

Partners and ex-partners in dreams: An online survey

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Summary. Social interactions, especially with the romantic partner, are a very important part of waking life and – in line with the continuity hypothesis of dreaming – also play an important role in dreams. In total, 1695 persons (960 women, 735 men; mean age: 53.84 ± 13.99 yrs.) completed an online survey that included questions about estimating retrospectively the frequency of partner and ex-partner(s) dreams and questions about their relationship status. These estimates indicate that partner dreams are not only common in persons with stable partnership (24%) but also in singles (16%). Partnership quality was the strongest predictor of the emotional tone of partner dreams. Ex-partner dreams were less positive than partner dreams and quite frequent – even years after separation. The next step would be to collect partner and ex-partner dream reports and study the interaction between partnership and partner dreams in a longitudinal design.

Keywords: Partner dreams, ex-partner dreams, partnership, being single, continuity hypothesis

1. Introduction

Social interactions are basic to human life (Baumeister & Bushman, 2017). According to the continuity hypothesis of dreaming that states that dreams reflect waking-life experiences (Schredl, 2003), one would expect that social interactions are also prominent in dreams. Indeed, content analytic studies of large dream samples (Domhoff, 1996; Hall & Van de Castle, 1966; Strauch & Meier, 1996) clearly indicate that friendly, aggressive, and sexual interactions with other dream characters are very frequent. Interestingly, social interactions are more frequent in dream reports than in waking reports (McNamara, McLaren, Smith, Brown, & Stickgold, 2005; Tuominen, Stenberg, Revonsuo, & Valli, 2019). In the study of Schredl and Hofmann (2003), for example, the ratio of time spent with studying and time spent with friends was 2 to 1 in waking life whereas dreams with friends were trice as frequent as studying-related dreams. This overrepresentation of social interactions in dreams stimulated Revonsuo, Tuominen, and Valli (2015) to propose the Social Simulation Theory of dreaming, i.e., the dreamer is practicing social interactions in dreams in order to increase survival chances and producing off-spring - at least valid for prehistoric societies. Within the social network of the individual, the romantic partner - given the person has a stable relationship - often plays a major role and, thus, should also show up in dreams quite often. In students with committed relationships, the romantic partner was present in 27.8% of the dreams (Schredl, 2001). This high frequency of partner

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Submitted for publication: August 2020 Accepted for publication: September 2020 DOI: 10.11588/ijodr.2020.2.75338 dreams was confirmed by subsequent studies (Schredl, Desch, Röming, & Spachmann, 2009; Selterman, Apetroaia, Riela, & Aron, 2014; Selterman & Drigotas, 2009). In a series of 6,100 dreams recorded over a period of 53 years, the dreamer's wife was present in 20.4% of the dreams. A similar figure was reported in another dream series (Schredl & Reinhard, 2012). In a sample of 51 dreams collected from individuals between 55 and 83 yrs. old, 17.6% featured the dreamer's partner. The time spent with the partner was directly related (r = .349, p = .002, N = 64) to the frequency of partner dreams (Schredl & Hofmann, 2003). A single case study (Schredl, 2018a), comparing the percentage of partner dreams in dreams recorded during different partnerships, suggested that the closeness experienced with the partner was related to the percentage of partner dreams. The emotional tone of partner dreams was balanced in a single case study (Schredl, 2011), whereas Tuominen et al. (2019) found that positive interactions with other dream characters outweigh negative ones (21.6% vs. 11.0%) with 67.2% of neutral interactions. Selterman, Apetroaia, and Waters (2012) reported that feeling safe in a partnership is also reflected in more positive partner dreams, including getting support or experiencing distress relief, i.e., the partnership quality is reflected in dreams. Interestingly, singles also can have dreams in which they have a partner; 6% of singles' dreams included a dream partner (Schredl, 2001). In addition, the ex-partner can show up in dreams even years after separation, e.g., in 9% of the dreams about 1 year after separation and about 3% after 9 years (Schredl & Reinhard, 2012). Whereas in this case the emotions of the ex-partner dreams were more often positive than negative (Schredl, 2018a), other case studies indicate that ex-partner dreams are more negative than positive shortly after the separation (Schredl & Neuhäusler, 2019) and even ten to twenty years after the divorce (Domhoff, 2003). To summarize, research so far has indicated that partnership status, partnership quality, and separations are reflected in dreams. The partnership studies, however, are limited to student samples, and the direct relationship between partnership quality and emotional tone



of partner dreams has not been studied.

