

Reflective awareness and cognitive abilities in dreams: Implications for lucid dream research

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Summary. Past research has suggested that reflective awareness in dreams, as a broader concept for understanding the phenomenon of lucid dreaming, can be further differentiated into a five-factor model (i.e., lucid mindfulness, dual perspectives, depersonalization, intra-dream self-reflection, and willed appearances) (Lee, 2010; Lee & Kuiken, 2015). Past research has also indicated that two kinds of cognitive abilities (i.e., remembering previous events and reasoning ability) were evident in lucid dreaming (Gackenbach, 1991b; Green & McCreery, 1994; LaBerge, 1985; LaBerge & Gackenbach, 2000). In consideration of the evidence that depersonalization within dreams was associated with traumatic experiences and some effects in subsequent waking life (decrease in waking mindfulness) (Lee, 2010) and the statement of whether dreams per se have an adaptive function that relies on the investigation of cognitive processes that occur in both waking and dreaming states (Blagrove, 1996), the present study is intended to investigate dream reflective awareness (especially for depersonalization) and its relationships with cognitive abilities (especially for memory and reasoning/anticipation) in dreams. It is expected that the findings would advance our knowledge of reflective awareness and the function of lucid dreams. Ninety undergraduate students from a Taiwanese university were the participants (28.1% females, 71.9% males, Mean age = 19.0 years, SD age = 0.9 years) of this study. Participants were first asked to describe their most impactful dreams, during the preceding three months. Afterwards, the participants completed the Dream Reflective Awareness Questionnaire (DRAQ, Chinese version; cf. Lee, 2010; Lee, Kuiken, & Czuprynski, 2007), and then the General Dream Pattern Questionnaire (GDPQ; Lee, 2013). The results indicated that, within the dream, depersonalization was not associated with the two critical cognitive functions (i.e., memory and reasoning/anticipation abilities), but associated with a lack of clear self-presentation. This research suggests that it is critical to further investigate the alteration of cognitive function and self-transformation accompanied by depersonalization within the dream.

Keywords: Depersonalization, dream reflective awareness, dreams, lucid dreaming

1. Introduction

Studies of lucid dreaming indicate that dreamers sometimes reach a state of explicit self-reflection (e.g., becoming explicitly aware of dreaming while dreaming). While lucid, they may remember previous events, possess reasoning ability, and take volitional/intentional actions in accordance with self-directed reflection (Gackenbach, 1991b; Green & McCreery, 1994; LaBerge, 1985; LaBerge & Gackenbach, 2000). From the phenomenological point of view, Lee, Kuiken, and Czuprynski (2007) also suggest that reflective awareness in dreams can be further differentiated into a five-factor model (i.e., *lucid mindfulness*, *dual perspectives*, *depersonalization*, *intra-dream self-awareness* [*intra-dream self-reflection*, Lee & Kuiken, 2015], and *willed appearances*), contributing to the development of a *Dream Reflective Awareness Questionnaire* (DRAQ). A further study (Lee, 2010) indicated that the DRAQ has demonstrated high reliability and construct validity:

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- (1) *lucid mindfulness*: a form of reflective awareness analogous to waking mindfulness, involving explicit lucidity and detached acceptance of ongoing thoughts and feelings;
- (2) *dual perspectives*: a form of reflective awareness involving two separate and autonomous agents (e.g., two levels of self-representation);
- (3) *depersonalization*: a form of reflective awareness in which the dreamer's sense of self seems unreal or strange;
- (4) *intra-dream self-awareness*: a form of reflective awareness involving self-awareness within the dream (but not explicit awareness of dreaming); and
- (5) *willed appearances*: a form of reflective awareness that involves the emergence of dream objects or figures in response to the dreamer's wishes.

(Lee, 2010; p. 9)

Among these five patterns of dream reflective awareness, depersonalization within dreams has been found to be associated with the dreamer's past traumatic experiences, the timeframe of experiences (6-24 months; a critical period moving toward recovery [Prigerson & Maciejewski, 2008]) after either loss or trauma; depersonalization within dreams was also related to the decrease of mindfulness in subsequent waking life (Lee, 2010). In addition, there is evidence that depersonalization within the dream was associated with the difficulty to access memory sources, either for waking or dream memories (Lee, Czuprynski, & Kuiken, 2008). According to Blagrove (1996), whether dreams per se have adaptive

function relies on the investigation of cognitive processes that occur in both waking and dreaming states; in other words, understanding whether the dreaming state involves a comparable quality of waking consciousness is pivotal. Thus, following these research lines, the present study was intended to investigate the phenomenon of reflective awareness in dreams (i.e., a broader concept for “lucid dreaming”) from the perspective of self-function, especially focusing on the investigation of depersonalization in dreams and the quality of cognitive abilities associated with it.

