies; Sexual presence; Evolutionary psychology

Introduction

Presence is closely related to our goals and to all the actions and operations we make to achieve them. For Riva and colleagues (2011), presence, as a “second order” technologically mediated experience, is a single feeling that can be divided into three different sub-processes, which are defined as steps of a complex and mostly unconscious form of supervision of actions and experience. Proto presence is an unconscious process involving body movements and motor intentions of which we are not aware (Riva, 2009; Riva et al., 2011). Core presence is a conscious process that first primes the intended action, then sustains and guides it, and finally monitors its effects in the present. Extended presence is related to the consciousness of future intentions; it involves emotional and cognitive aspects and feelings about the self's future expectations (Riva et al., 2011). The determinants of presence are most likely mediated by emotional states and biological predispositions such as those of sexual nature (Bouchard, St-Jacques, Robillard, & Renaud, 2008; Renaud, Bouchard, & Proulx, 2002; Renaud et al., 2002, 2011).

In this paper we will outline a tentative new point of view about a special kind of presence, i.e. sexual presence. The concept of sexual presence was first introduced by Lombard and Jones (2004, 2013) to describe the particular psychological, cognitive and physical feelings generated by pornography, i.e. by watching others having sex through special mediated environments. This view of sexual presence can be extended to the experience of sexuality through immersive means, either as spectator or actor (Lombard & Jones, 2013; Ogas & Gaddam, 2011; Renaud, Trottier, et al., 2013; Trottier, Renaud, et al., 2012). Sexual presence, as a “second order” technologically mediated experience, is defined as a psychophysiological state of sexual arousal, including a subjective erotic perception, whose content and extent are determined by the interplay between individual psychobiological predispositions, idiosyncratic past experiences, and what is sexually afforded by a mediating technology.

Corresponding author

Patrice Renaud
1) Professeur titulaire
Département de psychoéducation et
de psychologie
Université du Québec en Outaouais
Codirecteur du Laboratoire de
cyberpsychologie
283 boul. Alexandre-Taché, C.P. 1250.
succursale Hull,
Gatineau, Québec, Canada, J8X 3X7
2) Chercheur titulaire
Institut Philippe-Pinel de Montréal
Directeur du laboratoire Applications
de la Réalité Virtuelle en
Psychiatrie Légale (ARViPL)
10 905 Henri-Bourassa Est,
Montréal, Québec, Canada, H1C 1H1
patrice.renaud@uqo.ca

Affiliation:

¹ Psychology and Psychoeducation
Department, Université du Québec en
Outaouais

² Department of Psychology,
University of Rome

³ School of Criminology, Université de
Montréal

Gender differences in sexual presence

According to Janssen (2011), sexual arousal is an emotional and motivational condition with several components, from genital response to sexual desire, that are thought to lead individuals to engage in sexual behaviour. Even though this construct is still under investigation by the psychological and medical research community, over the years a large number of studies agreed that the female sexual arousal model should be different from the male one (Barlow 1986; Janssen, 2011; Sachs, 2007; Singer 1984). Sexual presence as a feeling of being emotionally, physically and psychologically aroused by simulated sexual stimuli is closely related to sexual arousal and sexual behaviour, and we can therefore hypothesize that the three steps of Riva's model are different for men and women.

In 1984, Singer presented a three-stage sexual behavioural paradigm of the process of sexual arousal, which can be used to describe sexual presence in men and women. The first stage, aesthetic response, is an affective reaction to an attractive figure, which produces an increase in interest toward the object of attraction. This process involves eye and head movements toward the object, and it involves both cognitive and volitional aspects. The main adaptive goal, is to get closer to the person of interest and potentially have sexual intercourse with him or her. Therefore, the first stage can be described as proto presence. Approach response, the second stage, is a direct consequence of the first and involves bodily movement toward the goal and an increase in attention. This stage can be referred to as core presence. The last stage is genital response, a physical reaction to the closer proximity to the object. This response is driven by feedback from the object of interest, which leads to sexual arousal at the genital level. It is also mostly unconscious and uncontrollable, like proto presence, which is seen as an unconscious aesthetic and genital response.