The aim of this study was to investigate the frequency of partner and ex-partner dreams in a population-based sample. Based on the continuity hypothesis (Schredl, 2003) it was expected that persons in a partnership dream more often about partners than singles; moreover, the time spent with the partner should correlate with partner dream frequency. We also expected that partnership quality was related to the emotional tone of the partner dreams – continuity on an emotional level (Hartmann, 2011). Ex-partner dreams should be more negative than partner dreams and decline in frequency with increasing time after the separation.

2. Method

2.1. Participants

Overall, 1695 persons (960 women, 735 men) completed the online survey between April 13, 2020 and April 20, 2020. The mean age of the sample was 53.84 ± 13.99 years (range: 20 to 96 years). Concerning educational level, 0.53% had no degree, 12.80% had 9 years of schooling, 39.62% had O-level (middle degree, "Realschule", about 10 years), 23.13% A-level ("Abitur"), 30.91% obtained a University degree, and 3.01% had doctoral degrees. Regarding their relationship status, 1171 participants reported that they are in a relationship (780 were married, 113 in civil partnerships, 24 were engaged, 225 in committed relationships, 26 in open relationships, 2 others, and 1 missing value). The averaged relationship duration was 21.47 ± 14.91 yrs. (range: 0.10 to 65 yrs., N = 1162). The average amount of time spent with the partner was 49.64 ± 38.99 hrs. per week. Most of the participants lived with their partner (N = 991), whereas 90 couples had two flats and another 90 couples lived apart. Of the 524 singles, 81 individuals had never had a partner. The average duration since the previous partnership was 9.17 ± 8.45 yrs. (N = 436).

2.2. Research Instruments

For eliciting dream recall frequency, a seven-point scale (0 = never, 1 = less than once a month, 2 = about once a month, 3 = about two to three times a month, 4 = about once a week, 5 = several times a week, 6 = almost every morning) was presented. The retest reliability of this scale was high: r = .85 for an averaged interval of about 55 days

(Schredl, 2004). The overall emotional tone of the dreams was measured with five categories (-2 = very negative, -1 = somewhat negative, 0 = neutral, +1 = somewhat positive, and +2 = very positive).

The participants were informed that the reference frame for the dream content questions was the last 12 months, before the Corona measures came into effect. The participants were asked to estimate the percentage of dreams that included a partner. To ensure that participants could answer the question, the following explanation was presented: "A partnership is a sexual and/or social relationship between two people based on an agreed emotional loyalty. Open, purely sexual relationships and past partnerships are excluded. Note: The partner in the dream does not have to be the real partner in waking life." Next, the emotional tone of the dreams including partners was - like the general emotional tone of dreams - measured via a five-point scale ranging from -2 to +2. The percentage of ex-partner dreams were elicited in a way similar to the percentage of partner dreams. The instruction was as follows: "An ex-partnership is a partnership that existed in the past and for various reasons (e.g., separation, death) currently no longer exists. Note: The ex-partner in the dream does not have to be a real ex-partner in waking life." The emotional tone of the ex-partner dreams was measured with the aforementioned five-point scale ranging from -2 to +2.

After eliciting the characteristics and duration of the partnership (see participants section), the participants were asked to estimate their overall relationship quality on a five-point scale ranging from +2 = very positive, +1 = rather positive, 0 = average, -1 = rather negative, and -2 = very negative. Similarly, singles were asked how content they are with their being single (+2 = very content, +1 = content, 0 = neutral, -1 = dissatisfied, and -2 = very dissatisfied).

