Incidence and frequency of lucid dreams in a Swiss junior college student sample

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Summary. This study was conducted to inspect the incidence of lucid dreaming within a Swiss junior college student sample. Out of 214 participants, 50% had experienced at least one lucid dream, while 26% were frequent lucid dreamers with a lucid dream frequency equal to or higher than once a month. The term lucid dream or the German synonym "Klartraum" was known by 31%. Lucid dream frequency and dream recall frequency were significantly related. The results imply a prevalence of lucid dreams similar to that in Germany. For further comparison a representative Swiss study would be needed.

Keywords: Lucid dream; prevalence; incidence; frequency; dream recall; Swiss; junior college student

1. Introduction

In a lucid dream one is aware of one's dream state. This awareness results in an unparalleled freedom, being able to modify the dream images almost completely unrestricted (LaBerge & Rheingold, 1990). Tholey and Utecht (2008) define a lucid dream by three key factors: 1) Awareness of one's dream state; 2) Awareness of the ability of altering the dream freely; and 3) No clouding of consciousness.

Lucid dreams mostly take place in REM sleep which was proven by specific and pre-arranged eye signals in the sleep laboratory (Hearne, 1978; LaBerge, 1980).

Previous studies in the German-speaking region showed a variety of results for the prevalence of lucid dreams. Stepansky et al. (1998) conducted a representative study in Austria (N = 1000) in which 26% reported to have had at least one lucid dream while a representative study in Germany showed a prevalence of 51% (Schredl & Erlacher, 2011). Synder and Gackenbach (1988) classified dreamers with one or more lucid dreams per month as frequent lucid dreamers. Schredl and Erlacher (2011) found 20.1% frequent lucid dreamers in their representative German study. Usually student samples produce higher rates of prevalence (82%, Schredl & Erlacher 2004; 73%, Blackmore, 1982; 92% Yu, 2008) and frequency. The percentage of frequent lucid dreamers among students in different countries ranged from 17% to 36% (Yu, 2008; Blackmore, 1982; Schredl & Erlacher, 2004).

Various studies showed that dream recall correlates significantly with lucid dream frequency (Hearne, 1978; Schredl & Erlacher, 2004; Watson, 2001). However, in contrast to dream recall, no gender differences could be found for lucid dreaming frequency (Schredl and Erlacher, 2011).

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This study was aimed at measuring the frequency of lucid dreams in a Swiss student sample and analyzing the correlation with dream recall frequency.

2. Method

2.1. Participants

The sample consisted of 214 students with an average age of 17.2 ± 1.2 years and an age range of 14 to 21 years. 171 participants were at this time attending the Münchenstein Gymnasium, 43 were educated at the Münchenstein FMS ("Fachmaturitätsschule" meaning "Intermediate vocational school"). Both schools are located in the same building near Basel and are comparable to junior college. They differ in the possibilities the graduates have for choice of college: a degree from the gymnasium qualifies a graduate to study at any Swiss university while one from the FMS is only accepted by universities of applied science.

There were 63 male participants and 151 female ones. They all took part in the survey voluntarily by filling out an online questionnaire that was sent via email to all students of the two schools just mentioned. There are approximately 800 students that should have received the email, corresponding to a response rate of 27%. However, due to the not completely reliable school email system, this figure has to be looked at critically. Participation was not paid or rewarded in any way.

2.2. Measurement instruments

To measure the lucid dream frequency the definition of a lucid dream according to Tholey and Utecht (2008) was presented in the following manner: "There is yet no general definition of a lucid dream. According to Paul Tholey the following three criteria need to be matched to call a dream lucid: 1. Awareness of one's dream state (you know, that you are dreaming) 2. Awareness of your ability to alter the dream freely (you can act as you wish) 3. No clouding of consciousness". The corresponding question ("Did you ever experience a lucid dream?") could be answered with "yes", "no" or "I had one or several dreams meeting only one of the

first two criteria" to rule out partially lucid dreams.

Those who claimed to have experienced a lucid dream were directed to a question concerning the frequency of their lucid dreams, which was measured by using the scale introduced by Schredl and Erlacher (2004) (0 = never, 1 = less than once a year, 2 = about once a year, 3 = about 2-4 times a year, 4 = about once a month, 5 = about 2 to 3 times a month, 6 = about once a week, 7 = several times a week). The scale was recoded using the class means (0 → 0, 1 → 0.042, 2 → 0.083, 3 → 0.25, 4 → 1.0, 5 → 2.5, 6 → 4.0, 7 → 18.0) to obtain units in lucid dreams per month (cf. Erlacher Schredl, Watanabe, Yamana, & Gantzert, 2008).

