

What Causes Lucid Dreams and How Can I Control Them?

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ABSTRACT

In this paper, I explore the causes of lucid dreaming in the aim to understand how to prevent, control and manage these dreams. Previous research suggests that multiple awakenings in the night and experiencing wakeful dissociation can increase lucid dream frequency, while implementing mindfulness during waking hours can enhance lucid dream control. In my correlational study, I tested the strength of these relationships by examining naturalistic daily changes in their variables longitudinally over a two-week period. I measured the number of awakenings each night, the degree of wakeful dissociation each day rated on a scale from 0-10, the level of wakeful mindfulness achieved each day using the Freiburg Mindfulness Inventory, the number of lucid dreams recorded each night, and ascertained the level of control of lucid dreams each night based on degrees of awareness of the dream, control of the dream body, and control of the dream environment. Data from the study showed significant correlations between nightly awakenings and lucid dream frequency, between wakeful mindfulness and lucid dream control, but not between wakeful dissociation and lucid dream frequency.

1. Introduction

1.1 Research Problem

Lucid dreams and nightmares can inhibit restful sleep and be undeniably frightening. They frequently entail a battle with the inner consciousness to gain control. This can feel extremely dire in the context of a nightmare and thus does not constitute a good night's sleep. In concurrence with lucid dreaming, sleep paralysis often occurs. Sleep paralysis commonly includes hallucinations of intruders and ghosts, which is altogether terrifying in the setting of one's own

bedroom. In severe cases, this can trigger a fear of going to sleep at all. In this paper I intend to uncover the causes of lucid dreams in order to find pragmatic ways to control them for achieving consistent restful sleep and abolishing nighttime fears.

1.2 Literature Review

One causal factor for lucid dreaming is the amount one wakes up in the night. A study conducted by Smith and Blagrove (2015) demonstrated how the number of times a person hits the snooze button in the morning correlates significantly with the likelihood of inducing a lucid dream. Using

an online survey of 84 participants, they compared the frequency of lucid dreams with the average number of times participants hit the snooze button on their alarm in the morning. Frequency was measured on a scale ranging from 1-7, with 1 being never lucid dreaming and 7 being lucid dreaming 4-7 nights per week. Alarm clock use was measured on a scale from 1-7, referring to how many days per week participants used an alarm clock. Next, participants who used alarm clocks were asked how many times on average they hit the snooze button each morning. Results of this study showed that higher snooze button use correlated positively with the number of lucid dreams one has. Thus, falling in and out of sleep is a significant contributing factor toward lucid dream frequency.

In addition, sleep paralysis often occurs in conjunction with lucid dreaming, both of which can be correlated to and exacerbated by dissociation during wakefulness. Denis and Poerio (2017) measured 1928 participants' frequency and intensity of lucid dreams and sleep paralysis against the percentage of time spent in a dissociative state in the past month. Frequency and intensity of lucid dreams were measured on scales ranging from 0-6, with 0 being never and 6 being multiple times per week. The percentage of dissociation was measured using a 28-item Dissociative Experiences Scale-11. The results from the study suggest that lucid dreaming does not cause restless sleep, however sleep paralysis, which was shown to frequently happen in combination with lucid dreaming, can impact the quality of sleep. More significantly, dissociative states in wakefulness are commonly correlated with dissociated sleep states including lucid dreaming and sleep paralysis. Thus, taking steps to reduce dissociation in day-to-day life, may decrease lucid dream and sleep paralysis recurrence.

Finally, a factor that has been found to correlate positively with lucid dream control is achieving mindfulness during the day. In an anonymous online survey conducted by Stumbrys and Erlacher (2017), they measured the amount of control participants had in terms of their dream body, dream setting, and awareness while in the dream state. This was measured in conjunction with an evaluation of dispositional mindfulness using the Freiburg Mindfulness Inventory (FMI; Walach et al., 2004). The level of control participants attained was measured using percentages that the participants expressed following their dreams. The FMI rated 14 questions on a scale from 1-4, with 1 being rarely mindful, and 4 being almost always mindful. Results from the study suggest that lucid dreamers are most likely to achieve control over their dream body (~two thirds of lucid dreamers) and less likely to establish awareness of the dream or assume control over the setting of the dream (>half of lucid dreamers). Furthermore, the study suggests that increased wakeful mindfulness may result in greater control while dreaming.

1.3 Hypotheses

Based on the above literature review, I predicted the following hypotheses:

- If the number of times one gets up in the night increases, then the frequency of lucid dreams will increase.
- If dissociative states increase, then the frequency of lucid dreams will increase.
- If wakeful mindfulness increases, then lucid dream control will increase.