2.3. Procedure

Individuals with an interest in online studies and with heterogenic demographic backgrounds could register within the online panel www.wisopanel.net – after they read through the information regarding the purpose of the panel and data protection procedures. At the time of the study, 14,277 individuals were in the database. All registered persons received an email with the link to the study entitled "Everyday life and dreams". The participation was voluntary and unpaid. The study were carried out following the rules of the Declara-

Table 1. Percentage of dreams that include partner/ex-partner (N = 1694)

	Partner	dreams	Ex-partner dreams			
Category	Frequency	Percentage	Frequency	Percentage		
more than 60%	94	5.55%	26	1.53%		
40.01% to 60%	230	13.58%	60	3.54%		
20.01% to 40%	301	17.77%	108	6.38%		
10.01% to 20%	240	14.17%	133	7.85%		
5.01% to 10%	211	12.46%	202	11.92%		
0.01% to 5%	169	9.98%	316	18.65%		
0%	449	26.51%	849	50.12%		

	Emotional tone of partner dreams (N = 1243)		ex-partne	al tone of er dreams 839)	General emotional tone of dreams (N = 1531)	
Category	Frequency Percentage		Frequency	Percentage	Frequency	Percentage
Very positive (+2)	225	18.10%	63	7.51%	36	2.35%
Somewhat positive (+1)	560	45.05%	276	32.90%	431	28.15%
Neutral (0)	306	24.62%	267	31.82%	689	45.00%
Somewhat negative (-1)	135	10.86%	173	20.62%	351	22.93%
Very negative (-2)	17	1.37%	60	7.15%	24	1.57%
Averaged emotional tone	0.68 ± 0.95		0.13 ± 1.05		0.07 ± 0.81	

Table 2. Emotional tone of dreams that include partners or ex-partners and the general emotional tone of dreams

tion of Helsinki of 1975 (https://www.wma.net/what-we-do/ medical-ethics/declaration-of-helsinki/), revised in 2013. In Germany, this type of study (online survey in healthy human volunteers who can terminate the study at any point) does not require ethical approval. This was confirmed by the Ethics committee of the University of Mannheim.

Statistical procedures were carried out with the SAS 9.4 software package for Windows. As percentage variables (percentage of partner/ex-partner dreams) were not normally distributed, they were categorized (see results section). The categorized variables were treated as ordinal. Ordinal regressions were used for analyzing the effect of waking-life variables on partner/ex-partner dream variables controlled for age, sex, education, and dream recall frequency. All variables were entered simultaneously. Effect sizes were computed based on Chi-Square values according the formula given by Cohen (1988).

3. Results

The dream recall frequency distribution of the total sample was as follows: never (8.69%), less than once a month (18.79%), about once a month (8.87%), about two to three times a month (13.36%), about once a week (18.62%), several times a week (22.99%), almost every morning (8.69%), and 3 missing values. The mean of the percentage of dreams including partners was $21.39 \pm 22.72\%$ (N = 1694). The distribution of the categorized variable is depicted in Table 1. Overall, about three quarters of the participants reported

that they had partner dreams. The percentage of ex-partner dreams was lower: 8.33 ± 15.39%. About 50% reported no ex-partner dreams. The emotional tones of partner and ex-partner dreams are shown in Table 2. Regarding partner dreams, the positive dreams clearly outweigh the negative ones whereas the ex-partner dreams were more balanced. Compared to the general emotional tone of dreams (see Table 2), the emotional tone of partner dreams was significantly more positive (Wilcoxon Signed Ranks test: z = 17.4, p < .0001, N = 1176, effect size = 1.160 whereas the emotional tone of ex-partner dreams were comparable with the overall emotional tone of dreams (Wilcoxon Signed Ranks test: z = 1.4, p = .1510, N = 803, effect size = 0.099). The mean of the partnership quality scale was 1.22 ± 0.87 (N = 1167) with 44.47% of the participants rated very high quality and 38.05% high quality of the partnership. The mean value of the satisfaction of being single was also positive: 0.54 ± 1.15 (N = 519) with 24.28% of the participants being very content and 30.06% content.

