

When dreams come true: The relation of salient dreams to the future satisfaction of waking needs

Richard Coutts

Halifax, Nova Scotia, Canada

Summary. The relation of salient dream content to the satisfaction of needs in the future was explored for 1,106 visitors to a dating website. The online participants completed a survey that collected a recent dream report, demographics, measures of waking activities, and whether their dream incorporated romantic or sexual attraction. Follow-up surveys collected their relationship status at 3 and 12 months. Participants who were single at study outset and who reported a dream of romantic or sexual attraction to a former partner were 83% more likely to report themselves as in a relationship 3 or 12 months later. Participants who were in a relationship at study outset and who dreamed of attraction to current or former partners were more likely to again report as in a relationship in both follow-up surveys, while those who dreamed of attractive non-partners, including acquaintances, famous people, or strangers, appeared more likely to break up. Single women were more likely than single men to subsequently partner if they dreamed of attraction, as were younger participants in comparison to older participants. Measures of waking life relevant to the continuity hypothesis (dating activity prior to sleep and dreaming, attraction toward a person in waking life, concern about being in a relationship) were included in the analysis and did not confound results. Findings are discussed in the context of functional hypotheses of dreaming.

Keywords: Dream; dreaming; romantic relationships; human needs

1. Introduction

Functional hypotheses of dreaming typically describe salient dreams as adapting mental processes to satisfy waking needs. Examples include Freud's (1900) description of salient dreams as purging aggressive, socially unacceptable drives to better satisfy social needs in the future; Winson's (1990) description of salient dreams as a form of dress rehearsal to satisfied needs associated with similar future events; threat simulation theory (Revonsuo, 2000), which describes salient dreams as providing an opportunity to practice threat avoidance to better satisfy safety needs in the future; social simulation theory (Revonsuo & Tuominen, 2015), which describes dreams as a simulation for training social skills and bonds; and the emotional selection hypothesis (Coutts, 2008) which characterizes salient dreams as modifying and testing mental schemas to better satisfy waking needs.

The plausibility of functional dream hypotheses can be considered by measuring relations of salient dream content to the predicted satisfaction of waking needs in the future. A challenge of any such investigation are the non-functional dream hypotheses that explain relations between dream content and the future satisfaction of needs without assigning a function to dreaming. The continuity hypothesis char-

acterizes dreams as being continuous with prior emotionally salient experiences (Hall & Nordby, 1972; Moffitt et al., 1995; Domhoff, 1996; Strauch & Meier, 1996; Domhoff, 2011) and conscious waking concerns (Saredi et al., 1997; Cartwright et al., 2006; Domhoff et al., 2006). The activation-synthesis hypothesis describes dream imagery as resulting from the forebrain's attempt to interpret memory consolidation and other neural activity occurring elsewhere within the brain (Hobson & McCarley, 1977; Hobson, 1988). Per the activation-synthesis hypothesis and the continuity hypothesis, the satisfaction of needs in the future can be explained by the waking concerns and activities that contributed to the dream content, rather than by the dream content. Therefore, investigations of functional dream hypotheses should include measures of waking concerns and activities to test whether these measures confound associations between dream content and the satisfaction of needs in the future.

Recalling a salient dream could trigger emotions that motivate the dreamer during waking to satisfy needs associated with the dream. This motivation could explain associations between dream content and the satisfaction of needs in the future without assigning a mental function to the dream. Investigations of dream function should therefore measure motivation after dream recall to capture any such change.

Longitudinal studies that test the relations of dream content to the satisfaction of relevant needs in the future are virtually absent from the dream literature. An exception is Cartwright's (1991, 2001) investigation of whether the dreams of participants undergoing divorce related to their mental wellbeing in the future. Presumably due to their divorces, 31 of 49 participants were diagnosed with depression at study outset. Thirteen of the 31 depressed participants reported dreams that incorporated the divorcing spouse as a character, as did five of the 18 non-depressed participants. Twelve months later, the groups were again tested. The group of non-depressed participants ($n = 18$) showed no change in

Corresponding address:

Richard Coutts, 2351 Amcrescent West Ave, Halifax, NS,
Canada B3L 3E4.

Email: richard@richardcoutts.com

Submitted for publication: May 2022

Accepted for publication: October 2022

DOI: 10.11588/ijodr.2023.1.89054

Beck Depression Inventory (BDI). Conversely, among the 31 depressed participants, those who incorporated the ex-spouse in their dreams had significantly lower BDI scores. In addition, participants were interviewed at 12 months to evaluate how they were “managing their lives,” including, “How were the kids? Were they dating? How were they doing financially?” Of the depressed participants, 8 of the 13 (62%) who had dreamed of their spouse had high adjustment scores after one year, compared to only 4 of the 18 (22%) who had not dreamed of their spouse, yielding an odds ratio (OR) of 2.77.

Human needs have been comprehensively categorized (Murray, 1938; Maslow, 1943; Alderfer, 1969). While there is a paucity of longitudinal studies in the dream literature that test for relations of salient dreams to need satisfaction in the future, cross-sectional studies are well represented. Examples of waking needs continuing into dream reports include the physiological need for hydration appeared in the dream reports of thirsty participants (Bokert, 1968); the physiological need for sex appeared in dreams about as often as in real life (Hartmann, 1998); safety needs appeared in dreams of participants with perceived threats to their safety during waking life (Wood et al., 1992); and ranges of human needs, as categorized by Maslow (1943), were found in a random sample of dreams (Coutts, 2010), with esteem needs (self-esteem based on ability, achievement, and self-respect) and belongingness needs (love and affection) appearing most frequently (37% and 27% respectively).

