

# Smoking dreams in the dream series of a non-smoker

Michael Schredl

Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Germany

**Summary.** The analysis of this long dream series (N = 9133 dreams) indicates that smoking plays a role in the dreams (1.43%) of a non-smoker. Most often, other dream characters were smoking, which annoyed the dreamer. The medium success rate of doing something about the smoking probably reflects a basic pattern of the dreamer dealing with annoying situations. The present study is a good starting point to look into the relationship to smoking, and the attitudes towards smoking in waking life and in dreaming, since in-depth studies in this area are almost completely absent. Furthermore, smoking might also be interesting to use as a stimulus during sleep as research has shown that olfactory stimuli can effect dream content and dream emotions.

**Keywords:** Dream series, smoking, continuity hypothesis

## 1. Introduction

Cigarette smoking is a common habit all over the world (World Health Organization, 2008), e.g., in Germany 27.2% and in the US 23.0% of adults are smokers. In addition to the health hazards of smoking, it is also associated with sleep difficulties (Jaehne, Loessl, Barkai, Riemann, & Hornyak, 2009) and heightened nightmare frequency (Lexcen & Hicks, 1993; Wetter & Young, 1994). An experimental study (Page, Coleman, & Conduit, 2006) using nicotine patches showed that nicotine being a cholinergic agonist increased the vividness of dreams. In some countries like Germany not only smokers are exposed to smoke but also non-smokers since smoking was allowed until 2007 in many public locations like restaurants, dance clubs, etc. If advertisements, films and so on are added, cigarette smoking is very present in the everyday life of people.

Despite this presence of smoking, the only systematic REM awakening study (Baldrige, Kramer, Whitman, & Ornstein, 1968) yielded no smoking dreams in smokers. Re-analysis of the Hall and Van de Castle (1966) data set (N = 981 dreams reported by college students) using dreambank.net (search term: smoking and/or cigarette) indicated that in only one dream of the normative student sample was the dreamer smoking. Similarly, Barb Sanders, providing a dream series of 3116 dreams (Domhoff, 2003), smoked in only three dreams. The information sheet on dreambank.net indicates that Barb Sanders smoked for 20 years but stopped in the early 1980ties – half way through the collected dream series. Interestingly, the smoking dreams occurred after she stopped smoking. In the study of Hajek and Belcher (1991) about one third of the smokers undergoing

a cessation treatment reported smoking dreams but almost none of the participants remembered smoking dreams while they were still smoking. Interestingly, two studies (Hajek & Belcher, 1991; Persico, 1992) reported that smoking dreams after cessation are predictive of long-term abstinence. The basic idea is that the smoking dreams are experienced as negative (feelings of guilt after waking up from a smoking dream) and, thus, the dreams increase the motivation to stay abstinent. To summarize, smoking seems to be very seldom incorporated into dreams of smokers, except if it is missing – probably related to the craving after cessation (drastically increasing the thinking about smoking).

The present study analyzed the frequency of smoking dreams within a dream series of 9,133 dreams recorded by a dreamer over a period of twenty-three years of his adult life. As he is a non-smoker, it was expected that dreams in which he smokes are very rare but – as smoking was present in his environment – dreams in which other persons smoke were expected. As the dreamer has a dislike for cigarette smoke, it was expected that the smoking dreams would reflect this aversion.

## 2. Method

### 2.1. Dream diary

The participant kept an unstructured dream diary from the age of 22, beginning in September, 1984 through May 2009. All remembered dreams were recorded (see Figure 1). The mean dream length of the 9133 dreams was  $128.9 \pm 82.4$  words.

### 2.2. Participant and procedure

The dreamer never smoked in his life. From his late teens until about 30, the dreamer often went to dance clubs where smoking was allowed and intensely practiced. In addition to the pubs and restaurants where smoking was also allowed, there had been periods where occasional smoking during the late morning break at the dreamer's work place was allowed (late 1990s). In general, the dreamer dislikes smelling tobacco smoke.

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

Submitted for publication: January 2014

Accepted for publication: March 2014

The dream reports were typed and entered into a database, Alchera 3.72, created by Harry Bosma, www.mythwell.com. This database allows the assignment of key words to the dreams, a task carried out by the dreamer himself. Each dream was manually scored for the presence of smoking. The smoking dreams were further analyzed for several variables. First, the emotional reaction of the dreamer was coded: -1 = negative reaction (annoyed, angry, feeling sick), 0 = neutral reaction or no reaction, +1 = positive reaction (enjoying smoking or cigarette smoke). The gender of the person who smoked (if not the dreamer) and whether this person/these persons were familiar to the dreamer was coded. If the person was familiar, whether the person belonged to the family, was a friend, a colleague or an acquaintance was also coded. Next, the actions the dreamer took in response to the smoking were coded, ranging from just looking to saying something or even physical aggression. All the categories are depicted in Table 3. For the categories in which the dreamer has been active, the dream was searched for responses to his behavior, i.e., whether the person stopped smoking. Lastly, the settings were coded: indoor, outdoor, and transportation (car, bus, train). For the indoor settings, several categories were used: apartment/flat, public spaces (hotel lobby, seminar rooms), lecture hall, pub/restaurant, and office rooms.