2. Methods

2.1 Participants

The author of this paper served as the participant in its studies. At the time of this study, the participant was 27 years old, Caucasian and female. The participant was an undergraduate student at Camosun College who completed the current study as an assignment for Psyc 110 ("Experimental Psychology") and chose the topic of lucid dreaming as a point of personal interest. This interest stems from the participants ongoing experience with lucid dreaming throughout adolescence and adulthood.

2.2 Materials and Procedure

I performed a correlational study to test concurrently all three of my hypotheses by examining naturalistic daily changes in their variables longitudinally. The participant kept a study journal with them at all times over this study's two-week period in order to record self-observations of the following five variables: (1) number of nightly awakenings, (2) wakeful dissociative states, (3) degree of wakeful mindfulness, (4) frequency and (5) control of lucid dreams.

The participant slept with a notepad next to their bed. The number of nightly awakenings was recorded throughout the night on the notepad. These awakenings included the number of alarm clock snoozes in the morning, the number of times the participant got up to use the bathroom or for other reasons, and states of brief awakenings in which the participant went back to sleep immediately. If no awakenings were recorded throughout the night, the number of nightly awakenings was scored at zero.

Wakeful dissociation was recorded by the participant each day on a scale from 0-10, with 0 being no dissociative experience and 10 being dissociated all day. Dissociation was defined as experiences of "how did I get here?", "what I am doing right now?" and

experiencing a disconnect between thoughts and actions.

The participant measured mindfulness using the Frieberg Mindfulness Inventory (FMI; Walach et al., 2004). The FMI rates 14 questions on a scale from 1-4, with 1 being rarely mindful, and 4 being almost always mindful (see Appendix). To establish a daily mindfulness score, the question scores were totaled for each survey. The participant completed one survey per day to ascertain the level of mindfulness achieved that day.

The two outcome variables, being frequency of lucid dreams and control of lucid dreams, were measured by the participant on a nightly basis. Frequency was recorded throughout the night, as lucid dreams occurred, and in the morning, through recollection, on a notepad next to the bed. Control was measured on a scale of 1-10: 1 meaning brief moments of awareness of the dream state as it occurred, but no control of the dream body or environment; 10 being complete and enduring awareness of the dream state, dream body, and dream environment.

To assess the strength and statistical significance of associations between variables predicted by the three hypotheses, I performed Pearson product moment correlations of their predictor variables (number of nightly awakenings, wakeful dissociative states, wakeful mindfulness) with their outcome variable (frequency of lucid dreams and control of lucid dreams). For testing Hypothesis #1, I correlated the number of nightly awakenings with the number of lucid dreams that occurred each night. For testing Hypothesis #2, I correlated the degree of wakeful dissociation each day with the frequency of lucid dreams that occurred each corresponding night. For testing Hypothesis #3, I correlated the level of wakeful mindfulness achieved each day

with the level of control assumed in the lucid dream state each corresponding night. I performed all of the above correlations separately using raw data. A correlation coefficient was considered statistically significant if the probability of its random occurrence (p) was $< .05$ (i.e., less than 5% of the time expected by chance alone).

3. Results

The results from the concurrent correlational studies proved to be statistically significant in the cases of number of awakening as a predictor of lucid dream frequency and for wakeful mindfulness being a predictor of lucid dream control. However, wakeful dissociation was not determined to be a statistically significant predictor of lucid dream frequency (see Table 1). The number of nightly awakenings proved to be the strongest and most statistically significant ($r = 0.91$; $p = 4.6 \times 10^{-07}$; see Figure 1). Wakeful mindfulness was determined to be a weaker predictor but still statistically significant ($r = 0.62$; $p = 0.02956$; see Figure 2). Wakeful dissociation was not a strong predictor, nor was it found to be statistically significant ($r = 0.06$; $p = 0.84254$; see Figure 3). Based on a comparison of the correlation coefficients, the number of nightly awakenings was found to have the strongest correlation with lucid dream frequency.

4. Discussion

4.1 Summary of Results

Based on previous research, I hypothesized that two predictor variables would correlate positively with lucid dream frequency: number of nightly awakenings (Hypothesis #1) and level of wakeful dissociation (Hypothesis #2); I also

hypothesized that one predictor variable would correlate positively with lucid dream control: level of wakeful mindfulness (Hypothesis #3). Data supported the predicted relationship between number of nightly awakenings and lucid dream frequency (Hypothesis #1) and between wakeful mindfulness and lucid dream control (Hypothesis #3). However, it did not support the predicted relationship between wakeful dissociation and lucid dream frequency (Hypothesis #2).

