

# Lucid dreaming and personality in children/adolescents and adults: The UK library study

Michael Schredl<sup>1</sup>, Josie Henley-Einion<sup>2</sup>, & Mark Blagrove<sup>2</sup>

<sup>1</sup>Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Germany

<sup>2</sup>Department of Psychology, Swansea University, United Kingdom

**Summary.** Research that has focused on the relationship between the Big Five personality dimensions and lucid dreaming frequency has been restricted to student samples. The present study included adolescents and adults (N = 1375). i.e., the sample included a large range of ages. Lucid dreaming was more strongly related to openness to experiences compared to previous findings. The small but significant negative correlation between conscientiousness and lucid dreaming should be followed up by studies relating the Big Five personality factors to the contents of lucid dreams.

**Keywords:** Lucid dreaming, personality

## 1. Introduction

The term lucid dream is defined as a dream in which the dreamer – while dreaming – is aware that she/he is dreaming (LaBerge & Rheingold, 1990; Tholey & Utecht, 1987). Within the lucid dream the dreamer can control some of the events or content of the dream (LaBerge, 1985). Lucid dreaming can be a useful application for the training of skills (Erlacher & Schredl, 2010; Stumbrys, Erlacher, & Schredl, 2016) and help to cope with nightmares (Brylowski, 1990; Zadra & Pihl, 1997).

In a representative German sample (N = 919), 51% of the participants reported that they had experienced at least one lucid dream in their lives (Schredl & Erlacher, 2011). About 20% of the respondents had lucid dreams regularly (once a month or more frequently) and were classified according to the criteria of Snyder and Gackenbach (1988) as frequent lucid dreamers. Lucid dreaming frequency is usually higher in student samples (Blackmore, 1982b; Gackenbach, 1991; Schredl & Erlacher, 2004).

Despite the fact that inter-individual differences in lucid dreaming frequency are large (Schredl & Erlacher, 2011), research that focuses on the correlations between Big Five personality dimensions and lucid dreaming frequency is scarce. The three studies (Schredl & Erlacher, 2004; Watson, 2001; Yu, 2012) failed to find a consistent pattern: Whereas Watson (2001) found small negative correlations between agreeableness and conscientiousness and lucid dreaming frequency in two samples, Schredl and Erlacher (2004) did not. Yu (2012) found only for agreeableness and his lucid dreaming scale (awareness and control) a negative correlation. For openness to experience, Watson (2001) reported a positive relationship in only one sample as well as Yu (2012)

whereas Schredl and Erlacher (2004) found that not the total openness score showed a significant relationship to lucid dreaming but solely the two openness to experience facets (“fantasy”, “ideas”). It has to be mentioned that these studies (Schredl & Erlacher, 2004; Watson, 2001) were carried out in student samples.

The aim of the following study is to examine the relationship between the Big Five personality dimensions and lucid dreaming frequency in a sample with a large age range that includes adolescents and adults.

## 2. Method

### 2.1. Participants

The sample included 1375 participants (927 females, 408 males, gender was unknown in 40 cases) with a mean age of  $26.5 \pm 18.0$  yrs. (Range: 8 to 90 yrs.; N = 24 missing values).

### 2.2. Dream questionnaire

Two questionnaires entitled “Dream lab: The big library experiment” were devised by the Library Association (United Kingdom) and Mark Blagrove (Swansea University): a version for children and a version for adults. As personality assessments were only included in the Adult version, the present study is based on this sample (for details regarding the sample completing the Child version see Georgi, Schredl, Henley-Einion, and Blagrove (2012)).

Dream recall frequency (How often do you wake up and recall a dream?) was measured using a five-point format: 4 = 4-7 times per week, 3 = 1-3 times per week, 2 = 1-4 times per month, 1 = 1-11 times per year and 0 = less than 1 time per year, or never. A similar format was used for the following question: “A nightmare is a vivid dream that is frightening and disturbing, the events of which you can remember clearly and in detail when you wake up. How often do you have such nightmares?”

For eliciting the occurrence of lucid dreams, the following item was included in the questionnaire: “Have you ever had a dream during which you knew that you were dreaming?”

Corresponding address:

Prof. Dr. Michael Schredl, Sleep laboratory, Central Institute of Mental Health, PO Box 122120, 68072 Mannheim, Germany.  
Email: Michael.Schredl@zi-mannheim.de

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In addition, the participants were asked how many dreams in which they knew that they were dreaming did they have within the past year.

