Determining the Dreamer's Gender from a Single Dream Report: A Matching Study

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Summary. In clinical praxis, the question as to whether it is possible – based on a dream report – to make any inferences about the characteristics of the dreamer often arises. For the present study, gender was selected for the matching task. The judges were able to match the dreamer's gender based on a single dream report better than chance. The rate of correct decisions (57.5% to 64%), however, was not very high, so that a reliable matching for a single case is not possible. It must be concluded that even for simple characteristics more dream material is necessary to make a valid prediction. Interestingly, the female judges have been more confident in matching women's dreams correctly than men's dream; a finding which was not found for the male judges. Qualitative studies are necessary to identify specific dream characteristics that facilitate the correct matching.

Keywords: Dream content; Gender differences; Dream interpretation

1. Introduction

In dream interpretation, a dream is the starting point for inferring individual characteristics of the dreamer like personality traits or current concerns (cf. Delaney, 1993). Most researchers (Strauch & Meier, 1996; Domhoff, 1996; Schredl, 1999) use dream content analysis as a method of investigating dreams because the interpretative approach has methodological problems. For example, Zane (1971) presented one dream to five psychoanalysts in order to demonstrate that each analyst interprets the dream in a different way. In the dream that was used the male dreamer saw his own head from the back and there was something about 4 inches in diameter back there and it was bald except for a few straggling strings of hair. He woke up terribly frightened. One interpretation aimed at some childhood experience with the dreamer's father, another on an identity crisis or fear of homosexual impulses.

In a similar way, Fosshage and Loew (1978) obtained very different interpretations depending on the underlying theories of six dream specialists (Freudian, Jungian, Culturalist, Object Relational, Daseinsanalytic, and Gestalt) to whom they presented a series of 6 dreams reported by a female patient. In another study, Kramer (2000) entitled his paper "Does dream interpretation have any limits?" in which he reviewed a large number of papers with interpretations regarding Freud's dream of "Irma's injection" (Freud, 1987/1900), a paradigmatic dream in psychoanalysis. This variability of interpretation depending on the individual who interprets the dream does not meet rigorous scientific standards whereas in dream content analysis applying explicit criteria for scoring dream elements, interactions and so on, interrater reliability indices are usually high (cf. Hall & Van de Castle, 1966; Domhoff, 1996; Schredl, 1999).

But the question as to whether it is possible – based on a dream report – to make any inferences about the characteristics of the dreamer is still of interest to researchers and clinicians alike. The task of matching dream reports to waking life events or persons serves as a paradigm for systematically investigating the predictive value of dream reports. Roussy et. al. (1996, 2000), for example, instructed her judges to match pre-sleep thought reports with corresponding dream reports. Overall, this task was in most cases not solved better than chance in contrast with the initial study of Rados and Cartwright (1982). Kramer, Hlasny, Jacobs and Roth (1976) gave the judges dream series ($n = 15$ dreams) of 5 healthy persons and dream series ($n = 13$ dreams) of 5 schizophrenic patients. The task was to group the randomly ordered dreams according to the respective dreamers. For the healthy controls, the success rate was high (78.7%, $p < .0001$), whereas correct matching was lower for patients (48.5%, $p < .01$). This study illustrates that judges are able to find similarities in dreams and, therefore, can assign the dreams to one person better than chance.

One of the best documented findings in dream content analytic studies is that there are stable gender differences in dream content (overview: Schredl, 2007). Whereas for variables such as dream length, bizarreness, emotional tone and intensity the findings are inhomogeneous (cf. Schredl, Sahin & Schäfer, 1998), women's dreams more often included indoor settings (Hall & Van de Castle, 1966) and interpersonal problems (Schredl, 2001). Men dream more often about physical aggression ($d = 0.36$, largest effect size in the study of Schredl, Sahin & Schäfer, 1998) and sexuality (Hall, Domhoff, Blick & Weesner, 1982). In addition, men's dreams more often included men whereas the gender distribution of dream characters was balanced in women's dreams (Hall, 1984). Most of these gender differences have been shown to be stable over time (Hall et al., 1982; Schredl & Piel, 2005). Given such differences, a judge should be able to assign the dreamer's gender to the dream report better than chance. In the study of Merritt, Stickgold, Pace-Schott, Williams, & Hobson (1994), ten dreams of women and ten dreams of men were presented to 10 judges, the correct matches were obtained for 61% of the dream reports; clearly above chance ($p = .0007$). Schredl, Schwenger and Dehe (2004) were also able to demonstrated that it is possible to identify the dreamer's gender above chance (about 64%). In addition, the female judges were more certain of the classification of women's dreams than men's dreams.

The present study was carried out to extend the findings of the Schredl, Schwenger and Dehe study by including two male judges to test whether the judge's gender affect his or her ability to determine the dreamer's gender. It was hypothesized that male judges are more confident in their correct decisions regarding men's dreams in comparison to judging the dreams of women.

