

Self-perceived effects of lucid dreaming on mental and physical health

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Summary. Anecdotal evidence that lucid dreaming might contribute to mental and physical health has been widely reported in the literature. Empirical research, though, is scarce. A brief questionnaire eliciting self-perceived benefits of lucid dreaming on mental and physical health had been completed by 386 participants who had lucid dream experiences. About 90% of the participants reported some benefit of lucid dreams on their waking life including mental and physical health. This benefit was related to higher lucid dream frequency, trait mindfulness, and spirituality. These promising results should encourage researchers to develop a manualized lucid dream therapy and test its effect on physical and mental health in a randomized waiting-list pre-post design. Qualitative research can answer questions regarding the specific mechanisms, i.e., how does lucid dreaming contribute to well-being in waking life in the long run.

Keywords: Lucid dreaming, mindfulness, spirituality, mental well-being, physical well-being

1. Introduction

Lucid dreaming is characterized by being aware while asleep that one is dreaming (LaBerge, 1985). This specific state of consciousness allows the dreamer to observe the dream action with conscious awareness but also – especially in skilled lucid dreamers – to actively influence the action of the dream (Schredl et al., 2018). So far, research focused on the question as to what lucid dreamers chose to do in their dreams like flying, having sex, being creative, practicing motor skills (Stumbrys et al., 2014). The next question is why the dreamer chose to perform specific actions in their lucid dreams and surveys (Schädlich & Erlacher, 2012; Stumbrys & Erlacher, 2016) indicate that the major motivation behind influencing dream actions is having fun but participants also mentioned overcoming fears (e.g. lucid dreaming as nightmare therapy), solving waking-life problems and being creative. A relatively small percentage of lucid dreams (6.5%), but employed by 40% of lucid dreamers, were dedicated to “physical/mental healing” (Stumbrys & Erlacher, 2016); this application of lucid dreams was related to older age, female gender, and higher lucid dream frequency. Despite anecdotal reports (e.g., Garfield, 1974; Kellogg, 1989; LaBerge & Rheingold, 1990; Waggoner & McCready, 2015; Zappaterra et al., 2014), empirical research into the long-term effects and/or benefits of lucid dreaming on mental and physical healing is scarce. Malamud (1988) and Tholey (1988) developed programs to utilize lucid dreaming for inner growth and self-healing and reported on a qualitative level that participants benefited from the program. Interestingly, both

authors emphasized very clearly that it is not enough to increase lucid dream frequency but to include specific instructions on how to act within a lucid dream, e.g., seeking reconciliation with threatening dream figures instead of fighting them (Tholey, 1988). The lack of empirical research led several researchers (Soffer-Dudek, 2020; Vallat & Ruby, 2019) to ask the question as to whether practicing lucid dreaming is indeed beneficial.

The present survey was aimed at answering the question as to whether or not lucid dreaming is perceived as helpful for mental and physical well-being by the lucid dreamers themselves. Second, the factors that might be associated with this subjectively experienced benefit were investigated.

2. Method

2.1. Participants

Overall, the sample included 528 participants (see: Stumbrys & Erlacher, 2016) who were recruited through personal contacts or advertisements or via the klartraum.de website. For the present analyses, the sub-sample of 386 participants who reported at least one lucid dream was selected. This sub-sample included 210 men and 176 women with a mean age of 26.24 ± 10.13 years ($N = 381$, 5 missing values), ranging from 12 to 67 years.

2.2. Lucid dreams questions

The questionnaire included items measuring different aspects of dreaming and lucid dreaming. Lucid dream frequency was measured by an eight-point scale (0 = never, 1 = less than once a year, 2 = about once a year, 3 = about 2 to 4 times a year; 4 = about once a month, 5 = about 2 to 3 times a month; 6 = about once a week, and 7 = several times a week) with high re-test reliability over a four-week period ($r = .89$; $p < .001$; $N = 93$; Stumbrys, Erlacher, & Schredl, 2013). To ensure a clear understanding of lucid dreaming,

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a short definition was provided: “In a lucid dream, one is aware that one is dreaming during the dream. Thus it is possible to wake up deliberately, or to influence the action of the dream actively, or to observe the course of the dream passively”.