The scale and class means to measure dream recall frequency were adopted from Schredl (2002) (0 = never → 0, 1 = less than once a month → 0.125, 2= about once a month → 0.25, 3= twice or three times a month → 0.625, 4 = about once a week → 1, 5 = several times a week → 3.5, 6 = almost every morning → 6.5).

This survey was designed and conducted in German.

2.3. Procedure

All the students of the Münchenstein Gymnasium and FMS received an email entitled "A survey about your dreams – Learn more about the possibilities of your dreams". The title was mainly chosen to attract attention and gain as many participants as possible. The text said: "In my diploma paper I write about dreams, to be precise, about a special kind of dream, which opens up whole new night-time possibilities. With this survey I'd like to gather information about the publicity and frequency of this kind of dream. Maybe you already know what I am talking about; if not, you will obtain the answer in the questionnaire". Lucid dreams were purposely not mentioned to prevent possible preliminary information, which could have falsified the questions regarding the publicity of lucid dreams. The students were given 14 days before the survey was closed. After 8 days a reminder email was sent.

The online questionnaire was made using the Open Source LimeSurvey software, statistical analysis was conducted with LibreOffice, Microsoft Excel and SPSS Version 21. Differences of prevalence between gender and the two schools were analysed using Mann-Whitney-U-tests, for analysing the correlation between dream recall frequency and lucid dream frequency, Pearson's r was used.

3. Results

The prevalence of lucid dreams in this study is 50% as depicted in table 1. 29% of the participants are frequent lucid dreamers (at least one lucid dream per month) according to Snyder and Gackenbach (1988). The mean lucid dream frequency was 1.1 ± 3.08 per month. The gender difference in prevalence of lucid dreams was statistically not significant, $Z = -.730$, $p = .466$. Yet there was a statistically significant difference in incidence between the schools whereas students of the FMS had more lucid dreams than the ones of the Gymnasium, $Z = -3.16$, $p = .002$.

Participants reported that they were able to recall their dreams on an average 2.07 ± 1.96 mornings per week. Dream recall frequency correlates significantly with lucid dream frequency ($r = .355$, $p < .01$). Furthermore, 31% of the participants claimed to have heard the term "lucid dream" and/or the corresponding German term "Klartraum" prior to this survey.

Table 1. Lucid dream frequency in a Swiss student sample.

Category	Frequency	Percentage
never	108	50.5 %
less then once a year	9	4.2 %
about once a year	5	2.3 %
about 2 to 4 times a year	31	14.5 %
about once a month	25	11.7 %
about 2 to 3 times a month	16	7.5 %
about once a week	14	6.5 %
several times a week	6	2.8 %

Note. N = 214

4. Discussion

The prevalence of lucid dreams in this Swiss sample was 50%, 29% of the participants experienced frequent lucid dreams (frequency equal or higher than once per month). Representative studies show lower (26%, Stepansky et al., 1998) or similar prevalence (51%, Schredl & Erlacher, 2011), and the percentage of frequent lucid dreamers lies within the range produced by previous studies (Yu, 2008: Blackmore, 1982; Schredl & Erlacher, 2004).

A comparable German study by Schredl & Erlacher (2004) showed a remarkably higher incidence of lucid dreams among students (82%). This sample consisted of psychology students which could explain the difference in prevalence since these students often have a high dream recall frequency (Schredl, 1999). Another possible explanation of the lower incidence of lucid dreams in the present study could be the much stricter definition that was used. It involved not only awareness of dreaming but also awareness of control and "no clouding of consciousness". Also the latter term might have been confusing for some people.

The connection between dream recall and lucid dream frequency which was found by several studies (Hearne, 1978; Schredl & Erlacher, 2004; Watson, 2001) was also found in this sample. However the participants had to estimate both, their dream recall and lucid dream frequency. A study based on dream diary entries would lead to much more accurate results (Erlacher et al., 2008). To compare the incidence of lucid dreams in Switzerland with the incidence in other country a representative study would be desirable.

The wide spread knowledge of the term "lucid dream" (or the German equivalent "Klartraum") in this sample was 31%. The participants were asked to give the source of their knowledge about lucid dreams. Most gained their information through friends and family, from the internet, learned about lucid dreams at school or came to know them due to the movie "Inception".

In summary, this study showed a prevalence of 50% in a Swiss student sample. 29% were frequent lucid dreamers (one or more per month) while the term lucid dream or the German synonym "Klartraum" was known by 31%. Future research could conduct representative Swiss studies which would be more comparable with the findings from other German-speaking countries (Schredl & Erlacher, 2011; Stepansky et al., 1998).

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Tamara Fingerlin started her studies in Medicine at the University of Basel this year.

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