Dreams of romantic or sexual attraction were selected as the salient dream content for exploration because this category of dreams is well documented. Examples include men retrospectively reported dreaming more about sex than do women (Schredl et al., 2009; Schredl et al., 2019); married men dreamed less about sex than did single men while married women dreamed more about sex than did single women (Husband, 1936); men and women about to be married for the first time were more likely to dream of real or imagined partners than were their single counterparts (Westbrook, 1989); participants in relationships were more likely to dream of an actual partner while singles were more likely to dream of imagined partners (Schredl, 2001); and people who have never had a relationship reported dreaming of relationships (Schredl et al, 2020).

Coutts (2015) surveyed visitors to a dating website and found singles who went on a date prior to sleep were more likely to dream of romantic or sexual attraction; participants who had waking attraction (romantic or sexual attraction toward a person in waking life) were more likely to dream of romantic or sexual attraction, even if the waking attraction was for a celebrity or famous person; and female participants were more likely to dream of attraction to current or former partners, while male participants were more likely to dream of attraction to non-partners.

Hypothesis

The present study explored whether the predictions of functional dream hypotheses can be measured by testing the relations of salient dream content to the satisfaction of needs in the future. The explanatory variable selected for the present study was salient dreams of romantic or sexual attraction. Because relationships are an obvious mechanism to satisfy romantic or sexual needs, participants relationship status in the future was selected as the response variable, yielding the following research hypothesis:

Participants who dream of romantic or sexual attraction will be more likely to report as being in a relationship in the future.

2. Method

Three surveys were used to collect data for analysis: an initial survey that collected a dream report, initial relationship status, and other measures; and follow-up surveys at 3 and 12 months that collected participants' subsequent relationship status. Surveys have been used successfully to collect dream reports for analysis (Schredl et al., 2010; Aumann et al., 2012; Nielsen, 2012). Merritt et al. (1994) found that emotional information is often not related in dream reports unless solicited, and that when explicitly requested, an outpouring of feelings and emotions is typically related. Consequently, self-reporting of dream attraction was used instead of scoring by blind judges.

2.1. Participants

The data for participants who completed the first survey ($n = 15,567$) were analyzed as a separate study (Coutts, 2015). Of the 1,616 participants who completed all three surveys satisfactorily, 44% ($n = 716$) reported that their retrospective dream reports were from the prior night's sleep and 24% ($n = 390$) from two nights ago. Reports older than two nights ago were discarded, resulting in a sample size of 1,106 (mean age = 39.7, $SD = 13.0$). Large sample sizes were collected in anticipation of low proportions of expected participants in some cells. Regarding Initial Relationship Status, 79% of participants ($n = 869$) reported themselves to be Initially Single and 21% ($n = 237$) to be Initially Partnered. The frequencies of the demographic measures and covariates are listed in Table 1.

The dream reports collected for the present study are available as supplementary results (Coutts, 2022). Mean word length of the dream reports was 64 ($SD = 77.9$). The longest was 1190 words and the shortest was a single word (“love”). All participants wrote their responses in English. Sample reports for participants who reported attraction in their dream are given in Table 2.

2.2. Procedure

Visitors to the online dating website, Plenty of Fish (www.pof.com), were recruited to participate via an advertisement. Clicking the advertisement navigated participants to the study's privacy policy and informed consent request. Demographic information requested was limited to gender and age categories. An email address was collected for distributing follow-up surveys and sharing study findings. Participation was voluntary and unpaid.

The survey included one open question which collected a dream report: “Describe your most recently remembered dream in the text box below. If you don't remember a dream, leave this blank. If you remember more than one dream during the same sleep, describe them all.” Multiple-choice questions collected dream features and relevant waking activities. Those who reported people in their dream were asked, “Were you romantically or sexually attracted to anyone in your dream?” An answer of “Yes” was followed by a list of potential characters (current boyfriend/girlfriend, former boyfriend/girlfriend, current spouse, former spouse, friend or acquaintance, famous person, stranger, other). Responses were grouped to form the variable Dream At-

Table 1. Frequencies of explanatory variables by Initial Relationship Status

Explanatory Variable	Initially Single % (n)	Initially Partnered % (n)
Current or Former Partner Dream	15 (133)	35 (82)
Attractive Non-partner Dream	25 (213)	18 (43)
Relationship Concern	56 (483)	-
Waking Attraction	52 (454)	83 (197)
Dating Residue	4 (31)	21 (49)
Age (30+)	69 (602)	68 (161)
Gender (Female)	68 (588)	70 (166)

Note. Relationship Concern was not collected for Initially Partnered participants.

traction Type, comprising three values: Current or Former Partner, Attractive Non-partner, or No One. Dreams that included attraction to both a Current or Former Partner and an Attractive Non-partner (3%, n = 34) were categorized as Current or Former Partner. Because reports were retrospective, questions included the answer, “I don’t remember,” to discourage participants from fabricating responses.