Following the format of the items devised by Belschner (2008), Girzig (2009) constructed two items measuring self-perceived effects of lucid dreams on the mental and physical well-being of the dreamer: “I believe that my lucid dreams have contributed to my mental well-being” and “I believe that my lucid dreams have contributed to my physical well-being.” Two additional items measured belief in possible beneficial effects of lucid dreams: “I believe that after my experiences in my lucid dreams I will feel better again”, and “If I continue to work well on myself within my lucid dreams, I will achieve something beneficial for myself and my life.” Lastly, two items covered the perceived effect of lucid dreaming on waking-life in general that had been achieved so far: “Through my lucid dreams, I have achieved a beneficial change in my life” and “I have taken my chances to achieve a beneficial change in my life due to my lucid dreams.” The answer categories were similar to the Transpersonal Trust Scale (TPV): 0 = strongly disagree, 1 = partly disagree, 2 = partly agree, and 3 = strongly agree.

2.3. Transpersonal Trust Scale (TPV)

Spirituality in the present study was measured by the Transpersonal Trust scale which encompasses 10 four-point items of the original scale consisting of 11 items (Belschner, 2008). The items aimed at eliciting the belief and experiences regarding the connectedness to a greater (“spiritual”) context, for example, “I am part of a larger context in which I feel safe,” “I try to entrust myself to the hand of God or a higher being,” or “I call myself religious, even though I do not belong to a specific community of faith.” The format of the items included the categories: 0 = strongly disagree, 1 = partly disagree, 2 = partly agree, and 3 = strongly agree. Cronbach’s alpha of the 10-item scale in the total sample was $r = .904$ (N = 505) (Schredl et al., 2016).

2.4. Trait Mindfulness (FMI)

Dispositional mindfulness was assessed with the Freiburg Mindfulness Inventory (FMI; Walach et al., 2004). The questionnaire consists of 14 four-point items (one item is reversed), ranging from 1 = rarely, 2 = occasionally, 3 = fairly often, and 4 = almost always. The internal consistency of the FMI sum score in this study was high: Cronbach’s alpha = .817 (N = 509) (Schredl et al., 2016).

Table 1. Lucid dream frequency of the present sample (N = 386)

Category	Frequency	Percent
Several times a week	56	14.51%
About once a week	55	14.25%
two or three times a month	85	22.02%
About once a month	67	17.36%
About two or four times a year	56	14.51%
About once a year	25	6.48%
Less than once a year	42	10.88%
Never	---	---

2.5. Procedure

The online questionnaire (in German) was posted on a German website on lucid dreaming <http://www.klartraum.de> between August 22, 2007, and January 8, 2008. The newsletter with an invitation to participate in the study was sent by email to approximate 1500 users registered at that time on the website. The data collection was anonymous, however participants were asked to provide their email address in order to minimize the risk of multiple responses to the questionnaire. After the end of the study, the email addresses were removed. This type of study (online questionnaire study with healthy volunteers that can abort the study at any time) does not require a formal written consent and ethics approval. Statistical analyses were carried out with SAS for Windows 9.4 (SAS Institute, Cary, North Carolina, USA). We computed ordinal regression analyses with age, gender, lucid dream frequency, dispositional mindfulness (FMI) and Transpersonal Trust (TPV) as independent variables.

3. Results

The distribution of the lucid frequency scale is depicted in Table 1. About 50% were so-called frequent lucid dreamers who remember their lucid dreams at least once a month. The average mindfulness score was 39.50 ± 6.17 (N = 362). The Transpersonal Trust scale (TPV) yielded an average of 13.78 ± 8.05 .

The descriptive statistics of the six items regarding possible effects of lucid dreams on waking life are depicted in Table 2. The majority of respondents strongly or partly agreed with the statement of lucid dream contributing to their mental well-being whereas the figures regarding the

Table 2. Items measuring the subjective effect of lucid dreams on mental and physical well-being

Item	strongly disagree	partly disagree	partly agree	strongly agree
I believe that my lucid dreams have contributed to my mental well-being. (N = 374)	6.4%	12.3%	42.5%	38.8%
I believe that my lucid dreams have contributed to my physical well-being. (n = 367)	20.4%	27.5%	30.5%	21.5%
I believe that after my experiences in my lucid dreams I will feel better again. (N = 369)	23.8%	34.1%	30.6%	11.4%
If I continue to work well on myself in my lucid dreams, I will achieve something beneficial for my life and myself. (N = 370)	17.8%	22.7%	36.8%	22.7%
Through my lucid dreams, I have achieved a beneficial change in my life. (N = 370)	11.9%	19.2%	43.5%	25.4%
I have taken my chances to achieve a beneficial change in my life due to my lucid dreams. (N = 371)	11.6%	16.7%	32.1%	39.6%

Table 3. Correlations between self-perceived effects of lucid dreams on mental and physical well-being and the other four lucid dream questionnaire items