Depersonalization, a strange and unreal sense of the self, may be understood together with the concept of *derealization*, an altered way of experiencing or perceiving the world (e.g., Bernstein & Putnam, 1986). In other words, the experience and environment could be perceived as unreal or bizarre to the individual as well. There is even evidence that people who had experienced depersonalization during trauma developed fewer trauma-related symptoms afterwards than those without depersonalization during the traumatic events (Shilony & Grossman, 1993). There is also evidence that people with depersonalization disorders reported differential patterns of remembering negative words and neutral words (fewer negative words and more neutral words than people in the comparison, normal group) in a memory task, suggesting that there might be an avoidant style of cognitive processes taking place (Simeon & Abugel, 2006), and this may have some beneficial effects on human health.

However, in spite of the possible positive implications for depersonalization, we should be more cautious about its potential negative effects. There has been substantial research indicating that depersonalization (considered to be a major dissociative symptom) after loss and trauma was related to psychopathology (Giesbrecht, Merckelbach, Katter, & Sluis, 2007; Harvey & Bryant, 1998; Simeon & Abugel, 2006; Sims & Sims, 1998; Watson, 2001). There is also evidence that depersonalization during the waking state is not only associated with decreased mindfulness (Michal et al., 2007), but also related to rumination (Simeon & Abugel, 2006; Wolfradt & Engelmann, 1999), and impaired abilities to direct the focus of attention (Guralnik, Schmeidler, & Simeon, 2000) as well.

According to Rossi (1985), an emerging sense of personal changed states of being (e.g., different thinking states, changed feeling states) in dreams might be a critical step toward self-transformation and psychosynthesis. Thus, depersonalization in dreams seems to be a turbulent, discordant inner process during the occurrence of traumatic experiences and the recovery process (Lee, 2010), but it might lead to a positive change of fostering self-reorganization in the long run. Is it possible that the special conditions of cognitive abilities and self-presentation associated with depersonalization within dreams are critical for this self-transformation? Given that the continuity of reflective awareness across waking and dreaming states (Lee & Kuiken, 2015) has been demonstrated, further exploration of depersonalization, its relevant cognitive abilities, and the presentation of self in dreams, may deepen our understanding of lucid dreaming.

To summarize, the present study was intended to investigate dream reflective awareness (especially for depersonalization) and its relationships with cognitive abilities (especially for memory and reasoning/anticipation) in dreams among Chinese university students. This study formed the following two major hypotheses: (1) within the dream, dep-

ersonalization was associated with deficit in *memory* and *reasoning/anticipation*, which were the two critical cognitive abilities during lucid dreaming except for explicit self-reflection and intentionality (Gackenbach, 1991b; Green & McCreery, 1994; LaBerge, 1985; LaBerge & Gackenbach, 2000); and (2) within the dream, depersonalization was associated with a lack of clear *self-presentation*, which was regarded as a critical component for reaching a higher level of self-awareness and self-transformation. It was expected that the findings would advance our knowledge of reflective awareness and the function of lucid dreams.

2. Method

2.1. Participants

Ninety undergraduate students who took general psychology courses from a Taiwanese university in Hsinchu City were the participants (28.1% females, 71.9% males, Mean age = 19.0 years, SD age = 0.9 years) of this study. The participation in this study, conducted on a group basis in 2011, was completely voluntary, and participants' privacy and anonymity were also protected. Research participation (or choosing to complete an alternative educational activity instead) fulfilled the requirement for partial course credit.

2.2. Measurement and Procedure

Participants were first asked to describe the dream that, during the preceding three months, “most significantly influenced [their] thoughts and feelings after awakening” (i.e., impactful dreams; Kuiken, Lee, Eng, & Singh, 2006). They needed to describe their dreams as exactly and as fully as they could remember them, from beginning to end, in their own words, and without any interpretation or explanation. (Analysis regarding the dream reports will be presented in another paper.)