Extended presence, which has the highest level of consciousness, is closely related to the final motive for engaging in sexual intercourse. From an evolutionary point of view, males are designed to spread their genes with very low investment in their offspring (Buss, 2003; Buss & Schmitt, 1993), which means that they can have a potentially unlimited number of children (Hatfield, Luckhurst, & Rapson, 2010). Even though the evolutionary purpose of sex is to have children, the conscious motives for having sexual intercourse are multiple and mostly related to utilitarian reasons (such as pleasure, status recognition, power; Browning, Hatfield, Kessler, & Levine, 2000). We can therefore state that, in males, extended presence can be related to strengthening one's self-esteem by projecting an image of a powerful, strong and healthy male in order to appear more attractive to women.

According to the "Sexual Behaviour Sequence" (Fisher, 1986), sexual behaviour is the result of evolved response tendencies, cultural patterns and social structure: external conditioned and unconditioned erotic stimuli prompt imaginative, affective and physical responses and, if the internal system of evaluations/expectations is satisfied, the outcome is sexual behaviour (Fisher, 1986). Janssen and Bancroft (2006), in their "Dual Control Model," assume that female sexual arousal, more than male's, depends on contextual, emotional, psychological and physical factors that inhibit or promote arousal, and that these factors are different for every woman. Consequently, following Riva's theory, we can hypothesize that aesthetic response, which corresponds to the orienting phase of sexual arousal (the moment when the subject notices the object and starts to "feel" something), is related to proto presence. Core presence is related to the approach response and, in this case, also to genital response. In this case, sexual arousal (psychological and physical) is due to the relationship with the object, and is not only a consequence of visual stimuli, it can happen in males. The third part of Riva's theory, extended presence, the conscious feeling beyond the sexual behaviour, is not easy to identify in Singer's theory. According to the literature, women's conscious motives for engaging in sexual relationships are more likely to be emotional, like commitment, love or to strengthen a relationship (Sprecher & Regan, 1996). For example, in women extended presence can be seen as

a maternity desire—their main goal is to find an appropriate man to satisfy all of their expectations in a short- or long-term relationship (Buss, 2003). Showing physical attractiveness, dating, and getting emotionally close to another individual can be seen as core presence and sexual intercourse as proto presence. Accordingly, to elicit or generate sexual presence in women seems to be more complicated than in men, because sexual arousal does not always overlap with the genital response (Basson, 2000).

The Darwinian underpinnings of sexual presence

Here these differences are described from an evolutionary standpoint, and one of the main concerns of evolutionary psychology is the evolution of mating systems, which is closely related to sexual presence. Even though for both sexes the final goal of sexual behaviour is reproduction, it comes with different features: as it has been shown in almost all the species, and according to Darwin's sexual selection theory, there is a sex that chooses (female) and a sex that is chosen (male) (Darwin, 1859/1911; Trivers, 1985; Wilson, 1997).

Particular attention should be given to the individual's sexual fantasies, which are the mirror of individual sexual desires. Sexual fantasies drive sexual behaviour, they have evolved over time and are the most common form of sexual experience as well as a clear example of the differences in the development of male and female sexuality in our species. They can be incited by something that we have seen, read or heard, and they can be generated internally or externally or both (Ellis & Simpson, 1990; Hicks & Leitenberg, 2001; Jones & Barlow, 1990; Wilson, 1978, 1987, 1997). According to Wilson (1987, 1997), these erotic thoughts can be sexually explicit (in men) or rich in emotions (in women). We can state that the term sexual fantasy refers to almost any mental image that is sexually arousing for an individual and of which he or she has control (Leitenberg & Henning, 1995).

Men have more sexual thoughts than women, and they are more easily and more often aroused by them (Jonas & Barlow, 1990; Knoth, Boyd, & Singer, 1988). However, the main difference lies in the content of sexual fantasies. According to the literature, men's fantasies involve multiple and unknown partners, while women's fantasies usually involve well-known partners, like men that they have met, and it's uncommon for women to fantasize about group sex (Arndt, Foel, & Good, 1985; Ellis & Symons, 1990; Hicks & Leitenberg, 2001; Jones & Barlow, 1990; Kelley, 1985; Pelletier & Herold, 1998). Furthermore, women's fantasies involve descriptions of the context and feelings related to the sexual intercourse (Knoth et al., 1998; Wilson & Lang, 1981), while men's fantasies involve a large amount of visual content, sexual details and genital images (Follingstad & Kimbrell, 1986; Janssen, Carpenter, & Graham, 2003). Women, more than men, imagine themselves in a passive role during sexual intercourse, while men see themselves in an active and dominating role (Iwawaki & Wilson, 1983; Knafo & Jaffe, 1984; Mednick, 1977). Sexual fantasies about being forced to have sex are common in both sexes, but they seem more frequent in women than in men (Arndt et al., 1985; Critelli & Bivona, 2008; Hawley & Hensley, 2009; Knafo & Jaffe, 1984; Mednick, 1977; Pelletier & Herold, 1988; Sue, 1979). Fantasies about forcing someone to have sex are also common in both sexes, but more in men (Arndt et al., 1985; Crepault & Couture, 1980; Hald & Malamuth, 2008; Sue, 1979).