Item	Mental well-being	Physical well-being
I believe that after my experiences in my lucid dreams I will feel better again.	.598 (N = 369)	.568 (N = 367)
If I continue to work well on myself in my lucid dreams, I will achieve something beneficial for my life and myself.	.476 (N = 369)	.506 (N = 368)
Through my lucid dreams, I have achieved a beneficial change in my life.	.614 (N = 366)	.595 (N = 369)
I have taken my chances to achieve a beneficial change in my life due to my lucid dreams.	.519 (N = 367)	.558 (N = 368)

Note. $p < .0001$ for all Spearman Rank correlations

contributions of lucid dreaming to physical well-being are lower: half of the participants agreed, while the other half disagreed. This difference was significant (Sign Rank test: $S = 6622.5$, $p < .0001$, $N = 369$). The Spearman Rank correlation between the two items was high: $r = .589$ ($p < .0001$, $N = 369$). Both variables (mental well-being and physical well-being) were significantly related to the other four items measuring beliefs and self-perceived effects of lucid dreams on waking life (see Table 3).

The ordinal regression analysis depicted in Table 4 (all variables were entered simultaneously) indicated that all variables were significantly associated with the self-perceived effect on mental well-being. Men, as well as older respondents, more frequent lucid dreamers and those with higher dispositional mindfulness and higher Transpersonal Trust scores tended to report positive effects of lucid dreaming on their mental health more often (see Table 4). For the self-perceived effect on physical well-being, age, mindfulness, and transpersonal trust were also positively associated but no gender effect and no association to lucid dream frequency was found (see Table 4).

4. Discussion

Overall, the findings indicate that many lucid dreamers reported benefits of lucid dreaming on their mental well-

being, whereas half of the lucid dreamers stated that lucid dreams have contributed to their physical health. Their self-perceived benefits due to lucid dreaming were related to lucid dream frequency, trait mindfulness, and spirituality, supporting the notion that programs aiming at self-growth and self-healing via lucid dreaming should not only focus on teaching induction techniques for increasing lucid dream frequency but also how to act within in the lucid dream (cf. Malamud, 1988; Tholey, 1988), e.g. encouraging the development of mindfulness skills and building transpersonal trust.

From a methodological viewpoint it has to be noted that the present sample was self-selected. Although the survey focused on lucid dreaming in general and not on self-healing in particular (Schredl et al., 2016; Stumbrys & Erlacher, 2016, 2017), it might be that persons with positive experiences regarding lucid dreaming were more likely to visit the klartraum.de webpage regularly. Thus, the percentage of self-reported benefits of lucid dreaming might be an overestimation. On the other hand, it should also be noted that the lucid dream frequencies of the sample varied considerably, i.e., the sample did not consist mainly of lucid dream “experts” with very high lucid dream frequencies and, therefore, the findings clearly add to the anecdotal reports in the literature (cf. Garfield, 1974; Waggoner & McCready, 2015).

The second methodological issue is the retrospective nature of the items eliciting possible benefits of lucid dreaming. A randomized study with pre-post design and a control group would be ideal; however, the study of Taitz (2011) clearly indicated that two weeks with just focusing on inducing lucid dreams are not enough to demonstrate effects on mental well-being. On the contrary, the occurrence of lucid dreams in this sample without prior lucid dream experiences was related to depressive mood. As lucid dreaming is related to nightmare frequency (Hess et al., 2017), one might speculate whether this relationship between depression and lucid dream frequency reported by Taitz (2011) could be mediated by the occurrence of nightmares. For example, the negative correlation between lucid dream frequency and sleep quality in a cross-sectional study was no longer significant after controlling for nightmare frequency (Schadow et al., 2018). I.e., it is very important to control for nightmare frequency in this type of studies. The four-week study conducted by Konkoly and Burke (2019) was probably too short as the experimental group did not experience more lucid dreams than the control groups; in the lucid dream condition, however, lucid dream frequency

Table 4. Ordinal regression analysis of the items measuring the self-rated benefit of lucid dreams on mental and physical well-being

Variable	Mental well-being			Physical well-being			
	SE	χ^2	p	SE	χ^2	p	
Age	.1855	8.8	.0030	.1162	4.2	.0405	
Gender (1 = m, 2 = f)	-.1865	10.3	.0013	-.0728	1.8	.1796	
Lucid dream frequency	.1222	4.5	.0344	.0630	1.3	.2478	
Mindfulness scale	.1734	8.0	.0048	.1243	4.6	.0346	
Transpersonal Trust scale	.2607	16.8	<.0001	.1360	5.4	.0205	
		$R^2 = .1916$, $N = 350$			$R^2 = .0746$, $N = 349$		

SE = Standardized estimates

was positively associated with life satisfaction. This might be explained, though, by the positive emotions associated with being successful in an induction study. Based on the accounts of Tholey (1988) and Malamud (1988) the study period should be at least 8 to 12 weeks, probably longer, in order to measure effects of lucid dreaming on the well-being of the practitioner.

