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GENDER DIFFERENCES IN DREAM CONTENT: RELATED TO BIOLOGICAL SEX OR SEX ROLE ORIENTATION?*

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ABSTRACT

Despite the large number of studies addressing gender differences in dream recall and dream content, research regarding whether these differences might be affected by sex role orientation is rather scarce. The present online-survey included a large sample of most recent dreams. The results clearly indicate that sex role orientation (femininity/expressivity and masculinity/instrumentality) affect the same dream characteristics that show marked gender differences (e.g., sexual dream content, physical aggression). Whereas the effect of sex role orientation on dream content support the continuity hypothesis of dreaming, the effect of biological sex on dream content does not exclude that other variables (such as, for example, the amount of sexual fantasies during waking) have an effect on dream content in addition to sex role orientation. Thus, future studies have to elicit more waking-life variables in order to model the varying daytime experiences of men and women in order to investigate whether these daytime differences sufficiently explain gender differences in dreaming or whether biological factors are also of importance.

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Studying gender differences has been an integral part of psychological dream research (Schredl, 2007). For dream recall frequency, stable gender differences were demonstrated by the meta-analysis of Schredl and Reinhard (2008) that included data from over 40,000 participants. Women tend to recall their dreams more often than men. Similar or even larger effect sizes were observed for a positive attitude toward dreams (Schredl, Nürnberg, & Weiler, 1996), the frequency of dream sharing (Curci & Rime, 2008; Schredl, 2009; Schredl & Schawinski, 2010), and interest in dream interpretation (Schredl & Piel, 2008).

Regarding dream content, the basic study published by Hall and Van de Castle (1966) showed that men dream more often about sex and physical aggression than women who dream more often about clothes and household items. In addition, the percentage of male dream characters were higher for men's dreams (67%) compared to that found in women's dreams (48%). These gender differences have been replicated by many subsequent studies (Hall, 1984; Hall, Domhoff, Blick, & Weesner, 1982; Schredl, Sahin, & Schäfer, 1998; for a review see Schredl, 2007).

Compared to the large number of studies in this field, it is very astonishing that research addressing the question regarding whether the dream characteristics that show marked gender differences might be influenced by sex role orientation is rather scarce. One might hypothesize that masculinity/femininity dimensions have a strong effect—even larger than biological sex—on dream characteristics (i.e., dreams reflect gender-specific socialization and not biological differences between the sexes). For dream recall frequency, for example, Schredl and Reinhard (2008) found significantly smaller gender difference in children than in young adults, suggesting that at least part of the gender difference in dream recall found in adults can be attributed to gender-specific dream socialization. Cohen (1973) found a larger effect of sex role orientation compared to biological sex on dream themes like agency (assertiveness, mastery, and sexuality), physical aggression, and communion (helping, receiving report, empathy); that is, dream content related to masculinity (agency) and physical aggression were found more often in men but sex role orientation explained larger amounts of variance than the biological sex variable. Similar effects were found for dream content related to femininity (communion) which was more frequent in women. General dream characteristics like bizarreness were not affected by biological sex or sex role orientation (Cohen, 1973). The second study (Waterman, de Jong, & Magdeliyns, 1988) studying dream aggression came to a different conclusion. The amount of physical aggression was determined by biological sex alone but not by sex role orientation. Solely, the percentage of being a victim in aggressive interactions was larger for persons with a feminine sex role orientation (Waterman et al., 1988). Sullivan (1981) reported that the percentage of male dream characters was related to biological sex and sex role orientation, men had more male dream characters, and masculinity was positively related to the number of males within the dream. In view of the scarce empirical data, the question as to whether dream

content parameters showing gender differences are also influenced by sex role orientation is still unanswered.

The present study was designed to study the effect of biological sex and sex role orientation on dream content. It was hypothesized that sex role orientation has an effect on dream characteristics for which stable gender differences have been demonstrated, like physical aggression or sexuality. Dream topics more present in males should correlate positively with masculinity/instrumentality and dream topics more often found in women should correlate positively with femininity/expressivity.

METHOD

Research Instruments

For eliciting most recent dreams, the instructions given by Domhoff (1996) in Appendix C were used. The participants were asked to describe the dream as exactly and fully as they remember it and include descriptions of the setting, the people, animals, feeling, and action within the dream.