Relationship status was collected with a multiple choice question with several categories including whether participants were currently in a relationship, were single and interested in a relationship, desired monogamous or non-monogamous relationships, and were currently dating someone with whom they wanted to enter a relationship. Answers were recoded into the dichotomous variable, Initial Relationship Status, composed of the values Initially Single and Initially Partnered. Participants who were single and responded as currently dating someone with whom they would like to enter a relationship were grouped with Initially Partnered participants. The dichotomous variable, Relationship Concern, was coded as No for Initially Single participants who reported that they were currently not inter-

ested in a relationship and Yes if they were interested in a relationship. To collect potential adjustments in motivation triggered by reflecting on the recalled dream, the portion of the survey that collected Relationship Concern followed the question that collected the dream report. Relationship Concern was not collected for Initially Partnered participants. Participants were asked, “At the time of your dream, did you have a crush on, love, or otherwise have strong romantic feelings for anyone in your waking life?” The multiple choice answers included an ex-partner, acquaintance, celebrity, or someone online. The dichotomous variable, Waking Attraction, was coded as Yes for participants who selected one of these options and No otherwise. The dichotomous variable, Dating Residue, was coded as Yes if participants responded that they had dated prior to sleeping and dreaming and No if they responded that they had not. Survey questions were designed and ordered to limit demand characteristics. All questions required answering before participants could advance to the next page and participants were blocked from navigating back to prior pages to change responses. The survey could not be filled out more than once per IP address to prevent multiple responses from one participant. After completing the initial survey, participants were emailed links to follow-up surveys at 3 and 12 months that collected their current relationship status, which were coded in the same manner as Initial Relationship Status. Whether partnered participants changed partners between surveys was not collected.

Covariates

The primary response variable, Future Relationship Status, was dichotomous and calculated as Partnered for participants who reported as partnered at 3 months, at 12 months, or both, and Single for participants who reported as not partnered in both follow-up surveys. Variables were created to assess potential confounds of Dream Attraction Type to Future Relationship Status. First, Initially Single participants with Relationship Concern would be motivated toward part-

Table 2. Sample dream reports with Romantic or Sexual Attraction

Dream Report	Gender	Age	Initial Relationship Status	Word Count
I had a dream that a woman friend and I had started talking, since we had a falling out, and we ended up talking about our true feelings towards each other. This led to us hugging and kissing.	Woman	18-29	Single	38
My soon to be ex telling me in the dream that he is choosing to be with another woman over me.	Woman	30-39	Partnered	21
Someone was calling my name across a lake and I went to the other side and it was the love of my life and I’ve never seen her before.	Man	40-49	Single	29
I was walking into a store with a guy who, until recently, had been my best friend. He told me that we should hold hands, so we walked through the entire store holding hands. When we got in line at the counter, he was holding a gold, pig shaped ornament. I asked him why he was buying it and he said it’s because he didn’t want to leave the store, and that he would rather stay in the store with me than leave and go back to his girlfriend.	Woman	18-29	Single	89
I was having sex with a girl I know, but I’ve not seen her for about 3 years and barely spoken to her at all in that time.	Man	18-29	Single	28
I was spending some romantic time with a life-long friend. We were at the lake with our children, grilling on a portable grill. We were laughing and having an exceedingly good time. I don’t remember what was being discussed, but we were, at intervals, looking into one another’s eyes. I felt content and happy.	Woman	40-49	Partnered	54

nering and, according to the continuity hypothesis, have their waking concerns continue in their dreams, providing a non-causal association of Dream Attraction Type to Future Relationship Status. Second, Waking Attraction and Dating Residue (dating or spending time with a significant other the day preceding the dream report) are known to permeate dreams and may also associate with Future Relationship Status. Consequently, these variables were collected and included in the analysis. Age and Gender are not potential confounders, so were analyzed separately.

The explanatory variables, Waking Attraction, Dating Residue, and Relationship Concern were dichotomous. The three values of Dream Attraction Type (Current or Former Partner, Attractive Non-partner, No One) were recoded into two dichotomous dummy variables: Current or Former Partner Dreams (coded as Yes if dream contained a Current or Former Partner and No if the dream report contained an Attractive Non-partner or No One) and Attractive Non-partner Dreams (coded as Yes if the dream report contained an Attractive Non-partner and No if the dream report contained a Current or Former Partner or No One).

Analysis

Logistic regression analysis (SPSS version 26) was used to investigate the hypothesized associations. Minimum sample size per cell was 5 unless otherwise noted. The cut-off for the post-hoc group assignment to assess the accuracy of the regression equation was .5. To control the family-wise error rate for the five explanatory variables included in the model (Current or Former Partner Dream, Attractive Non-partner Dream, Waking Attraction, Dating Activity, and Relationship Concern), the alpha level of .05 was adjusted using the Bonferroni correction for five comparisons for Initially Single participants (.0101) and for four comparisons for the Initially Partnered participants for which Relationship Concern was not collected (.0127). Tests with p-values below the correction were said to have significant associations. Tests with p-values below .05 and above the correction were reported as trends.