Over the years, evolutionary psychology studies have given several explanations for the differences in sexual fantasies. Our male ancestors had a higher reproductive potential than women, and not having any obligation in terms of parental investment, they could increase their reproductive success by mating with many females. So sexual selection has favored males with a low threshold of sexual arousal and who are attracted to each new fertile female encountered. In fact, men have a rapid sexual arousal response to visual stimuli; they need just a look to understand if a woman has good genes (beauty and youth) and is fertile (Symons, 1979).

Furthermore, a large number of partners means more chances to reproduce (Ellis & Symons, 1990; Hicks & Leitenberg, 2001; Pound 2002;). As for rape and forced sexual fantasies, several authors suggest that they are more common in men because of sperm competition (Goetz & Shackelford, 2006; Shackelford & Goetz, 2007; Thornhill & Gangestad, 1996). Still according to evolutionary theories, women would determine the value of a potential partner on the basis of physical and psychological features (which indicate the presence of good genes), signs of being able to achieve economic and political success, or a sincere interest in investing in a relationship. A slow sexual arousal protects women from engaging in random sex with everyone (Symons, 1979).

All of these differences also persist in the use of pornography. Men consume significantly more pornography than women, and they are more attracted to hard-core pornography, i.e. pornography with a poor or no affective relationship context and emotional attachment and in general, men are more psychologically aroused by pornography (Hald, 2006). Even though cyberspace mating seems to be devoid of most of the “real life” cultural and social pressures (Cooper, Scherer, Boies, & Gordon, 1999), according to Dawson and McIntosh (2006), when individuals seek mates online, men put emphasis on their own wealth and attractiveness, while women stress their physical attributes, despite other positive psychological characteristics.

Conclusion

According to this interpretation of current data, men and women’s sexual attitudes and behaviour are very different, and all of these differences have to be taken into account when we want to induce and maximize the effects of sexual presence in an experimental situation, such as in a virtual reality context. Sexual presence should be measurably dimorphic (Symons, 1979) and particularly resilient to change. These particular features make sexual presence not only an interesting psychological, physiological and cognitive phenomenon, but also a valuable instrument in the study of sexual behaviour through new advanced technologies, such as virtual reality (Renaud et al., 2002; Renaud, Goyette et. al., 2011; Trottier, Renaud et al., 2012; Riva, 2005).

References

- Arndt, W. B., Foehl, J. C., & Good, F. E. (1985). Special sexual fantasy themes: A multidimensional study. *Journal of Personality and Social Psychology*, 48(2), 472-480.
- Barlow, D. H. (1986). Causes of sexual dysfunction: The role of anxiety and cognitive interference. *Journal of Consulting and Clinical Psychology*, 54(2), 140-148.
- Basson, R. (2000). The female sexual response: A different model. *Journal of Sex & Marital Therapy*, 26(1), 51-65.
- Bouchard, S., St-Jacques, J., Robillard, G., & Renaud, P. (2008). Anxiety increases the sense of presence in virtual reality. *Presence: Teleoperators and Virtual Environments*, 17(4), 376-391.
- Browning, J. R., Hatfield, E., Kessler, D., & Levine, T. (2000). Sexual motives and interactions with gender. *Archives of Sexual Behavior*, 29(2), 139-152.
- Buss, D. M. (2003). *The evolution of desire : strategies of human mating* (Rev. ed.). New York, NY: BasicBooks.
- Buss, D. M., & Schmitt, D. P. (2001). Sexual strategies theory: An evolutionary perspective on human mating. *Social Psychology and Human Sexuality: Essential Readings*, 57-94.
- Cooper, A., Scherer, C. R., Boies, S. C., & Gordon, B. L. (1999). Sexuality on the Internet: From sexual exploration to pathological expression. *Professional Psychology-Research and Practice*, 30(2), 154-164.
- Crepault, C., & Couture, M. (1980). Mens erotic fantasies. *Archives of Sexual Behavior*, 9(6), 565-581.
- Critelli, J. W., & Bivona, J. M. (2008). Women's erotic rape fantasies: An evaluation of theory and research. *Journal of Sex Research*, 45(1), 57-70.
- Darwin, C. (1859/1911). *On the origin of species by means of natural selection*. London: Murray.
- Dawson, B. L., & McIntosh, W. D. (2006). Sexual strategies theory and Internet personal advertisements. *Cyberpsychology & Behavior*, 9(5), 614-617.
- Ellis, B. J., & Symons, D. (1990). Sex-differences in sexual fantasy: An evolutionary psychological approach. *Journal of Sex Research*, 27(4), 527-555.
- Fisher, W. A. (1986). A psychological approach to human sexuality: The sexual behavior sequence. In D. Bryme & K. Kelley (Eds.), *Alternative Approaches to the Study of Sexual Behavior* (pp. 131-171). Hillsdale, NJ: Erlbaum.
- Follingstad, D. R., & Kimbrell, C. D. (1986). Sex fantasies revisited: An expansion and further clarification of variables affecting sex fantasy production. *Archives of Sexual Behavior*, 15(6), 475-486.