In addition to eliciting age and gender, the participants were asked to complete the GTS+, a questionnaire measuring sex role orientation along two dimensions: expressivity/femininity and instrumentality/masculinity (Altstötter-Gleich, 2004). For each dimension, eight 4-point items were presented (e.g., "Typically I am empathic. (rarely, sometimes, often, almost always"). The eight items—coded from 1 = rarely to 4 = almost always—were averaged for each scale. This German questionnaire is based on the Bem Sex Role Inventory (Bem, 1974) and the Personal Attributes Questionnaire (Spence, Helmreich, & Stapp, 1975). Reliability coefficients (inter-item consistency) of the scales are high (r =.79 [expressivity] and r = .83 [instrumentality]). Construct validity have been demonstrated by confirmatory factor analysis with satisfactory indices for the model fit (two factor model): CFI = .972 and RMSEA = .067 (Altstötter-Gleich, 2004).

Dream Content Analysis

The dream content analytic scales used in this study were adopted from Schredl, Sahin, and Schäfer (1998): realism/bizarreness (1 = realistic to 4 = two or more bizarre elements within the dream), positive and negative emotions (two 4-point scales: 0 = none, 1 = mild, 2 = moderate, 3 = strong), number of male and female dream characters. The occurrence of work-related topics, sexuality, depression-related topics (low self-esteem, being rejected), and verbal and physical aggression was coded binary (1 = present or 0 = not present). The problem scale was a 3-point scale (0 = no problem, 1 = mild problem, and 2 = severe problem that the dreamer has to face within the dream).

The interrater reliability of these scales are satisfactory, $r = .765$ (realism/bizarreness), $r = .642$ (positive emotions), $r = .825$ (negative emotions), occurrence of aggression (88% exact agreement; all data from Schredl, Burchert, & Grabatin, 2004). The exact agreement for work-related themes was 94.2% (Schredl, 1998).

Procedure and Participants

Overall, 2894 persons (2016 women, 878 men) completed the online survey, including a most recent dream between October 10, 2008 and November 20, 2008. The mean age of the sample was 34.2 ± 14.7 years (range: 14 to 86 years). The sample size was slightly reduced ($N = 2818$; 1962 women, 856 men) for the logistic regression analysis due to missing values within the GTS+ questionnaire. The women's mean age (31.8 ± 13.0 years) differ significantly from the average age of the male participants (40.1 ± 16.7 years, $t = –12.9$, $p < .0001$), so age was entered into the analysis in order to control for this difference. The link for the study was posted on different websites (www.yougov.de, www.panopia.de, www.studivz.de) where people who are interested in participating in online-surveys can register. For some surveys, prizes or money are offered for study participation, but this study was completely voluntary and unpaid.

The typed dream reports were edited in order to remove all information not related to the dream experience (cf. Schredl, 1999). Then the dream reports were rated along the scales described in the dream content analysis section by a "blind" rater. Statistical procedures were carried out with the SAS 9.2 software package for Windows. For the regression analyses, gender, expressivity, and instrumentality were used as variables predicting the criterion variables (dream variables). Age and word count were introduced in the analysis as covariates.

RESULTS

First, means and standard deviations of the GTS+ scales were comparable to those reported by the test author (Altstötter-Gleich, 2004), solely the Instrumentality score was slightly higher for the women in the present sample compared to the validation sample (see Table 1). The analysis showed that dream length was associated with all four variables (see Table 2). Women tended to report longer dreams. This difference was associated with expressivity (positive) and instrumentality (negative) as well as the biological sex of the dreamer. In addition, dream length decreased with age. In order to control for the effect of dream length which highly correlated with most dream content variables (see Tables 2 and 3), word count was also entered into the regression analyses (in addition to age).

Table 1. Means and Standard Deviations of the Sex Role Orientation Questionnaire GTS+

	Present sample (N = 2818)		Validation sample of the test author (N = 409)	
Variable	Mean	*SD*	Mean	*SD*
Age	34.3	14.7	33.1	14.8
Expressivity (women)	3.08	0.55	3.02	0.54
Expressivity (men)	2.79	0.55	2.69	0.50
Instrumentality (women)	2.54	0.56	2.40	0.51
Instrumentality (men)	2.70	0.59	2.68	0.54

For dream bizarreness, none of the gender-specific variables had an effect on this variable. Expressivity was associated with more positive dream emotions. Additionally, instrumentality and biological sex was positively correlated. Women's dreams included more often negatively toned dream emotions which was explained by the biological sex variable and the negative relationship to instrumentality. This pattern is similar for the number of dreams that included a problem. Whereas the total number of persons was only slightly associated with biological sex (men's dreams include fewer persons than women's dreams), the effect was more pronounced for male characters. Men's dreams included male characters less often than women's dreams, but instrumentality was positively related to the number of male characters. For female characters, no relationship to the gender-specific variables was found. In order to compare the present results with previous findings, the ratio of male characters to male and female characters was computed: 59.2% (women's dreams) vs. 42.4% (men's dreams). For the subsample of participants younger than 25 years, the figures were comparable: 60.3% (women's dreams) vs. 46.6% (men's dreams).