Pearson's chi-square tests with an alpha level of .05 were used to investigate possible relations of Future Relationship Status to the explanatory variables. Tests with p-values below .10 and above .05 were reported as trends. The relative percentage difference of those whose Future Relation-

ship Status was Partnered after attraction dreams to those whose Future Relationship Status was Partnered after non-attraction dreams was calculated.

3. Results

3.1. Analysis for Initially Single Participants

Figure 1 shows frequencies for Future Relationship Status by Dream Attraction Type for Initially Single participants. Initially Single participants who dreamed of Former Partners had higher frequencies of being partnered at 3 or 12 months than their counterparts who dreamed of Attractive Non-partners or No One ($\chi^2 = 13.118$, $DF = 2$, $p = .001$).

The logistic regression analysis for Initially Single participants ($\chi^2 = 39.777$, $DF = 5$, $p < .001$) produced a predictor that supported the research hypothesis, as Initially Single participants with Former Partner Dreams were 83% ($OR = 1.827$, $p = .003$) more likely to report as being partnered at 3 or 12 months when other variables were controlled (Table 3). The model also produced significant associations for Initially Single participants with Dating Residue ($OR = 3.340$, $p = .001$) and Relationship Concern ($OR = 1.437$, $p = .010$). Nagelkerke's R-square = .060 indicated a weak relationship of Future Relationship Status to the variables. The Hosmer-Lemeshow test ($\chi^2 = 1.720$, $DF = 6$, $p = .974$) indicated that the model estimates fit the data across the entire range of explanatory variables at an acceptable level. Model prediction success overall was 58% (Table 4).

3.2. Analysis for Initially Partnered Participants

Figure 2 shows frequencies for Future Relationship Status by Dream Attraction Type for Initially Partnered participants. Initially Partnered participants who dreamed of Attractive Non-partners had a near-significant higher frequency of being partnered at 3 or 12 months than their counterparts who dreamed of Current or Former Partners or No One ($\chi^2 = 5.116$, $DF = 2$, $p = .077$). Differences between Initially Single and Initially Partnered participants were significant ($\chi^2 = 95.244$, $DF = 5$, $p < .001$).

The logistic regression analysis for Initially Partnered participants ($\chi^2 = 23.304$, $DF = 4$, $p < .001$) produced a near-significant predictor that supported the research hy-

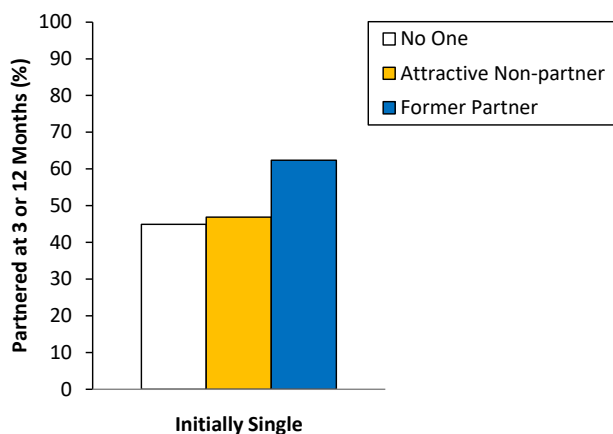


Figure 1. Frequencies of Partnered at 3 or 12 months by Dream Attraction Type for Initially Single participants

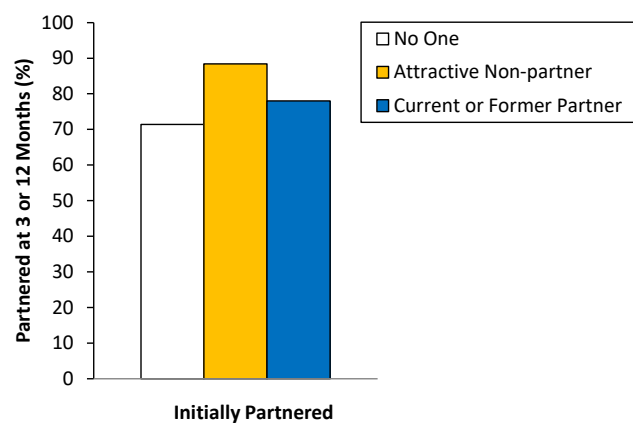


Figure 2. Frequencies of Partnered at 3 or 12 months by Dream Attraction Type for Initially Partnered participants

Table 3. Significant predictors of Future Relationship Status for Initially Single participants

Explanatory Variable	β	SE β	Wald's χ^2	df	p	Odds Ratio	95% lower	C.I. upper
Former Partner Dream	0.603	0.205	8.609	1	.003**	1.827	1.222	2.733
Attractive Non-partner Dream	-0.002	0.168	0.000	1	.991	0.998	0.719	1.386
Dating Residue	1.206	0.355	11.553	1	.001**	3.340	1.666	6.697
Waking Attraction	0.224	0.143	2.468	1	.116	1.251	0.946	1.655
Relationship Concern	0.363	0.142	6.553	1	.010**	1.437	1.089	1.897
Constant	-1.847	0.414	19.939	1	<.001	0.158		

Note: ** indicates met correction of p = .0127, * indicates met correction of p = 0.05

pothesis, as Initially Partnered participants with Attractive Non-partner Dreams were three times ($OR = 2.988$, $p = .040$) more likely to report as being partnered at 3 or 12 months when the other variables were each controlled (Table 5). A significant association was also found for those with Dating Residue ($OR = 8.459$, $p = .004$). Nagelkerke's R-square = .142 indicated a weak relationship of Future Relationship Status to the explanatory variables. The Hosmer-Lemeshow test ($\chi^2 = 1.742$, $DF = 5$, $p = .884$) indicated that the model estimates fit the data across the entire range of explanatory variables at an acceptable level. Model prediction success overall was 77% (Table 6).