- Goetz, A. T., & Shackelford, T. K. (2006). Sexual coercion and forced in-pair copulation as sperm competition tactics in humans. *Human Nature-an Interdisciplinary Biosocial Perspective*, 17(3), 265-282.
- Hald, G. M. (2006). Gender differences in pornography consumption among young heterosexual Danish adults. *Archives of Sexual Behavior*, 35(5), 577-585.
- Hald, G. M., & Malamuth, N. M. (2008). Self-perceived effects of pornography consumption. *Archives of Sexual Behavior*, 37(4), 614-625.
- Hatfield, E., Luckhurst, C. L., & Rapson, R. L. (2010). Sexual motives: Cultural, evolutionary, and social psychological perspectives. *Sexuality and Culture*, 14(3), 173-190.
- Hawley, P. H., & Hensley, W. A. (2009). Social Dominance and Forceful Submission Fantasies: Feminine Pathology or Power? *Journal of Sex Research*, 46(6), 568-585.
- Hicks, T. V., & Leitenberg, H. (2001). Sexual fantasies about one's partner versus someone else: Gender differences in incidence and frequency. *Journal of Sex Research*, 38(1), 43-50.
- Iwawaki, S., & Wilson, G. D. (1983). Sex fantasies in Japan. *Personality and Individual Differences*, 4(5), 543-545.
- Janssen, E. (2011). Sexual arousal in men: A review and conceptual analysis. *Hormones and Behavior*, 59(5), 708-716.
- Janssen, E., & Bancroft, J. (2006). The dual control model: the role of sexual inhibition & excitation in sexual arousal and behavior. In E. Janssen (Ed.), *The Psychophysiology of Sex* (pp. 197-222). Bloomington, IN: Indiana University press.
- Janssen, E., Carpenter, D., & Graham, C. A. (2003). Selecting films for sex research: Gender differences in erotic film preference. *Archives of Sexual Behavior*, 32(3), 243-251.
- Jones, J. C., & Barlow, D. H. (1990). Self-reported frequency of sexual urges, fantasies, and masturbatory fantasies in heterosexual males and females. *Archives of Sexual Behavior*, 19(3), 269-279.
- Kelley, K. (1985). Sexual attitudes as determinants of the motivational properties of exposure to erotica. *Personality and Individual Differences*, 6(3), 391-393.
- Knafo, D., & Jaffe, Y. (1984). Sexual fantasizing in males and females. *Journal of Research in Personality*, 18(4), 451-462.
- Knott, R., Boyd, K., & Singer, B. (1998). Empirical tests of sexual selection theory: Predictions of sex differences in onset, intensity, and time course of sexual arousal. *Journal of sex research*, 24(1), 73-89.
- Leitenberg, H., & Henning, K. (1995). Sexual fantasy. *Psychological Bulletin*, 117(3), 469-496.
- Lombard, M., & Jones, M. (2004). Presence and sexuality. Paper presented at the Proceedings of 7th international workshop on presence, Valencia, Spain.
- Lombard, M., & Jones, M. (2013). Telepresence and Sexuality: A Review and a Call to Scholars. *Human Technology*, 9(1), 22-55.
- Mednick, R. A. (1977). Gender-specific variances in sexual fantasy. *Journal of Personality Assessment*, 41(3), 248-254.
- Ogas, O., & Gaddam, S. (2011). *A billion wicked thoughts: What the world's largest experiment reveals about human desire*. New York, NY: Dutton.
- Pelletier, L. A., & Herold, E. S. (1998). The relationship of age, sex guilt, and sexual experience with female sexual fantasies. *Journal of sex research*, 24(1), 250-256.
- Pound, N. (2002). Male interest in visual cues of sperm competition risk. *Evolution and Human Behavior*, 23(6), 443-466.