4.2 Relation of Results to Past Research

The significant correlational relationship between the number of times one wakes up in the night and the amount of lucid dreams one has is in line with the study conducted by Smith and Blagrove (2015). While Smith and Blagrove measured this relationship using a survey of random participants with a specific focus on alarm clock snoozes (2015), I performed a case study on myself including measurements of all nightly wakeups and not limited to morning snoozes. Despite using different methods, the results provided the same conclusions, suggesting that there is a strong universal relationship between nightly awakenings and lucid dream frequency.

The present correlational study measuring wakeful dissociation as a predictor of lucid dream frequency failed to support the study conducted by Denis and Poerio (2017). This could be due to the differing study methods used. Denis and Poerio (2017) measured dissociation using a 28-item Dissociative Experiences Scale-11 (DES-11), whereas I measured dissociation using a scale from 0-10, with 0 being no wakeful dissociation and 10 being dissociated all day. In future studies, the DES-11 could be used to ascertain this measure of wakeful dissociation captures

something else that is associated with lucid dream frequency.

The present correlational study supported previous research, conducted by Stumbrys and Erlacher (2017), that there is a positive relationship between wakeful mindfulness and lucid dream control. Applying the research design of Stumbrys and Erlacher (2017), I also measured mindfulness using the Freiburg Mindfulness Inventory. While the participants in the previous study measured dream control using a percentage, I used a scale of 1-10, with 1 being fleeting awareness of the dream state and 10 being complete and enduring awareness of the dream state, dream body, and dream environment. These levels of dream control were taken from the previous research. Using similar research methods, this correlational study supported the positive relationship between wakeful mindfulness and lucid dream control

References

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- Walach, H., Buchheld, N., Buttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness--The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences*, 40(8), 1543–1555.

Table 1

Correlation coefficient (r) values, with number of daily trials (n) per correlation in brackets.

Variables correlated	<i>r(n)</i>
Number of Nightly Awakenings & Lucid Dream Frequency	0.91(14)*
Wakeful Mindfulness & Lucid Dream Control	0.62(14)*
Wakeful Dissociation & Lucid Dream Frequency	0.06(14)

* $p < .05$.

Figure 1

Scatterplot of Number of Nightly Awakenings and Frequency of Lucid Dreams.