As expected, persons with partnership dreamed more often about partner(s) than singles (23.96 ± 22.22% [N = 1170] vs. 15.66 ± 22.78%; effect size = 0.591) (see Table 3). Moreover, partner dreams were more common in younger persons (effect size = 0.242) and the percentage of partner dreams was related to dream recall frequency (effect size = 0.484). The emotional tone of partner dreams was more positive in persons with partners (0.74 ± 0.90 [N = 978] vs. 0.45 ± 1.05 [N = 265], effect size = 0.193) (see Table 3). Men more likely reported negatively toned partner dreams

Table 3. Ordinal regression analysis for the categorized (ordinal) percentage of dreams that include a partner and emotional tone of partner dreams

Variable	Percent	tage of partne (N = 1691)	r dreams	Emotiona	Emotional tone of partner dreams (N = 1242)			
	SE	X ²	p	SE	X ²	p		
Age	1231	24.4	<.0001	0777	6.7	.0099		
Gender $(1 = f, 0 = m)$	0463	3.5	.0598	1762	33.9	<.0001		
Education	0095	0.2	.6951	.0710	5.9	.0148		
Dream recall frequency	.2419	93.7	<.0001	0138	0.2	.6394		
Partnership (Yes/No)	.2932	135.8	<.0001	.0982	11.5	.0007		

SE = Standardized estimates



Variable	Percent	age of partne (N = 1131)	r dreams	Emotional tone of partner dreams (N = 942)			
	SE	X²	p	SE	X²	р	
Age	1681	17.3	<.0001	0654	1.9	.1644	
Gender $(1 = f, 0 = m)$	0815	7.0	.0081	1359	14.1	.0002	
Education	0310	1.1	.2947	.0066	0.0	.8498	
Dream recall frequency	.2603	72.8	<.0001	0599	2.9	.0865	
Partnership duration (yrs.)	0749	3.4	.0669	.0163	0.1	.7315	
Time spent with partner (hrs./week)	.0596	3.7	.0276 ¹	.0316	0.8	.3860	
Partnership quality	.0901	9.1	.0026	.5425	192.0	<.0001	
Living together with partner	.0227	0.5	.4771	0244	0.4	.5127	

Table 4. Ordinal regression analysis for the categorized (ordinal) percentage of dreams that include a partner and emotional tone of partner dreams (persons with partnership)

SE = Standardized estimates, ¹one-tailed

than women (effect size = 0.335); high education (effect size = 0.138) and younger age (effect size = 0.147) were related to more positively toned partner dreams (see Table 3).

Analyzing the subsample of persons currently living in a partnership, partnership quality (effect size = 0.180) and time spent with the partner (effect size = 0.115) were positively associated with the percentage of partner dreams (see Table 4). Duration of the relationship and living together versus not living together was not related to partner dream percentage. In addition to the effects of age and dream recall frequency also found in the total sample, men in relationship dreamed less often about partners than women in relationship. Men also rated the partner dreams more negatively than women (effect size = 0.247; see Table 4). The main factor related to the emotional tone of partner dreams was the relationship quality (effect size = 1.012), whereas time spent with the partner, living with the partner, and partnership duration did not play a role regarding the emotionality of partner dreams. Interestingly, in persons with relationship the percentage of ex-partner dreams decreased with partnership duration (standardized estimate = -.3612, χ^2 = 71.9, *p* < .0001, d = 0.514; age, gender, and dream recall frequency were also added to the ordinal regression analysis).

The persons (N = 81) who never had a partnership dreamed less often about a partner than persons who are currently single but had had at least one partnership in their lifetime (14.27 ± 26.13% vs. 15.98 ± 22.16%; standardized estimate = .1525, χ^2 = 9.4, p = .0002, d = 0.271); again the ordinal regression was controlled for age, gender, education, and dream recall frequency. As expected, the frequency of ex-partner dreams decreased with longer time intervals between filling in the survey and the separation (see Table 5). Other factors, except dream recall frequency, were not related to the percentage of ex-partner dreams. The emotional tone of ex-partner dreams was rated more negatively by single men compared to single women (see Table 5). Other factors were not related to the emotional tone of ex-partner dreams. Interestingly, older singles reported more partner dreams (effect size = 0.252) whereas the duration of being single was negatively related to partner dream percentage (effect size = 0.508; see Table 5). Moreover, not being satisfied with being single was related to more partner dreams (effect size = 0.337).

