Applications of lucid dreams and their effects on the mood upon awakening

Tadas Stumbrys[1], & Daniel Erlacher[2]

[1]Vilnius University, Lithuania
[2]University of Bern, Switzerland

This article has been updated!
Updated on Oct 28, 2018.
Table 2 was replaced.

Summary. In lucid dreams the dreamers are aware that they are dreaming and can use this state for a variety of different purposes. In an online survey, 528 respondents, of whom 386 were lucid dreamers, were asked how often have they used different applications of lucid dreams lately and how did this influence their mood upon awakening. According to the reports, wish fulfilment was the most frequent application, followed by solving waking problems, overcoming fears/nightmares, spiritual experiences, physical/mental healing, and training motor skills, with meditation being the least popular application. Younger participants, as well as men, were more likely to engage in wish fulfilment, whereas older and more experienced lucid dreamers more used their lucid dreams for inner work (solving waking problems, physical/mental healing, meditation). Women were more likely to use their lucid dreams for overcoming fears/nightmares and healing. All applications influenced mood upon awakening positively to neutrally, with the most positive moods being after wish fulfilment, which helps to elucidate why it is the most popular application of lucid dreams. Future longitudinal studies should examine long-term effects of different lucid dream applications.

Keywords: Lucid dreaming; applications; wish fulfilment; nightmare treatment; motor learning; problem solving; spirituality; meditation; healing

1. Introduction

A lucid dream is a dream in which the dreamer is aware that he or she is dreaming and often can influence the dream content (LaBerge, 1985). Although lucid dreaming is considered to be a rare ability, a recent meta-analysis of lucid dream prevalence and frequency shows that 55% of population have experienced lucid dreaming at least once in their lifetime and 23% experience it regularly (once a month or more frequently) (Saunders, Roe, Smith, & Clegg, 2016). It is a learnable ability (cf. LaBerge, 1980) and a variety of different techniques have been suggested for lucid dream induction (Stumbrys, Erlacher, Schädlich, & Schredl, 2012).

While lucid dreamers in their lucid dreams most often seek pleasurable activities such as flying or sex (Stumbrys, Erlacher, Johnson, & Schredl, 2014), a number of practical applications for lucid dreams have been suggested (LaBerge & Rheingold, 1990). According to several case reports and a pilot study, lucid dreams can be successfully applied for nightmare treatment (e.g. Brylowski, 1990; Spoormaker & van den Bout, 2006; Spoormaker, van den Bout, & Meijer, 2003; Zadra & Pihl, 1997), helping to reduce nightmare frequency and intensity. Lucid dreams can also be used for rehearsing motor skills and research supports that such practice is effective in improving subsequent performance in wakefulness (Erlacher & Schredl, 2010; Stumbrys, Erlacher, & Schredl, 2016). Further, some studies indicate that lucid dreams can be successfully applied for creative problem solving (Stumbrys & Daniels, 2010) or seeking spiritual experiences (Bogzaran, 1990; Esser, 2014). Moreover, according to some anecdotal and tentative evidence, lucid dreaming may be applied for physical and mental healing (e.g. Kellogg, 1989; LaBerge & Rheingold, 1990; Tholey, 1988; Waggoner, 2009; Zappaterra, Jim, & Pangarkar, 2014). Finally, parallels between lucid dreaming and meditation have been observed (Gackenbach & Bosveld, 1990; Hunt & Ogilvie, 1988) and the lucid dream state has been used as a tool for deepening meditation practice in traditions such as Tibetan dream yoga (Norbu, 1992; Wangyal, 1998).

However, the extent to which lucid dreamers use their lucid dreams for various practical purposes has not been extensively studied. A survey of German athletes showed that only 9% of athletes with lucid dream experience used such dreams for their sports practice (Erlacher, Stumbrys, & Schredl, 2011-2012). In another survey of 301 lucid dreamers (Schädlich & Erlacher, 2012), 81% of the respondents indicated that they have used their lucid dreams at least once for having fun, 64% used lucid dreams for changing nightmares, while other applications – problem solving (30%), creativity (28%) and practicing skills (21%) were less frequent. Yet other applications such as healing or seeking spiritual experiences were not explored and it remains uncertain *how often* the different applications are used.