3.3. Investigation of Partnering in the Future by Initial Relationship Status

Initially Single participants had higher frequencies of future partnering after having Former Partner Dreams while Initially Partnered participants had higher frequencies after Attractive Non-partner Dreams. This difference was further investigated by categorizing Initially Partnered participants by the time periods when they partnered in the future. As shown in Figure 3, Initially Partnered participants with Current or Former Partner Dreams were more likely to report as being partnered at both 3 and 12 months while those with Attractive Non-partner Dreams were more likely to be single at 3 months and partnered at 12 months and more likely to be partnered at 3 months and single at 12 months ($\chi^2 = 14.929$, $DF = 6$, $p < .021$).

3.4. Effects of Relationship Concern, Gender, Waking Attraction, Dating Residue, and Age

The influence of explanatory variables on Future Relationship Status were assessed with the relative percentage difference measure for Initially Single participants (Table 7). For example, Initially Single participants with Relationship Concern were 69% ($n = 55$) more likely to report as being partnered at 3 or 12 months after a Former Partner Dream,

compared to 49% ($n = 134$) for those who did not dream of attraction, yielding a relative percentage difference of 40% ($69/49 - 1$). This compared to 31% for those without Relationship Concern. As shown, relative percentage difference was positive for all Initially Single participants with former partner dreams.

In addition to testing relations of salient dreams to Future Relationship Status, the present study tested relations of salient dreams to whether participants subsequently sought a relationship. For Initially Single participants, Table 8 shows relative percentage differences for Future Relationship Concern (partnered or seeking a partner at 3 or 12 months) by Initial Relationship Concern. As shown, Initially Single participants were more likely to report as partnered or seeking a partner after dreaming of attraction regardless of Dream Attraction Type or Initial Relationship Concern.

4. Discussion

This study explored functional dream hypotheses by testing for relations of salient dreams to the satisfaction of needs in the future. Relations were found, as single participants who dreamed of attraction to former partners were 83% more likely to report as being in a relationship 3 or 12 months later. Participants who were in a relationship at study outset and who dreamed of current or former partners were more likely to again report as in a relationship in both follow-up surveys, while those who did not dream of attraction or dreamed of attraction to non-partners, including acquaintances, strangers, and famous people, were more likely to break up.

Relations were also found between salient dreams of attraction and changes in motivation toward being in a relationship. Single participants who reported as not seeking a relationship at study outset, and who dreamed of attraction, were more likely to change their status in follow-up surveys to either being in a relationship or seeking a relationship. Likewise, participants who were in a relationship or were seeking a relationship at study outset, and who dreamed of attraction, were more likely to again report as either in a relationship or as seeking a relationship, while those who did not dream of attraction were more likely to change their status to not seeking a relationship.

As described by the continuity hypothesis, waking activities and concerns are known to continue into dreaming and are therefore potential confounders for any study investigating relations of dreaming to the satisfaction of needs in the future. Consequently, measures of dating activity, waking attraction, and waking concern for being in a relationship were included in the analysis. Because recalling a salient dream could trigger emotions that motivate participants to seek a relationship partner, these measures were collected

Table 4. Frequencies for initially single participants

Observed		Predicted		
		Partnered	Single	% Correct
Future Relationship Status	Partnered	212	206	51
	Single	158	293	65
Overall % Correct				58