Afterwards, participants completed a 61-item DRAQ (Chinese version). This version was translated and revised from the original long version, a 59-item DRAQ, including measurements for numerous aspects of reflective awareness, including awareness of weirdness, memory, reasoning/anticipation, and other potential aspects of dream reflective awareness (especially for perceptual, attentional and intentional components of awareness within the dream) (Lee et al., 2007). For instance, the DRAQ include items such as “On at least one occasion during my dream, I found myself acting in a way that was so unlike me that I seemed like a stranger to myself” (item for *depersonalization* subscale) and “For at least a moment during my dream, I explicitly reflected on the way I was feeling within the dream” (item for *intra-dream self-reflection* subscale). In addition, this 61-item Chinese version of DRAQ includes two newly created items to particularly measure memory and reasoning/anticipation within the dream: “During my dream, I remembered what happened earlier in the dream; I remembered it as clearly as I remember things in my waking life” and “During my dream, I anticipated what would happen later in the dream; I anticipated it as clearly as I anticipate things in my waking life.” This is a 5-point Likert-type scale in which 0 = “not at all true” and 4 = “extremely true.” (In this study, the focal 17 items of DRAQ identified in previous research [Lee, 2010; Lee et al., 2007] were used as central variables to define the five patterns of dream reflective awareness, and the rest of the items in the DRAQ were applied for other

exploratory analyses.) The Mean scores were calculated for the ratings on each of the five subscales to represent scores on five patterns of dream reflective awareness. The internal consistency reliability of each subscale of dream reflective awareness was acceptable to good (i.e., Lucid Mindfulness, Cronbach's $\alpha = .78$; Dual Perspectives, Cronbach's $\alpha = .82$; Depersonalization, Cronbach's $\alpha = .66$; Intra-Dream Self-Reflection, Cronbach's $\alpha = .88$; Willed Appearances, Cronbach's $\alpha = .80$).

There were in total four, single items in this 61-item Chinese version of the DRAQ to measure the following four dimensions of cognitive abilities in dreams: Memory within dreams, memory beyond dreams, reasoning/anticipation within dreams, and reasoning/anticipation beyond dreams. This study supposed that these four parallel descriptions of cognitive abilities may provide the basis of contrasting effects. (For instance, the cross-states cognitive abilities—i.e., remembering certain content that occurred during pre-dream waking life [memory beyond dreams], and anticipating certain content that might occur during post-dream waking life [reasoning/anticipation beyond dreams]—might be relatively rare compared to the remembering and reasoning/anticipating of content that occurred during the same dream.)

Finally, participants were then asked to complete an 8-item *General Dream Pattern Questionnaire* (GDPQ; Lee, 2013). This questionnaire is in Chinese and was used to measure the following fundamental features with regard to dream experiences: (1) the "general attitude toward dreams" (a 7-point Likert-type scale, from 0 = "not at all true" to 6 = "extremely true"), as well as the following dream experiences during the past 12 months: (2) dream recall rate; (3) frequency of impactful dreams; (4) on average, the duration of the influence of impactful dreams; (5) frequency of lucid dreams; (6) frequency of lucid dreams, with dream control in particular (lucid control); (7) frequency of lucid dreams, with dream mindfulness in particular (lucid mindfulness); and (8) frequency of (seemingly) precognitive dreams. As the major analyses involving these items will be reported in another paper, this current study is intended to present the descriptive information regarding the frequency of dream recall rate, frequency of impactful dream experiences, and frequency of lucid dream experiences. As to the above questions designed to ask dream frequencies,

participants were asked to respond according to a 7-point scale (0 = never, 1 = about less than once per month, 2 = about once per month, 3 = about two or three times per month, 4 = about once per week, 5 = about several times per week, 6 = almost every morning/night). For instance, the questionnaire items include the following: "During the past 12 months, how often have you remembered your dreams?" (*dream recall rate*), and "During the past 12 months, how often have you become aware that you were dreaming while dreaming and had control over the development of some aspects of dreams?" (*frequency of lucid dreams, with dream control in particular*).