The aim of the present study was to investigate how often lucid dreamers use their lucid dreams for different purposes and what is the effect of different applications on the mood upon awakening, as well as to examine possible underlying factors (age, gender, lucid dream frequency).

Corresponding address:
Dr. Tadas Stumbrys, Vilnius University, Department of General Psychology, Faculty of Philosophy, Universiteto str. 9/1, 01513 Vilnius, Lithuania.
Email: tadas.stumbrys@gmail.com

Submitted for publication: September 2016
Accepted for publication: September 2016

2. Method

2.1. Participants

Five hundred twenty eight participants (290 men and 238 women) completed an online questionnaire. Their ages ranged from 11 to 67 years, with the mean age of

26.4 ± 10.6 years. There were 161 working professionals, 152 students, 125 schoolchildren, 34 in vocational training, 8 housewives/-husbands, 4 retired, 20 unemployed and 5 at military or civilian service (18 participants marked "other occupation" and 1 participant did not provide information).

2.2. Materials

In addition to biographical data (age, gender, occupation), the questionnaire included items about lucid dreams, their applications and effects on the waking mood. The participants were asked to estimate their lucid dream frequency on 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; 7 - several times a week). Re-test reliability for the scale was found to be high (r=.89; p<.001; N=93; Stumbrys, Erlacher, & Schredl, 2013). In order to obtain units in frequency per month, 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 ensure a clear understanding of lucid dreaming, 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".

Further, those participants who had lucid dreams were asked to indicate (in percentages, summing up to 100%) for what purpose have they used their lucid dreams recently. Seven categories were provided (as well as one additional open-ended where other applications could be specified): (1) wish fulfilment (e.g. flying, dancing, laughing, having sex); (2) training motor skills (e.g. practicing sports or playing a musical instrument; (3) solving waking problems (e.g. asking dream characters for advice); (4) overcoming fears or nightmares (e.g. confronting frightening dream characters); (5) for spiritual experiences (e.g. feeling at one with the environment); (6) meditating (e.g. applying certain meditation techniques); (7) alleviating or healing physical or mental problems (e.g. relieving physical pain, handling grief). For all the categories, the participants were asked to specify how did that particular application influence their mood upon awakening from the lucid dream on a five-point scale (1 – very positive; 2 – positive; 3 – neutral; 4 – negative; 5 – very negative).

2.3. Procedure

The study was conducted in German. The online questionnaire was posted on the German website on lucid dreaming http://www.klartraum.de between August 22, 2007, and January 8, 2008. The newsletter with an explicit reference to the study was sent by email to approx. 1500 registered users of the website. The survey was anonymous, however participants were asked to provide their email address in order to minimize the risk of multiple responses to the questionnaire. To answer the questionnaire, the participants had as much time as they needed.

2.4. Statistical analysis

SPSS (Version 17) was used for statistical analysis. For each lucid dream application (e.g. wish fulfilment) a logistic regression analysis with the frequency of the lucid dream application as the dependent variable was calculated to investigate possible influencing factors of age, gender and lucid dream frequency as independent variables.

3. Results

Three hundred eighty-six respondents (73.1%) reported that they had at least one lucid dream. Two hundred sixty-three respondents (49.8%) had at least one lucid dream per month and following Snyder and Gackenbach (1988) can be classified as frequent lucid dreamers. In average, the participants estimated to recall 3.95 ± 5.94 lucid dreams per month (whole sample: 2.93 ± 5.40, 521 responses).

Wish fulfilment was the most popular application of lucid dreams, employed in over 40% of lucid dreams. The second most popular application was problem solving, followed by overcoming fears/nightmares and spiritual experiences, while meditation was the least popular (Table 1). Among other applications participants most often mentioned exploring the dream space (e.g. visiting unknown dreamscapes) and performing experiments in the dream (e.g. tasting, smelling things in dreams). According to the participants' reports, they also attempted to increase the number of lucid dreams, to increase the level of control in their lucid dreams and to stabilize the lucid dream. For all applications, the influence on mood upon awakening was positive/neutral, with most positive moods after wish fulfilment and most neutral moods after meditation (Table 1).