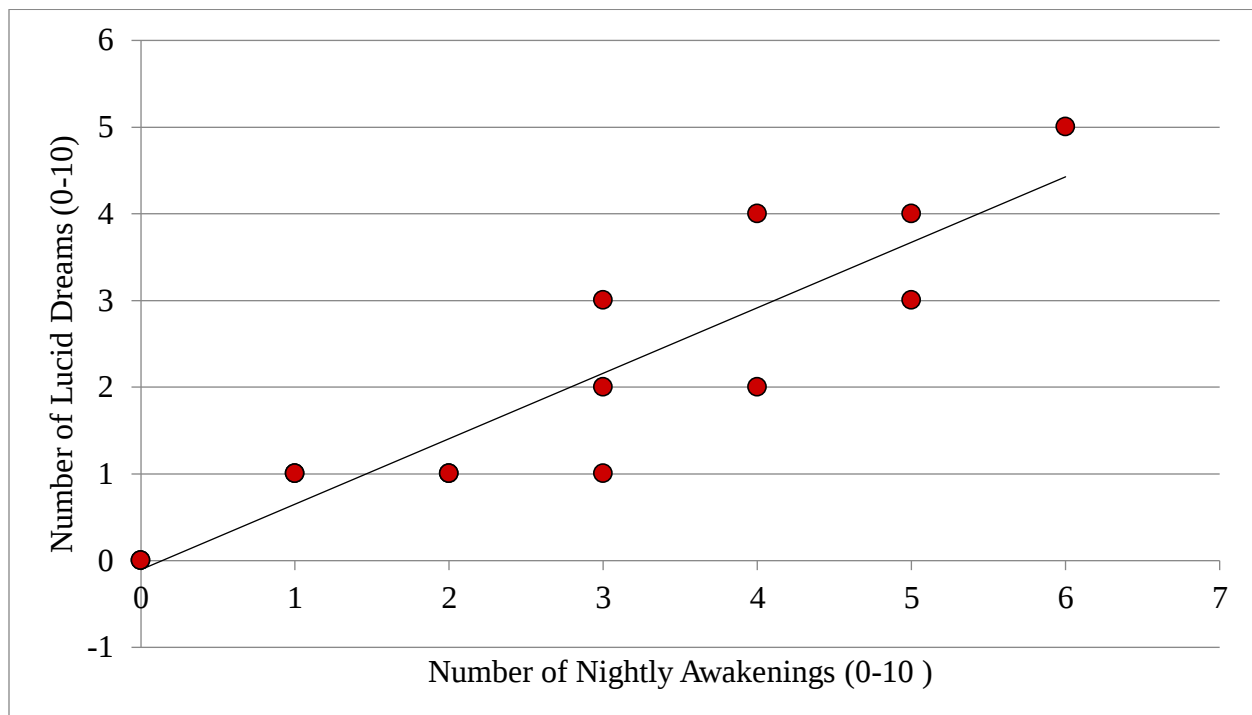


Figure 2

Scatterplot of Wakeful Mindfulness and Lucid Dream Control.

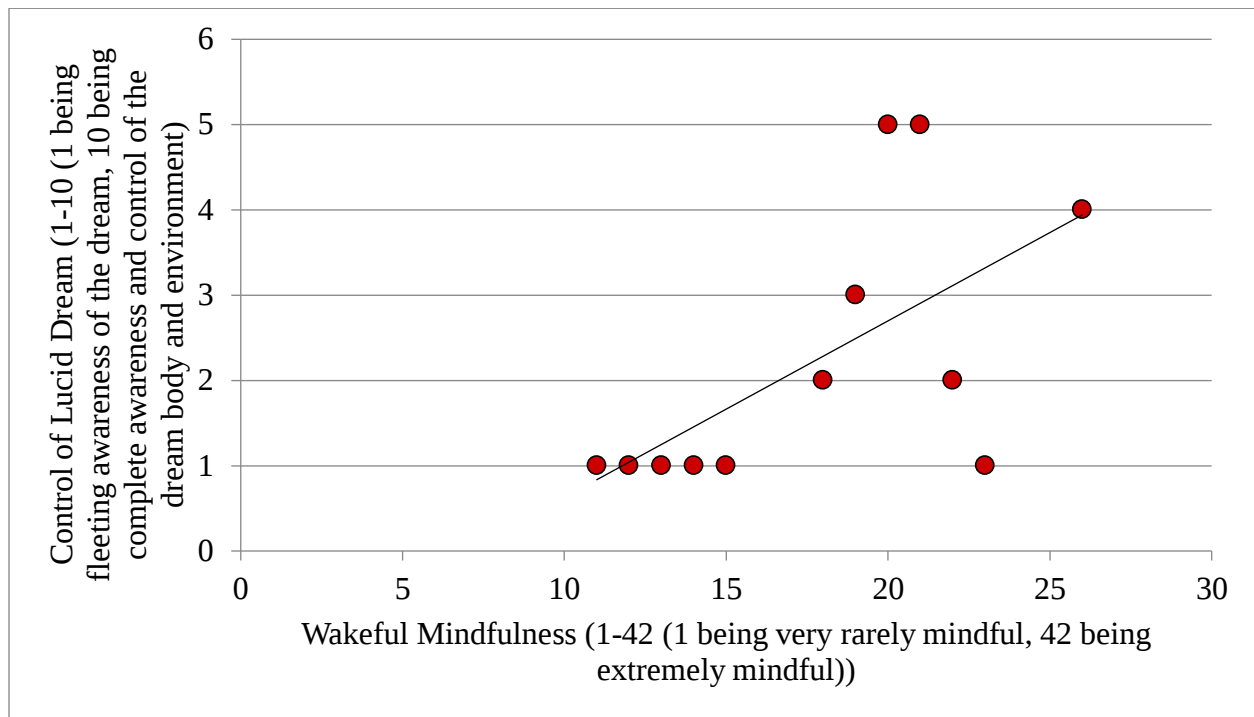
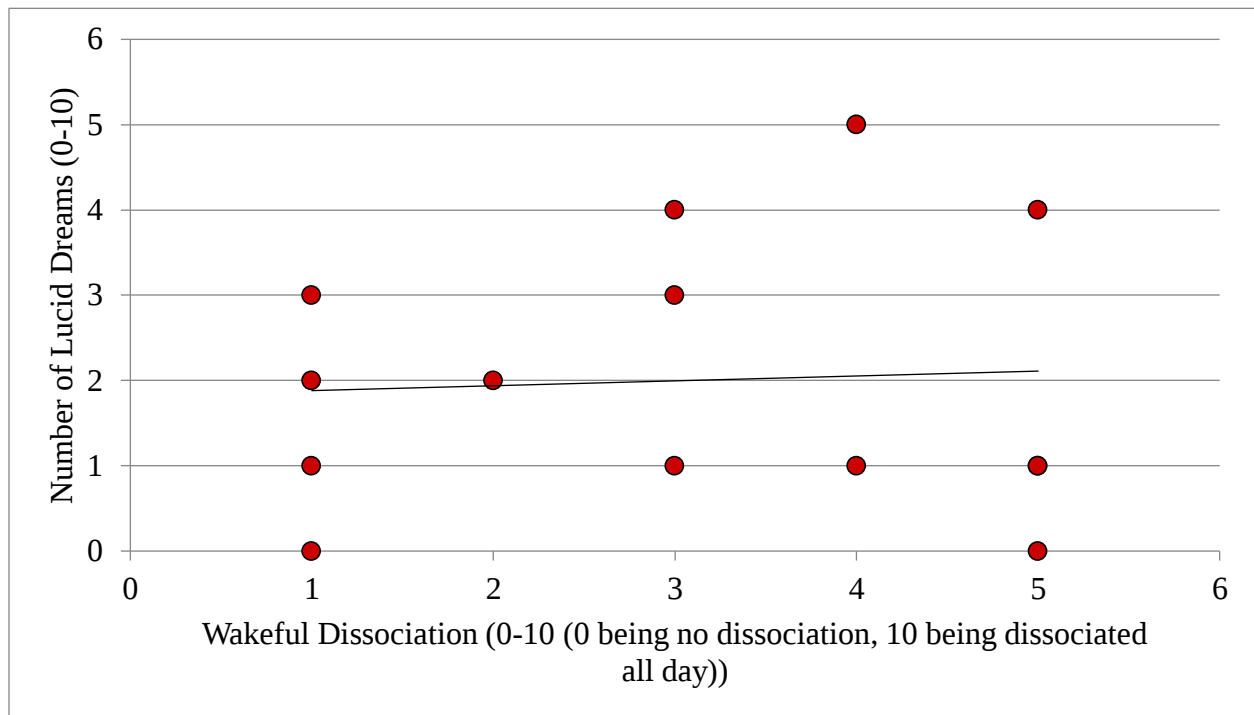