- Renaud, P., Bouchard, S., & Proulx, R. (2002). Behavioral avoidance dynamics in the presence of a virtual spider. *Ieee Transactions on Information Technology in Biomedicine*, 6(3), 235-243.
- Renaud, P., Chartier, S., Rouleau, J.-L., Proulx, J., Goyette, M., Trottier, D., . . . Bouchard, S. (2011). Using immersive virtual reality and ecological psychology to probe into child molesters' phenomenology. *Journal of Sexual Aggression*, 19(1), 102-120.
- Renaud, P., Goyette, M., Chartier, S., Zhornitski, S., Trottier, D., Rouleau, J.-L., . . . Bouchard, S. (2010). Sexual Affordances, Perceptual-motor Invariance Extraction and Intentional Nonlinear Dynamics: Sexually Deviant and Non-deviant Patterns in Male Subjects. *Nonlinear Dynamics Psychology and Life Sciences*, 14(4), 463-489.
- Renaud, P., Rouleau, J. L., Granger, L., Barsetti, I., & Bouchard, S. (2002). Measuring sexual preferences in virtual reality: A pilot study. *Cyberpsychology & Behavior*, 5(1), 1-9.
- Renaud, P., Trottier, D., Nolet, K., Rouleau, J.-L., Goyette, M., & Bouchard, S. (2013, accepted). Sexual self-regulation and cognitive absorption as factors of sexual response towards virtual characters. *Cyberpsychology, behavior and social network*, 20 pp.
- Riva, G. (2005). Virtual reality in psychotherapy: Review. *Cyberpsychology & Behavior*, 8(3), 220-230.
- Riva, G. (2009). Is presence a technology issue? Some insights from cognitive sciences. *Virtual Reality*, 13(3), 159-169.
- Riva, G., Waterworth, J. A., Waterworth, E. L., & Mantovani, F. (2011). From intention to action: The role of presence. *New Ideas in Psychology*, 29(1), 24-37.
- Sachs, B. D. (2007). A contextual definition of male sexual arousal. *Hormones and Behavior*, 51(5), 569-578.
- Shackelford, T. K., & Goetz, A. T. (2007). Adaptation to sperm competition in humans. *Current Directions in Psychological Science*, 16(1), 47-50.
- Singer, B. (1984). Conceptualizing sexual arousal and attraction. *Journal of Sex Research*, 20(3), 230-240.
- Sprecher S., & Regan P. C. (1996). College virgins: how men and women perceive their sexual status. *The journal of sex research*, 33(1), 3-15.
- Sue, D. (1979). Erotic fantasies of college-students during coitus. *Journal of Sex Research*, 15(4), 299-305.
- Symons, D. (1979). *The evolution of human sexuality*. New York, NY: Oxford University Press.
- Thornhill, R., & Gangestad, S. W. (1996). The evolution of human sexuality. *Trends in ecology & evolution*, 11(2), 98-102.

- Trivers, R. (1985). *Social evolution*. Menlo Park, CA: Benjamin/Cummings.
- Trottier, D., Renaud, P., Rouleau, J.-L., Proulx, J., Goyette, M., Bradford, J. P., . . . Bouchard, S. (2012, accepted). Assessing sexual interests with computer-generated stimuli in virtual reality: An improvement from audio scenarios. *Archives of Sexual Behavior*, 25 pp.
- Wilson, G. D. (1978). *The Secrets of Sexual Fantasy*. London, UK: Dent.
- Wilson, G. D. (1987). Male-female differences in sexual-activity, enjoyment and fantasies. *Personality and Individual Differences*, 8(1), 125-127.
- Wilson, G. D. (1997). Gender differences in sexual fantasy: An evolutionary analysis. *Personality and Individual Differences*, 22(1), 27-31.
- Wilson, G. D., & Lang, R. J. (1981). Sex differences in sexual fantasy patterns. *Personality and Individual Differences*, 2(4), 343-346.