Regression analyses revealed several differences of lucid dream applications in relation to age, gender and lucid dream frequency. Younger participants were more likely to use their lucid dreams for wish fulfilment, whereas older participants more employed their lucid dreams for solving waking problems, meditation and physical/mental healing (Table 2). Men were more likely to use lucid dreams for wish fulfilment and meditation, while women for overcoming fears/nightmares and physical/mental healing. More frequent lucid dreamers more often used their lucid dreams for solving waking problems, meditation and physical/mental healing and less for overcoming fears/nightmares (Table 2).

4. Discussion

This survey gathered data on lucid dream applications and their effects on the mood upon awakening. The most frequent application of lucid dreaming was wish fulfilment, especially for younger participants, while older participants and more frequent lucid dreamers were more likely to try other applications, such as solving waking problems, healing, meditation. Men more tended to use their lucid dreams for wish fulfilment and meditation, whereas women for overcoming fears/nightmares and healing. All applications influenced mood upon awakening more positively/neutrally, with most positive moods being after wish fulfilment.

Before discussing the findings, some limitations of the present study have to be acknowledged. The majority of the participants were lucid dreamers (73%) and half of them (50%) were frequent lucid dreamers. These proportions are much higher than in general population (55% and 23%, respectively, Saunders et al., 2016), but comparable to other online surveys of lucid dreamers (e.g. Stumbrys et al., 2014). Further, the participants were self-selected due to their interest in lucid dream research. Therefore the generalizations of these findings should be cautious. Furthermore, the data were collected via an online questionnaire, which

Table 1. Applications of lucid dreams and their effects on the mood upon awakening for a total of n = 357 respondents

	Application %			Effect on mood*		
	N	M	SD	N	M	SD
Wish fulfilment	297	42.8	33.7	290	1.8	0.8
Solving waking problems	205	14.5	19.7	200	1.9	0.8
Overcoming fears/nightmares	167	10.8	19.3	164	2.2	0.9
Spiritual experiences	153	8.1	14.8	153	2.1	0.9
Physical/mental healing	142	6.5	11.4	136	2.2	0.9
Training motor skills	110	4.2	9.7	109	2.3	0.7
Meditation	39	1.3	4.1	27	2.3	1.1
Other	94	12.0	25.4	89	1.8	0.8

Note. *1 – very positive; 2 – positive; 3 – neutral; 4 – negative; 5 – very negative

might have had some effect on the quality of the responses, although comparative analyses show that data gathered via the Internet are at least as good as data gathered via traditional methods and do not appear tainted by false responses (Gosling, Vazire, Srivastava, & John, 2004).

The finding that wish fulfilment is the most popular application of lucid dreams, supports the classical Freud's (1913) idea of dreams being a fulfilment of wishes, and is in line with previous studies which showed that most lucid dreamers use their lucid dreams for having fun (Schädlich & Erlacher, 2012) and that flying and sex are among the most popular actions planned for lucid dreams (Stumbrys et al., 2014). Two next popular categories – solving waking problems and overcoming fears/nightmares – resemble findings by Schädlich & Erlacher (2012), where changing nightmares and problem solving were also the second-third applications by popularity, and their effectiveness is backed by some preliminary research (e.g. Spoormaker & van den Bout, 2006; Stumbrys & Daniels, 2010). Spiritual experiences and physical/mental healing were not included in the previous research and while they seem to be somewhat less frequently used, their effects and phenomenology warrant further research. Training motor skills appears to be rarely used application (cf. Erlacher et al., 2011-2012), although research supports the effectiveness of such training (Erlacher & Schredl, 2010; Stumbrys et al., 2016). Therefore perhaps more publicity is needed to flag up such potentials of lucid dreaming, especially in specific populations where this is most applicable (e.g. athletes, musicians). Meditation, while being the least popular application of lucid dreams, is nevertheles another interesting area that needs further investigation. Numerous studies showed positive effects of meditation on physical and psychological health and well-being (reviews: Arias, Steinberg, Banga, & Trestman, 2006; Goyal et al., 2014). According to Tibetan dream yoga, meditation practice carried out in the lucid dream state is even more effective than in the waking state (Norbu, 1992). Therefore it would be interesting to study the effects of meditation carried out while lucid dreaming and to compare their physiological and phenomenological aspects.