2. Method

2.1. Measurement instruments

The four judges received forms to record their decision (male or female). In addition, the judges were asked to estimate their subjective confidence in each decision on a four-point scale (0 = very low confidence, 1 = low confidence, 2 = moderate confidence, 3 = high confidence).

2.2. Procedure

The author selected dream reports from the material of several studies (Schredl, 1991; Schredl, Schäfer, Hofmann & Jacob, 1999; Schredl & Hofmann, 2003; Schredl, Wittmann, Ciric & Götz, 2003). In the course of these studies, the participants kept a dream diary over a two-week period and recorded their dreams on a maximum of five mornings. All the dreams of one morning (if more than one dream was reported) have been used as an analysis unit.

For each participant, a dream report that fulfilled the criteria that it consisted of 30 to 300 words was randomly selected. In 26 of 200 cases (18 female dreams, 8 male dreams), the dream first selected was not included in the analysis due to explicit gender specific content, e.g., penis, wearing a dress, disguised as Queen Elizabeth, serving for the country ("Zivildienst"), painted toe nails, etc. In these cases another dream of the person was again randomly selected. 73 out of the 200 dreams were altered linguistically to avoid matching based on formal criteria; e.g., boy or girl friend was altered into boy/girl friend (he/she, his/her etc.). The dream reports were randomly ordered.

Table 1. Correct decisions of determining the dreamer's gender.

	Correct	Effect size d =	Chi²-test[1] χ² =	p =
Female judge 1	64.0%	0.28	15.7	<.0001
Female judge 2	64.5%	0.29	16.8	<.0001
Male judge 1	59.0%	0.18	6.5	.0055
Male judge 2	57.5%	0.15	4.5	.0170

Note. [1]one-tailed statistical tests, df = 1

First, the judges were provided with several studies on gender differences in dream content (Hall & Domhoff, 1963; Winget, Kramer & Whitman, 1972; Hall et al., 1982; Hall, 1984; Schredl & Jacob, 1998; Schredl, Loßnitzer & Vetter, 1998; Schredl & Pallmer, 1998; Schredl, Sahin & Schäfer, 1998; Schredl, 2007). Each of the four judges rated all 200 dream reports independently from one another with regard to the gender of the dreamer and estimated their subjective confidence in their decisions. Statistical analyses were carried out with the SAS 9.3.1 software package for Windows. Effect sizes were calculated along formula given by Cohen (1988).

2.3. Participants

100 dream reports of male dreamers and the same number of dream reports from female dreamers were included in this study. Each dream report stemmed from a different person. The mean age of the male group (24.2 ± 5.2 years) was slightly higher than that of the female group (22.6 ± 3.0 years), $t(198) = 2.7$, $p = .0081$. With very few exceptions the sample consisted of psychology students. Mean dream length also differed between the sexes (125.8 ± 67.8 (women) vs. 103.4 ± 55.7 (men), $t(198) = 2.6$, $p = .0114$).

Two of the judges were female and psychology students whereas the other two judges were male medical students.

Table 2. Confidence ratings of determining the dreamer's gender.

		Correct	Incorrect	Effect size d =	t-test[1] t =	p =
All dreams	Female judge 1	1.74 ± 0.59	1.53 ± 0.67	0.32	2.3	.0126
	Female judge 2	1.72 ± 1.05	1.30 ± 1.05	0.40	2.7	.0034
	Male judge 1	1.71 ± 0.91	1.61 ± 0.78	0.12	0.8	.2044
	Male judge 2	1.69 ± 0.87	1.65 ± 0.88	0.05	0.3	.3754
Male dreams	Female judge 1	1.68 ± 0.59	1.65 ± 0.59	0.05	0.3	.3910
	Female judge 2	1.57 ± 1.10	1.42 ± 1.02	0.14	0.7	.2359
	Male judge 1	1.75 ± 0.95	1.63 ± 0.82	0.14	0.7	.2414
	Male judge 2	1.75 ± 0.96	1.67 ± 0.97	0.08	0.4	.3551
Female dreams	Female judge 1	1.80 ± 0.67	1.40 ± 0.74	0.57	2.8	.0035
	Female judge 2	1.86 ± 1.00	1.17 ± 1.07	0.67	3.2	.0009
	Male judge 1	1.68 ± 0.88	1.59 ± 0.74	0.11	0.5	.2987
	Male judge 2	1.64 ± 0.80	1.61 ± 0.77	0.04	0.2	.4391

Note. [1]one-tailed statistical tests

Table 3. Correctness of the decisions of the four judges (number of dream reports) and Confidence ratings.

Correct decisions by X judges	0 of 4	1 of 4	2 of 4	3 of 4	4 of 4
Men's dreams	14	15	25	19	27
Women's dreams	6	13	28	21	32
Confidence ratings	1.55 ± 0.68	1.45 ± 0.57	1.37 ± 0.56	1.73 ± 0.55	1.96 ± 0.51

Note. ANOVA (confidence ratings): F = 9.3, p < .0001, *df* = 4, Significant Tukey's tests: 0-4, 1-4, 2-4, 2-3

3.   Results

3.1. Matching task

The exact agreement between the judges ranged from 61.0% to 73.5%. All four judges were able to determine the dreamer's gender better than chance (see Table 1). The pair-wise Sign tests that were carried out showed that all differences in the percentages of correct decisions are for all four judges non-significant.