For assessing the big five personality factors, 40 adjectives based on a study by Saucier (1994) were presented. For neuroticism, the adjectives were: anxious, irritable, moody, jealous, temperamental, envious, relaxed (reversed), and unenvious (reversed). For extraversion, the adjectives were: talkative, bold, energetic, shy (reversed), extroverted, quiet (reversed), bashful (reversed), and timid (reversed). For openness to experience, the adjectives were: creative, imaginative, philosophical, intellectual, complex, deep, uncreative (reversed), and unintellectual (reversed). For agreeableness, the adjectives were: sympathetic, warm, kind, helpful, cold (reversed), unsympathetic (reversed), rude (reversed), and harsh (reversed). For conscientiousness, the adjectives were: organized, efficient, practical, thorough, disorganized (reversed), sloppy (reversed), inefficient (reversed), and careless (reversed). The participants were presented with the following text: "Put a tick next to any of the following words that you, or your friends and family, would use to describe yourself." and the list of adjectives in alphabetical order. Whereas the internal consistency (Cronbach's alpha) varied between  $r = .74$  and  $r = .83$  for the five factors in the original sample (Saucier, 1994), the sum scores of the present sample ( $N = 1369$ ) showed the following indices of reliability: neuroticism ( $r = .577$ ), extraversion ( $r = .560$ ), openness to experience ( $r = .585$ ), agreeableness ( $r = .470$ ), and conscientiousness ( $r = .693$ ).

2.3. Procedure

The dream lab questionnaire was distributed in libraries all over the United Kingdom. The text explicitly stated that one did not have to remember dreams, go to a library or read regularly to fill in the questionnaire: this was in order to minimize possible selection effects. The completed questionnaire could be returned to the library or sent to the Library Association anonymously. For the present analyses, the adult version questionnaires, completed by participants from 8 yrs. to 90 yrs., were included.

For testing the association of age, gender, dream recall frequency, lucid dreaming, and personality, logistic regres-

Table 1. Dream recall frequency, nightmare frequency, and personality measures

Variable	Means ± SD
Dream recall frequency	2.56 ± 1.14 (1356)
Nightmare frequency	1.75 ± 1.20 (1365)
Neuroticism	2.64 ± 1.39 (1369)
Extraversion	4.51 ± 1.61 (1369)
Openness for experiences	3.99 ± 1.72 (1370)
Agreeableness	5.78 ± 1.56 (1369)
Conscientiousness	4.70 ± 1.60 (1369)

Figures in parentheses designate the number of participants

sions were computed using the SAS 9.4 for Windows software package (SAS Institute Inc., Cary, NC, USA). Due to missing values, the sample sizes vary slightly.

3. Results

The overall mean of the percentage of music dreams was Means and standard deviations for dream recall frequency, nightmare frequency, and sum scores of the five personality dimensions are depicted in Table 1. Overall, 56.32% of the total sample ( $N = 1369$ ) stated that they had experienced at least one lucid dream. Using the additional information about the number of lucid dreams per year, the sample ( $N = 1286$ ) was divided into three groups: No lucid dreams (47.82%), infrequent lucid dreams (1-11 per year; 43.86%) and frequent lucid dreams (12 or more lucid dreams per year; 8.52%).

The logistic regression for lucid dream occurrence showed the following results (see Table 2): Openness for experiences and age were positively related to the lucid dream occurrence whereas conscientiousness was negatively related. As expected, the covariates, dream recall frequency and nightmare frequency, were also related to the occurrence of lucid dreaming. The findings regarding the three categories of lucid dreaming frequency were comparable (see Table 2).

Table 2. Logistic regression for lucid dream occurrence and lucid dream frequency

Factors	Lucid dream occurrence (N = 1283)			Lucid dream frequency (N = 1210)		
	β	χ²	p	β	χ²	p
Age	.1109	9.3	.0027	.0436	1.5	.2134
Gender	.0104	0.1	.7634	-.0522	2.4	.1202
Neuroticism	-.0284	0.7	.4157	-.0158	0.2	.6338
Extraversion	.0451	1.8	.1798	.0601	3.5	.0610
Openness for experiences	.2685	52.4	<.0001	.2528	53.7	<.0001
Agreeableness	.0248	0.5	.4964	.0177	0.3	.6137
Conscientiousness	-.0901	6.2	.0128	-.1031	9.1	.0026
Dream recall frequency	.1624	19.8	<.0001	.2250	38.2	<.0001
Nightmare frequency	.1556	18.2	<.0001	.1803	27.0	<.0001

β = Standardized estimates

Lucid dreaming occurrence was correlated with dream recall frequency ( $r = .183$ ,  $p < .0001$ ) and nightmare frequency ( $r = .173$ ,  $p < .0001$ ). Lucid dreaming frequency was also related to dream recall frequency ( $r = .249$ ,  $p < .0001$ ) and nightmare frequency ( $r = .210$ ,  $p < .0001$ ). If dream recall frequency is partialled out, the correlation between lucid dreaming frequency and nightmare frequency is still significant ( $r = .129$ ,  $p < .0001$ ).