The age differences found regarding lucid dream applications – that younger lucid dreamers were more likely to seek wish fulfilment, while the older ones were more like to engage into more serious applications (such as solving

Corrected Table 2. Regression analysis for lucid dream applications with age, gender and lucid dream (LD) frequency as independent variables.

	Age	Gender	LD frequency
Wish fulfilment	β=-0.25; t=-4.91***	β=-0.11; t=-2.05*	β=0.03; t=0.60
Training motor skills	β=0.03; t=0.49	β=-0.03; t=-0.56	β=-0.05; t=-0.84
Solving waking problems	β=0.29; t=5.70***	β=0.05; t=0.95	β=0.11; t=2.13*
Overcoming fears/nightmares	β=-0.02; t=-0.41	β=0.19; t=3.55***	β=-0.11; t=-2.09*
Spiritual experiences	β=0.06; t=1.16	β=0.01; t=0.22	β=-0.01; t=-0.14
Meditation	β=0.14; t=2.69**	β=-0.16; t=-3.01**	β=0.11; t=2.09*
Physical/mental healing	β=0.11; t=2.00*	β=0.11; t=2.12*	β=0.13; t=2.43*
Other	β=0.01; t=0.20	β=-0.06; t=-1.11	β=-0.10; t=-1.78

Note. *p<0.05, **p<0.01, ***p<0.001.

waking problems, meditation, physical/mental healing) – are also in line with previous research, as well as gender differences that men were more likely to seek wish fulfilment while women to overcome nightmares (Schädlich & Erlacher, 2012). Generally, women have more nightmares than men (Schredl & Reinhard, 2011) and perhaps working with nightmares in lucid dreams may facilitate more general self-work with mental and physical healing in lucid dreams, in which, according to the present results, women are also more likely to engage. The finding that men were more likely to use their lucid dreams for meditation is somewhat unexpected, as generally women seem to engage in meditation more often than men (e.g. Barnes, Bloom, & Nahin, 2008). Similarly to older participants, more frequent lucid dreamers also tend to engage more into an inner work in their lucid dreams (i.e. solving waking problems, physical/mental healing, meditation), which is likely to reflect their growing maturity with the development of the lucid dream ability . On the other hand, they seem to be less using their lucid dreams for overcoming fears/nightmares, which perhaps may be considered as preliminary "shadow" work in Jungian terms (Jacobi, 1973) to be accomplished in the earlier stages of lucid dreaming (lucid dreams quite often originate from nightmares, see Stumbrys et al., 2014).

The effects on the waking mood for all applications were perceived as more positive or neutral. Wish fulfilment appears to lead to the most positive emotions upon awakening, which may explain why it is the most popular application of lucid dreams. Generally, lucid dreams contain more positive emotions than non-lucid dreams (Thomas, Pollak, & Kahan, 2015). The succesful application of a lucid dream for a particular purpose may give a further boost of positive emotions, which will influence the mood after awakening (cf. Schredl & Reinhard, 2009).

Future studies should explore long-term effects of different lucid dream applications, for example, to see if wish fulfillment in lucid dreams leads to increases in overall daytime mood, whether solving waking problems or working with nightmares and fears in lucid dreams help to cope bettter with them while awake and to reduce related daytime distress. Further, if seeking physical/mental healing or spiritual experiences through lucid dreams can contribute to better physical, mental and spiritual health. To investigate this, longitudinal studies would be especially useful.