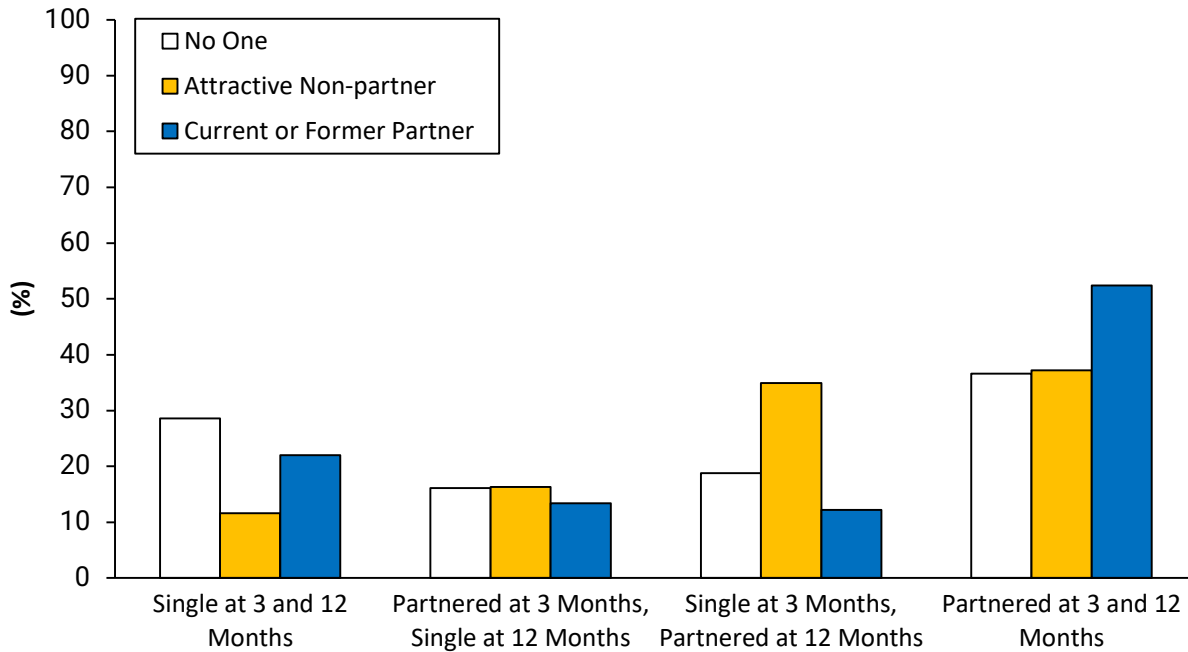


Figure 3. Initially Partnered participants by Future Relationship Status at 3 and 12 months

Note. Sample sizes: Current or Former Partner (n = 82), Attractive Non-partner (n = 43), and No One (n = 112).

after dream recall to capture changes in motivation. As expected, these measures were predictors of whether participants would be in a future relationship. However, none of these measures were confounders.

Single women were more likely to report as partnered after dreaming of attraction than were single men. This gender difference may be due to differing attitudes towards relationships. Men have been found to have stronger drives toward multiple sex partners (Baumeister et al., 2001; Fenigstein & Preston, 2007) and women to have stronger drives toward committed relationships (Blakemore et al., 2005). In the present study, women may have differed from men because their attraction dreams related to future relationships while men's attraction dreams related to future sexual activity. However, this hypothesis was not tested as measures of future sexual activity were not collected.

A goal of the present study was to test predictions of some functional dream hypotheses. Winson's (1990) hypothesis that dreams of past events improve abilities to cope with similar future events was supported, as associations of dreams of past relationship partners to being in a future relationship were found. Threat simulation theory (Revonsuo, 2000) was not supported, as observed associations were with relationship needs, not safety needs. Social

simulation theory (Revonsuo & Tuominen, 2015) was supported, as dreams of romantic or sexual attraction could be described as training social skills and bonds. Freud's (1900) hypothesis that dreams purge socially unacceptable drives to better satisfy social needs was partially supported, as associations were found with dreams of attraction to non-partners by participants in a relationship, which could be interpreted to reflect socially unacceptable drives. However, associations were also found for socially acceptable dreams of single participants, which did not support Freud's hypothesis. The emotional selection hypothesis that dreams modify and test mental schemas to improve their fitness for satisfying waking needs was supported, as relations were found of salient dreams to the future satisfaction of participants' needs.

5. Limitations and Future Work

Perhaps the most important limitation of this investigation is the open question of whether any confounders were omitted from the analysis. The present study measured all of the potential confounders that this author conceived of during study design (dating activity prior to sleep and dreaming, attraction toward a person in waking life, concern about being

Table 5. Significant predictors of Future Relationship Status for Initially Partnered participants

Explanatory Variable	β	SE β	Wald's χ^2	df	p	Odds Ratio	95% lower	C.I. upper
Current or Former Partner Dream	0.154	.356	0.187	1	.665	1.167	0.581	2.344
Attractive Non-partner Dream	1.095	.532	4.229	1	.040*	2.988	1.053	8.481
Dating Residue	2.135	.745	8.223	1	.004**	8.459	1.966	36.407
Waking Attraction	0.587	.396	2.197	1	.138	1.798	0.828	3.905
Constant	-4.236	.920	21.203	1	<.001	0.014		

Note: ** indicates met correction of p = .0127, * indicates met correction of p = 0.05

Table 6. Frequencies for Initially Partnered participants

Observed	Predicted			% Correct
	Partnered	Single		
Future Relationship Status	Partnered	182	0	100
	Single	55	0	0
Overall % Correct				77

in a relationship). However, confounders could have been overlooked. For example, a measure of whether participants had a date scheduled in the future was not collected. Future studies may wish to investigate such additional potential confounders.

This study was exploratory in nature, as participants were self-selected and dream reports were retrospective. Future studies may wish to collect multiple dream reports per participant prospectively in a more structured setting. The person with whom participants partnered in the future, including former partners, was not assessed and could have illuminated the associations observed. The present findings suggest that romantic attraction in dream reports may associate differently than sexual attraction with participants' future relationship status. Future studies would likely benefit from collecting attraction types (romantic, sexual) as separate variables.

Care should be taken when extending the present findings to the general public. The mental state of participants in a relationship yet who visit a dating website likely differs from those who are in relationships and not visiting websites designed for finding new partners. Also, participants visiting dating websites may have higher drives to form new relationships than do non-visitors.

6. Conclusion

The literature gap of relations of salient dreams to future need satisfaction is problematic for proponents of function-

al dream hypotheses. The present study helps fill this literature gap with findings that demonstrate relations of dreams of romantic or sexual attraction to the future satisfaction of relationship needs. However, the scope of this study was narrow, focusing on needs associated with relationships. Longitudinal investigations of relations of salient dream content to the future satisfaction of other human needs are sorely needed.