Sexual dream content was found more often in men as compared to women which is reflected in the highly significant effect of biological sex. On the other hand, expressivity was also related positively to the occurrence of sexual dream content. Verbal aggression was not related to any of the gender-specific variables, whereas physical aggression (being the aggressor) was more prominent in men's dreams. The sex role orientation had no effect on physical aggression in dreams. Women tended to report more depressive topics than men; these topics were related to the feminine sex role orientation not to biological sex.

As expected, work-related dream topics were found more often in men's dreams. This was related to the biological sex of the dreamer and negatively correlated with expressivity.

Table 2. Dream Content and Regression Analyses (Standardized Estimates)

Variable	Women (N = 2016)	Men (N = 878)	Biological sex (1 = f, 2 = m)	Expressivity	Instrumentality	Age	Word count
Word count[a]	82.9 ± 85.4	59.1 ± 77.3	−.063**	.037*	−.094**	−.205***	
Bizarreness[b]	2.17 ± 0.82	1.97 ± 0.85	−.033	.005	.005	−.103***	.558***
Positive emotions[b]	0.83 ± 1.13	0.89 ± 1.17	.058**	.100***	.043*	.004	.112***
Negative emotions[b]	1.46 ± 1.23	1.12 ± 1.18	−.102***	.015	−.073***	−.009	.136***
Persons[a]	1.61 ± 1.36	1.19 ± 1.22	−.039*	.021	.028	−.106***	.560***
Male characters[a]	0.67 ± 0.76	0.31 ± 0.67	−.149***	.029	.063***	−.115***	.350***
Female characters[a]	0.46 ± 0.73	0.42 ± 0.62	.034	.026	.000	−.066***	.334***
Problems[b]	0.93 ± 0.86	0.76 ± 0.83	−.066**	−.020	−.047*	−.024	.198***

[a]Regression analysis; [b]Logistic regression.
*$p < .05$, **$p < .01$, ***$p < .001$.

Table 3. Dream Content and Logistic Regression Analyses (Standardized Estimates)

Variable	Women (N = 2016)	Men (N = 878)	Biological sex (1 = f, 2 = m)	Expressivity	Instrumentality	Age	Word count
Sexuality	8.7%	9.9%	.126***	.142***	.059	–.258***	.033
Verbal aggression (aggressor)	2.9%	3.6%	.103	.078	.026	–.037	.136**
Verbal aggression (victim)	4.1%	5.1%	.080	.002	.018	–.018	.117**
Physical aggression (aggressor)	2.1%	3.4%	.170*	.020	.051	–.062	.284***
Physical aggression (victim)	4.9%	4.4%	.021	.010	.054	–.139*	.182***
Depression-related topics	2.2%	1.6%	–.072	.214**	–.065	.168*	.004
Work-related topics	9.3%	18.0%	.145***	–.117**	–.052	.081	–.012

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

DISCUSSION

Overall, the findings clearly indicate that for all variables which showed differences between the sexes, sex role orientation (feminine [expressivity] and/or masculine [instrumentality]) also played an important role in explaining the inter-individual variance. Whereas the effect of sex role orientation can be conceptualized within the framework of the continuity hypothesis of dreaming (Schredl, 2003a), which states that dream contents reflect waking life experience, the significant effect of the biological sex variable cannot simply be attributed to biological factors. It is easy to imagine that men and women not only differ with regard to their sex role orientation but in many other variables affecting waking-life experience. This idea will be very clear when the gender difference regarding work-related dream topics are discussed (see below).

First, the gender differences found in this study will be compared to previous research findings. However, one has to keep in mind that most of the earlier studies (e.g., Hall et al., 1982; Hall & Van de Castle, 1966; Schredl, Sahin, & Schäfer, 1998) have included student samples. Schredl and Keller (2008-2009) have shown that age has an effect on gender differences in dream content, for example, the percentage of male dream characters. Dream length was found not to differ in student samples (Schredl, Sahin, & Schäfer, 1998) but in adolescents (Schredl & Pallmer, 1998): Girls reported longer dreams than boys; a finding parallel to this study. Since dream length can be conceptualized as a form of dream recall (i.e., recall as many details as possible; Schredl, 2004)—an idea which is supported by the substantial correlations shown between dream length and dream recall frequency (Schredl, 2000)—the present findings fit in with the meta-analyses of Schredl and Reinhard (2008) demonstrating that women recall their dreams more often than men. As pointed out in the introduction, there is strong evidence that the gender difference in dream recall is at least partly explained by socialization; similarly, sex role orientation (more femininity/expressivity and less masculinity/instrumentality) is also related to dream length. Bizarreness was not related to gender or sex role orientation, confirming the finding of Schredl and Keller (2008-2009) who studied gender differences in dream content in a representative German sample. Regarding dream emotions, male gender and masculinity seem to be associated with more positive and less negative emotions and problems within the dream. This fits in with the findings that women tend to report nightmares more often than men (Levin & Nielsen, 2007; Schredl, 2003b). On the other hand, expressivity (femininity) was associated with more positive dream emotions and more sexuality (see below). This result indicates that femininity is accompanied with more intense emotions, fitting a female stereotype. On the other hand, expressivity was also associated with more depression-related topics. Depression is a mental disorder found more often in women than in men (American Psychiatric Association [APA], 1996) but the gender difference of more depression-related themes in dreams of women