In conclusion, the present findings support the notion that lucid dreamers, especially the younger ones, most often use their lucid dreams for wish fulfilment. With the advancing age and more frequent lucid dream experience, lucid dreamers are more starting to use their lucid dreamers for inner work, such as solving waking problems, physical/mental healing and meditation. Meditation and training motor skills, however, were found to be the least frequently used lucid dream applications. Practical applications of lucid dreams have positive to neutral effects on the mood upon awakening. Among them, wish fulfilment gives the most positive boost on the waking mood, which elucidates why it is the most popular application of lucid dreams. Future longitudinal studies should examine long-term effects of different lucid dream applications.

References

Arias, A. J., Steinberg, K., Banga, A., & Trestman, R. L. (2006). Systematic review of the efficacy of meditation techniques as treatments for medical illness. The Journal of Alternative and Complementary Medicine, 12(8), 817–832. http://doi.org/10.1089/acm.2006.12.817

Barnes, P. M., Bloom, B., & Nahin, R. L. (2008). Complementary and alternative medicine use among adults and children: United States, 2007. National Health Statistics Reports, (12), 1–23.

Bogzaran, F. (1990). Experiencing the Divine in the Lucid Dream State. Lucidity Letter, 9(1), 169–176.

Brylowski, A. (1990). Nightmares in crisis: clinical applications of lucid dreaming techniques. Psychiatric Journal of the University of Ottawa, 15(2), 79–84.

Erlacher, D., & Schredl, M. (2010). Practicing a motor task in a lucid dream enhances subsequent performance: A pilot study. The Sport Psychologist, 24(2), 157–167.

Erlacher, D., Stumbrys, T., & Schredl, M. (2011-2012). Frequency of lucid dreams and lucid dream practice in German athletes. Imagination, Cognition and Personality, 31(3), 237–246. http://doi.org/10.2190/IC.31.3.f

Esser, T. (2014). Kundalini and non-duality in the lucid dreaming state. In R. Hurd & K. Bulkeley (Eds.), Lucid Dreaming: New Perspectives on Consciousness in Sleep (Vol. 2, pp. 233–263). Santa Barbara, CA: Praeger.

Freud, S. (1913). The Interpretation of Dreams. (A. A. Brill, Trans.). New York: The Macmillan Company.

Gackenbach, J., & Bosveld, J. (1990). Control Your Dreams. New York: HarperPerennial.

Gosling, S. D., Vazire, S., Srivastava, S., & John, O. P. (2004). Should we trust web-based studies? A comparative analysis of six preconceptions about internet questionnaires. The American Psychologist, 59(2), 93–104. http://doi.org/10.1037/0003-066X.59.2.93

Goyal, M., Singh, S., Sibinga, E. M. S., Gould, N. F., Rowland-Seymour, A., Sharma, R., … Haythornthwaite, J. A. (2014). Meditation programs for psychological stress and well-being. JAMA Internal Medicine, 174(3), 357. http://doi.org/10.1001/jamainternmed.2013.13018

Hunt, H. T., & Ogilvie, R. D. (1988). Lucid dreams in their natural series: Phenomenological and psychological findings in relation to meditative states. In J. Gackenbach & S. LaBerge (Eds.), Conscious Mind, Sleeping Brain: Perspectives on Lucid Dreaming (pp. 389–417). New York: Plenum Press.

Jacobi, J. (1973). The Psychology of C. G. Jung. New Haven: Yale University Press.

Kellogg, E. W. (1989). A personal experience in lucid dream healing. Lucidity Letter, 8(1).

LaBerge, S. (1980). Lucid Dreaming as a Learnable Skill: A Case Study. Perceptual and Motor Skills, 51(3 Pt 2), 1039–1042.

LaBerge, S. (1985). Lucid dreaming. The power of being awake and aware in your dreams. Los Angeles: Tarcher.

LaBerge, S., & Rheingold, H. (1990). Exploring the World of Lucid Dreaming. New York: Ballantine Books.

Norbu, N. (1992). Dream Yoga and the Practice of Natural Light. (M. Katz, Ed.). Ithaca, New York: Snow Lion Publications.