Even though inter-rater reliability was not determined for this scale, similar types of global rating scales (two or three categories) showed high indices of inter-rater reliability (Schredl, Burchert, & Grabatin, 2004). The Alchera software also provides a word count for each dream report. The analysis unit was a single dream report. The data were exported into an Excel spreadsheet (Microsoft) and data analysis was carried out using the SAS 9.2 for Windows software package.

### 3. Results

Overall, smoking was present in 131 dreams (1.43% of the total dream series). In Figure 2, the percentage of smoking dreams per year is depicted; there is some variability from 0% (1984) to about 3% (1997). Within four dreams, the dreamer was smoking or trying to smoke. In the first dream, the dreamer wanted a job as an undercover agent in a drug dealer environment and demonstrated that he can smoke.

Table 1. Smoking dream characters (N = 121 dreams)

Variable	Frequency	Familiarity	Frequency
Males	57	Unfamiliar	74
Females	35	Familiar	46
Males and Females	27	Not determined	1
Not determined	2		

During the second dream, he was talking intensely within a group setting, and smoked very briefly without really being aware of it. The dreamer tried to smoke a joint but it was almost extinguished in the third dream and in the last dream he was rolling a cigarette but did not smoke it. All of these dreams were neutral regarding the smoking, i.e., neither positive or negative reactions were mentioned within the dream. Within four dreams, the dreamer was talking about smoking and in another two dreams he was destroying cigarettes to prevent someone else from smoking and emptied an ashtray. Overall, in 121 dreams other dream characters were smoking. The gender distribution and the familiarity of the dream characters are depicted in Table 1. The known characters who were smoking in the dreams were as follows: colleagues (13), acquaintances (11), friends (6), brother (6), sister (5), father (2), partner (2), and mother (1). The settings in which the smoking took place are depicted in Table 2. The indoor settings were as follows: apartment (34), public rooms (28), office rooms (19), restaurant/pub (5), and lecture hall (5).

Overall, the dreamer showed a negative emotional reaction to the smoking in 88 dreams (72.73%). In only one dream was the smoking perceived as pleasant (dreamer liked the odor) while the other dreams (N = 32) did not include an emotional reaction with regard to the smoking. The emotional reaction varied across the settings (see Table 2) with less negative reactions in the outdoor setting. Regarding the familiarity with the smoker, only a small difference was found regarding the negative emotional reaction (familiar dream character: 78.26% vs. unfamiliar dream characters: 70.27%).