4. Discussion

The findings indicate that partner dreams were quite frequent: participants with stable partnerships estimated that 24% of their remembered dreams include a partner, but these estimates were also high in singles (16%) and in persons who had never had a partnership (14%). The average emotional tone of partner dreams was positive and very strongly associated with partnership quality. Dreams of ex-

Table %. Ordinal regression analysis for the categorized (ordinal) percentage of dreams that include a partner and emotional tone of partner dreams (persons without partnership, excluding persons who never had a relationship)

Variable	Percentage of ex-partner dreams (N = 434)		Emotional tone of ex-partner dreams (N = 254)			Percentage of partner dreams (N = 434)			
	SE	X ²	p	SE	X ²	р	SE	Х ²	р
Age	.0207	0.2	.6879	.0579	0.7	.4020	.1368	6.8	.0091
Gender $(1 = f, 0 = m)$.0632	1.7	.1984	1812	7.9	.0049	.0531	1.1	.2932
Education	.0456	0.9	.3483	0443	0.5	.4812	.0425	0.7	.3937
Dream recall frequency	.2176	18.4	<.0001	.0683	1.2	.2817	.1818	12.2	.0005
Being single duration (yrs.)	1081	4.1	.02201	1008	2.1	.1456	3068	26.3	<.0001
Satisfied with being single	0648	1.7	.1929	.0062	0.0	.9231	1772	12.0	.0005

SE = Standardized estimates, 1one-tailed

partners occurred less frequently (about 8% of the remembered dreams) but indicated that partnerships have a long lasting effect on dream life.

First, the methodological approach of the present study using retrospective estimates regarding the percentages of partner and ex-partner dreams has to be discussed. Two studies (Beaulieu-Prevost & Zadra, 2005; Schredl, 2002) have shown that low dream recallers are less accurate in estimating dream characteristics retrospectively when compared to high recallers, i.e., including dream recall frequency in the regression analysis as a possible confounder was necessary. The finding that dream recall frequency correlated positively with retrospectively estimated partner dream frequency supports this line of thinking. Measuring nightmare frequency prospectively with daily logs yielded higher figures than retrospective estimates of nightmare frequency (Robert & Zadra, 2008); however, subsequent studies, e.g. Zunker et al. (2015), showed that the difference was relatively small (effect size of d = 0.101). That is, that the percentages might be slightly higher if it would have been possible to obtain dream reports from this sample.

The percentage of sports in diary dreams of psychology and sport students (24.6% vs. 6.9%; Erlacher & Schredl, 2004) was higher but roughly comparable with the estimates of sport dream percentages elicited retrospectively also in sport and psychology students (17.3% vs. 3.8%; Schredl & Erlacher, 2008). On the other hand, the erotic dream percentage was considerably higher using retrospective estimates (Schredl et al., 2009) compared to dream content analytic findings (Geißler & Schredl, 2020), very likely reflecting the fact that individuals might be uncomfortable with recording erotic dreams and handing such dreams over to an unfamiliar experimenter.

Overall, research results indicate that retrospective estimates might differ from dream content analytic findings but studying influencing factors on sports dream frequencies as when studying sports vs studying psychology or gender differences in erotic dreams were not affected by the different methodological approaches (Schredl, 2018b). Interestingly, the retrospective estimates of the percentage of partner dreams (about 24%) in persons with partnership is almost identical to the figures around 20% reported in dream content analytic studies (Schredl, 2001, 2018a; Selterman et al., 2012; Selterman & Drigotas, 2009; Uslar, 2003), supporting the idea that these retrospective estimates show some validity.

One should keep in mind that despite the methodological issues related to estimate the percentage of a specific dream topic retrospectively, content analytic studies using a substantial number of dream reports are almost impossible to carry out in non-students samples with average dream recall frequencies of one dream per week (Schredl, 2008, 2009) as asking large numbers of participants to keep a diary over 4-weeks or even longer time period is not feasible. That is, the present findings can be seen as informative for future research.

Although the sample is population-based and showed a large range in age and educational backgrounds, it is not representative because individuals with interest in dreams were more likely to participate (cf. Schredl, Berres, Klingauf, Schellhaas, & Göritz, 2014). To control for this effect on the findings, dream recall frequency was used as covariate in all regression analyses. The panel also included more persons

with a higher education compared with the general German population (Statistisches Bundesamt, 2018); education was thus also used as covariate.