#### 4. Discussion

The findings indicate that there is a significant relationship between lucid dreaming and the openness to experiences factor. Furthermore, lucid dreaming seems to be related to the Big Five conscientiousness factor.

From a methodological viewpoint, it has to be noted that the internal consistencies of the five personality factors are not very high compared to the original values given by the test author (Saucier, 1994). As this designates increased measurement error variance and, thus, could result in not finding a significant relationship between these measures and lucid dreaming frequency (false negatives due to increased beta error), future studies should use Big five measures with higher reliability indices (Körner et al., 2008; Ostendorf & Angleitner, 2004). It does not affect the findings regarding the significant relationships between openness to experiences, conscientiousness, and lucid dreaming frequency.

The percentage of persons who reported lucid dreaming is comparable to that found in a representative German study (Schredl & Erlacher, 2011). Using an eight-point scale in their study, Schredl and Erlacher (2011) obtained a considerably higher number of frequent lucid dreamers (about 20%) compared to the present sample (about 8.5%) using a scale eliciting the number of lucid dreams experienced in the last year. Even though the measurement problems for lucid dream frequency might not be as pronounced as has been reported for nightmare frequency (Robert & Zadra, 2008), e.g., discrepancies between retrospective measures and diary measures (Zunker et al., 2015), it would be interesting to study the measurement of lucid dreaming frequency in the future. In addition, the present sample is selected for visiting libraries and interest in participating in a dream study, i.e., it would also be interesting to study samples with equal variations in age and backgrounds recruited within different contexts.

The openness to experiences factor showed a stronger positive relationship to lucid dreaming occurrence and frequency than the previous studies (Schredl & Erlacher, 2004; Watson, 2001; Yu, 2012) conducted in student samples, probably due to the higher variance – our sample included a larger age range and more diverse social backgrounds than Watson's student sample. A person with high scores for the openness to experiences factor is described as being imaginative, artistic, sensitive for their inner life, curious for new ideas and experiences, as well as adventurous and open-minded (Ostendorf & Angleitner, 2004) and is, therefore, more likely to find out about lucid dreaming and would eventually practice becoming lucid, i.e., the correlation between being a lucid dreamer and openness to experience is very plausible.

In our sample the Big Five conscientiousness factor was negatively related to lucid dreaming frequency, confirming previous results by Watson (2001). Conscientiousness is a tendency to aim for achievement against outside ex-

pectations and show self-discipline whereas low scores on conscientiousness indicate a preference for spontaneous behavior (Ostendorf & Angleitner, 2004). Since in lucid dreams the dreamers are often not bound to satisfying cultural norms but can do whatever they want, this relationship seems plausible. It would be very interesting to correlate this personality trait with the activities the dreamer did in his or her dreams, i.e., whether these activities in the dreams consist of socially acceptable behavior or not.

The other Big Five factors were not related to dream recall frequency and, thus, did not confirm the reported negative association between agreeableness and lucid dreaming frequency (Watson, 2001; Yu, 2012). The positive relationship between lucid dreaming frequency and nightmare frequency – also found in previous studies (Schredl & Erlacher, 2004; Spadafora & Hunt, 1990; Stepansky et al., 1998) – might be explained by nightmares triggering lucidity (Schredl & Erlacher, 2004). It was thus necessary to control for nightmare frequency when correlating lucid dream frequency with personality dimensions. Similarly, dream recall frequency is related with lucid dream frequency – as has been reported previously (Belicki, Hunt, & Belicki, 1978; Blackmore, 1982a; Hearne, 1978; Schredl & Erlacher, 2004, 2007; Watson, 2001; Wolpin, Marston, Randolph, & Clothies, 1992) – and, thus, should also be statistically controlled in future studies.

In summary, individual differences concerning lucid dreaming frequency seem to be related to the Big Five personality factors, especially openness to experience and conscientiousness. Future research should explore the relationship of the Big Five factors with the content of lucid dreams. The present study indicates that it would be very valuable to conduct these studies in diverse samples, not only in student samples.

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