

An exploratory study on the relationship between dissociation in waking life and negative contents in dreams

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Summary. Even though the relationship between nightmare and dissociation is investigated in western populations with mental illness, relevant dream studies in non-patient Chinese population, and about specific type of nightmares, are completely lacking. According to continuity hypothesis of dreaming, nightmares reflect the negative emotion, mental conditions, and symptomatology of waking life. The present study recruited 608 participants without any record of mental disorder from student recruitment day. Five-hundred-and-ninety-eight of them completed the full set of questionnaire about dissociation and nightmare. As expected, the results suggest a significant and positive relationship between dissociative experiences and nightmare frequency or 13 nightmare themes about movement restriction, paranoia of being harm, psychosomatic anxiety, and natural disaster. Not surprisingly, people who have more dissociative experiences during their waking lives may have more nightmares while dreaming. The weakness is that all correlations found are significant but low, and, the nightmare frequency is also low. They would weaken the power of support to continuity hypothesis. Even so, this study will help researchers identify specific dream types of nightmares for further analysis and provoke practitioners' thought on how studies of dreams are beneficial for mental health.

Keywords: Dissociative experiences, continuity hypothesis, typical dreams, nightmares, anxiety

1. Introduction

By definition, nightmares are any frightening dreams that awaken a dreamer from dreaming (Zadra, Pilon, & Donderi, 2006), or more precisely, the state of rapid eye movement (REM) (APA, 2000). Nightmare and bad dreams are on the same continuum, but the former one can be memorized and recalled clearly on awakening because of its distinctive intensity of emotion (Schredl, 2003; 2006; Nielsen & Levin, 2007), fear-provoking features (Zadra et al., 2006), and association with psychopathological symptoms (Zadra & Doneri, 2000). The present study, as Schredl (2003) suggested, uses "waking" as operational defining criterion for nightmare. There have been wide ranges of studies in nightmare prevalence, in terms of different research methods, populations, setting, and even criteria of nightmare. Prevalence of nightmares in clinical population varied from once a month (30% to 50%) to once a week (10% to 30%) (Levin, 1994; Schredl, 2003; Zadra & Doneri, 2000). In limited studies in community or non-patient setting, only 1% to 7% of adults showed frequent nightmares on weekly basis in western countries (Hublin et al., 1999; Janson et al., 1995). McManara (2008) suggested that the average

number of nightmares based on a western population range from "once a month" to "a few times a year"; however, the prevalence varies from place to place. How about the situation in Hong Kong? Yu (2008) noted that ordinary participants have lower nightmare frequency than those in clinical population and only 1 out of 3 may have "2 to 4 nightmares a year". In another local study with ordinary population in mid-adulthood, Li and colleagues (2010) found that over 80% of participants, however, fall into "none or seldom" nightmare frequency, about 12% into "once a month", and about 5% into "1 or more than 1 time a week". As such, what are the problems when people have frequent nightmare?

Undoubtedly, apart from linking to anxiety and distress, nightmares have recently been strongly associated with a wide spectrum of psychological disorders and negative traits in relation to psychopathologies, such as post-traumatic stress disorder (PTSD; Ohayon et al., 1997), depression (Levin, 1998), schizophrenia (Berquier & Ashton, 1992; Levin & Fireman, 2002), and dissociative disorder (Berquier & Ashton, 1992; Molina, 1996; Zingrone & Alvarado, 2007). Generally speaking, people with mental health problems may have predisposed personal distress and anxiety, which significantly affect their quality of sleeping and daily life (Levin & Nielsen, 2009). Nightmares become the sign of their mental conditions, and in turns, intensify their stress and anxiety levels. Hartmann and colleague (2006) also noted that people with dissociative experiences in waking life reported more frequent and intense nightmares in relation to decomposed body image and thoughts, which were similar to states of dissociation. This highlight brings up two key ideas which remain unmentioned: dissociation and the linkage between dreams and reality, or continuity hypothesis.

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1.1. Understanding Dissociation and Dissociative Experiences

Dissociation is a state of compartmentalization or detachment of our sensations, thoughts, personalities, or memories (Molina, 1996). Dissociation can also be considered as a defect of the integration system, which consists of the qualities mentioned above (Bob, 2004; Buhler & Heim, 2006). The internal mechanism is that, when an individual's volitional power is weakened by high tension or a traumatic event, he or she will be separated from emotional distress using a third-person perspective (as an onlooker) in lieu of a first-person perspective (as a sufferer) (Gabel, 1989; 1990). The triggered survival strategy might develop a serious health issue (e.g., dissociative disorder) when the dissociative experience becomes excessive and uncontrollable in a long term. As a result, people who experience a dissociative incident have more dreamlike states during their waking life and nightmares when dreaming; this is particularly the case among pathological populations (Barrett, 1994a; 1994b; 1996; 1997; Lansky, 1992; Levitan, 1976). The similarity of nightmares and waking-life symptoms spotlights the rationale behind the present study.

