

# Frequency and nature of flying dreams in a long dream series

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**Summary.** Although many authors have speculated about the possible correlates of flying dreams, empirical research in this area is scarce. In a long series of 6701 dreams, 1.72% (115 dreams) of them included unaided flying. These showed great variability in characteristics like body position while flying; the activities that triggered flying; the method of flying; presence of other flying persons and being seen by other dream characters. Dreams with normal flying were associated with the waking-life experience of flying, whereas non-lucid flying dreams were not. Being lucid in a dream affects the characteristics of flying dreams. Assuming continuity on an emotional level, large-scale diary studies are needed to investigate the relationship between the emotions of flying dreams and waking life experiences.

**Keywords:** Flying dreams; Continuity hypothesis

## 1. Introduction

One of the most exciting dream topics is flying without any mechanical assistance. Although 30% to 63.5% of the participants reported that they had experienced flying dreams at least once (Brink, Solis-Brink, & Hunter, 1977; Griffith, Miyagi, & Tago, 1958; Nielsen, et al., 2003; Schredl, Ciric, Götz, & Wittmann, 2004), the actual frequency of flying dreams is very low: 1.2% of the total dreams (N = 1910 dreams) were flying dreams (Barrett, 1991).

Even though many researchers have formulated theories about the origin of flying dreams (overviews: Schönhammer, 2004; Schredl, 2008), systematic research about the phenomenology of flying dreams is scarce. Barrett (1991) reported that persons with lucid dreams also reported flying dreams more often, but differences in lucid vs. non-lucid flying dreams have not been studied. Systematic research regarding dreams with normal flying, e.g., traveling by air plane, and their waking-life correlates, has not been carried out either. Anecdotal evidence that hang-glider instructors often dream about flying was reported by Van de Castle (1994), supporting the continuity hypothesis, i.e., persons with waking-life flying experiences dream more often about flying. The increase in flying dream frequency from 1956 to 2000 (Schredl & Piel, 2007) also supports the continuity hypothesis because the overall amount of air travel has increased over the last few decades. Again, systematic research on the effect of air traveling on dreams has not yet been carried out.

The present study analyzed a series of 6701 dreams recorded over a period of sixteen (16) years. In addition to studying the effect of air travel on the frequency of flying dreams, the phenomenology of flying dreams was studied

in detail, e.g., emotional content; body position while flying; and activities that trigger flying. Lastly, lucid and non-lucid flying dreams were compared. Based on the continuity hypothesis, it was expected that the number of dreams with normal flying increases after the first flight experiences in waking life. All other analyses were of an exploratory nature.

## 2. Methods

### 2.1. Dream diary

Starting in September, 1984 the participant has kept an unstructured dream diary. Dreams recorded to the end of December 2000 were included in this study (N = 6701; see Table 1).

### 2.2. Participant and procedure

The male participant was 22 years old at the beginning of the dream series of this study. Two events in the life of the dreamer are important for the topic of this article. His first waking-life experience with flying (airplane) was a transatlantic trip in the summer of 1996 from Frankfurt, Germany to San Francisco, California (July, 9 1996) and returning by air one week later. Secondly, the dreamer attended a workshop on lucid dreaming given by Paul Tholey and Brigitte Holzinger on February, 22 1996. The dreamer started performing regular reality checks during the day to increase the number of his lucid dreams (Tholey, 1983).

The dream reports were typed and entered into a database (Alchera 3.72, created by Harry Bosma, www.mythwell.com). This database has a feature that allows one to assign key words to his or her dreams, a task carried out by the dreamer him- or herself. First, whether the dreamer was flying unaided within the dream – or with mechanical means (see result section) – was rated. These flying dreams were scored along the following scales: unaided vs. mechanical means (e.g., car, bus, house, sitting on a piece of steel); body position while flying; explicitly mentioned positive feelings associated with flying; explicitly mentioned fear/anxiety related to flying; occurrence of other persons flying in the dream; whether other dream characters watch the dreamer flying; flying techniques (using hands or simple concentra-

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tion); and activities that triggered flying. The dreams were also rated regarding their lucidity using the common definition of being aware of the fact that it is a dream while dreaming (Schredl & Erlacher, 2004). Several dreams (N = 7) in which the dreamer thought about the fact that flying is only possible in dreams but still thought he was awake were also put into this category.