3. Results

Descriptive statistics and correlation analysis were the statistical methods mainly used in this study. The results showed that the general conditions of participants' dream experiences during the past 12 months were as follows (see Table 1): (1) Frequency of dream recall rate: 45.5% reported about once per month or less frequently; 54.5% reported about 2-3 times per month or more frequently, but only 1.1% reported having dream recall almost every day. (2) Frequency of impactful dream experiences: 64.8% reported about once per month or less frequently; 35.2% reported about 2-3 times per month to several times per week. (3) Frequency of lucid dream experiences (general definition—knowing dreaming while dreaming): 19.1% reported never; 38.2% reported about less than once per month; 19.1% reported about once per month; 23.6% reported about 2-3 times per month or more frequently, and among this proportion, 3.4% reported having lucid dream experiences almost every night. The experiences of impactful dreams appeared to be reported relatively more frequently than lucid dreams. Regarding the two specific forms of lucid dreams, participants in this study tended to experience lucid dreams in the form of "dream mindfulness" relatively often, rather than in the form of "dream control." Further investigation of the difference between these tendencies is necessary in future research.

The average level of each pattern of dream reflective awareness was as follows: lucid mindfulness ($M = 1.47$, $SD = 1.30$), dual perspectives ($M = 1.52$, $SD = 1.09$), depersonalization ($M = 1.38$, $SD = .99$), intra-dream self-reflection

Table 1. Percentages for frequencies of dream recall, impactful dreams, and lucid dreams experiences

Frequency	Dream recall	Impactful dreams	Lucid dreams	Lucid dreams (DC)	Lucid dreams (DM)
Never	1.1%	5.7%	19.1%	34.8%	24.7%
About less than once per month	15.9%	34.1%	38.2%	38.2%	33.7%
About once per month	28.4%	25.0%	19.1%	12.4%	10.1%
About two or three times per month	21.6%	20.5%	11.2%	5.6%	19.1%
About once per week	13.6%	8.0%	4.5%	4.5%	5.6%
About several times per week	18.2%	6.8%	4.5%	3.4%	3.4%
Almost every morning/night	1.1%	0.0%	3.4%	1.1%	3.4%

Note. DC = with dream control in particular; DM = with dream mindfulness in particular.

Table 2. Intercorrelations between dream reflective awareness and cognitive abilities in dreams

Cognitive abilities in dreams	Dream reflective awareness				
	Lucid mindfulness	Dual perspectives	Depersonalization	Intra-dream self-reflection	Willed appearances
Memory within dreams	.36**	.41***	-.01	.46***	.37***
Memory beyond dreams	.28**	.19 ^a	.11	.29**	.32**
Reasoning/anticipation within dreams	.28**	.24*	-.04	.25*	.40***
Reasoning/anticipation beyond dreams	.27*	.32**	.20	.16 ^b	.43***

Note. (1) Numbers in the table are Pearson correlation coefficients. (2) Due to the exploratory nature of these analyses, a more stringent criterion, $\alpha < .01$ after Bonferroni corrections, may be adopted when explaining the association patterns. (3) Original items for measuring each kind of cognitive abilities in dreams (adapted from Lee et al. [2007]) were listed as follows: *Memory within dreams*: "During my dream, I remembered what happened earlier in the dream; I remembered it as clearly as I remember things in my waking life." *Memory beyond dreams*: "During my dream, I remembered what happened earlier in my life, i.e., before my dream; I remembered it as clearly as I remember things in my waking life." *Reasoning/anticipation within dreams*: "During my dream, I anticipated what would happen later in the dream; I anticipated it as clearly as I anticipate things in my waking life." *Reasoning/anticipation beyond dreams*: "During my dream, I anticipated what would happen later in my life, i.e., after my dream; I anticipated it as clearly as I anticipate things in my waking life."

* $p < .05$, ** $p < .01$, *** $p < .001$, ^a $p = .078$, ^b $p = .130$, $n = 89$

($M = 1.98$, $SD = 1.09$), and willed appearances ($M = 1.32$, $SD = 1.13$). No gender differences were found in terms of each pattern of dream reflective awareness.