reported by a previous study (Schredl, Sahin, & Schäfer, 1998) and replicated by the present study was not explained by biological sex but by feminine sex role orientation. Several studies (Cheng, 1999; Napholz, 1994; Newman, Gray, Fuqua, & Choi, 2009) indicate that high scores on expressivity/femininity reflect a greater vulnerability to depression.

The finding that women had higher percentages of male characters in their dreams than men, confirms the findings of the representative study (Schredl & Keller, 2008-2009) but are inconsistent with many other studies (cf. Hall, 1984). Schredl (2001) reported that relationship status has an effect on that particular gender difference (i.e., male/female percent were in line with previous findings for singles but reversed for persons within a stable relationship). This seems plausible since incorporating the spouse has a significant effect on the ratio of male and female dream characters (Schredl, 2001). Furthermore, Schredl and Jacob (1998) and Schredl, Loßnitzer, and Vetter (1998) were able to demonstrate that the amount of time spent with the two sexes in waking life is directly correlated with the amount of male and female dream characters. Moreover, the interest in stereotyped masculine activities, in addition to biological sex, was also related to the percentage of male dream characters (Wood, Sebba, & Griswold, 1988). These findings clearly indicate that it is not sufficient to use biological sex and sex role orientation as variables in order to predict dream content, it is necessary to very carefully elicit the daytime activities of participants. One would expect, of course, that these worlds differ to some extent between males and females and that these differences partly reflect sex role orientations.

More physical aggression was reported in many studies (Hall & Domhoff, 1963; Hall & Van de Castle, 1966; Krippner, Winkler, Rochlen, & Yashar, 1998; Winget, Kramer, & Whitman, 1972). In the present study, the difference was only found for being an aggressor; but this was not related to masculine sex role orientation but was only related to the biological sex variable and, thus, is not consistent with the results of Waterman et al. (1988). One might speculate that this difference is not only affected by sex role orientation but also by one part of waking-life, namely the media. Physical violence is more often committed by males than females; this is also reflected in dreams because male dream characters are more often perceived as dangerous than female dream characters (Schredl & Pallmer, 1998).

Sexual dream content was also found very often to be more prominent in men than in women (Hall et al., 1982; Hall & Van de Castle, 1966; Schredl, Ciric, Bishop, Gölitz, & Buschtöns, 2003). Although this was replicated, the finding that femininity/expressivity was positively related to frequency of sex dreams has to be explained. Schredl et al. (2009) reported that the frequency of sexual fantasies during the day partly explains the occurrence of sexual dreams; that is, it would be interesting to study whether persons (males and females) with a more feminine sex role orientation indulge more often in erotic fantasies.

Within the expressivity scale of Altstötter-Gleich (2004) two items are related: being sensuous and being romantic.

Two large-scaled studies (Schredl & Keller, 2008-2009; Schredl & Piel, 2005) with a large age range showed that men dream more often about work than women. This finding was replicated by the present data and seems plausible because the percentage of men working is higher than the percentage of women (see Schredl & Piel, 2005). Lortie-Lussier et al. (1992) were able to demonstrate that gender-specific dream topics differ in wage-earning mothers compared to mothers at home (homemakers), thus again underlining the importance of eliciting the waking-life experience of the dreamer. This might explain why expressivity is negatively correlated with the occurrence of work-related dreams.

From a methodological viewpoint, it should be noted that the present sample was not representative, despite its large size and age range. The mean length of the most recent dream was considerably higher compared to representative studies (Schredl & Keller, 2008-2009; Winget et al., 1972), but, on the other hand, the expressivity and instrumentality scores are comparable with the sample of Altstötter-Gleich (2004) with regard to means and standard deviation; that is, even if one can assume that the participants of the present study were more interested in dreams (higher recall, longer dreams), their sex role orientation seems to be in the normal range and, thus, the regression analyses should be valid.

To summarize, the present study has shown that gender differences in dreams are partly explained by sex role orientation but future studies have to elicit more waking-life variables in order to model the varying daytime experiences of men and women in order to investigate whether these daytime differences sufficiently explain gender differences in dreaming or whether biological factors are also of importance.

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