Secondly, the dreams in which the dreamer is flying in a way that is possible in waking life (airplane, helicopter, hang glider, space ship) were also coded. In addition, dreams with unrealistic flying as a topic (but not including the dreamer flying in the dream) were also coded.

The Alchera software also provides a word count for each dream report. A single dream report was used as an analysis unit. The data were entered into an Excel spreadsheet (Microsoft) and data analysis was carried out using the SAS 9.2 software package for Windows.

### 3. Results

#### 3.1. Frequency of flying dreams

Overall, 115 dreams of the 6701 (1.72%) included flying without any mechanical apparatus. The mean word count of the flying dreams was  $201.0 \pm 107.7$  words. The frequency of flying dreams over the sixteen (16) years is depicted in Figure 1. The flying dreams were divided in two groups: non-lucid dreams (N = 76) and lucid dreams (N = 39). After the workshop in 1996, the frequency of lucid flying dreams increased from 0.16% to 2.90% (effect size:  $d = 0.262$ ;  $\chi^2 = 113.8$ ,  $p < .0001$ ), but the frequency of non-lucid flying dreams remained unchanged (1.13% vs. 1.16%; effect size:  $d = 0.003$ ,  $\chi^2 = 0.0$ ,  $p = .9272$ ).

Overall, twenty-seven (27) normal flying dreams were recorded (0.40% of the total dreams): airplane (N = 19); helicopter (N = 4); hang glider (N = 2); and space ship (N = 2). The frequency of dreams including plane travel increased after the first transatlantic flight in the waking life of the dreamer in 1996 (0.14% to 1.32%; effect size:  $0.155$ ,  $\chi^2 = 36.1$ ,  $p < .0001$ ). In fact, two (2) flying dreams occurred two and seven days after that first flight.

Table 1. Dream series (N = 6701).

Year	Dreams	Mean word count
1984	20	183.1 ± 94.5
1985	177	156.3 ± 98.2
1986	220	138.5 ± 82.2
1987	308	123.6 ± 88.6
1988	501	121.6 ± 84.4
1989	533	138.1 ± 84.8
1990	531	124.8 ± 77.8
1991	582	115.1 ± 70.1
1992	879	133.9 ± 84.0
1993	836	123.9 ± 75.2
1994	544	107.1 ± 69.4
1995	457	110.3 ± 69.7
1996	484	138.5 ± 99.6
1997	201	136.5 ± 94.4
1998	119	134.6 ± 78.6
1999	230	140.0 ± 99.3
2000	79	164.5 ± 92.4

#### 3.2. Nature of flying dreams

In 20.00% of the flying dreams (N = 23), the dreamer used some mechanical means to support his flying like a car; a bus; a piece of steel; a juggling ball; a unicycle; even a house. Body positions were explicitly mentioned in thirty three (33) dreams: prone positions (N = 12); sitting (N = 10); standing upright (N = 7); and supine positions (N = 4). Positive emotions were explicitly reported in 46.09% (N= 40) of the flying dreams; fear (most often mild) associated with flying, e.g., fear of falling, was reported in 32.17% (N= 37) of the flying dreams. In twenty-one (21) dreams, another dream character was flying beside the dreamer. In three (3) instances, the

Figure 1. Percentage of flying dreams (N = 6701 dreams).