1.2. Connection between Dream and Waking Life: Continuity Hypothesis?

Continuity hypothesis has been studied and widely accepted as a convincing explanation of why people with psychiatric record or relevant traits reported more nightmares that contain stressful or fearful contents. It is believed that emotional sentiments or dissociative experiences in waking life are simply a form of continuity in dream or vice versa (Schredl, 2003; 2006). In addition, nightmares are widely considered a reflection of actual negative experiences in daily life (Gabel, 1989; 1990). Actually, the mechanism explained in the passage of dissociation is exactly the essence of continuity hypothesis.

Studies have shown that nightmare frequency has strong and positive relationship with dissociative experiences (Agargun et al., 2003a; Bequier & Ashton, 1992; Molina, 1996; Zingrone & Alvarado, 2007). To date, however, similar dream studies in specific type of nightmares (Giesbrecht & Merckelbach, 2006; Zingrone & Alvarado, 2007), in particular non-patient Chinese population (Hartmann & Basile, 2003; Romans, Martin, Morries & Herbison, 1999), are completely lacking. Moreover, Levin and Nielsen (2009) emphasized that nightmares reveal one's tendency toward dissociation in waking life or, even worse, affects one's mental well-being. As such, practitioners should be aware of people who have high nightmare frequency in order to pre-assess their mental health conditions.

1.3. Hypotheses

In terms of continuity hypothesis of dreaming and aforementioned findings, several major hypotheses were derived: First, nightmare frequency in the present study is far lower than those studies using western clinical population. Second, people with more dissociative experiences should have more nightmares reflecting anxiety or other negative mental conditions in waking life; Third, negative dream contents or nightmares, which were assorted from TDQ, could be differentiated between high and low DES groups. The author also expected that nightmare frequency and specific

negative dream content (e.g., dream types of movement restriction, paranoia or being harmed, psychosomatic anxiety, and natural disasters) may yield a positive and significant correlation with DES.

2. Method

2.1. Participants

In a two-week period, participants, included 608 secondary students in Hong Kong who were applying to a bachelor degree program, completed the test batteries in examination room for the sake of fulfilling the intake requirement. They included 189 males (31.1%) and 419 females (68.9%), with a mean age 19.17 (SD = 1.01, range from 18 to 26). Of note, ten cases were missing (or reluctant to fill out the part) and statistically excluded in DES scores. There was no significant difference in age ($z = .804$, $p > .05$) between male and female participants. No participant reported any history of mental disorders, severe medical conditions, drug addictions, or mental retardation; therefore, the sample was from Chinese population in a non-patient setting.

2.2. Instruments

2.2.1 Typical Dream Questionnaire (TDQ)

The TDQ (Nielsen et al., 2003) consists of 55 themes in a binary form (yes or no). Yu (2008b) translated the TDQ into a Chinese version and reformed the all-or-none format into 5-point scales for each item (0 = never; 1 = one to two times in one's whole life; 2 = more than three times in one's whole life; 3 = several times a year; 4 = more than once a month). Considering themes about nightmares, only 13 relevant TDQ items were selected and classified into four types: 1) movement restriction, 2) paranoia or being harmed, 3) psychosomatic anxiety, and 4) natural disaster (see Table 1). The measure with categorization can help researchers explore "dissociative experience-nightmare relationship" that remains unknown. In addition, Nightmare Frequency will be examined using an 8-point scale (0 = never; 1 = less than once a year; 2 = about once a year; 3 = about two to four times a year; 4 = about once a month; 5 = about two to three times a month; 6 = almost once a week; 7 = several times a week).

2.2.2 Dissociative Experiences Scale (DES)

The DES (Bernstein and Putnam, 1986) is a widely adopted screening tool to measure one's level of dissociation (Carlson & Rosser-Hogan, 1991). Participants were asked to rate 28 dissociative scenarios on an 11-point scale (0% = never; 100% = always). Bernstein and Putnam (1986) suggested that 30 over 100 for the DES score was a suitable cut-off point for clinical awareness. Additionally, the higher the DES score, the higher the possibility of a dissociative disorder (Zingrone & Alvarado, 2002).

2.3. Procedures

All applicants were required to give written informed consent prior to that commencement of test batteries. After distributing all materials, the test examiners explained a set of instruction, including a reminder to fill out personal information, participant rights and obligations, and a basic

Table 1. Categorization of 13 Bad Dream Themes.