The majority of the participants reported positive effects of lucid dreaming on their mental well-being. This could reflect a general effect of positive dream emotions that are typical for lucid dreams on waking-life emotions (Stocks et al., 2020), or reducing nightmare frequency (Zadra & Pihl, 1997), or specific dream experiences within the lucid dream, e.g., reconciliation with originally threatening dream characters (Tholey, 1988) or spiritual experiences like feeling at one with the world (Waggoner & McCready, 2015). Future retrospective studies should include an open-ended question asking for specific lucid dream experiences that had a positive effect on subsequent waking life. In response to authors that caution against cultivating lucid dreams (Soffer-Dudek, 2020; Vallat & Ruby, 2019), it would also be interesting to ask whether the practitioners experienced “side effects” of lucid dream trainings. Tholey (1988) reported that 22% of his participants reported transitory negative symptoms during practicing lucid dreaming that could be resolved after he gave individualized feedback.

The occurrence of lucid nightmares (Schredl & Bulkeley, 2020; Stumbrys, 2018), i.e., the nightmarish quality of the nightmare is not altered by knowing it is a dream, is also an indicator that self-healing programs based on lucid dreaming should not only include instructions for inducing lucid dreams but also specific instructions for confronting effectively threatening situations, e.g., imaging these coping strategies in waking – similar to the Imagery Research Treatment for nightmares (Krakow & Zadra, 2006). The significant associations with trait mindfulness and transpersonal trust also support the idea that the mind-set of the practitioner on how to deal with difficult situations within the lucid dream is of importance. Mindfulness is the awareness that emerges through paying attention on purpose in the present moment and being nonjudgmentally (Kabat-Zinn, 2003), which has been linked to a range of positive effects on both mental and physical health (Grossman et al., 2004). Religion and spirituality have also been associated with positive effects on mental and physical health (Gonçalves et al., 2015; Jim et al., 2015). Thus, the elements of being more open to the present moment, accepting nonjudgmentally and having a connectedness to a greater (i.e., spiritual) context, might facilitate the healing effects of the lucid dream state. However, in this cross-sectional study one might argue that positive experiences due to lucid dreams might contribute to mindfulness and spirituality.

Compared to beneficial effects on mental health, the self-perceived effects of lucid dreaming on physical well-being were stated less often. In contrast to mental well-being, the higher frequency of lucid dreaming was not a significant predictor of greater lucid dreaming benefits on physical well-being, suggesting that either the potential of lucid dreaming being beneficial for physical health is less or at least less evident. Previous research showed somewhat mixed results on the relationship between lucid dream frequency and physical self-concept – a negative association or a lack thereof (Hausberger et al., 2016; Jones & Stumbrys, 2014). However, according to the present findings, similarly as with

mental health, incorporating the elements of mindfulness and transpersonal trust into a lucid dream programme might also have beneficial effects on physical health. It would be very interesting to study lucid dreaming programs in rehabilitation programs as to whether specific training within lucid dreams can speed up the recovery process.

The high correlations between the items regarding beneficial effects of lucid dreams on mental and physical well-being and the items of believing that lucid dreams can be beneficial or already had been perceived as beneficial for one’s life in general indicate that there might be a general factor that encompasses a general positive attitude towards the possibility that lucid dreaming is beneficial for waking life, including the expectation as to what lucid dreaming can do as well as already made experiences.

The correlation with age might be an artefact as we did not specify the time interval within which the benefits due to lucid dreaming were experienced, i.e., older persons would have more chances to experience positive effects. On the other hand, Stumbrys and Erlacher (2016) showed that young adults were mostly interested in having fun in lucid dreams, i.e., self-growth and self-healing as possible goals come somewhat later in life. The gender difference with men reporting more likely beneficial effects cannot be explained with the present data set – qualitative studies looking more deeply into the matter would be desirable.

To summarize, this retrospective study clearly showed that many lucid dreamers experienced benefits in waking life regarding their mental as well as, to some extent, physical well-being due to their lucid dreams. The next step would be to develop a manualized lucid dream therapy (cf. Malamud, 1988; Tholey, 1988) and test its effectiveness on physical and mental health in a randomized waiting-list pre-post design. Qualitative research might help to answer the question about the specific mechanisms, i.e., how does lucid dreaming contribute to well-being in waking life.

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