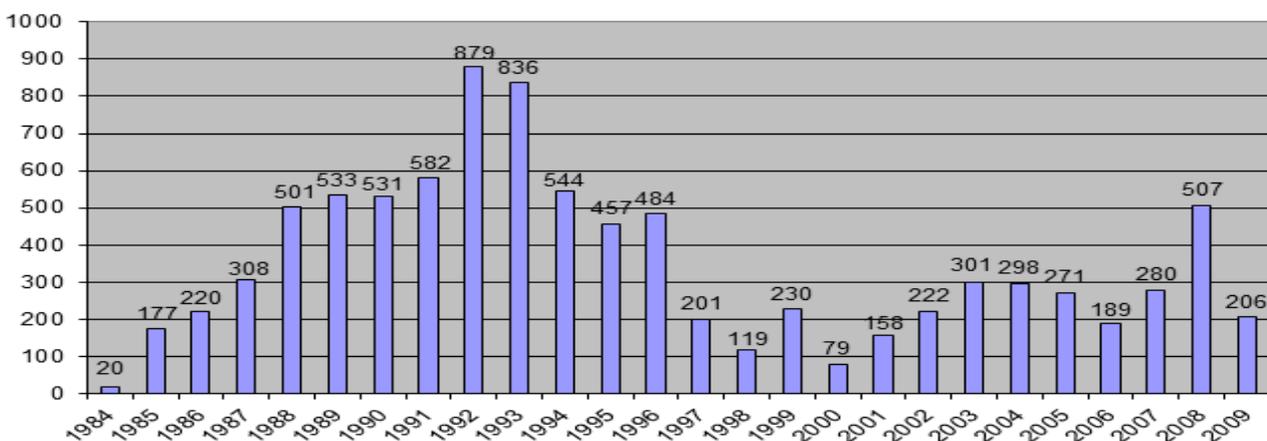


Figure 1. Number of dreams per year

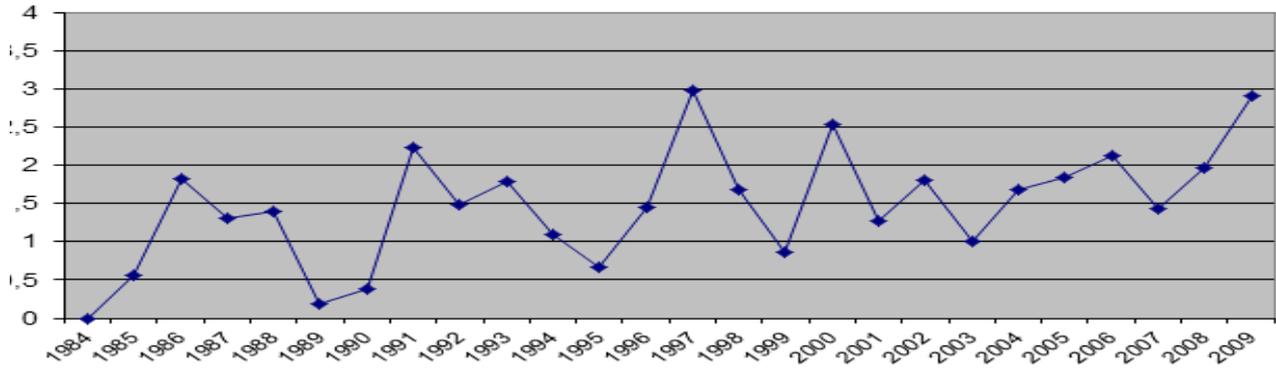


Figure 2. Percentages of smoking dreams

In Table 3, the different behavioral reactions to the smoking in the dreams are listed. In 49 dreams in which the dreamer was actively doing something against the smoking, a reaction of the character who smoked could be coded. In about half the dreams (52.06%), the smoker stopped smoking. For the different behaviors the success rate is depicted in Table 3. Interestingly, the dreamer used a magic spray successfully to stop the smoking.

#### 4. Discussion

Overall, family members were found in about 19% of the Overall, smoking is a topic that plays a role in the dreams of this non-smoker. The smoking dreams reflect the waking life experiences and attitudes of the smoker, i.e., he didn't really smoke himself and was often annoyed if other people were smoking in his dreams.

The major limitation of the study is, of course, the fact that only one person who never smoked and has a negative attitude towards smoking was studied. In view of the paucity of research on smoking and dreaming (Baldrige et al., 1968), it would be very interesting to study dreams of regular smokers and of non-smokers with different attitudes towards smoking. As shown in two studies (Hajek & Belcher, 1991; Persico, 1992) it would also be very interesting to study ex-smokers. Another interesting area would be to study the effect of the smoke-free laws in Germany (Kohler & Minkner, 2014), for example, on the frequency of smoking dreams of non-smokers. In the present data, no effect was visible for 2008 and 2009 (about 2 to 3% smoking dreams) but larger cohorts might support the hypothesis that changes in waking life, e.g., reduced exposure to smoking, decreases the number of smoking dreams in non-smokers. For these kinds of studies, it would be very interesting to systematically elicit the exposure time to smoking

Table 2. Settings in which smoking took place (N = 121 dreams)

Setting	Frequency	Percentage of negative emotional reaction to smoking
Outdoor	17	29.48%
Bus/train/car	13	84.62%
Indoor	91	79.12%

in waking life.

Several findings were clearly in line with the continuity hypothesis of dreaming (Schredl, 2003). First, the dreamer, being a non-smoker, never did really smoke within the dream with full awareness and positive feelings (like relaxation) while smoking. Interestingly, a smoker for 20 years like Barb Sanders also dreamed very rarely about smoking (see introduction). In the present study, the negative attitude towards smoking was reflected in most of the dreams (72.73%). Also, all familiar persons who smoked in the dream, like colleagues and his brother, are persons who smoke in waking life. Even the gender distribution (more male dream characters are smoking compared to female dream characters) reflect the fact that smoking is found more often in men compared to women, e.g. in Germany 33.7% of the men are smokers compared to 22.4% of the women (World Health Organization, 2008).

On the other hand, some findings are clearly discontinuous with the waking life of the dreamer. First, the dreamer never dreamed about people smoking in a dance club; the place where, for several years of his life, the greatest exposure to smoking took place. This might be explained by the fact that the dreamer put up with cigarette smoke because he wanted to dance whereas in other places like offices or private homes, smoking can be addressed and eventually stopped. Secondly, the dreamer never took a cigarette from the mouth of a smoker or hit a smoker; these are exaggerations of aggressive feelings (interestingly not particularly effective regarding the desired result; see Table 3).