Saunders, D. T., Roe, C. A., Smith, G., & Clegg, H. (2016). Lucid dreaming incidence: A quality effects meta-analysis of 50 years of research. Consciousness and Cognition, 43, 197–215. http://doi.org/10.1016/j.concog.2016.06.002

Schädlich, M., & Erlacher, D. (2012). Applications of lucid dreams: An online study. International Journal of Dream Research, 5(2), 134–138.

Schredl, M., & Reinhard, I. (2009-2010). The continuity between waking mood and dream emotions: Direct and second-order effects. Imagination, Cognition and Personality, 29(3), 271–282. http://doi.org/10.2190/IC.29.3.f

Schredl, M., & Reinhard, I. (2011). Gender differences in nightmare frequency: A meta-analysis. Sleep Medicine Reviews, 15(2), 115–21. http://doi.org/10.1016/j.smrv.2010.06.002

Snyder, T., & Gackenbach, J. (1988). Individual differences associated with lucid dreaming. In J. Gackenbach & S. LaBerge (Eds.), Conscious Mind, Sleeping Brain: Perspectives on Lucid Dreaming (pp. 221–259). New York: Plenum Press.

Spoormaker, V. I., & van den Bout, J. (2006). Lucid dreaming treatment for nightmares: a pilot study. Psychotherapy and Psychosomatics, 75(6), 389–94. http://doi.org/10.1159/000095446

Spoormaker, V. I., van den Bout, J., & Meijer, E. J. G. (2003). Lucid dreaming treatment for nightmares: A series of cases. Dreaming, 13(3), 181–186.

Stumbrys, T., & Daniels, M. (2010). An exploratory study of creative problem solving in lucid dreams: Preliminary findings and methodological considerations. International Journal of Dream Research, 3(2), 121–129. http://doi.org/10.11588/ijodr.2010.2.6167

Stumbrys, T., Erlacher, D., Johnson, M., & Schredl, M. (2014). The phenomenology of lucid dreaming: An online survey. American Journal of Psychology, 127(2), 191–204. http://doi.org/10.5406/amerjpsyc.127.2.0191

Stumbrys, T., Erlacher, D., Schädlich, M., & Schredl, M. (2012). Induction of lucid dreams: A systematic review of evidence. Consciousness and Cognition, 21(3), 1456–1475. http://doi.org/10.1016/j.concog.2012.07.003

Stumbrys, T., Erlacher, D., & Schredl, M. (2013). Reliability and stability of lucid dream and nightmare frequency scales. International Journal of Dream Research, 6(2), 53–56. http://doi.org/10.11588/ijodr.2013.2.11137

Stumbrys, T., Erlacher, D., & Schredl, M. (2016). Effectiveness of motor practice in lucid dreams: a comparison with physical and mental practice. Journal of Sports Sciences, 34(1), 27–34. http://doi.org/10.1080/02640414.2015.1030342

Tholey, P. (1988). A model for lucidity training as a means of self-healing and psychological growth. In J. Gackenbach & S. LaBerge (Eds.), Conscious Mind, Sleeping Brain: Perspectives on Lucid Dreaming (pp. 263–287). New York: Plenum Press.

Thomas, S., Pollak, M., & Kahan, T. L. (2015). Subjective qualities of dreams with and without awareness. Dreaming, 25(3), 173–189. http://doi.org/10.1037/a0039242

Waggoner, R. (2009). Lucid Dreaming: Gateway to the Inner Self. Needham, MA: Moment Point Press.

Wangyal, T. (1998). The Tibetan Yogas of Dream and Sleep. New York: Snow Lion Publications.

Zadra, A. L., & Pihl, R. O. (1997). Lucid dreaming as a treatment for recurrent nightmares. Psychotherapy and Psychosomatics, 66(1), 50–55.

Zappaterra, M., Jim, L., & Pangarkar, S. (2014). Chronic pain resolution after a lucid dream: A case for neural plasticity? Medical Hypotheses, 82(3), 286–290. http://doi.org/10.1016/j.mehy.2013.12.011