Acknowledgements

I thank Ilya Blum and David Streiner for their tutelage; Stephanie Isbell, Edward Pace-Schott, and Tore Nielsen for their feedback and suggestions; and Plenty of Fish (www.pof.com) for donating advertising space for conducting the survey.

Data Accessibility Statement

Of the 1,106 participants, 1,035 donated their dream reports for publication provided personal information was redacted. Their reports and sample survey questions are available as supplementary results (Coutts, 2022).

Declaration of competing interest

The author declares that there is no conflict of interest.

References

- American Psychiatric Association (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: Author.
- Alderfer, C.P. (1969). An empirical test of a new theory of human needs. *Organizational Behavior and Human Performance*, 4 (2): 142-75. [https://doi.org/10.1016/0030-5073\(69\)90004-X](https://doi.org/10.1016/0030-5073(69)90004-X)
- Aumann, C., Lahl, O., & Pietrowsky, R. (2012, June). Relationship between dream structure, boundary structure and the Big Five personality dimensions. *Dreaming*, 22(2), 124-135. <https://doi.org/10.1037/a0028977>

Table 7. Relative percentage differences for being partnered at 3 or 12 Months for Initially Single participants

Explanatory Variable		Dream Attraction Type % (n)			Relative Percentage Difference %		Chi Square DF=5		min. cell size
		No One	Attractive Non-partner	Former Partner	Attractive Non-partner	Former Partner	χ^2	p	
Relationship Concern	No:	40 (101)	39 (32)	53 (28)	-5	31	17.182	.004	5
	Yes:	49 (134)	52 (68)	69 (55)	7	40			
Gender	Women:	46 (171)	54 (69)	69 (61)	18	49	21.655	.001	5
	Men:	42 (64)	36 (31)	50 (22)	-15	18			
Waking Attraction	No:	43 (124)	44 (37)	50 (20)	3	17	40.630	.001	5
	Yes:	48 (111)	49 (63)	68 (63)	2	42			
Dating Residue	No:	43 (216)	46 (91)	61 (74)	5	40	18.763	.002	2
	Yes:	79 (19)	69 (9)	82 (9)	-13	3			
Age	18-29:	48 (69)	49 (40)	79 (33)	3	64	15.841	.007	5
	30+:	44 (166)	45 (60)	55 (50)	4	25			

Table 8. Observed dream differences for Future Relationship Concern for Initially Single participants

Explanatory Variable		Dream Attraction Type % (n)			Relative Percentage Difference %		Chi Square DF=5		min. cell size
		No One	Attractive Non-partner	Former Partner	Attractive Non-partner	Former Partner	χ^2	p	
Relationship Concern	No:	86 (273)	91 (130)	93 (80)	5.0	7.0	52.675	.001	5
	Yes:	66 (250)	73 (83)	79 (53)	11.4	20.1			