The big question of course is why a non-smoking person dreams about smoking. Following the theory of Schredl (2007), the main focus of the dream is not the particular content of the dream, e.g., the topic of smoking, but the basic pattern of the dream. Most of these smoking dreams are characterized by the pattern that persons doing something that annoys the dreamer and he wants them to stop it. In several dreams, however, the dreamer was showing avoidance behavior (going away, not courageous enough to say something) or inadequate aggressive behavior (hitting, taking the cigarette). In most of the dreams he voiced his concern but in only 50% of the occasions did the smoker agree to stop smoking. On a general level these dreams might reflect the attitude and the experience of the dreamer about how other people react to his requests. In order to test such a theory about continuity, it would be necessary to elicit the attitudes and previous experiences with this type of social

Table 3. Settings in which smoking took place (N = 121 dreams)

Activity	Frequency	Percentage of being successful to stop the smoking (Number of dreams that could be coded)
Watching/No reaction	34	---
Walking away	18	---
Wanting to say something but didn't	6	---
Airing the room	5	100.00% (N = 1)
Asking the dream character to stop smoking	43	50.00% (N = 38)
Taking away the cigarette	8	62.50% (N = 8)
Hitting the smoking dream character	1	0.00% (N = 1)
Using an anti-smoke spray	1	100.00% (N = 1)

Additional responses: coughing (1), seeking help (1), doing something else (2)

interactions with the participants and determine whether the number of annoying dreams with low success rates are related to the general waking-life attitude.

To summarize, the analysis of this long dream series indicates that smoking plays a role in the dreams of a non-smoker, probably reflecting a basic pattern of dealing with annoying situations. As stated above, the present study is a starting point to look at the relationship with smoking in a person's attitude towards smoking in waking life and in dreaming. Furthermore, smoking might also be interesting to use as a stimulus during sleep, since research has shown (Schredl et al., 2009; Trotter, Dallas, & Verdone, 1988) that olfactory stimuli can effect dream content and dream emotions.

### Acknowledgements

The author would like to thank Harry Bosma for programming the tool for converting the Alchera database into the Excel format.

### References

- Baldrige, B. J., Kramer, M., Whitman, R. M., & Ornstein, P. H. (1968). Smoking and dreams. *Psychophysiology*, 4, 372-373.
- Domhoff, G. W. (2003). *The scientific study of dreams: neural networks, cognitive development and content analysis*. Washington: American Psychological Association.
- Hajek, P., & Belcher, M. (1991). Dream of absent-minded transgression: an empirical study of a cognitive withdrawal symptom. *Journal of Abnormal Psychology*, 100, 487-491.
- Hall, C. S., & Van de Castle, R. L. (1966). *The content analysis of dreams*. New York: Appleton-Century-Crofts.
- Jaehne, A., Loessl, B., Barkai, Z., Riemann, D., & Hornyak, M. (2009). Effects of nicotine on sleep during consumption, withdrawal and replacement therapy. *Sleep Med Rev*, 13(5), 363-377.
- Kohler, S., & Minkner, P. (2014). Smoke-free laws and direct democracy initiatives on smoking bans in Germany: a systematic review and quantitative assessment. *International journal of environmental research and public health*, 11(1), 685-700.
- Lexcen, F. J., & Hicks, R. A. (1993). Does cigarette smoking increases sleep problems? *Perceptual and Motor Skills*, 77, 16-18.
- Page, F., Coleman, G., & Conduit, R. (2006). The effect of transdermal nicotine patches on sleep and dreams. *Physiology and Behavior*, 88, 425-432.
- Persico, A. M. (1992). Predictors of smoking cessation in a sample of Italian smokers. *International Journal of Addictions*, 27, 683-695.
- Schredl, M. (2003). Continuity between waking and dreaming: a proposal for a mathematical model. *Sleep and Hypnosis*, 5, 38-52.
- Schredl, M. (2007). *Träume – Die Wissenschaft entschlüsselt unser nächtliches Kopfkino*. Berlin: Ullstein.
- Schredl, M., Atanasova, D., Hörmann, K., Maurer, J. T., Hummel, T., & Stuck, B. A. (2009). Information processing during sleep: the effect of olfactory stimuli on dream content and dream emotions. *Journal of Sleep Research*, 18, 285-290.
- Schredl, M., Burchert, N., & Grabatin, Y. (2004). The effect of training on interrater reliability in dream content analysis. *Sleep and Hypnosis*, 6, 139-144.
- Trotter, K., Dallas, K., & Verdone, P. (1988). Olfactory stimuli and their effects on REM dreams. *Psychiatric Journal of the University of Ottawa*, 13, 94-96.
- Wetter, D. W., & Young, T. B. (1994). The relation between cigarette smoking and sleep disturbances. *Preventive Medicine: An International Journal devoted to Practice and Theory*, 23, 328-334.
- World Health Organization. (2008). *WHO Report on the Global Tobacco Epidemic*. Geneva: World Health Organization.