Altering the dream report linguistically to ensure gender neutrality was necessary more often for women's dreams (46 women's dreams vs. 27 men's dreams), χ^2(1, N = 200) = 7.8, p = .0053. These alterations, however, did not affect the decisions of the judges. Similarly, more dreams of women (n = 18) had to be excluded from the analysis than men's dreams (n = 8), χ^2(1, N = 200) = 3.8, p = .0499 (see procedure section).

3.2. Confidence ratings

Whereas the female judges rated their confidence in their correct judgements higher than in the incorrect ones, this was not the case for the male judges (see Table 2). If the confidence ratings were analyzed for women's dreams and men's dreams separately, an interesting result emerged: Both female judges were more confident in their matching of women's dreams correctly in contrast to men's dreams (see Table 2). This pattern was not found for the male judges.

Analyzing the number of correct decisions, all four judges were correct for 59 dreams and 20 dreams were incorrectly sorted by all four judges. The confidence ratings differed significantly with the highest value for dreams which have been correct identified by all four judges (see Table 3). The mean hits for women's dreams are slightly higher than for men's dreams (2.60 ± 1.23 vs. 2.30 ± 1.38), t(198) = 1.6, p = .1066.

4.   Discussion

The present study demonstrated that determining the dreamer's gender based on a single dream is possible above chance (cf. Merritt et al., 1994). Effect sizes, however, have been quite small. If one takes into account that matching by chance would yield 50% correct judgments, it seems clear that a reliable matching is only possible for a limited number of dream reports, i.e., in a single case, the rate of false positives and false negatives will be very high.

A factor that might contribute to the accuracy of the matching is the amount of the included dream material. Kramer, Roth and Cisco (1976), for example, did not obtain significant results when matching the time order using single dreams, but – presenting the judges all the REM dreams from one night – the pairs first vs. 20th night and third vs. 18th night could be matched better than chance. Similarly, Roussy et al. (1996) did not obtain successful matching for relatively short REM dreams stemming from the first REM period of the night but for the longer diary dreams, the judges were able to match these reports with corresponding descriptions of the preceding day above chance (between-subjects design; Roussy et al., 2000). Regarding this influencing factor, it will be promising to carry out a matching study with one, two, three or more dream reports per person in order to determine how strong the accuracy of the judgment is affected by the amount of given dream material.

Another factor needs to be considered. The present dream samples were provided by students, i.e., female and male students share the same environment, lectures, classes, studying at home, similar subjects, etc. It might be hypothesized that gender differences in dream reports of persons with a wider age range (including working persons, house wives and men, etc.) are more pronounced and the matching regarding the gender of the dreamer would be much easier.

With regard to potential mediating variables, such as dream length, dreamer's age and linguistic alteration of the dream report, it may be concluded quite safely that their influences on the present findings are rather small since they did not play a role in the judgments of Judge 2 (only for Judge 1) and the findings of the two female judges are similar in every respect (Schredl, Schwenger and Dehe, 2004).

For the confidence ratings, the expected result was obtained only for the female judges: the confidence ratings have been significantly higher for the correct decisions than for the incorrectly matched dreams. This can be interpreted as meaning that a portion of the dreams can be matched relatively easily whereas other dreams are difficult to judge with respect to the dreamer's gender. Why the male judges did not have higher confidence in their correct ratings might be explained be the following. First, as the judges of the present study were female, it seems plausible that women are more confident about matching women's dreams than men's dreams. The male judges, however, were not more confident in their ratings of men's dreams. Than might indicate that men's dreams are less specific for their gender than women's dreams. This line of thinking is supported by the fact that women's dreams were often discarded in the selection process and subsequently altered linguistically more often than men's dreams, i.e., these dreams included more direct references to the dreamer's gender. Although the linguistic alternations did not affect the accuracy of the judgment, it might be that women's dreams are more characteristic of women than men's dreams are of men. The finding that the mean number of correct decisions for all four judges is slightly higher for women's dreams than for men's dreams support this hypothesis. In order to investigate what kind of characteristics these might be, qualitative studies have to be carried out, including the judges' decision rules in addition to the matching decision and confidence rating. If such characteristics can be identified, content analytic studies comparing women's dreams and men's dreams along specifically constructed content scales should complement the qualitative findings.

To summarize, the judges were able to match the dreamer's gender based on a single dream report better than chance. The rate of correct decisions, however, was not extremely high, so that a reliable matching for a single case is not possible. It must be concluded that even for simple characteristics more dream material is necessary to make a valid prediction. For the clinical praxis and the interpretation of dreams, the present findings indicate that attempts at inferring the dreamer's characteristics from a single dream without further information should be treated with caution.

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