Dream Type	Thirteen Negative Themes from TDQ
1) Movement restriction	04. Being frightened, unable to move 08. Being locked-up 15. Being tied, unable to move 44. Being paralyzed on bed in half-waking state
2) Paranoia/Being harmed	01. Being chased 02. Being physically attacked 27. Being murdered
3) Psychosomatic anxiety	29. Vivid sensation without seeing or hearing a presence in the room 38. Failed an examination 39. Being suffocated, unable to breathe
4) Natural disasters	21. Flooding or tsunamis 22. Tornadoes or strong winds 23. Earthquake

Note. TDQ = Typical Dream Questionnaire

definition of the terms used in the study (e.g., dissociation, nightmare). All data were entered into the Statistical Package for the Social Science (SPSS) version 15.0. Statistical analyses were conducted using Spearman correlations with Bonferroni correction (for 13 variables in multiple comparisons, the p-values would be adjusted to .004 level) and Mann-Whitney U tests for between-group comparisons of two DES groups. All unspecified p-values were set at .05 level (two-tailed).

3. Results

3.1. Descriptive Statistics of Nightmare Frequency

As detailed in Table 2, most participants (42.3%) fall into the nightmare frequency scale of 2 (less than once a year). The remaining showed a distribution as below: never (13.8 %), about once a year (16.1%), and about two to four times a year (20.6%), respectively (see Table 2). Only less than one percent of participants reported experiencing nightmares almost once a week (0.7%) or several times a week (0.2%).

In sum, over 40% of participants had one or more than one nightmare a year.

3.2. Nightmares in Two DES Groups

There was a low but significant correlation (Spearman's $\rho = .245$, $p < .001$) between DES and nightmare frequency. To examine whether the 13 themes were nightmares, instead of bad dreams, Spearman's correlation was used. All negative dream themes showed significant correlations ($p < .001$, except "being murdered," $p < .05$) with nightmare frequency (see Table 3).

The sample was divided into two groups: "low DES" group ($DES < 30$; $N = 440$) and "high DES" group ($DES \geq 30$; $N = 158$). The results yielded a significant between-group difference, $U = 26110$, $p < 0.001$, $z = -4.76$, which indicates that the high DES group tended to have more nightmares. The next step was to dig more deeply into specific nightmare themes. Table 3 details the between-group comparisons on the 13 nightmare themes between the high and low DES groups using a Mann-Whitney U test. Results showed that the high DES group had more nightmares than did the low DES group ($p < .001$, $U = 25192$ to 30791 , for all).

Table 2. Nightmare Frequency.

Scale Rating	Nightmare frequency	Frequency	%	Excluded
0	Never	84	13.8	1
1	Less than once a year	257	42.3	6
2	About once a year	98	16.1	2
3	About two to three times a year	125	20.6	1
4	About once a month	28	4.6	0
5	About two to three times a month	11	1.8	0
6	Almost once a week	4	0.7	0
7	Several times a week	1	0.2	0
Total:	/	608	100	10

Note. DES = Dissociative Experiences Scales

Table 3. Spearman Correlation between Nightmare Frequency or DES Scores and 13 Nightmares from TDQ, and Mann-Whitney U Test Scores of the Nightmare Themes between Low DES Group (n=440) and High DES Group (n=157).

Thirteen Nightmare Themes from TDQ	Nightmare Frequency (Spearman's rho)	DES Scores (Spearman's rho)	Mann-Whitney U Score
01. Being chased	.237**	.157**	29096 ⁺⁺
02. Being physically attacked	.353**	.177**	29107 ⁺⁺
04. Being frightened, unable to move	.342**	.217**	27897 ⁺⁺
08. Being locked-up	.128**	.235**	26764 ⁺⁺
15. Being tied, unable to move	.206**	.256**	25654 ⁺⁺
21. Flooding or tsunami	.158**	.194**	28525 ⁺⁺
22. Tornadoes or strong winds	.151**	.214**	28947 ⁺⁺
23. Earthquake	.173**	.146**	30791 ⁺⁺
27. Being murdered	.217**	.161**	30701 [#]
29. Vivid sensation without seeing or hearing a presence in the room	.176**	.242**	28168 ⁺⁺
38. Failed an examination	.209**	.220**	25192 ⁺⁺
39. Being suffocated, unable to breathe	.277**	.259**	25554 ⁺⁺
44. Being paralyzed on bed in half-waking state	.123**	.199**	30705 ⁺⁺

Note. TDQ = Typical Dream Questionnaire; DES = Dissociative Experiences Scales; Low DES group = DES below 30; High DES group = DES 30 or above.

** Indicates significant correlation at the $p < .001$ level (2-tailed).

Indicates significant at the $p < .05$ level (2-tailed; using Mann-Whitney U Test) in between-group comparisons.

⁺⁺ Indicates at the $p < .001$ level (2-tailed; using Mann-Whitney U Test) in between-group comparisons.