As expected, dreams including the partner were guite frequent (24%) in persons with stable partnerships, comparable to the previous findings in student samples (Schredl, 2001; Selterman et al., 2012; Selterman & Drigotas, 2009) and dream series (Schredl, 2018a; Uslar, 2003); reflecting the importance of the partner in waking life - supporting the continuity hypothesis of dreaming (Schredl, 2003). On the other hand, partner dreams were also guite common in singles (decreasing with time since the last partnership) and even in persons who never had a partnership. This finding highlights the importance of the original formulation of the continuity hypothesis by Hall and Nordby (1972) outlining that not only overt behavior (waking-life experiences, actions etc.) can be reflected in dreams but also covert behavior (thoughts, fantasies etc.). It would be very interesting to study the content of these "fantasy" partner dreams to see whether they show similar patterns of activities to what can be found in the partner dreams, for example with 20% erotic dreams, sharing activities with the partner (45%), talking with the partner (25%) and so on (Schredl, 2011). In addition, it would be interesting whether these dream partners are familiar to the dreamer in waking life, e.g., from his or her social group, a celebrity, characters from fiction, and so on.

The emotional tone of partner dreams is mostly positive; significantly more positive than the overall emotional tone of dreams, i.e., the occurrence of the partner or a partner within in the dream is usually a pleasant event. The strongest factor associated with the emotional tone of partner dreams was partnership quality, supporting the notion of emotional continuity between waking and dreaming (Hartmann, 2011), i.e., positive or negative emotions related to the partner in waking life, respectively, affect dream emotions. Interestingly, emotions related to social interactions with friends during the day was much more closely related to negative dream emotions than to stress associated with studying (Schredl & Reinhard, 2009-2010). This strong effect of emotions related to social contacts and dream emotions is in line with the basic assumption of the Social Simulation Theory (Revonsuo et al., 2015) that social interactions play an important role in dreams. Selterman et al. (2014) provided evidence that partner dreams that include feelings of jealousy were followed by days with less intimacy and more quarrels with the partner. So, it would be interesting to study the effect of positive partner dreams on the "survival" of the partnership; the Social Simulation Theory would be supported if positive partner dreams stabilize the partnership and ideally increase the chance of having off-spring. The finding that positive partnership quality is related to a higher percentage of partner dreams might be interpreted in favor of the Social Simulation Theory, even though longitudinal studies are needed to provide clear evidence.

Although the single participants reported an average of 9 years since separation, about 8% of their dreams still include the ex-partner; a finding that is in line with single case studies (Domhoff, 2003; Schredl & Reinhard, 2012). This indicates that partnerships do not only have a direct effect on dreams during the partnership but also long-term effects on dreaming.

As expected, there was a decrease of ex-partner dreams with longer time intervals since the last partnership. In addition, the percentage of ex-partner dreams decreases with



the duration of the partnership in persons with stable partnerships, also supporting the continuity hypothesis since long partnerships imply that any previous partnerships were a long time in the past. The emotional tone of ex-partner dreams was comparable with the general emotional tone of dreams, i.e., these dreams were less positive than partner dreams. This is in line with previous single-case studies (Domhoff, 2003; Schredl & Neuhäusler, 2019) showing less friendly and more aggressive interactions with the ex-partner. Again, it would be interesting to study the content of ex-partner dreams since not all these dreams were negative but may also reflect positive experiences with the former partner, e.g., erotic activities, spending time together, and/or doing something together (Schredl, 2011). The time since separation was also related to the percentage of partner dreams in singles, interestingly low satisfaction with the single status was related to a higher percentage of partner dreams; again supporting that dreams might also reflect waking-life thoughts, wishes, and fantasies (cf. Hall & Nordby, 1972).