The correlation analyses between depersonalization and cognitive abilities in dreams were as follows: Depersonalization within dreams and memory within dreams ($r = -.01$, $p = .960$); depersonalization within dreams and memory beyond dreams ($r = .11$, $p = .302$); depersonalization within dreams and reasoning/anticipation within dreams ($r = -.04$, $p = .725$); depersonalization within dreams and reasoning/anticipation beyond dreams ($r = .20$, $p = .064$) (see Table 2). Originally, this study hypothesized that depersonalization would be negatively associated with *memory* and *reasoning/anticipation* (i.e., in other words, associated with deficit in *memory* and *reasoning/anticipation*) within dreams, but the results showed that no significant association patterns were found. However, the findings also indicated that, except for depersonalization, the other four patterns of dream reflective awareness (i.e., mindfulness, dual perspectives, intra-dream self-reflection, and willed appearances) were almost all significantly (or, at least marginally) related to characteristics of remembering and anticipating, either within dreams (i.e., remembering and anticipating the content that occurred during dreaming) or beyond dream experiences (i.e., remembering certain content that occurred during pre-dream waking life and anticipating certain content that might occur during post-dream waking life). More specifically, although this study did not find direct evidence supporting the hypotheses that depersonalization accompanied a lack of important cognitive functions (memory and reasoning/anticipation abilities) during dreaming, the findings pointed to a clear direction that contrasted depersonalization with the other four patterns of dream reflective awareness: Depersonalization in dreams was not accompanied by the two critical cognitive abilities—memory and reasoning/anticipation.

Moreover, depersonalization was also found to be associated with a lack of clear self-presentation within dreams. More specifically, it was related to the following DRAQ questionnaire items: "Although I was not explicitly represented in my dream, people, places, and things associated with me

(e.g., things that I own, people I know) were represented there" ($r = .26$, $p = .014$); "I was not explicitly represented in the imagery of my dream" ($r = .20$, $p = .058$) (close to the significant level). In contrast, the results also indicated that intra-dream self-reflection was negatively associated with both of the above two descriptions: $r = -.29$ ($p = .007$) and $r = -.36$ ($p < .001$), respectively. Apart from these association patterns, no significant results were found regarding the other three forms of dream reflective awareness. In sum, the second main hypothesis of this study (i.e., within the dream, depersonalization was associated with a lack of clear self-presentation) was supported. However, the interpretation of this result should remain conservative as these analyses were exploratory and awaited further investigation.

Except for the findings described above regarding depersonalization, these exploratory analyses of the correlations between reflective awareness and cognitive abilities in dreams also indicated the following patterns in general: (1) compared with reasoning/anticipation, memory was relatively likely to be associated with dream reflective awareness; (2) compared with memory beyond dreams, memory within dreams was relatively likely to be associated with dream reflective awareness; (3) intra-dream self-reflection was associated with memory, but not clearly associated with reasoning/anticipation; (4) willed appearances seemed to be the most distinct pattern of dream reflective awareness that showed a clear association with both memory and reasoning/anticipation. Although the interpretation of these tendencies is just descriptive and tentative, this study expects that by providing this information, it may trigger interest in future research to investigate further on these issues.

4. Discussion

In this study, the frequency of dream recall reported as "less than once per month (including those reported never)" is 17%, and this is very close to the dream recall rate in past research on Chinese participants conducted by Yu (2008, 2010, 2012), which indicated that approximately 20% of people reported the same frequency. Another similar pattern reported by the present study and Yu's studies is that

lucid dreams with dream control in particular (close to the term “self-scripted dreams” described by Yu) occurred relatively rarely, compared with general lucid dreams. Although the present study conducted in Taiwan had a sample with young university students as participants (the majority were males) with Yu’s research conducted in Hong Kong having similar participants in their early adulthood but with a broader age range (the majority were females), it is worthy of attention that the two different Chinese populations showed close patterns in terms of frequency of dream recall and lucid dreams. One point worth mentioning here is that the participants in this study were from a university that has students with relatively excellent academic performance in Taiwan with most of them majoring in science and technology, so that participants might show higher levels of cognitive abilities compared with the general population. Perhaps this may be an important factor that needs to be considered when interpreting the results in this study.