- Bokert, E. (1968) The effects of thirst and a related verbal stimulus on dream reports. Ph.D. dissertation, New York University.
- Baumeister, R. F., Catanese, K. R., & Vohs, K. D. (2001). Is There a Gender Difference in Strength of Sex Drive? Theoretical Views, Conceptual Distinctions, and a Review of Relevant Evidence. *Personality and Social Psychology Review*, 5(3), 242–273. https://doi.org/10.1207/S15327957PSPR0503_5
- Blakemore, J.E.O., Lawton, C.A. & Vartanian, L.R. (2005). I Can't Wait to Get Married: Gender Differences in Drive to Marry. *Sex Roles*, 53, 327–335. <https://doi.org/10.1007/s11199-005-6756-1>
- Cartwright, R. (1991). Dreams That Work: The Relation of Dream Incorporation to Adaptation to Stressful Events. *Dreaming*, Vol. 1, No.1, 3–9.
- Cartwright, R. (2001). Dreams and Adaptation to Divorce. In Barrett, D. (Ed.). (1996). *Trauma and dreams*. Cambridge, MA, US: Harvard University Press.
- Cartwright, R. D., Agargun, M., Kirkby, J., & Friedman, J. (2006). Relation of dreams to waking concerns. *Psychiatry Research*, 141, 261–270. <https://doi.org/10.1016/j.psychres.2005.05.013>
- Coutts, R. (2008). Dreams as modifiers and tests of mental schemas: an emotional selection hypothesis. *Comprehensive Psychology*, 4, 22, 561–574. <https://doi.org/10.2466/pr0.102.2.561-574>
- Coutts, R. (2010). A pilot study for the analysis of dream reports using Maslow's need categories: an extension to the emotional selection hypothesis. *Psychological Reports*, 107(2), 659–673. <https://doi.org/10.2466/09.PR0.107.5.659-673>
- Coutts, R. (2015). Variation in the frequency of relationship characters in the dream reports of singles: a survey of 15,657 visitors to an online dating website. *Comprehensive Psychology*, 4, 22. <https://doi.org/10.2466/09.CP4.22>
- Coutts, R. (2022). Dream Reports of Visitors to an Online Dating Website (n = 1035). https://figshare.com/articles/dataset/Dream_Reports_of_Visitors_to_an_Online_Dating_Website_N_1501_/13476879
- Domhoff, G. W. (2011). Dreams are embodied simulations that dramatize conceptions and concerns: The continuity hypothesis in empirical, theoretical, and historical context. *International Journal of Dream Research*, 4(2), 50–62.
- Domhoff, G. W. (1996). *Finding meaning in dreams: a quantitative approach*. New York: Plenum.
- Domhoff, G. W., Meyer-Gomes, K., & Schredl, M. (2006). Dreams as the expression of conceptions and concerns: A comparison of German and American college students. *Imagination, Cognition and Personality*, 25(3), 269–282. <https://doi.org/10.2190/FC3Q-2YMR-9A5F-N52M>
- Fenigstein, A., & Preston, M. (2007) The Desired Number of Sexual Partners as a Function of Gender, Sexual Risks, and the Meaning of "Ideal", *The Journal of Sex Research*, 44:1, 89–95, <https://doi.org/10.1080/00224490709336795>
- Freud, S. (1900). *The interpretation of dreams*. (Standard ed.) Vol. IV. London: Hogarth.
- Hall, C., & Nordby, V. (1972). *The individual and his dreams*. New York: New American Library.
- Hartmann, E. (1998) *Dreams and nightmares: the new theory on the origin and meaning of dreams*. New York: Plenum Press.
- Hobson, J. A. (1988) *The dreaming brain: how the brain creates both the sense and the nonsense of dreams*. New York: Basic Books.
- Hobson, J. A., & McCarley, R. W. (1977) The brain as a dream state generator: an activation-synthesis hypothesis of the dream process. *American journal of psychiatry*, 134. Pp. 1335–1348.
- Husband, R. W. (1936). Sex differences in dream content. *Journal of Abnormal and Social Psychology*, 30, 513–521.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50, 370–396.
- Merritt, J. M., Stickgold, R., Pace-Schott, E., Williams, J., & Hobson, J. A. (1994) Emotion profiles in the dreams of men and women. *Consciousness and Cognition*, 3, 46–60. <https://doi.org/10.1006/ccog.1994.1004>
- Moffitt, A., Kramer, A., & Hoffman, R. (Eds.). (1995). *The Function of Dreaming*. Albany, New York: State University of New York Press.
- Murray, H. A. (1938). *Explorations in personality: a clinical and experimental study of fifty men of college age*. New York: Oxford University Press.
- Nielsen, T. (2012). Variations in Dream Recall Frequency and Dream Theme Diversity by Age and Sex. *Frontiers in neurology*. 3. 106. <https://doi.org/10.3389/fneur.2012.00106>
- Revonsuo, A. (2000). The reinterpretation of dreams: an evolutionary hypothesis of the function of dreaming. *Behavioral and Brain Sciences*, 23, 793–1121. <https://doi.org/10.1017/S0140525X00004015>
- Saredi, R., Baylor, G. W., Meier, B., & Strauch, I. (1997). Current concerns and REM-dreams: A laboratory study of dream incubation. *Dreaming*, 7, 195–208. <https://doi.org/10.1037/h0094474>
- Schredl, M. (2001). Dreams of singles: effects of waking-life social contacts on dream content. *Personality and Individual Differences*, 31, 269–275. [https://doi.org/10.1016/S0191-8869\(00\)00135-5](https://doi.org/10.1016/S0191-8869(00)00135-5)
- Schredl, M., Desch, S., Römig, F., & Spachmann, A. (2009). Erotic dreams and their relationship to waking-life sexuality. *Sexologies*, 18, 38–43. <https://doi.org/10.1016/j.sexol.2008.05.001>
- Schredl, M., Echevarria, N.C., Saint Macary, L., & Weiss, A.F. (2020). Partners and ex-partners in dreams: An online survey. *International Journal of Dream Research*, 13, No. 2. <https://doi.org/10.11588/ijodr.2020.2.75338>

- Schredl, M., Geißler, C., & Göritz, A. S. (2019). Factors influencing the frequency of erotic dreams: an online study. *Psychology & Sexuality, 10*(4), 316-324. <https://doi.org/10.1080/19419899.2019.1638297>
- Schredl, M., Paul, F., Lahl, O., & Göritz, A. S. (2010). Gender differences in dream content: Related to biological sex or sex role orientation? *Imagination, Cognition, and Personality, 30*, 171-183. <https://doi.org/10.2190/IC.30.2.e>
- Strauch, I., & Meier, B. (1996). *In search of dreams*. Albany: State University of New York Press.
- Revonsuo, A. & Tuominen, J. (2015). Avatars in the Machine: Dreaming as a Simulation of Social Reality. *Open MIND, 1-28*. <https://doi.org/10.15502/9783958570375>
- Westbrook, D. A. (1989). *Dreams and first marriage at midlife transition*. Berkeley: Dissertation, California School of Professional Psychology.
- Winson, J. (1990). The meaning of dreams. *Scientific American, 263*(5), 86-96.
- Wood, J. M., Bootzin, R. R., Rosenhan, D., Nolen-Hoeksema, S., & Jourden, F. (1992) Effects of the 1989 San Francisco earthquake on frequency and content of nightmares. *Journal of Abnormal Psychology, 101*.