In addition to the testing of the hypotheses based on the continuity hypothesis, we found several other significant effects; as these are of exploratory nature, however, these findings should be interpreted with caution. First, dream recall frequency was related to partner dream and ex-partner dream percentages. This could reflect a methodological issue because low dream recallers might have more problems in estimating dream theme frequencies (Beaulieu-Prevost & Zadra, 2005; Schredl, 2002), i.e., underestimate these percentages as they are more likely to forget their dreams. On the other hand, one might speculate that specific personality traits,, like openness to experience, might modulate the continuity between waking and dreaming (cf. Schredl, 2003). As persons with high openness to experience also tend to recall their dreams more often (Schredl & Göritz, 2017), the correlation between dream recall frequency and partner dream percentage might indicate that these persons have a higher probability of incorporating waking-life events into their dreams. This idea has been suggested for the trait concept of thin boundaries (Schredl, Kleinferchner, & Gell, 1996), a personality dimension that is closely related to openness to experience (McCrae, 1994).

Older persons (keep in mind that the present sample was not a student sample but included individuals with very long partnerships) tend to dream less often about their partners than younger persons. One might speculate as to whether the intensity of the partnership might play a role (cf. Schredl, 2018a) as only partnership quality was elicited. On the other hand, older singles dreamed more often about a partner than younger singles, i.e., it would be interesting to know whether this reflects different attitudes and wishes occurring in waking life. Men with relationships reported slightly lower percentages of partner dreams than women, also possibly reflecting the subjectively experienced intensity of the relationship. Moreover, men also estimated the emotional tone of partner dreams and ex-partner dreams as being more negative that women; an interesting finding to follow up. Although there was a small effect of education on the emotional quality of partner dreams in the total sample, the subsequent analysis indicated that educational levels does not seem to affect partner and ex-partner dreams in a substantial way.

5. Conclusion

To summarize, the findings of the present study clearly indicate that current and former partnerships affect dreaming in a marked way. Moreover, dreams also reflect wishes and fantasies of the individual. Given these strong relationships, it would be interesting to carry out longitudinal studies in order to study the effect of partnership characteristics on dreams but also the effect of partner and ex-partner dreams on relationships.

References

- Baumeister, R. F., & Bushman, B. J. (2017). Social psychology and human nature. Boston, MA, USA: Cengage Learning.
- Beaulieu-Prevost, D., & Zadra, A. L. (2005). How dream recall frequency shapes people's beliefs about the content of their dreams. North American Journal of Psychology, 7, 253-264.
- Cohen, J. (1988). Statistical power analysis for the behavioral sciences. Hillsdale: Lawrence Erlbaum.
- Domhoff, G. W. (1996). Finding meaning in dreams: a quantitative approach. New York: Plenum Press.
- Domhoff, G. W. (2003). The scientific study of dreams: neural networks, cognitive development and content analysis. Washington: American Psychological Association.
- Erlacher, D., & Schredl, M. (2004). Dreams reflecting waking sport activities: a comparison of sport and psychology students. International Journal of Sport Psychology, 35, 301-308.
- Geißler, C., & Schredl, M. (2020). College students' erotic dreams: Analysis of content and emotional tone. Sexologies, 29(1), e11-e17.
- Hall, C. S., & Nordby, V. J. (1972). The individual and his dreams. New York: New American Library.
- Hall, C. S., & Van de Castle, R. L. (1966). The content analysis of dreams. New York: Appleton-Century-Crofts.
- Hartmann, E. (2011). Continuity? Yes, Emotional Continuity. International Journal of Dream Research, 4, 77.
- McCrae, R. R. (1994). Openness to experience: expanding the boundaries of factor V. European Journal of Personality, 8, 251-272.
- McNamara, P., McLaren, D., Smith, D., Brown, A., & Stickgold, R. (2005). A "Jekyll and Hyde" within: aggressive versus friendly interactions in REM and Non-REM dreams. Psychological Science, 16, 130-136.
- Revonsuo, A., Tuominen, J., & Valli, K. (2015). The Avatars in the Machine. In T. K. Metzinger & J. M. Windt (Eds.), Open MIND (pp. 1-28). Frankfurt am Main: MIND Group.
- Robert, G., & Zadra, A. L. (2008). Measuring nightmare and bad dream frequency: impact of retrosepective and prospective instruments. Journal of Sleep Research, 17, 132-139.
- Schredl, M. (2001). Dreams of singles: effects of waking-life social contacts on dream content. Personality and Individual Differences, 31, 269-275.
- Schredl, M. (2002). Questionnaire and diaries as research instruments in dream research: methodological issues. Dreaming, 12, 17-26.
- Schredl, M. (2003). Continuity between waking and dreaming: a proposal for a mathematical model. Sleep and Hypnosis, 5, 38-52.
- Schredl, M. (2008). Dream recall frequency in a representative German sample. Perceptual and Motor Skills, 106, 699-702.