Figure 3

Scatterplot of Wakeful Dissociation and Frequency of Lucid Dreams.



Appendix

Freiburg Mindfulness Inventory

Freiburg Mindfulness Inventory

Description:

The FMI is a useful, valid and reliable questionnaire for measuring mindfulness. It is most suitable in generalized contexts, where knowledge of the Buddhist background of mindfulness cannot be expected. The 14 items cover all aspects of mindfulness.

The purpose of this inventory is to characterize your experience of mindfulness. Please use the last ___ days as the time-frame to consider each item. Provide an answer for every statement as best you can. Please answer as honestly and spontaneously as possible. There are neither 'right' nor 'wrong' answers, nor 'good' or 'bad' responses. What is important to us is your own personal experience.

	1 Rarely	2 Occasionally	3 Fairly often	4 Almost always
I am open to the experience of the present moment.	1	2	3	4
I sense my body, whether eating, cooking, cleaning or talking.	1	2	3	4
When I notice an absence of mind, I gently return to the experience of the here and now.	1	2	3	4
I am able to appreciate myself.	1	2	3	4
I pay attention to what's behind my actions.	1	2	3	4
I see my mistakes and difficulties without judging them.	1	2	3	4
I feel connected to my experience in the here-and-now.	1	2	3	4
I accept unpleasant experiences.	1	2	3	4
I am friendly to myself when things go wrong.	1	2	3	4
I watch my feelings without getting lost in them.	1	2	3	4
In difficult situations, I can pause without immediately reacting.	1	2	3	4
I experience moments of inner peace and ease, even	1	2	3	4

when things get hectic and stressful.

I am impatient with myself and with others.	1	2	3	4
I am able to smile when I notice how I sometimes make life difficult.	1	2	3	4

Scoring Information:

Add up all items to get one summary score. When scoring, please observe that there are a couple of reversed items. For these you need to reverse the scoring, preferably by a recode command that recodes 1 into 4, 2 into 3, 3 into 2 and 4 into 1.

The item to be recoded is "I am impatient with myself and with others."

At the moment, we do not recommend to use separate factor-scale scores. If you wish to do so, we recommend that you analyze your own data set and extract 4 to 6 factors according to the data structure you find and then proceed accordingly, adding up item scores per scale.

Reference:

Walach, H., Buchheld, N., Butenmuller, V., Kleinknecht, N., Schmidt, S. (2006).
Measuring Mindfulness--The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences*, 40, 1543-1555.