In addition to these findings, the present study also indicated that lucid mindfulness dreams were reported relatively frequently in comparison with lucid control dreams, and perhaps this reflects the cultural factors embedded in Chinese society. More specifically, as documented in past research on lucid dreaming, in Western modern societies, people tend to utilize lucid dreaming as techniques to conquer nightmares so as to gain a sense of control over dreams and life (Tholey, 1988; Zadra & Pihl, 1997); however, some research has also indicated that lucid dreaming is valued for different reasons in East Asian social and cultural contexts, where lucid dreaming, understood as analogous to mindfulness meditation, is regarded as a path toward self-transcendence (Alexander, Cranson, Boyer, & Orme-Johnson, 1987; Gackenbach, 1991a; Hunt, 1989, 1991; Hunt & Ogilvie, 1988; Tedlock, 2004; Tulku, 2000). In other words, the self-transformative potential of dreaming lies in its attentive awareness, rather than problem mastery, which is carried over into wakefulness. Thus, in contrast to lucid control dreams, the finding that lucid mindfulness dreams appeared relatively frequently may be an indication that they are particularly significant for Chinese/Eastern people to resume a feeling of harmony in the face of daily events. The underlying facets of dream function exerted by different forms of lucid dreams, or even specific patterns of reflective awareness within dreams, may require further investigation in future research.

Past research, based on a Canadian sample, has indicated that depersonalization (a form of reflective awareness in which the dreamer’s sense of self seems unreal or strange) is associated with a failure to access memory sources, either for waking or dream memories (Lee, Czupryn, & Kuiken, 2008). The results of this present study partly replicated this concept based on a Taiwanese sample (Chinese university students); that is, depersonalization within dreams appeared not to be associated with memory ability, and not to be associated with reasoning/anticipation ability during dreaming, either. Although depersonalization in dreams is regarded as a form of dream reflective awareness (Lee, 2010; Lee & Kuiken, 2015; Lee et al., 2007), it is clearly not associated with the two kinds of critical cognitive abilities in traditionally defined “lucid dreaming” (Gackenbach, 1991b; Green & McCreery, 1994; LaBerge, 1985; LaBerge & Gackenbach, 2000). As to self-presentation in the dream, the opposite association patterns observed in depersonalization and intra-dream self-reflection indicated that, a clear self-image within

dreams may be fundamental for explicit self-reflection and perhaps self-understanding during dreaming.

In conclusion, it is critical to further investigate the alteration of cognitive function and self-transformation accompanied by depersonalization within the dream. As this study indicates that depersonalization within the dream shows similar related patterns (e.g., correlated to a lack of clear self-presentation/altered senses of self and not associated with two forms of cognitive capabilities) with that during waking experiences (e.g., depersonalization regarded as unreal sense of the self, memory for negative words was decreased; cf. Bernstein & Putnam, 1986; Simeon & Abugel, 2006), it can be inferred that depersonalization within the dream may also play a functional role in adaptation similar to the coping mechanism of depersonalization during waking states. Nevertheless, how this process could actually contribute to waking life is still ambiguous. In contrast, we also need to keep these questions in mind: Does depersonalization within the dream have long-term detrimental effects? If it does, how frequently and intensely would depersonalization during dreaming result in such negative effects on waking life? These issues still need to be addressed in future research on dream reflective awareness and lucid dreaming.

Past research (i.e., Busink & Kuiken, 1996; Kuiken & Sikora, 1993) has shown that, transcendent dreams and existential dreams (in contrast to nightmares and mundane dreams) contained certain pre-lucid forms (e.g., Green & McCreery, 1994; Rossi, 1985) of dream reflective awareness, including both “dual perspectives” and “depersonalization.” This tendency was replicated in the follow-up studies (Lee, 2010; Lee et al., 2007) as well. Although “dual perspectives” and “depersonalization” are similar in terms of their pre-lucid features, in the present study they clearly appeared to be distinct in terms of the accompanied cognitive abilities (memory and reasoning/ anticipation). As discussed earlier, depersonalization in dreams may be a short-term discordant phenomenon but a transition toward self-transformation, although this concept is not directly examined as it is not part of the research objectives. The potential self-transformative dream function brought about by depersonalization in dreams might be a more emotionally-toned way of experiencing rather than a cognitive insight. This perhaps echoes some research findings regarding the adaptive functions of dreams in regulating mood and coping with stress (e.g., Hartmann, 1998). Analogous to these theories, the findings in this study regarding depersonalization within the dream seem to reflect the unfamiliarity and novelty that dreaming may bring forward to the dreamer’s life.

Finally, this study suggests that, along with our accumulated knowledge of reflective awareness, cognitive abilities, and self-presentation involved in dreams, the puzzle of dream function may become easier to solve. Future studies on dream function related to lucid dreams may consider broadening the scope that may encompass both cognitive and emotional approaches to delineate the complexity of such effects, especially for the understanding of depersonalization in dreams.

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