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- Schredl, M. (2009). Recall frequency of positive and negative dreams in a representative German sample. Perceptual and Motor Skills, 108, 677-680.
- Schredl, M. (2011). Dreams of a romantic partner in a dream series: Comparing relationship periods with periods of being separated. International Journal of Dream Research, 4, 127-131.
- Schredl, M. (2018a). Reminiscences of love: Former romantic partners in dreams. International Journal of Dream Research, 11(1), 69-73.
- Schredl, M. (2018b). Researching Dreams: The Fundamentals. Cham: Palgrave Macmillan.
- Schredl, M., Berres, S., Klingauf, A., Schellhaas, S., & Göritz, A. S. (2014). The Mannheim Dream questionnaire (MA-DRE): Retest reliability, age and gender effects. International Journal of Dream Research, 7, 141-147.
- Schredl, M., Desch, S., Röming, F., & Spachmann, A. (2009). Erotic dreams and their relationship to waking-life sexuality. Sexologies, 18, 38-43.
- Schredl, M., & Erlacher, D. (2008). Relationship between waking sport activities, reading and dream content in sport and psychology students. Journal of Psychology, 142, 267-275.
- Schredl, M., & Göritz, A. S. (2017). Dream recall frequency, attitude toward dreams, and the Big Five personality factors. Dreaming, 27(1), 49-58.
- Schredl, M., & Hofmann, F. (2003). Continuity between waking activities and dream activities. Consciousness and Cognition, 12, 298-308.
- Schredl, M., Kleinferchner, P., & Gell, T. (1996). Dreaming and personality: thick vs. thin boundaries. Dreaming, 6, 219-223.
- Schredl, M., & Neuhäusler, A. (2019). With or without you? Dreaming about the romantic partner – A case study. International Journal of Dream Research, 12(1), 141-146.
- Schredl, M., & Reinhard, I. (2009-2010). The continuity between waking mood and dream emotions: Direct and secondorder effects. Imagination, Cognition and Personality 29, 271-282.
- Schredl, M., & Reinhard, I. (2012). Frequency of a romantic partner in a dream series. Dreaming, 22(4), 223-229.
- Selterman, D., Apetroaia, A., & Waters, E. (2012). Script-like attachment representations in dreams containing current romantic partners. [Article]. Attachment & Human Development, 14(5), 501-515.
- Selterman, D., Apetroaia, A. I., Riela, S., & Aron, A. (2014). Dreaming of you: Behavior and emotion in dreams of significant others predict subsequent relational behavior. Social Psychological and Personality Science, 5(1), 111-118.
- Selterman, D., & Drigotas, S. (2009). Attachment styles and emotional content, stress, and conflict in dreams of romantic partners. Dreaming, 19, 135-151.
- Statistisches Bundesamt. (2018). Bevölkerung nach Bildungsabschluss in Deutschland. https://www.destatis. de/DE/ZahlenFakten/GesellschaftStaat/BildungForschungKultur/Bildungsstand/Tabellen/Bildungsabschluss. html, (retrieved May 14, 2018).
- Strauch, I., & Meier, B. (1996). In search of dreams: results of experimental dream research. Albany: State University of New York Press.
- Tuominen, J., Stenberg, T., Revonsuo, A., & Valli, K. (2019). Social contents in dreams: An empirical test of the Social Simulation Theory. Consciousness and Cognition, 69, 133-145.
- Uslar, D. v. (2003). Tagebuch des Unbewussten. Abenteuer im Reich der Träume. Würzburg: Königshausen & Neumann.

Zunker, M., Althoff, H. K., Apel, J., Lässig, H. S., Schültke, L., & Schredl, M. (2015). Comparing questionnaire and diary measures for eliciting nightmare frequency. International Journal of Dream Research, 8, 129-134.