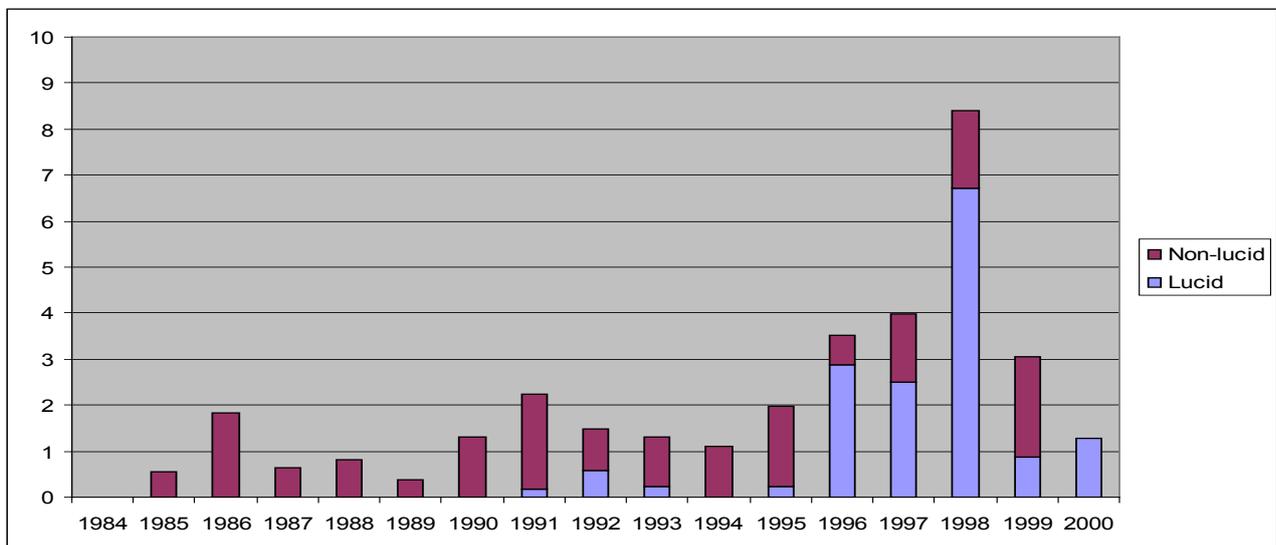


Table 2. Differences between lucid and non-lucid flying dreams.

Variable	Lucid flying dreams (N = 39)	Non-lucid flying dreams (N = 76)	Statistical test
Word count	237.1 ± 129.4	182.4 ± 90.1	t = 2.4 p = .0215
Mechanical aids	5.13%	27.63%	$\chi^2 = 8.2$ p = .0043
Positive emotions	41.03%	48.48%	$\chi^2 = 0.6$ p = .4354
Fear/anxiety	30.77%	32.89%	$\chi^2 = 0.1$ p = .8173
Other persons flying	7.69%	23.68%	$\chi^2 = 4.4$ p = .0356

dreamer carried another person while flying. Interestingly, the dreamer was being watched by other dream characters in 38.26% (N= 44) of the dreams. In one dream, for example, the dreamer tried to impress a girl with his ability to fly (and he succeeded!). In 35.65% (N= 41) of the dreams he was alone while flying (no spectators); whereas in 24.35% (N= 28) of the dreams, other persons were present, but it was not mentioned whether they saw the dreamer flying. In two (2) dreams, the dreamer avoided being seen by others while flying (flying illicitly across a boarder; and fear of being robbed of his secret of how to fly). The triggers preceding flying in dreams were as follows: deliberately flying (N = 35); jumping (N = 20); running (N = 17); being chased (N = 9); demonstrating the ability to others (N = 9); impaired ability to move (N = 1); and other activities like driving a car, sliding, swimming, and being pushed (N = 10). In thirty one (31) dreams, a statement was made as to what kind of technique the dreamer used for flying. Most often (N = 20), he stated that he used concentration (involving mental effort) to fly; in ten (10) dreams the hands were used (swimming, paddling); and in one (1) dream the feet were used (also like swimming).

Seven (7) dreams with references to unrealistic flying but without actual flying of the dreamer covered topics like seeing tools that enable a person to fly (walking stick or necklace); inventing a machine that produced some kind of magnetic field so one could fly; being in a flight simulator; seeing another person flying; and the intention to demonstrate the ability to fly, but the tool failed to function.

### 3.3. Differences between lucid and non-lucid flying dreams

The lucid flying dream reports were on average somewhat longer than the non-lucid flying dream reports (see Table 2). Although emotions were mentioned equally often in both types of flying dreams, the non-lucid flying dreams more often included mechanical aids and other persons also flying within the dream. For the eleven (11) lucid dreams with explicit descriptions of the body position while flying, the majority (72.73%) were in a prone position. On the other hand, the most common body positions in non-lucid flying dreams were sitting (40.91%); standing upright (27.27%); and prone positions (18.18%), with a total of twenty two (22) dreams containing explicit descriptions of the body position. As expected, most often, flying in lucid dreams (36 coded dreams) was initiated by the dreamer deliberately (75.00%); whereas, flying in non-lucid dreams (64 coded dreams) was more often triggered by running (25.00%); jumping (21.88%); and being chased (14.06%). In non-lucid

dreams, the dreamer often mentioned that active concentration is necessary for flying (80.95% of 21 coded dreams); whereas, in 70.00% of the lucid flying dreams the dreamer used hand or feet movements for flying. The percentage of being seen and flying without any spectators is the same in both types of flying dreams.