4. Discussion

4.1. Overview of the Research Findings

The descriptive data indicated that approximately 20% and accumulatively more than 40% of participants claimed that they experienced nightmare two to four times a year and at least one nightmare a year, respectively. The unexpectedly low nightmare frequency reveals a dramatic drop in comparison with Yu's study (2008a). He found that about one third (32.5%) fell into the category of having nightmares about two to four times a year. Beyond the factor of cultural difference, the author argued that the inconsistencies of nightmare frequency are owing to the nature of sample. The key point is that most studies in dissociative experiences and nightmares recruited participants from inpatient or clinical setting (Hartmann & Basile, 2003; Romans, Martin, Morris & Herbison, 1999). It is unreasonable to expect that the sample, which is without any types of mental disorder, would show similar prevalence in nightmare frequency in comparison with those with schizophrenia (Berquier & Ashton, 1992; Levin & Fireman, 2002), severe depression (Levin, 1998), or post-traumatic stress disorder (Ohayon et al., 1997). Besides, Yu (2008a) reported that almost all participants (96%) in his study experienced and acknowledged their emotions in their dreams. Regretfully, the present study did not assess "emotional awareness in dreams" and make use of it to explain low nightmare frequency.

Consistent with Agargun et al. (2003a; 2003b), the findings support the second and third hypotheses that DES score and nightmare frequency are positively and significantly correlated. Also it shows that the 13 negative themes can

be considered as nightmares and the significant differences were noticeable between the high and low DES groups, for all themes. However, the correlations among them are low. It strongly wore down the power of support to continuity hypothesis of dreaming.

To look into specific nightmare themes, part of them is shared culturally. Interestingly, negative themes (failed an examination, being frightened or unable to move, and vivid sensation without seeing or hearing a presence in the room) were also included in the list of the 15 most prevalent dream themes in Canadian, German, and Chinese studies (Yu, 2008b). Further, nightmares are highly correlated to fear or terrifying emotions, one of which is a tidal wave (Davidson et al., 2005; Hartmann & Basile, 2003; Hartmann & Kunzendorf, 2006); the present study not only supports previous research findings about tidal wave (flooding or Tsunami) and dissociation, but also shows the relationship between dissociation and other threatening dreams such as being locked-up, being physically attacked, or being suffocated. However, the correlations are significant but low as well. Li and colleagues (2010), as they got similarly results as the author did, also noticed that it is unavoidable, and again, due to the nature of ordinary sample.

4.2. Limitations, Implication and Further Studies

First, possible threats of different population may affect the interpretation of results. Participants were all candidates who had applied for a bachelor degree in psychology on the day of participant recruitment. Therefore, it might be difficult to generalize the current findings to other external populations because the study population can only explain the

behaviors of individuals with the specific characteristics of people who were interested in psychology. Even so, Schredl (2003) explained that, often participants in psychology research are applicants for or current freshmen in psychology programs. Ironically, this is a great advantage when comparing findings with other studies recruiting undergraduate students as participants.

Second, no strong relationships were found. Although the results showed that 13 nightmares were significantly and positively correlated with DES scores, the coefficient of each pair was low. Except the nature of sample as explained, another possible reason for the result is that nightmare, which is defined with waking criterion, is subjective (Schredl, 2003). For example, "failed an examination" is a nightmare for people who are hard-working, but not for those who have no expectation on academic achievements. Even so, the Mann-Whitney U test clearly demonstrated a significant between-group difference between low and high DES group on 13 nightmare themes. This finding suggests that such innovative exploration on the relationship between specific dream themes and dissociative experiences is imperfect, but rather inspirational and insightful.

Third, any confounding variables or mediators (e.g., emotion, personality trait, and state factor such as stress) might have influenced the findings of a non-clinical sample (Gilchrist, David, & Shakespeare-Finch, 2007; Nielsen & Levin, 2007; Schredl, 2003; 2006). Additionally, covariate variables may remain hidden, which could be detrimental to the results. Most likely, emotion and stress level should be considered possible threats that must be statistically controlled or as possible new factors for further exploration.

The author holds a very strong belief that, as Li et al. (2010) mentioned, people in ordinary population, to some extent, are being ignored in mental health related research studies. As a proverb goes, "Prevention is better than cure!". Although researchers have to take a risk that their findings would show a relatively low effect or significant levels in comparison with those from pathological population, it is of great importance to the development and standardization of pre-assessment for potential clients without record of mental disorder. The present study provided valuable hints for practitioners: understanding nightmares is a good way to understand and monitor one's mental condition. Therefore, practitioners should be aware of nightmares, in particular dream content about movement restriction, paranoia or being harmed, psychosomatic anxiety, and natural disasters. To learn from experience, further study should take a little step forward: to explore both positive and negative aspects of dream content and also take into account the uninvolved factors in present study, including emotional awareness, personality traits (e.g., dissociation, neuroticism, introversion... etc), and stress levels. Furthermore, the author would like to examine a more deliberate model of dissociation-nightmare relationship with these factors applying structural equation model (SEM) or multiple linear regression.

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