## 4. Discussion

The findings of this dream series indicate that flying dreams show a great variability in content, depending on whether or not they are lucid. Only dreams with normal flying are affected by waking-life experiences of air travel.

The frequency of 1.72% flying dreams in this dream series of 6701 dreams is comparable to the percentage obtained in a large sample of diary dreams reported by students (Barrett, 1991). Interestingly, the frequency of non-lucid flying dreams was not affected by flying experiences in real life. An increase in lucid flying dreams occurred after the dreamer's attendance at a workshop on lucid dreaming, a finding often reported in the literature (e.g., LaBerge, 1980). It is notable that the frequency of non-lucid flying dreams was not affected. One might have expected a decrease in respect to non-lucid flying dreams because flying is a bizarre dream activity that does not withstand a reality check. However, the participant reported several pre-lucid dreams in which he was wondering why he was able to fly in waking-life. The dreamer did not realize he was in a dream where flying is possible. On the other hand, frequency of dreams with normal flying increased considerably after the dreamer's first air travel. This finding supports the continuity hypothesis. Adopting the approach of Schredl and Hofmann (2003) who reported a significant correlation between the amount of driving a car and dreams of car driving, or using similar studies (Schredl, Funkhouser, & Arn, 2005-2006, 2009) reporting a relationship between interindividual differences regarding waking-life activities and corresponding dreams are beneficial. A study of the relationship between the amount of air travel and normal flying dreams is thus desirable.

It was noted that every fifth flying dream of this dreamer featured an aid that would not work in waking life. This might be an idiosyncrasy of this particular dreamer. Analyses of dream reports of more dreamers are needed to study this interesting topic.

Emotions were not reported in all flying dreams explicitly. However, one cannot conclude that some flying experiences in dreams are not accompanied by emotions because validity studies (Schredl & Doll, 1998) have shown that a dream report does not include descriptions of all feelings experienced by the dreamer. This results in an underestimation of

the emotional intensity of the dream by external judges. It would be desirable to include self-rating scales to measure the emotional intensity of flying dreams by the dreamer in order to compare this dream type with other dreams. Although intensity of fear and anxiety was often stated as less intense compared to positive emotions, about 30 to 33% percent of flying dreams contained negative emotions as well. This might be relevant for interpreting flying dreams (see below). The body position while flying; the activities that triggered flying; the method of flying; the presence of other flying persons; and being seen by other dream characters varied considerably even within the dreams of one person. In that regard, this single case study is just a starting point for investigating the impressive variability of flying dreams.

Being aware of the dream while dreaming had a substantial effect on flying dreams. Several characteristics were comparable to non-lucid flying dreams, like explicitly mentioned emotions, the dreamer in the lucid dream used mechanical aids less often; flew more often in the prone position; and other flying dream characters occurred less often. The question of whether or not these differences are due to lucidity are specific for flying dreams and cannot be answered because dream content analytic studies comparing lucid to non-lucid dreams provided by the same participants are still lacking.

As flying dreams cannot be explained by a simple continuity to waking life experiences, many authors have speculated about a possible meaning of flying dreams. For Carl Jung, flying dreams symbolize the overcoming of life difficulties (Jung, 1979). On the other hand, other authors connect flying dreams with waking-life problems like impotency (Siebenthal, 1953) or avoidance (Krishnan, Valow, Cavenar, & Miller, 1984). Patricia Garfield suggested in her book on dreams of children that these kinds of dreams (including content which does not reflect waking-life reality directly) might be continuous to waking life on the emotional level (Garfield, 1984). Evidence supporting this idea was provided by Schredl (2008), showing that reporting flying dreams was more likely to be associated with low neuroticism scores, whereas the reporting of falling dreams was associated with higher neuroticism scores. If flying dreams correspond to waking-life emotions, empirical studies have to be conducted very carefully because the present data set shows that flying dreams quite often also include negative emotions (mild anxiety or fear) connected directly with flying. This might be related to waking-life fears that while experiencing a "high" with very positive emotions one might fear that this will not last forever.

To summarize, flying is a very fascinating dream topic that warrants further research to expand the present study and the empirical literature in the field. Diary studies with long data collection intervals and eliciting the variation in waking-life emotions would be desirable because flying dreams are quite rare. This paradigm will allow investigators to relate the emotions of flying dreams to current experienced waking life emotions.

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